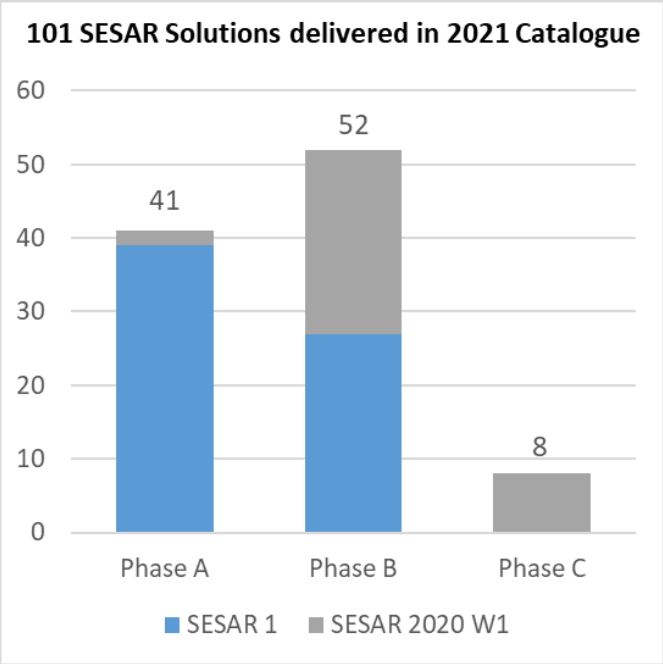
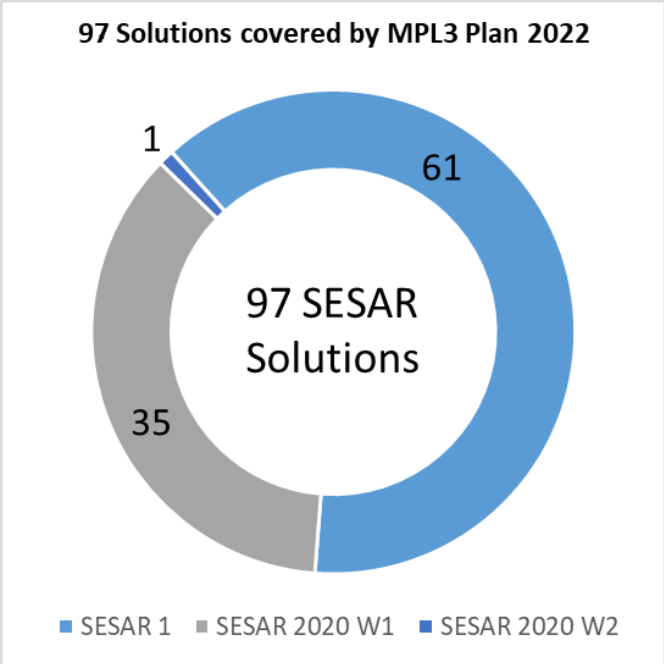
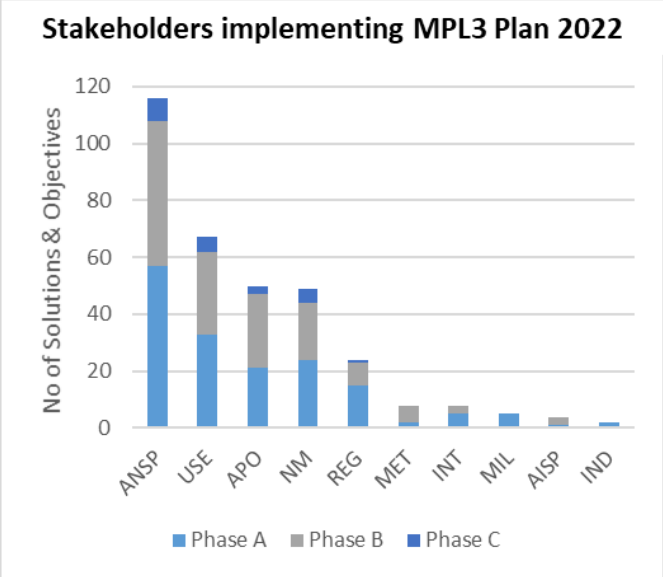
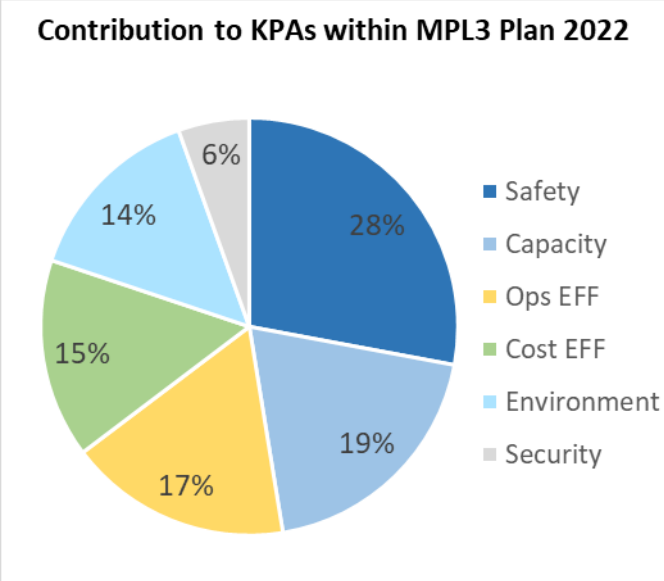
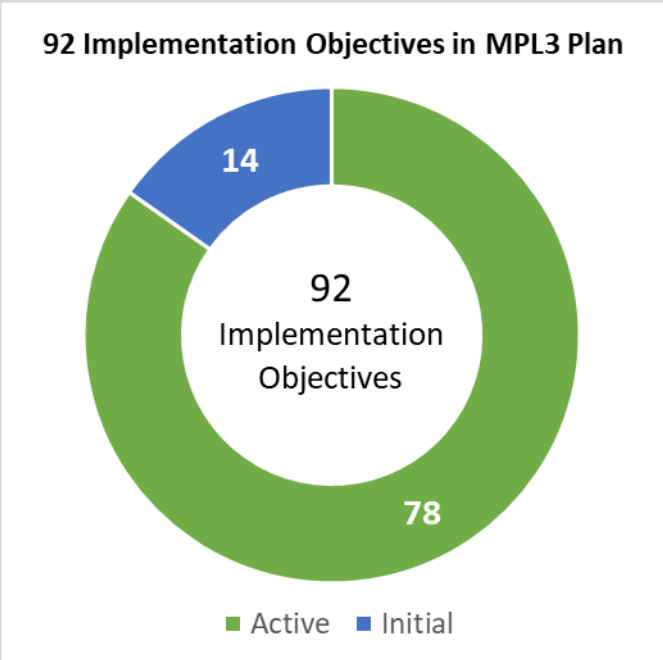

101 SESAR Solutions delivered in 2021 Catalogue
60
50
40
30
20
10
0
41
52
8
Phase A
Phase B
Phase C
SESAR 1
SESAR 2020 W1


97 Solutions covered by MPL3 Plan 2022
1
61
35
97 SESAR Solutions
SESAR 1
SESAR 2020 W1
SESAR 2020 W2


Stakeholders implementing MPL3 Plan 2022
No of Solutions & Objectives
120
100
80
60
40
20
0
ANSP
USE
APO
NM
REG
MET
INT
MIL
AISP
IND
Phase A
Phase B
Phase C


Contribution to KPAs within MPL3 Plan 2022
6%
14%
28%
15%
19%
17%
Safety
Capacity
Ops EFF
Cost EFF
Environment
Security


92 Implementation Objectives in MPL3 Plan
14
92 Implementation Objectives
78
Active
Initial

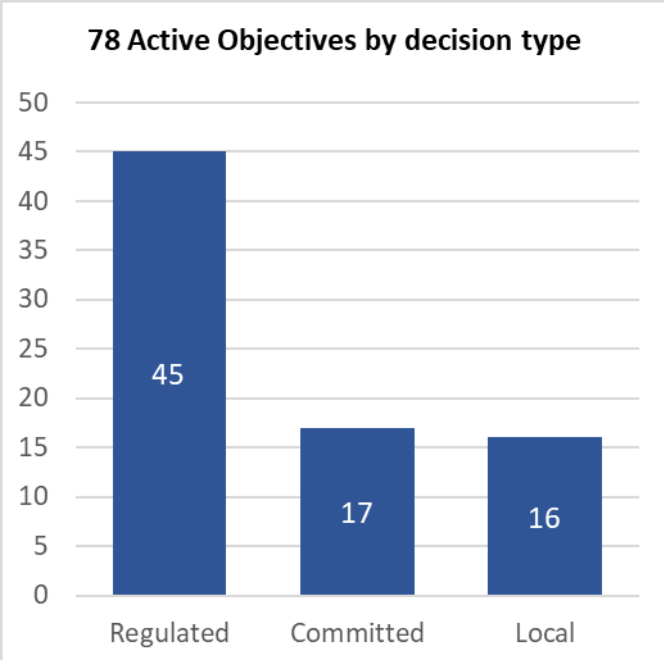

78 Active Objectives by decision type
50
45
40
35
30
25
20
15
10
5
0
45
17
16
Regulated
Committed
Local

TABLE OF CONTENTS

1 INTRODUCTION

1.1 TECHNICAL ANNEX – ENGINEERING VIEW

''Technical Annex'' - Engineering view, this document, is a separate soft copy document accompanying MPL3 Plan 2022 and is available online, on the European ATM Master Plan Portal and at EUROCONTROL website. It provides a complete description for each Implementation Objective, including detailed descriptions of Stakeholder Lines of Action (SLoAs) and relevant supporting material (standards, specifications, guidelines etc.).

EUROCONTROL Provisional Council endorses the new Implementation Objectives of this 2022 MPL3 edition.

1.2 OBJECTIVE AND SCOPE OF THE MASTER PLAN LEVEL 3 IMPLEMENTATION PLAN 2022

The ATM Master Plan Level 3, Implementation Plan, constitutes the "Implementation view" or Level 3 of the European ATM Master Plan (MP). The Implementation Plan brings together the framework for the commonly agreed actions that ECAC Stakeholders should take in the context of the implementation of SESAR. In this respect, it addresses:

- V3 validated SESAR Solutions,
- CP1 ATM Functionalities (AFs), based on Commission IR (EU) 2021/116 on Common Project One,
- SESAR Baseline elements, validated or under deployment at the beginning of the SESAR Deployment phase,
- SES and ICAO requirements.

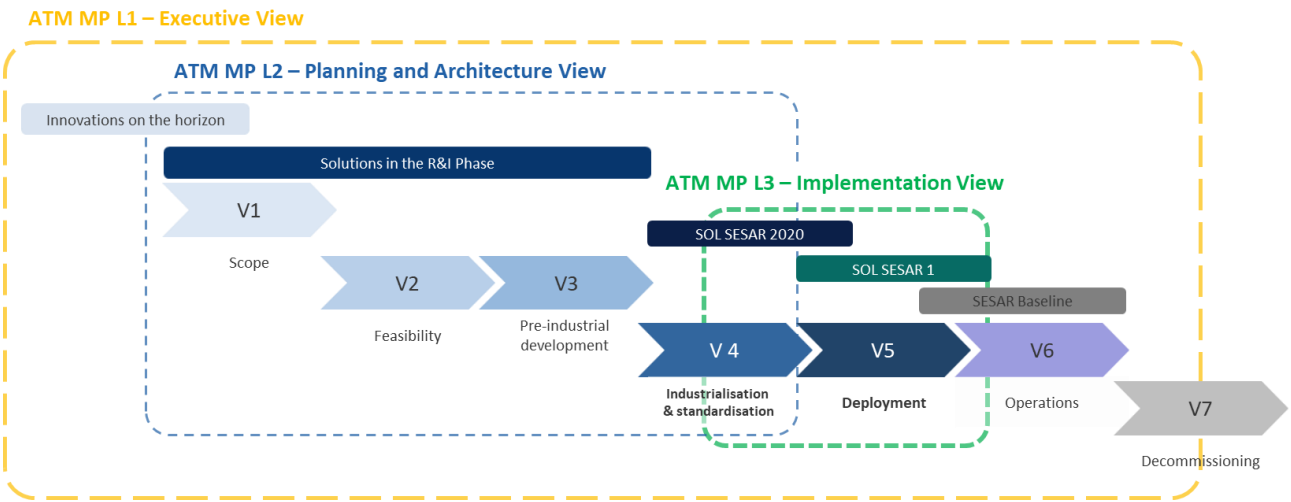


Figure 1-1 Focus of the Level 3 Implementation Plan 2022

This plan focuses primarily on the deployment Phase V5, hence the Solutions with the necessary operational and technical maturity and for which stakeholders have expressed a common agreement/interest in their operational implementation. In addition, it includes an outlook of some SESAR Solutions in the V4 Phase.

Updated yearly, the Plan covers a short to medium-term horizon of around 5 years ahead. It is based on the ATM MP L1 and L2, the SESAR Deployment Programme (SDP), the Network Strategy Plan (NSP), and the SES Interoperability Regulations. In turn, the MPL3 Implementation Plan feeds the LSSIP+ monitoring mechanism as well as the reporting process through the yearly elaboration of the MPL3 Progress Report.

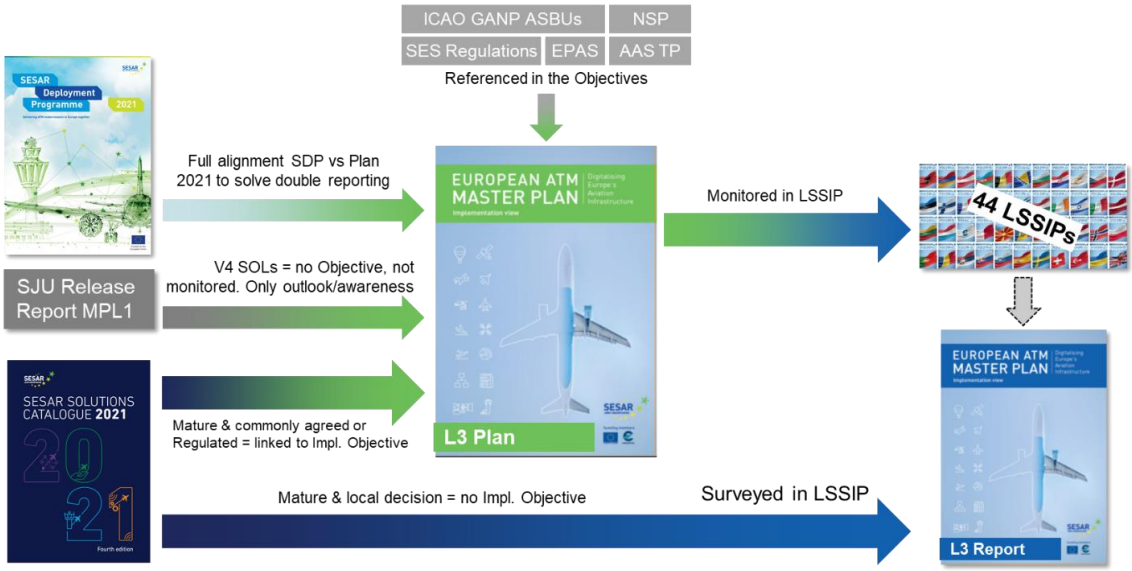


Figure 1-2 Mechanism supporting L3 Plan and implementation of Solutions

The ambition of the Master Plan remains to reach all States within the ECAC area. For this, the joint governance of SJU Admin Board (through the Master Planning Committee) and EUROCONTROL Provisional Council is very beneficial. EUROCONTROL provides the working arrangements that serve as vehicle to extend the agreed implementation actions to the whole of ECAC and the EUROCONTROL Comprehensive Agreement States (see Figure 1-3).

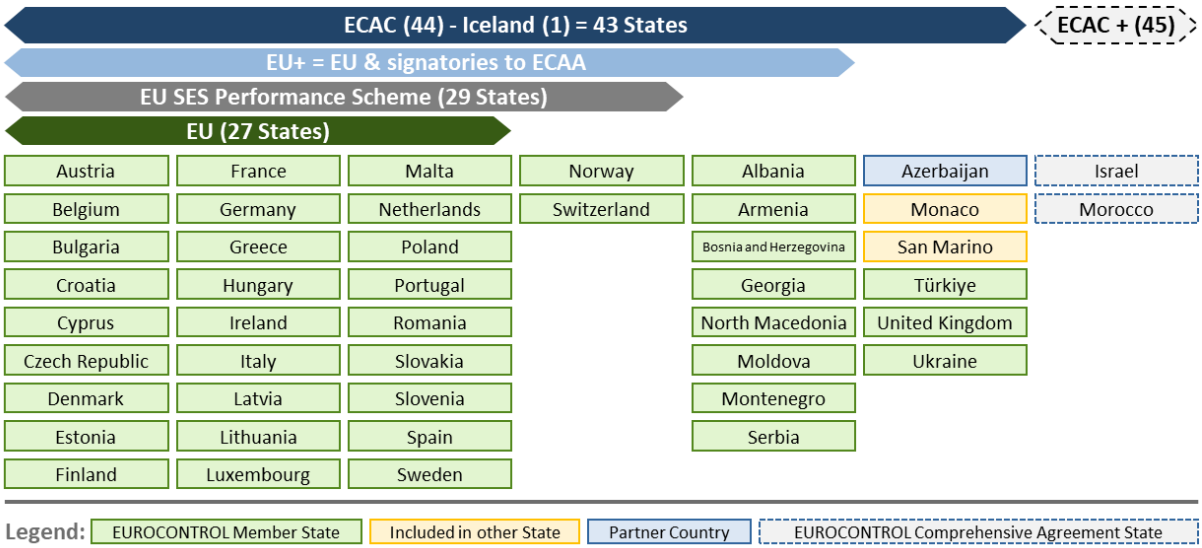


Figure 1-3 Scope of planning and monitoring mechanism supporting L3 Plan

EUROCONTROL also provides the method for implementation planning, monitoring and reporting which relies on Implementation Objectives and the annual LSSIP mechanism.

The Implementation Objectives represent consolidated implementation actions, addrfessing operationally and technically mature SESAR Solutions, for which stakeholders have expressed a common agreement/interest in their operational implementation.

Each Implementation Objective features an Applicability Area, listing the States / Airports either mandated to implement a technology by a given Regulation or committing to implement. For the latter, States / Stakeholders take advantage of the annual LSSIP+ process to modify their commitment to an Implementation Objective, e.g. by voluntarily joining the deployment of an Objective / Solution.

An Implementation Objective may also have a “Local” scope, i.e. without a predefined Applicability Area and Full Operational Capability (FOC) date. These Objectives are subject to local business decisions by any stakeholder concerned.

1.3 The Structure of the MPL3 Implementation Plan 2022

The Master Plan Level 3 Implementation Plan 2022 features the following sections:

Executive summary, highlighting the most important elements of this Plan

Introduction, setting the scene for a reader by stating scope and operational elements of MPL3 Plan. It also highlights the main news in this edition.

Operational view, providing a consolidated view across the Essential Operational Changes (EOCs) of the SESAR Solutions within the EOC, the impacted stakeholders, planned implementation date, performance benefits and an outlook of SESAR solutions in Industrialisation and Standardisation phase.

Deployment view, featuring a summary of the main elements (what, who, when, where and all references) included in the Plan. It provides a snapshot of the SESAR Solutions and related Implementation Objectives within the EOC, the associated Deployment Scenarios (DS), the main actions for Stakeholders, performance benefits, implementation timeframes, and the implementation progress from the previous edition of the MPL3 Progress Report.

Airspace Architecture Study – Transition Plan (AAS-TP), presenting a mapping of the elements supporting the milestones of the AAS-TP, with SESAR Solutions and Implementation Objectives in the Plan.

Annexes, complementing the contents of the Plan to allow for an easier reading and understanding of the document. In particular, the Annexes include a how to read section, a mapping of the links between the map and other elements external to the Level 3 itself (e.g. ICAO ASBUs, OIs, etc.), a focus on the applicable Airports per Implementation Objective, and the implementation roadmaps of the Level 3 Objectives.

Engineering View – Technical Annex, which is not integral part of this document, but an essential component of the MPL3 Plan. It is available online, on the European ATM Master Plan Portal and EUROCONTROL website. It provides a complete description of each Implementation Objective, including detailed descriptions of stakeholder lines of action (SLoAs) and relevant supporting material.

In its entirety, the document ensures:

- The full alignment with the 2020 edition of ATM Master Plan Level 1, through the use of EOCs,
- A SESAR Solution-centric approach, where Solutions guide the content of Implementation Objectives,
- A clear top-down content approach, from EOCs to Deployment Scenarios to Solutions to Objectives,
- The consistent use of performance elements, identifying planned contributors to the KPAs,
- The integration of V4 activities, including Solutions that successfully passed the maturity gate.

1.4 What is new in this edition

Update in the Implementation Objectives

The MPL3 Plan 2022 edition features the following changes in the Implementation Objectives:

- 11 new, of which 7 active and 4 initial,
- 2 removed, replaced with 2 new active and 1 new initial,
- 3 achieved.

Nine of the 11 new Objectives fully build on mature SESAR Solutions for which Stakeholders expressed their interest. Two of them summarise the work at European level to address safety concerns in the areas of airspace infringements and runway excursions.

It is also key to highlight that a targeted work within the working arrangements of SESAR2020 PJ20.4 led to the replacement of the existing Initial Implementation Objective NAV11 (Implementation of GBAS Cat II/III using GPS L1) with 2 new Objectives: NAV11.1 (Local) and NAV11.2 (Initial).

The following tables provides a complete list of all Implementation Objectives with the related changes applicable in this 2022 edition of the plan.

11 New Objectives (7 active and 4 initial)

Objective ID	Objective Title	Status	FOC Date	SESAR Solution	Change details for L3 Plan 2022
AOP14.2	Multiple Remote Tower Module	Initial	-	PJ.05-02	New Objective
AOP25	De-icing Management Tool	Active	n/a (Local)	#116	New Objective
AOP26	Reduced separation based on local Runway Occupancy Time characterisation	Active	n/a (Local)	PJ.02-08-03	New Objective
ATC26	Point Merge in complex TMA	Active	n/a (Local)	#107	New Objective
COM13	Air Traffic Services (ATS) datalink using SatCom Class B (AKA Iris precursor)	Active	n/a (Local)	#109	New Objective
INF11.1	Enhanced Ground Weather Management System (GWMS) as local 4DWxCube	Initial	-	PJ.18-04b-01	New Objective
INF11.2	Cb-global capability and service	Initial	-	PJ.18-04b-02	New Objective
NAV11.1	Precision approach procedures using GBAS CAT II based on GAST C	Active	n/a (Local)	#119	New Objective, replacing removed NAV11 (Initial)
NAV11.2	Precision approach procedures using GBAS CAT II/III based on GPS L1 and/or GALILEO E1	Initial	-	#55	New Objective, replacing removed NAV11 (Initial)
SAF10.1	Implement measures to reduce the risk to aircraft operations caused by airspace infringements	Active	n/a (Local)	-	New Objective
SAF11.1	Improve RWY safety by preventing RWY excursions	Active	n/a (Local)	-	New Objective

2 Removed Objectives

Objective ID	Objective Title	Status	FOC Date	SESAR Solution	Change details for L3 Plan 2022
NAV11	Precision approach procedures using GBAS CAT II/III based on GPS L1	Initial	-	#55	Replaced by NAV11.1 and NAV11.2
SAF11	Improve RWY safety by preventing RWY excursions	Active	31-01-2018	-	Replaced by SAF11.1

3 Achieved Objectives

Objective ID	Objective Title	Status	FOC Date	SESAR Solution	Change details for L3 Plan 2022
COM10.1	Migrate from AFTN to AMHS (Basic service)	Achieved	31-12-2018	-	Based on progress at end of 2021.
FCM09	Enhanced ATFM Slot Swapping	Achieved	31-12-2021	#56	Based on progress at end of 2021.
INF10.22	Flight Information Exchange (Yellow profile) – Trial Service	Achieved	31-12-2025	#46	Based on progress at end of 2021.

Common Project 1 – Commission IR (EU) 2021/116

On the 21st of February 2021, the European Commission issued the Common Project 1 (CP1), Commission Implementing Regulation (EU) 2021/116, amending Commission Implementing Regulation (EU) 409/2013 on the SESAR deployment framework and repealing the Pilot Common Project (PCP), Commission Implementing Regulation (EU) 716/2014.

As for the 2021 edition of the MPL3 Implementation Plan, this year's edition ensures the full alignment to the content of the SESAR Deployment Programme (SDP) 2021 and its supporting material. In this respect, the CP1-related Implementation Objectives mirror the SDP Families, avoiding any double or inconsistent reporting by stakeholders.

2 ENGINEERING VIEWS

SESAR		Active							ECAC+	
AOM13.1		Harmonise Operational Air Traffic (OAT) and General Air Traffic (GAT) Handling								
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

Ensure that the principles, rules and procedures for OAT and GAT handling can be commonly applied to the maximum possible extent within ECAC airspace.

The needs of military aviation and ATM support are often beyond the scope of civil aviation and therefore not sufficiently covered by ICAO provisions for General Air Traffic (GAT). This requires the military to use Operational Air Traffic (OAT) as the means to provide the regulatory provisions and ATM arrangements necessary for successful military training and mission accomplishment. However, each State has developed different OAT rules, which need to be harmonised in line with the Functional Airspace Blocks (FAB) principles in order to further enhance civil-military coordination and in particular to progress and implement the interoperability of GAT and OAT structures and operations.

Harmonisation of OAT/GAT handling covers the following main actions:

- Identifying the various types of military operations which cannot be accommodated applying GAT rules and require additional rules and procedures (OAT);

- Defining EUROAT rules and procedures for handling military operations in European Civil Aviation Conference (ECAC) airspace whilst developing common civil military principles for the safe handling of civil and military traffic in one continuum of airspace.

- Harmonisation of military aeronautical information in Europe through European Aeronautical Service (EAD).

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area	All ECAC States except: Albania, Latvia, Luxembourg, Malta, Moldova, Montenegro, Serbia. Plus: Israel		
Timescales:	**From:**	**By:**	**Applicable to:**
Initial operational capability	01/01/2012		Applicability Area
Full operational capability		31/12/2018	Applicability Area

References

European ATM Master Plan

OI step -	[AOM-0301]-Harmonised EUROCONTROL ECAC Area Rules for OAT-IFR and GAT Interface								
	Enablers -	PRO-181							
OI step -	[AOM-0303]-Pan-European OAT Transit Service								
	Enablers -	A/C-72	AAMS-10a	AIMS-06	AIMS-19b	AOC-ATM-14	ER APP ATC 143	MIL-STD-03	MIL-STD-04
		NIMS-35	PRO-014	PRO-015					
OI step -	- No OI Link -								
	Enablers -	AAMS-10a	AIMS-19b						

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

- Regulation (EU) 2015/340 laying down detailed rules for air traffic controllers- licences and certain certificates pursuant to Regulation (EC) No 216/2008 - Regulation (EC) No 2150/2005 laying down common rules for the flexible use of airspace

Essential Operational Changes

AOM13.1	Harmonise Operational Air Traffic (OAT) and General Air Traffic (GAT) Handling

ATM Interconnected Network

SESAR Solution

- none -

ICAO GANP - ASBUs

- none -	

Deployment Programme

- none -	

European Plan for Aviation Safety

- none -	

Operating Environments

En-Route

Network

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
AOM13.1-REG01	Revise national legislation as required	01/01/2012	31/12/2018
AOM13.1-ASP01	Apply common principles, rules and procedures for OAT handling and OAT/GAT interface	01/01/2012	31/12/2018
AOM13.1-ASP02	Train staff as necessary	01/01/2012	31/12/2018
AOM13.1-MIL01	Apply common principles, rules and procedures for OAT handling and OAT/GAT interface	01/01/2012	31/12/2018
AOM13.1-MIL02	Provide feedback on result of conformance analysis between national rules to EUROAT	01/01/2011	31/12/2012
AOM13.1-MIL03	Implement a harmonized OAT Flight Plan	**DELETED**	
AOM13.1-MIL04	Migrate military aeronautical information to EAD	01/01/2010	31/12/2015
AOM13.1-MIL05	Implementing a pan-European OAT-IFR Transit Service (OATTS)	**DELETED**	

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Less risk of error through the use of common rules and procedures for OAT handling and for OAT/GAT interface.
Capacity:	-
Operational Efficiency:	Increased efficiency of civil-military operations through the use of harmonised procedures at pan-European level.
Cost Efficiency:	-
Environment:	-
Security:	Increased through robust pan-European OAT provisions and structures to effectively support national and multinational military operations.

Detailed SLoA Descriptions

AOM13.1-REG01	**Revise national legislation as required**	From: 01/01/2012	By: 31/12/2018
Action by:	**State Authorities**		
Description & purpose:	Enact regulatory material for implementation of new principles, rules and procedures for OAT/GAT handling in a mixed environment. Perform conformance analysis between existing rules and the EUROCONTROL Specification for harmonized Rules for Operational Air Traffic (OAT) under Instrument Flight Rules (IFR) inside controlled Airspace of the ECAC Area (EUROAT). Based on these findings, determine change of regulatory material, if required. Develop Annex with national regulations and rules pertinent to this specification. Upon official reception of the Specification, the States are asked to examine their implementation options and come to a respective decision latest within one year. Following the respective national implementation decision, inform EUROCONTROL about the official national implementation date and provide the additional required information as detailed in Annex 1 of the EUROAT Specification.		

AOM13.1	Harmonise Operational Air Traffic (OAT) and General Air Traffic (GAT) Handling

Supporting material(s):	EUROCONTROL - EUROCONTROL Publication for harmonized Rules for Operational Air Traffic (OAT) under Instrument Flight Rules (IFR) inside controlled Airspace of the ECAC Area (EUROAT) - Edition 3.0 - Change 9 / 03/2021 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-harmonized-rules-oat-under-ifr-inside-controlled-airspace		
Finalisation criteria:	1 - National publications have been updated in accordance with EUROAT. 2 - Clear identification of pertinent and acknowledged documents stating the implementation of such OAT/GAT interfaces on a regulatory level has been provided. 3 - Additionally the evidence of adequate procedures comprising their operational realisation has been provided.		
AOM13.1-ASP01	**Apply common principles, rules and procedures for OAT handling and OAT/GAT interface**	From: 01/01/2012	By: 31/12/2018
Action by:	**ANS Providers**		
Description & purpose:	Apply common principles, rules and procedures for the OAT/GAT interface. Define and develop additional or revised procedures to match local and regional organisation ensuring that they do not conflict with those of adjacent States/Functional Airspace Blocks (FAB).		
Supporting material(s):	EUROCONTROL - EUROCONTROL Publication for harmonized Rules for Operational Air Traffic (OAT) under Instrument Flight Rules (IFR) inside controlled Airspace of the ECAC Area (EUROAT) - Edition 3.0 - Change 9 / 03/2021 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-harmonized-rules-oat-under-ifr-inside-controlled-airspace		
ATM Master Plan relationship:	[AAMS-10a]-Initial airspace management system enhanced with commonly applied GAT/OAT handling [PRO-181]-Procedures related to Rule on OAT handling and OAT-IFR GAT interface		
Finalisation criteria:	1 - Clear identification of pertinent and acknowledged documents stating the implementation of such OAT/GAT interfaces on a regulatory level has been provided.		
AOM13.1-ASP02	**Train staff as necessary**	From: 01/01/2012	By: 31/12/2018
Action by:	**ANS Providers**		
Description & purpose:	Establish the mechanism to ensure pertinent training for competent personnel during all training phases in order to train Air Traffic Services (ATS) personnel in provision of ATS to OAT-IFR flights. Train ATS staff in new procedures that comprise OAT elements.		
Supporting material(s):	EUROCONTROL - SPEC-157 - EUROCONTROL Specification for ATCO Common Core Content Initial Training - Edition 2.0 / 04/2015 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-atco-common-core-content-initial-training EUROCONTROL - Air Traffic Controller Training at Operational Units - Edition 2.0 / 06/1999 Url : https://trainingzone.eurocontrol.int		
Finalisation criteria:	1 - The mechanism to train competent ATS personnel during all training phases in provision of ATS to OAT-IFR flights has been established. 2 - ATS personnel have been qualified to provide ATS to OAT-IFR flights in accordance with national regulations and has demonstrated equivalence to:- ESARR 5 for non EU member states, or- Commission Regulation (EU) No 805/2011 for EU member states.		
AOM13.1-MIL01	**Apply common principles, rules and procedures for OAT handling and OAT/GAT interface**	From: 01/01/2012	By: 31/12/2018
Action by:	**Military Authorities**		
Description & purpose:	Apply common principles, rules and procedures for OAT handling. Define and develop additional or revised procedures to match local and regional organisation, ensuring that they do not conflict with those of adjacent States/FAB.		
Supporting material(s):	EUROCONTROL - EUROCONTROL Publication for harmonized Rules for Operational Air Traffic (OAT) under Instrument Flight Rules (IFR) inside controlled Airspace of the ECAC Area (EUROAT) - Edition 3.0 - Change 9 / 03/2021 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-harmonized-rules-oat-under-ifr-inside-controlled-airspace		
ATM Master Plan relationship:	[AAMS-10a]-Initial airspace management system enhanced with commonly applied GAT/OAT handling [PRO-181]-Procedures related to Rule on OAT handling and OAT-IFR GAT interface		
Finalisation criteria:	1 - Clear identification of pertinent and acknowledged documents stating the implementation of such OAT/GAT interfaces on a regulatory level has been provided. 2 - Additionally the evidence of adequate procedures comprising their operational realisation has been provided.		
AOM13.1-MIL02	**Provide feedback on result of conformance analysis between national rules to EUROAT**	From: 01/01/2011	By: 31/12/2012
Action by:	**Military Authorities**		
Description & purpose:	Provide national Point Of Contact (POC) and distribution list for the dissemination of EUROAT specification. Enhance understanding of the change to EUROAT and its impact to OAT flights in new Single European Sky (SES) environment.		

AOM13.1	Harmonise Operational Air Traffic (OAT) and General Air Traffic (GAT) Handling

Supporting material(s):	EUROCONTROL - EUROCONTROL Publication for harmonized Rules for Operational Air Traffic (OAT) under Instrument Flight Rules (IFR) inside controlled Airspace of the ECAC Area (EUROAT) - Edition 3.0 - Change 9 / 03/2021 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-harmonized-rules-oat-under-ifr-inside-controlled-airspace		
Finalisation criteria:	1 - Civil-Military ATM Coordination Unit (DSS/CMAC) has received national POC and distribution list from the national military authorities.		
AOM13.1-MIL04	**Migrate military aeronautical information to EAD**	From: 01/01/2010	By: 31/12/2015
Action by:	**Military Authorities**		
Description & purpose:	Identify Military needs in terms of validated aeronautical data not covered in ICAO AIP. Assess applicability of civil standards (e.g. AIXM) for military aeronautical data. Migrate military aeronautical information to EAD. The implementation to be based on and supported with the following actions by DNM/Network Operations Management: - Organise an EAD awareness campaign for the military stakeholders; - Get commitment of military organisations to migrate to EAD; - Develop customised migration plans for individual military organisations following its commitment to migrate to EAD; - Support & monitor the migration of military organisations to EAD.		
Supporting material(s):	EUROCONTROL - EAD Safety Case - Edition 2.3 / 09/2009 Url : https://www.eurocontrol.int/sites/default/files/2019-05/20090901-adq-ead-safety-case-v2.3.pdf		
ATM Master Plan relationship:	[AIMS-19b]-Aeronautical Information system is interfaced to receive and distribute aeronautical information electronically to military systems.		
Finalisation criteria:	1 - All Military Authorities responsible for AIS Data have signed a Data Provider Agreement with EUROCONTROL. 2 - All Military Authorities responsible for AIS Data have implemented EAD and maintain the three sets of AIP Data (SDO, INO and PAMS).		

CP1		Active								ECAC+
AOM19.4		**Management of Predefined Airspace Configurations**								
REG	**ASP**	**MIL**	**APO**	**USE**	**INT**	**IND**	**NM**	**MET**	**AIS**	**USP**

Subject matter and scope

Predefined Airspace Configuration is a predefined and coordinated organisation of routes and their associated airspace structures, temporary airspace reservations and predefined ATC sectorisation, to meet civil/military airspace users' needs and increase performance in terms of capacity and/or flight efficiency, applicable both in free route (FRA) and in fixed-route network environments.

Predefined Airspace configurations are activated for a specific geographic area and/or time period at pre-tactical level through a CDM process involving the AMCs, NM, ATFCM, ATC and airspace users. The notification of predefined Airspace Configurations will be based on automatic flows of information between the different stakeholders provided by the Network Manager. The optimal organisation of airspace structures, such as the allocation of temporary airspace reservations, is achieved through the ASM solutions process that aims at delivering options that can fulfil military needs while improving flight efficiency and alleviating capacity problems identified in any specific area within the European airspace.

This collaborative process is based on the partnership between ANSPs, NM, AOs and the military collaborating to make the best decision to satisfy civil and military requirements and improve performance achievements. One of the ASM options is the utilisation of airspace scenarios composed by different predefined airspace configurations.

The Predefined Airspace Scenarios provide a coordinated set of temporary airspace reservations identifying a possible ASM Solution supporting the ASM/ATFCM CDM process. It is managed as a stand-alone scenario or supporting an associated Airspace Configuration.
The identification and the development of predefined airspace configurations and scenarios is executed by relevant actors, at strategic level: the High Level Airspace Policy Body (HLAPB or its equivalent; at national and sub-regional level), with participation of the civil and military airspace users as appropriate, supported by the Network Manager.

The system requirements enabling the implementation of this objective are as follows:

• The Network Manager, as well as local ATM system, shall facilitate an automatic flow of information between the different stakeholders for the identification of optimal predefined Airspace Configurations;
• NM systems shall facilitate the management of predefined airspace scenarios among ATM partners and the notification to AUs/CFSPs of the temporary airspace reservations;
• The Network impact assessment shall be carried out by NM systems before the application of predefined airspace configurations and scenarios;
• The NM systems shall support the predefined airspace configurations in any fixed route or FRA environment;
• ASM/ATFCM systems and ATC systems shall support the full sharing of the airspace configuration inputs and outputs in any fixed route or FRA environment;
• In alternative to local ASM/ATFCM systems and ATC systems, stakeholders may use NM systems and applications (CHMI, CIAM) to support sharing of predefined airspace configuration.
• The ATC system shall support the dynamic configuration of sectors in order to optimize their dimensions and operating hours in accordance with the traffic demands of the NOP.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (All EU SES States)	All EU SES States
Applicability Area 2 (All ECAC+ States except AM, AZ, GE, IL, LU, LV, MA MT, MD, MK and SE)	Albania, Bosnia and Herzegovina, Turkey, Ukraine, United Kingdom

Timescales:	**From:**	**By:**	**Applicable to:**
Initial operational capability	01/01/2018		Applicability Area 1 + Applicability Area 2
Full Operational Capability / Target Date		31/12/2022	Applicability Area 1 + Applicability Area 2

References

European ATM Master Plan

OI step -	[AOM-0202-A]-Automated Support for strategic, pre-tactical and tactical Civil-Military Coordination in Airspace Management (ASM).								
	Enablers -	AAMS-06b AOM19.5	AAMS-09a AOM19.5	AAMS-11 AOM19.5	AIMS-06	ER APP ATC 77	MIL-0502	NIMS-42 AOM19.5	PRO-011 AOM19.5

		PRO-024 AOM19.5	SWIM-APS-02a	SWIM-APS-03a	SWIM-INFR-05a	SWIM-NET-01a			
OI step -	[AOM-0206-A]-Flexible and modular ARES in accordance with the VPA design principle								
	Enablers -	AAMS-06b AOM19.5	AAMS-06c AOM19.5	AAMS-09a AOM19.5	AOC-ATM-15	ER APP ATC 77	SWIM-APS-03a	SWIM-APS-04a	SWIM-INFR-05a
		SWIM-NET-01a							
OI step -	[CM-0102-A]-Dynamic Sectorisation based on complexity								
	Enablers -	CTE-C05a COM11.1, COM11.2	CTE-C05b COM11.1, COM11.2	ER APP ATC 15	ER APP ATC 93 FCM06.1				

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

- COMMISSION IMPLEMENTING REGULATION (EU) 2021/116 of 1 February 2021 on the establishment of the Common Project One supporting the implementation of the European Air Traffic Management Master Plan provided for in Regulation (EC) No 550/2004 of the European Parliament and of the Council, amending Commission Implementing Regulation (EU) No 409/2013 and repealing Commission Implementing Regulation (EU) No 716/2014

Essential Operational Changes

Fully Dynamic and Optimised Airspace

SESAR Solution

#31 - Variable profile military reserved areas and enhanced (further automated) civil-military collaboration, #66 - Automated Support for Dynamic Sectorisation

ICAO GANP - ASBUs

FRTO-B1/4	Dynamic sectorization
NOPS-B1/6	Initial Dynamic Airspace configurations

Deployment Programme

3.1.2	Management of Predefined Airspace Configurations

European Plan for Aviation Safety

- none -	

Operating Environments

En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
AOM19.4-ASP01	Define and Implement procedures in support of an improved ASM solution process	01/01/2018	31/12/2022
AOM19.4-ASP02	Adapt ATC/ASM systems to support the management of predefined airspace configurations and scenarios	01/01/2018	31/12/2022
AOM19.4-ASP03	Use NM systems and applications	01/01/2018	31/12/2022
AOM19.4-ASP04	Safety Assessment	01/01/2018	31/12/2022
AOM19.4-ASP05	Training	01/01/2018	31/12/2022
AOM19.4-ASP06	Operational use	01/01/2018	31/12/2022
AOM19.4-NM01	Define and Implement procedures in support of an improved management of predefined airspace configurations and scenarios	01/01/2018	31/12/2022
AOM19.4-NM02	Adapt NM systems to support the management of predefined airspace configurations and scenarios	01/01/2018	31/12/2022

AOM19.4	Management of Predefined Airspace Configurations

AOM19.4-NM03	Safety Asssment	01/01/2018	31/12/2022
AOM19.4-NM04	Training	01/01/2018	31/12/2022
AOM19.4-NM05	Operational use	01/01/2018	31/12/2022

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Improved safety due to increased situational awareness of supervisors.
Capacity:	Increased capacity due to better use of available resources, both human and airspace.
Operational Efficiency:	Reduced saturation periods and flight delays. Improved operational efficiency.
Cost Efficiency:	Increased cost efficiency.
Environment:	Reduced fuel burn and emissions.
Security:	-

Detailed SLoA Descriptions

AOM19.4-ASP01	**Define and Implement procedures in support of an improved ASM solution process**	From: 01/01/2018	By: 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	Define and implement procedures supporting ASM solutions process for the management of predefined Airspace configurations and scenarios, through a CDM process in coordination with NM and concerned stakeholders.		
	Note :This SLoA needs to be synchronised between civil and military ANSPs, AUs and NM.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The predefined airspace configuration and scenario concepts and related modus operandi are defined and approved by the national and sub-regional (FAB) High Level Airspace Policy Bodies (HLAPB or its equivalent)		
AOM19.4-ASP02	**Adapt ATC/ASM systems to support the management of predefined airspace configurations and scenarios**	From: 01/01/2018	By: 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	Adapt ATC/ASM systems including: • system changes for predefined airspace configurations; • sharing of predefined airspace configuration inputs and outputs, including: • ATC sector configurations; • Predefined airspace scenarios, when relevant, or selected temporary airspace structures		
	Note :This SLoA needs to be synchronised between civil and military ANSPs. AOM19.4-ASP02 and AOM19.4-ASP03 can be implemented in parallel.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[ER APP ATC 15]-Flight Data Processing: support Dynamic Sectorisation and Dynamic Constraint Management. [ER APP ATC 77]-ATC Systems enhanced to exchange real-time (tactical) airspace status data with ASM support system		
Finalisation criteria:	1 - ATC/ASM systems have been adapted		
AOM19.4-ASP03	**Use NM systems and applications**	From: 01/01/2018	By: 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	Use NM systems and applications (CHMI, CIAM) for the provision of airspace configuration and scenarios inputs (ATC sector configurations and ASM scenarios).		
	Note :This SLoA needs to be synchronised between civil and military ANSPs and NM. AOM19.4-ASP02 and AOM19.4-ASP03 can be implemented in parallel.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - NM systems and applications are being used		
AOM19.4-ASP04	**Safety Assessment**	From: 01/01/2018	By: 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	The safety assessment of the changes must be developed and delivered to the competent authority.		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.		
AOM19.4-ASP05	**Training**	From: 01/01/2018	By: 31/12/2022
Action by:	**ANS Providers**		

AOM19.4	Management of Predefined Airspace Configurations

Description & purpose:	All relevant staff must be duly trained.		
Finalisation criteria:	1 - Training has been completed.		
AOM19.4-ASP06	**Operational use**	From: 01/01/2018	By: 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	Management of Predefined Airspace Configurations is in operational use once the systems have been implemented, the procedures are in place, the safety assessment has been delivered and approved, and the training has been completed.		
Finalisation criteria:	1 - Management of Predefined Airspace Configurations is put into service		
AOM19.4-NM01	**Define and Implement procedures in support of an improved management of predefined airspace configurations and scenarios**	From: 01/01/2018	By: 31/12/2022
Action by:	**NM**		
Description & purpose:	Once AOM19.4-ASP01 and AOM19.4-ASP02 have been completed, define and implement procedures supporting ASM solutions process for the management of predefined Airspace configurations and scenarios (e.g. by updating the ASM Handbook).		
	Note :This SLoA needs to be synchronised between civil and military ANSPs, AUs and NM.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Procedures have been defined and promulgated		
AOM19.4-NM02	**Adapt NM systems to support the management of predefined airspace configurations and scenarios**	From: 01/01/2018	By: 31/12/2022
Action by:	**NM**		
Description & purpose:	Adapt NM systems including: • system changes and technical solutions needed for predefined airspace configurations and scenarios; • sharing of predefined airspace configuration and scenarios inputs and outputs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - NM systems have been adapted.		
AOM19.4-NM03	**Safety Asssment**	From: 01/01/2018	By: 31/12/2022
Action by:	**NM**		
Description & purpose:	The safety assessment of the changes must be developed and delivered to the competent authority.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.		
AOM19.4-NM04	**Training**	From: 01/01/2018	By: 31/12/2022
Action by:	**NM**		
Description & purpose:	All relevant staff must be duly trained.		
Finalisation criteria:	1 - Training has been completed.		
AOM19.4-NM05	**Operational use**	From: 01/01/2018	By: 31/12/2022
Action by:	**NM**		
Description & purpose:	Management of Predefined Airspace Configurations is in operational use once the systems have been implemented, the procedures are in place, the safety assessment has been delivered and approved, and the training has been completed.		
Finalisation criteria:	1 - Management of Predefined Airspace Configurations is put into service.		

Subject matter and scope

Airspace Management (ASM) and Advanced Flexible Use of Airspace (A-FUA) aim to provide most efficient airspace organisation and management in response to civil and military airspace users' requirements after completion of an enhanced CDM process among all concerned partners. ASM with A-FUA provides a solution for dynamically managing airspace users' demands in various operating environments regardless of national boundaries.

ASM procedures and processes shall facilitate a dynamic management of airspace structures, such as variable profile area ('VPA'), temporary restricted/reserved area ('TRA') and temporary segregated area ('TSA').
The ASM process must promote cross border operations, e.g. establishment of Cross-border areas, to improve the efficiency in airspace utilisation (more flexible solutions available), satisfying civil and military requirements. The ASM system shall support cross-border activities resulting in shared use of volume of airspace regardless of national boundaries.

The process starts at strategic level (ASM level 1) with the involvement of relevant civil and military ATM partners to ensure the optimal airspace organisation and efficient rules, including priority rules, for the management of airspace structures during pre-tactical (ASM level 2) and tactical (ASM level 3) phases.
Along all phases, local and NM systems will use and exchange coherent and updated aeronautical/airspace data, made available to airspace users. This enables planning to be undertaken on the basis of accurate information relevant to the time of the planned operations.

A rolling process in the pre-tactical and tactical phase will support the continuous exchange of ASM data among all concerned ATM partners. A CDM process between all involved operational stakeholders will enhance the daily Network Operations Plan (NOP) by identifying the most suitable solutions for the allocation of airspace structures to satisfy both civil and military requirements aiming at improving the performance of the European route network.

In the pre-tactical phase, an enhanced notification process to AOs/CFSPs will ensure common awareness of the airspace availability and provide the opportunities for more efficient flight trajectories, contributing to environment performance achievements.

In the tactical phase, ASM information, such as pre-notification of activation, notification of activation, de-activation, modification and release of airspace structures, is shared between ASM systems and affected civil and military ATS units/systems in order to enhance ATCOs' situational awareness regarding the actual status of airspace reservations and thus, to ensure safety.

The ASM support systems (LARA or equivalent) shall:

• support cross-border activities resulting in shared use of volume of airspace regardless of national boundaries;
• be interoperable with neighbouring ASM systems, whenever required, to support cross-border operations;
• support the continuous exchange of ASM information with NM system for the rolling AUP and UUP;
• support the new AUP template content and format containing additional information such as NPZ and FUA group restrictions;
• ensure the utilisation of airspace data aligned with the centralised airspace data provided by NM system;
• exchange airspace status data with ATC system;
• support exchange of airspace data according to SWIM requirements as described in SDP Family 5.3.1, where SWIM is available.

In alternative to deploying ASM support systems, States may decide to fully rely on NM applications and system capabilities such as CIAM and its further developments and migration to NES. .

The Network Manager system shall:

• reflect the changes in the status of airspace structures such as VPA, TSA, TRA as well as routes in order to notify updated information to ANSP systems, AUs/CFSPs in a timely manner;
• provide EAUP/EUUP information;
• provide a centralised airspace data information supporting the ASM process.

AU systems shall be interoperable with NM system to retrieve up-to-date airspace status information, to file and modify flight plans based on timely and accurate information.

ATC systems shall correctly depict the activation and de-activation of configurable airspace reservations.

Aeronautical/airspace data shall be used and exchanged in a coherent way between local and NM systems.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the

review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (All EU SES States)	All EU SES States
Applicability Area 2	Albania, Bosnia and Herzegovina, Israel, Moldova, Morocco, Ukraine, United Kingdom

Timescales:	**From:**	**By:**	**Applicable to:**
Initial Operational Capability	01/01/2014		Applicability Area 1 + Applicability Area 2
Full Operational Capability / Target Date		31/12/2022	Applicability Area 1 + Applicability Area 2

References

European ATM Master Plan

OI step -	[AOM-0202]-Enhanced Real-time Civil-Military Coordination of Airspace Utilisation								
	Enablers -	AAMS-06a	AAMS-08	AAMS-09	AAMS-10a AOM13.1	AAMS-15	AIMS-06	AIMS-21	AIMS-22
		PRO-184							
OI step -	[AOM-0202-A]-Automated Support for strategic, pre-tactical and tactical Civil-Military Coordination in Airspace Management (ASM).								
	Enablers -	AAMS-06b	AAMS-09a	AAMS-11	AIMS-06	ER APP ATC 77	MIL-0502	NIMS-42	PRO-011
		PRO-024	SWIM-APS-02a	SWIM-APS-03a	SWIM-INFR-05a	SWIM-NET-01a			
OI step -	[AOM-0206-A]-Flexible and modular ARES in accordance with the VPA design principle								
	Enablers -	AAMS-06b	AAMS-06c	AAMS-09a	AOC-ATM-15	ER APP ATC 77	SWIM-APS-03a	SWIM-APS-04a	SWIM-INFR-05a
		SWIM-NET-01a							

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

- COMMISSION IMPLEMENTING REGULATION (EU) 2021/116 of 1 February 2021 on the establishment of the Common Project One supporting the implementation of the European Air Traffic Management Master Plan provided for in Regulation (EC) No 550/2004 of the European Parliament and of the Council, amending Commission Implementing Regulation (EU) No 409/2013 and repealing Commission Implementing Regulation (EU) No 716/2014

Essential Operational Changes

Fully Dynamic and Optimised Airspace

SESAR Solution

#31 - Variable profile military reserved areas and enhanced (further automated) civil-military collaboration, #66 - Automated Support for Dynamic Sectorisation

ICAO GANP - ASBUs

FRTO-B0/2	Airspace planning and Flexible Use of Airspace (FUA)
FRTO-B1/3	Advanced Flexible Use of Airspace (FUA) and management of real time airspace data
NOPS-B0/1	Initial integration of collaborative airspace management with air traffic flow management
NOPS-B1/5	Full integration of airspace management with air traffic flow management

Deployment Programme

3.1.1	ASM and A-FUA

European Plan for Aviation Safety

- none -	

Operating Environments

En-Route Network Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
AOM19.5-ASP01	Deploy automated ASM support systems (LARA or equivalent)	01/01/2014	31/12/2022
AOM19.5-ASP02	Adopt the NM system (CIAM) for ASM capabilities	01/01/2014	31/12/2022
AOM19.5-ASP03	Implement procedures and processes for a full rolling ASM/ATFCM process	01/01/2014	31/12/2022
AOM19.5-ASP04	Adapt ASM systems (LARA or equivalent) to support a full rolling ASM/ATFCM process	01/01/2014	31/12/2022
AOM19.5-ASP05	Implement interoperability of ASM support systems with NM system	01/01/2014	31/12/2022
AOM19.5-ASP06	Implement interoperability between ASM support systems to facilitate cross border operations	01/01/2014	31/12/2022
AOM19.5-ASP07	Optimise planning and allocation of airspace booking	01/01/2014	31/12/2022
AOM19.5-ASP08	Implement procedures related to ASM level 3 (tactical) information exchange	01/01/2014	31/12/2022
AOM19.5-ASP09	Adapt ASM and ATC systems for automatic ASM data exchanges	01/01/2014	31/12/2022
AOM19.5-ASP10	Adapt ASM system to manage airspace data information aligned with centralised airspace data provided by NM system	01/01/2014	31/12/2022
AOM19.5-ASP11	Safety Assessment	01/01/2014	31/12/2022
AOM19.5-ASP12	Training	01/01/2014	31/12/2022
AOM19.5-ASP13	Operational use	01/01/2014	31/12/2022
AOM19.5-USE01	Adapt airspace users' systems for processing EAUP/EUUP information	01/01/2014	31/12/2022
AOM19.5-USE02	Adapt airspace users' system to process RRP messages or enhanced utilisation of opportunity tool application	01/01/2014	31/12/2022
AOM19.5-USE03	Training	01/01/2014	31/12/2022
AOM19.5-USE04	Operational use	01/01/2014	31/12/2022
AOM19.5-NM01	Adapt NM systems to support a full rolling ASM/ATFCM process	01/01/2014	31/12/2022
AOM19.5-NM02	Implement procedures and processes for a full rolling ASM/ATFCM process	01/01/2014	31/12/2022
AOM19.5-NM03	Improve ASM notification process	01/01/2014	31/12/2022
AOM19.5-NM04	Provide a centralised airspace data information to support ASM process	01/01/2014	31/12/2022
AOM19.5-NM05	Safety Assessment	01/01/2014	31/12/2022
AOM19.5-NM06	Training	01/01/2014	31/12/2022
AOM19.5-NM07	Operational use	01/01/2014	31/12/2022

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Improved safety due to increased situational awareness of supervisors.
Capacity:	Increased capacity due to better use of available resources, both human and airspace.
Operational Efficiency:	Reduced saturation periods and flight delays. Improved operational efficiency.
Cost Efficiency:	-
Environment:	Reduced fuel burn and emissions.
Security:	-

Detailed SLoA Descriptions

AOM19.5-ASP01	**Deploy automated ASM support systems (LARA or equivalent)**	From: **Applicability Area 1:** 01/01/2014	By: **Applicability Area 1:** 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	Deploy automated Airspace Management (ASM) support systems (LARA or equivalent) to support the local or sub-regional airspace planning and allocation.		
	Note :This SLoA needs to be synchronised between civil and military ANSPs and NM. AOM19.5-ASP01 and AOM19.5-ASP02 can be implemented in parallel.		

Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[AAMS-06c]-Local ASM Tools to be updated to support Transmission of VPA-related data from local ASM tool to the NM [AAMS-08]-Airspace management system enhanced to support improved collaborative airspace planning [AAMS-09]-Airspace management system enhanced to support the integrated European airspace planning process [AAMS-11]-ASM support systems enhanced to exchange real-time airspace status updates		
Finalisation criteria:	1 - ASM systems supporting the airspace planning and allocation have been deployed		
AOM19.5-ASP02	**Adopt the NM system (CIAM) for ASM capabilities**	From: **Applicability Area 1:** 01/01/2014	By: **Applicability Area 1:** 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	As an alternative to deploying ASM support systems, States may decide to fully rely on NM applications and system capabilities such as CIAM and its further developments and migration to NES.		
	Note :This SLoA needs to be synchronised between civil and military ANSPs and NM. AOM19.5-ASP01 and AOM19.5-ASP02 can be implemented in parallel.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[AAMS-06c]-Local ASM Tools to be updated to support Transmission of VPA-related data from local ASM tool to the NM [AAMS-08]-Airspace management system enhanced to support improved collaborative airspace planning [AAMS-09]-Airspace management system enhanced to support the integrated European airspace planning process		
Finalisation criteria:	1 - ASM unit has started the exchange of AUP/UUP data with NM through the ASM NM system capabilities.		
AOM19.5-ASP03	**Implement procedures and processes for a full rolling ASM/ATFCM process**	From: **Applicability Area 1:** 01/01/2014	By: **Applicability Area 1:** 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	Implement procedures and processes for a full rolling ASM/ATFCM process and a CDM process.		
	Note :This SLoA needs to be synchronised between civil and military ANSPs, AUs and NM.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[PRO-011]-ASM Procedures to ensure that the change in airspace availability is promulgated through SWIM and reflected in the NOP [PRO-024]-ASM Procedures related to real-time (tactical) ASM level III information exchange		
Finalisation criteria:	1 - Processes/procedures have been defined, validated, and approved.		
AOM19.5-ASP04	**Adapt ASM systems (LARA or equivalent) to support a full rolling ASM/ATFCM process**	From: **Applicability Area 1:** 01/01/2014	By: **Applicability Area 1:** 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	Implement the following actions supporting a full rolling and dynamic ASM/ATFCM process: Upgrade ASM System (LARA or equivalent) to comply with the new AUP template content and format including additional information (NPZ and FUA group restrictions); Adapt ASM System changes for a full management of airspace structure via AUP/UUP accordingly; Adapt ASM System changes for CDM.		
	Note :This SLoA needs to be synchronised between civil and military ANSPs, AUs and NM.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[AAMS-06b]-ASM support systems enhanced to exchange static data and airspace usage data with NM systems in AIXM format [AAMS-06c]-Local ASM Tools to be updated to support Transmission of VPA-related data from local ASM tool to the NM [AAMS-08]-Airspace management system enhanced to support improved collaborative airspace planning [AAMS-09]-Airspace management system enhanced to support the integrated European airspace planning process		
Finalisation criteria:	1 - ASM systems have been adapted to allow data sharing to all operational stakeholders through rolling ASM/ATFCM process.		
AOM19.5-ASP05	**Implement interoperability of ASM support systems with NM system**	From: **Applicability Area 1:** 01/01/2014	By: **Applicability Area 1:** 31/12/2022
Action by:	**ANS Providers**		

Description & purpose:	Implement interoperability of ASM support systems with NM system comprising the following: Adapt ASM support systems to make them interoperable with NM system; Conclude the Operational Access Acceptance Activities required to validate the ASM tool interfacing NM system.		
	Note :This SLoA needs to be synchronised between civil and military ANSPs and NM.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - ASM support systems have been upgraded. A Positive Access Acceptance Criteria validation report is available. 2 - Exchange of AUP/UUP data with NM system has started.		
AOM19.5-ASP06	**Implement interoperability between ASM support systems to facilitate cross border operations**	From: **Applicability Area 1:** 01/01/2014	By: **Applicability Area 1:** 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	Where applicable, implement interoperability of local ASM support system with adjacent ASM systems whenever cross border operations are in place.		
	Note :This SLoA needs to be synchronised between civil and military ANSPs and NM.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[AAMS-08]-Airspace management system enhanced to support improved collaborative airspace planning [AAMS-09]-Airspace management system enhanced to support the integrated European airspace planning process		
Finalisation criteria:	1 - LoA for cross border operations are in force; 2 - Exchange of ASM data has started.		
AOM19.5-ASP07	**Optimise planning and allocation of airspace booking**	From: **Applicability Area 1:** 01/01/2014	By: **Applicability Area 1:** 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	Improve planning and allocation of airspace structures at pre-tactical ASM level 2 by planning airspace structures utilisation in accordance with actual need.		
	Note :This SLoA needs to be synchronised between civil and military ANSPs and NM.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[AAMS-08]-Airspace management system enhanced to support improved collaborative airspace planning [AAMS-09]-Airspace management system enhanced to support the integrated European airspace planning process		
Finalisation criteria:	1 - Planning and allocation of airspace structures have been optimized according to the procedures in place.		
AOM19.5-ASP08	**Implement procedures related to ASM level 3 (tactical) information exchange**	From: **Applicability Area 1:** 01/01/2014	By: **Applicability Area 1:** 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	Develop and implement the ASM/ATFCM and ATC procedures for ASM data exchanges with all operational stakeholders in ASM level 3. Release airspace structures as soon as activity stops or when areas are not used. Use available airspace structures that have not been allocated in AUP.		
	Note :This SLoA needs to be synchronised between civil and military ANSPs, AUs and NM.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[AAMS-08]-Airspace management system enhanced to support improved collaborative airspace planning [AAMS-09]-Airspace management system enhanced to support the integrated European airspace planning process		
Finalisation criteria:	1 - Procedures related to ASM level 3 (tactical) information exchange have been promulgated.		
AOM19.5-ASP09	**Adapt ASM and ATC systems for automatic ASM data exchanges**	From: **Applicability Area 1:** 01/01/2014	By: **Applicability Area 1:** 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	• Adapt ASM systems (LARA or equivalent) to automatically provide status of airspace structures to ATC support systems. . • Adapt ATC systems to receive airspace status data and to display airspace status data on CWPs. • If ASM data are provided through NM system capabilities (SLoA ASP02), ATC systems could be manually triggered to display the airspace status on CWP.		
	Note :This SLoA needs to be synchronised between civil and military ANSPs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		

ATM Master Plan relationship:	[ER APP ATC 77]-ATC Systems enhanced to exchange real-time (tactical) airspace status data with ASM support system		
Finalisation criteria:	1 - ASM and ATC systems have been adapted to enable the automatic exchange of airspace status data		
AOM19.5-ASP10	**Adapt ASM system to manage airspace data information aligned with centralised airspace data provided by NM system**	From: **Applicability Area 1:** 01/01/2014	By: **Applicability Area 1:** 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	ASM support system (LARA or equivalent) must be adapted to support airspace data improvements utilised for the AUP/UUP process.		
	Note :This SLoA needs to be synchronised between civil and military ANSPs and NM.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[PRO-011]-ASM Procedures to ensure that the change in airspace availability is promulgated through SWIM and reflected in the NOP [PRO-024]-ASM Procedures related to real-time (tactical) ASM level III information exchange		
Finalisation criteria:	1 - ASM support system is updated and manages improved airspace data processed via AUP/UUP.		
AOM19.5-ASP11	**Safety Assessment**	From: **Applicability Area 1:** 01/01/2014	By: **Applicability Area 1:** 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	The safety assessment of the changes must be developed and delivered to the competent authority.		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.		
AOM19.5-ASP12	**Training**	From: **Applicability Area 1:** 01/01/2014	By: **Applicability Area 1:** 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	All relevant staff shall be duly trained.		
Finalisation criteria:	1 - Training has been completed		
AOM19.5-ASP13	**Operational use**	From: **Applicability Area 1:** 01/01/2014	By: **Applicability Area 1:** 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	AOM19.5 is in operational use once the systems have been implemented, the procedures are in place, the safety assessment has been delivered and approved, and the training has been completed.		
Finalisation criteria:	1 - AOM19.5 is put into service.		
AOM19.5-USE01	**Adapt airspace users' systems for processing EAUP/EUUP information**	From: **Applicability Area 1:** 01/01/2014	By: **Applicability Area 1:** 31/12/2022
Action by:	**Airspace Users**		
Description & purpose:	Adapt airspace users' systems (Computer Flight Plan Software Providers (CFSP) to process any EAUP/EUUP information provided.		
	Note :This SLoA needs to be synchronised between AUs and NM.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - AUs systems have been adapted for processing automatically EAUP/EUUP information.		
AOM19.5-USE02	**Adapt airspace users' system to process RRP messages or enhanced utilisation of opportunity tool application**	From: **Applicability Area 1:** 01/01/2014	By: **Applicability Area 1:** 31/12/2022
Action by:	**Airspace Users**		
Description & purpose:	Adapt airspace users' systems (Computer Flight Plan Software Providers (CFSP) to enhance processing of FPL improvements notified by NM via RRP or Opportunity tool application.		
	Note :This SLoA needs to be synchronised between AUs and NM.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		

Finalisation criteria:	1 - Systems have been adapted to increase the processing of opportunities notified by NM.		
AOM19.5-USE03	**Training**	From: **Applicability Area 1:** 01/01/2014	By: **Applicability Area 1:** 31/12/2022
Action by:	**Airspace Users**		
Description & purpose:	All relevant staff must be duly trained.		
Finalisation criteria:	1 - Training has been completed.		
AOM19.5-USE04	**Operational use**	From: **Applicability Area 1:** 01/01/2014	By: **Applicability Area 1:** 31/12/2022
Action by:	**Airspace Users**		
Description & purpose:	AOM19.5 is in operational use once the systems have been implemented, the procedures are in place, and the training has been completed.		
Finalisation criteria:	1 - AOM19.5 is put into service.		
AOM19.5-NM01	**Adapt NM systems to support a full rolling ASM/ATFCM process**	From: **Applicability Area 1:** 01/01/2014	By: **Applicability Area 1:** 31/12/2022
Action by:	**NM**		
Description & purpose:	The following system upgrades supporting a full rolling ASM/ATFM process to be performed by the Network Manager: • System upgrade supporting a full rolling ASM/ATFCM and dynamic ASM/ATFCM process; • System changes supporting rolling AUP; • Full implementation of new AUP template; • System changes for CDM; • System changes for initial NIA		
ATM Master Plan relationship:	[AAMS-09a]-NM systems enhanced to exchange static data and airspace usage data with ASM support systems in AIXM format [NIMS-42]-NM systems enhanced to receive, process and display real-time tactical (ASM level III) airspace usage information		
Finalisation criteria:	1 - NM systems have been adapted.		
AOM19.5-NM02	**Implement procedures and processes for a full rolling ASM/ATFCM process**	From: **Applicability Area 1:** 01/01/2014	By: **Applicability Area 1:** 31/12/2022
Action by:	**NM**		
Description & purpose:	The following processes have to be developed and implemented by the Network Manager in coordination with the concerned stakeholders: • Process supporting a full rolling ASM/ATFCM and dynamic ASM/ATFCM process; • Process for a full management of airspace structure and related features via AUP/UUP; • Process for CDM; • Process for initial NIA		
	Note :This SLoA needs to be synchronised between ANSPs, AUs and NM.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[PRO-011]-ASM Procedures to ensure that the change in airspace availability is promulgated through SWIM and reflected in the NOP [PRO-024]-ASM Procedures related to real-time (tactical) ASM level III information exchange [PRO-184]-ASM Procedures related to Dynamic co-operative management of the airspace		
Finalisation criteria:	1 - Processes have been implemented by NM in coordination with concerned stakeholders.		
AOM19.5-NM03	**Improve ASM notification process**	From: **Applicability Area 1:** 01/01/2014	By: **Applicability Area 1:** 31/12/2022
Action by:	**NM**		
Description & purpose:	The following actions supporting an improved ASM notification process shall be taken by the Network Manager: • Improvements to the European AUP/UUP enhanced information • Enhanced process to provide automatic information of airspace opportunity (RRP, opportunity tool).		
	Note :This SLoA needs to be synchronised between ANSPs, AUs and NM.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Processes have been promulgated by NM.		
		From:	By:

AOM19.5-NM04	**Provide a centralised airspace data information to support ASM process**	**Applicability Area 1:** 01/01/2014	**Applicability Area 1:** 31/12/2022
Action by:	**NM**		
Description & purpose:	Improve centralised airspace data information availability according to the ASM process improvements, namely additional set of data exchanged via AUP/UUP.		
	Note :This SLoA needs to be synchronised between ANSPs, AUs and NM.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - NM system updated to support the exchange of additional airspace information data.		
AOM19.5-NM05	**Safety Assessment**	From: **Applicability Area 1:** 01/01/2014	By: **Applicability Area 1:** 31/12/2022
Action by:	**NM**		
Description & purpose:	A safety assessment of the changes shall be developed and delivered to the competent authority.		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.		
AOM19.5-NM06	**Training**	From: **Applicability Area 1:** 01/01/2014	By: **Applicability Area 1:** 31/12/2022
Action by:			
Description & purpose:	All relevant staff shall be duly trained.		
Finalisation criteria:	1 - Training has been completed.		
AOM19.5-NM07	**Operational use**	From: **Applicability Area 1:** 01/01/2014	By: **Applicability Area 1:** 31/12/2022
Action by:	**NM**		
Description & purpose:	AOM19.5 is in operational use once the systems have been implemented, the procedures are in place, the safety assessment has been delivered and approved, and the training has been completed.		
Finalisation criteria:	1 - AOM19.5 put into service.		

CP1		Active								ECAC+
AOM21.2		Initial Free Route Airspace								
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

Free Route is an operational concept that enables airspace users to fly as close as possible to what they consider their optimal trajectory without the constraints of a fixed route network structure. Free Route Airspace (FRA) is a specified airspace within which users may freely plan a route between a defined FRA entry point and defined FRA exit point, with the possibility to route via intermediate (published or unpublished) waypoints, without reference to the ATS route network, subject to airspace availability. Within this airspace, flights remain subject to air traffic control.

The Initial FRA implementation may be achieved with some limitations, for example:

- laterally and vertically;
- during specific time periods;

The Initial FRA deployment shall be based on the following system improvements:

For NM systems:

• FPL processing and checking
• Dynamic rerouting
• Calculation and management of traffic load
• IFPS routing proposal
• Specific ASM improvements for FRA
• Network impact assessment for FRA
• CACD adaptations for FRA Initial deployment

For AU systems:

• FPL route planning for a complete flight taking into account the differences of limitations (e.g. in terms of opening time and/or flight level constraints) throughout the entire flight
• Long DCT with or without calculated intermediate points
• Capability to take into account different constraint e.g.: ATS, FRA, RAD, scenarios, FL constraints on part of the route only, etc
• FPL route planning for a complete flight taking into account the differences of implementations (FRA with or without partial implementation) throughout the entire flight.

ANSPs may decide which system improvements are needed for Initial FRA. The list below addresses the potential improvement to ATC systems. The choice of the appropriate tool/function to achieve Initial FRA remains a stakeholder decision based on the operational environment and may include any of the following tool/functions as follows:

• FDPS supporting the airspace structure and managing trajectories according to the flight plan;
• CWP and HMI supporting appropriate display and functions as required by operational needs;
• FDPS to calculate ground 4D trajectories within AoI and editing function for 4D trajectories including Cross AoR Points (Coordination Point COP management);
• ASM/ATFCM for FRA management;
• MTCD (detecting conflicts between A/C and A/C, and between A/C and airspace);
• CORA (conflict probe and passive conflict resolution advisor);
• MONA (conformance monitoring aids);
• ATC clearances beyond AoR;
• ATC to ATC Flight Data Exchange (OLDI and/or SYSCO);
• Dynamic sectorisation and constraint management;
• Dynamic Area Proximity Warning (APW) –Integrated with ASM tools;
• Provision/integration of FPL and real-time data related to the FRA traffic to the Military ATS units and or air defence organisations;
• Conflict Detection Tools which include the Tactical Controller Tool (TCT), using the tactical trajectory and managing the clearances along that trajectory.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each Military Authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the Military Authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to MIL Authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (All EU SES States)	All EU SES States

Applicability Area 2 (All ECAC+ States except AZ, BE, LU, IL, and NL)	Albania, Armenia, Bosnia and Herzegovina, Georgia, Moldova, Montenegro, Morocco, North Macedonia, Serbia, Turkey, Ukraine, United Kingdom

Timescales:	**From:**	**By:**	**Applicable to:**
Initial operational capability	01/01/2015		Applicability Area 1 + Applicability Area 2
Full Operational Capability / Target Date		31/12/2022	Applicability Area 1 + Applicability Area 2

References

European ATM Master Plan

OI step -	[AOM-0501]-Free Routing for Flights both in cruise and vertically evolving within low to medium complexity environments								
	Enablers -	AAMS-06c AOM19.5	AAMS-09a AOM19.5	AAMS-11 AOM19.5	AAMS-16a	AOC-ATM-10	ER APP ATC 129 ATC12.1	ER APP ATC 75	ER APP ATC 77 AOM19.4, AOM19.5
		ER ATC 91 ATC12.1	NIMS-21a FCM10	NIMS-29	NIMS-42 AOM19.5	PRO-085	STD-033	STD-061	STD-062
		STD-063	STD-064	SWIM-APS-01a	SWIM-APS-02a	SWIM-APS-03a	SWIM-APS-04a		
OI step -	[AOM-0505]-Free Routing for Flights both in cruise and vertically evolving within high and very high complexity environments in Upper En Route airspace								
	Enablers -	ER APP ATC 129 ATC12.1	ER APP ATC 78	ER ATC 91 ATC12.1	NIMS-37 FCM06.1				
OI step -	[CM-0102-A]-Dynamic Sectorisation based on complexity								
	Enablers -	CTE-C05a COM11.1, COM11.2	CTE-C05b COM11.1, COM11.2	ER APP ATC 15 AOM19.4	ER APP ATC 93 FCM06.1				

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

COMMISSION IMPLEMENTING REGULATION (EU) 2021/116 of 1 February 2021 on the establishment of the Common Project One supporting the implementation of the European Air Traffic Management Master Plan provided for in Regulation (EC) No 550/2004 of the European Parliament and of the Council, amending Commission Implementing Regulation (EU) No 409/2013 and repealing Commission Implementing Regulation (EU) No 716/2014 ct

Essential Operational Changes

Fully Dynamic and Optimised Airspace

SESAR Solution

#32 - Free Route through the use of Direct Routing, #33 - Free Route through Free Routing for Flights both in cruise and vertically evolving above a specified Flight Level, #66 - Automated Support for Dynamic Sectorisation

ICAO GANP - ASBUs

FRTO-B1/1	Free Route Airspace (FRA)

Deployment Programme

3.2.1	Initial FRA

European Plan for Aviation Safety

- none -	

Operating Environments

En-Route

Network

Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
AOM21.2-ASP01	Implement Initial FRA procedures and processes in support of the network dimension	01/01/2015	31/12/2022
AOM21.2-ASP02	Implement Initial FRA system improvements	01/01/2015	31/12/2022
AOM21.2-ASP03	Implement Initial FRA procedures and processes in support of the local dimension	01/01/2015	31/12/2022
AOM21.2-ASP04	Safety Assessment	01/01/2015	31/12/2022
AOM21.2-ASP05	Training	01/01/2015	31/12/2022
AOM21.2-ASP06	Operational use	01/01/2015	31/12/2022
AOM21.2-USE01	Implement Initial FRA system improvements	01/01/2015	31/12/2022
AOM21.2-USE02	Implement Initial FRA procedures and processes	01/01/2015	31/12/2022
AOM21.2-USE03	Training	01/01/2015	31/12/2022
AOM21.2-USE04	Operational use	01/01/2015	31/12/2022
AOM21.2-NM01	Implement Initial FRA system improvements	01/01/2015	31/12/2022
AOM21.2-NM02	Implement Initial FRA procedures and processes	01/01/2015	31/12/2022
AOM21.2-NM03	Safety Assessment	01/01/2015	31/12/2022
AOM21.2-NM04	Training	01/01/2015	31/12/2022
AOM21.2-NM05	Operational use	01/01/2015	31/12/2022

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Although the main benefits impact the environment, FRA implementation has the ambition to at least maintain the current level of safety.
Capacity:	Increased capacity through better airspace utilisation to and reduced controller workload.
Operational Efficiency:	Savings in route distances and fuel efficiency through increased use of preferred flight profiles.
Cost Efficiency:	-
Environment:	Reductions in emissions through use of optimal routes.
Security:	-

Detailed SLoA Descriptions

AOM21.2-ASP01	**Implement Initial FRA procedures and processes in support of the network dimension**	From: 01/01/2015	By: 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	Conduct the following actions: • Identify the FRA airspace volume (Lateral and Vertical) and applicable time; • Identify FRA entry and exit points, arrival transition point and departure transition point, and intermediate points; • Adapt Airspace design and ensure FRA horizontal and vertical connectivity; • Validate airspace design with NM; • Network overview - connectivity consistency of FRA application; • ATFCM FRA procedures; • Adapt RAD applicability; • Validate RAD with NM.		
	Note :This SLoA needs to be synchronised between ANSPs and NM.		
Supporting material(s):	EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 1 - European Airspace Design Methodology - Guidelines - 2.0 / 12/2018 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-1		
ATM Master Plan relationship:	[PRO-148]-ASM Procedures for identifying and promulgating 'Free Route' areas		
Finalisation criteria:	1 - The local FRA airspace has been identified in coordination with the Network and FAB partners and the RAD has been updated accordingly. 2 - The local ATFCM procedures have been updated in cooperation with the network to take on board the FRA impact.		
AOM21.2-ASP02	**Implement Initial FRA system improvements**	From: 01/01/2015	By: 31/12/2022
Action by:	**ANS Providers**		

Description & purpose:	Deploy the ATC tools/functions deemed appropriate: • COP management • ASM/ATFCM for FRA management • MTCD • MONA • ATC clearances beyond AoR • ATC to ATC Flight Data Exchange (Basic OLDI and SYSCO) • Dynamic sectorization and constraint management • Dynamic Area Proximity Warning (APW) • Tactical Controller Tool (TCT)
Supporting material(s):	EUROCONTROL - SPEC-139 - EUROCONTROL Specification for Medium-Term Conflict Detection - Edition 2.0 / 03/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-medium-term-conflict-detection-mtcd EUROCONTROL - SPEC-142 - EUROCONTROL Specification for Monitoring Aids - Edition 2.0 / 03/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-monitoring-aids-mona EUROCONTROL - GUID-176 - EUROCONTROL Guidelines for On-Line Data Interchange (OLDI) - Edition 1.1 / 07/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-line-data-interchange-oldi EUROCONTROL - SPEC-106 - EUROCONTROL Specification for On-Line Data Interchange (OLDI) - Edition 5.0 / 07/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-line-data-interchange-oldi EUROCONTROL - GUID-161 - EUROCONTROL Guidelines for Area Proximity Warning - Part I to III - Edition 1.0 / 01/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-area-proximity-warning
ATM Master Plan relationship:	[AAMS-16a]-Airspace management functions equipped with tools able to deal with free-routing [ER APP ATC 75]-Enhance FDP for Direct Route and Free Route Operations [ER APP ATC 78]-Update FDP to support 4D trajectory direct segments in free routing airspace beyond local AoR
Finalisation criteria:	1 - The ATC system has been updated according to the specifications representing the identified necessary changes.

AOM21.2-ASP03	**Implement Initial FRA procedures and processes in support of the local dimension**	From: 01/01/2015	By: 31/12/2022

Action by:	**ANS Providers**
Description & purpose:	Take the following actions: • Adapt the LoA with adjacent ATS units; • Publish relevant data for FRA in AIP; • Chart FRA operations; • Develop airspace management procedure for the implementation of free routes operation; • Review ASM Procedures for 'Free Route' areas;; • Develop ATC procedures to cover free route co-ordination and transfer of control, trajectory change in a free route environment, alignment of procedures for conflict detection in FRA environment; ; • Validate airspace design, RAD and ASM procedures with NM.
	Note :This SLoA needs to be synchronised between ANSPs and NM.
Supporting material(s):	EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 1 - European Airspace Design Methodology - Guidelines - 2.0 / 12/2018 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-1
ATM Master Plan relationship:	[PRO-085]-ATC procedures to cover issues such as hand-off, transfer of control, and for defining trajectory changes necessitated by changes in airspace availability, weather constraints and other non-nominal events [PRO-148]-ASM Procedures for identifying and promulgating 'Free Route' areas
Finalisation criteria:	1 - The FRA airspace has been described and published in the AIP and the charts. 2 - The Letters of Agreement have been updated if necessary. 3 - The ASM and ATC procedures have been updated to take on board the FRA impact.

AOM21.2-ASP04	**Safety Assessment**	From: 01/01/2015	By: 31/12/2022

Action by:	**ANS Providers**
Description & purpose:	The safety assessment of the changes must be developed and delivered to the competent authority.
Supporting material(s):	EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 1 - European Airspace Design Methodology - Guidelines - 2.0 / 12/2018 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-1
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.

AOM21.2-ASP05	**Training**	From: 01/01/2015	By: 31/12/2022

Action by:	**ANS Providers**
Description & purpose:	All relevant staff must be duly trained.
Supporting material(s):	EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 1 - European Airspace Design Methodology - Guidelines - 2.0 / 12/2018 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-1

Finalisation criteria:	1 - Training has been completed.		
AOM21.2-ASP06	**Operational use**	From: 01/01/2015	By: 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	Initial FRA is in operational use once the systems have been implemented, the procedures are in place, the safety assessment has been delivered and approved, and the training has been completed.		
Supporting material(s):	EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 1 - European Airspace Design Methodology - Guidelines - 2.0 / 12/2018 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-1		
Finalisation criteria:	1 - Initial FRA is put into service.		
AOM21.2-USE01	**Implement Initial FRA system improvements**	From: 01/01/2015	By: 31/12/2022
Action by:	**Airspace Users**		
Description & purpose:	Adapt as necessary the flight Planning system to support FRA as follows: • Provide the capability to take into account the different constraints, e.g.: ATS, FRA, RAD, scenarios, FL constraints on part of the route only; • Ensure FPL route planning for a complete flight taking into account the differences of implementation (FRA with or without partial implementation) throughout the entire flight.		
	Note :No supporting material identified (subject to stakeholder analysis of the local needs)		
ATM Master Plan relationship:	[AOC-ATM-10]-Modification of AOC/WOC-ATM trajectory management system (or new systems) to allow quality of service requested by NOP for pre-flight trajectory with dynamic routing		
Finalisation criteria:	1 - Flight Planning system has been adapted as necessary.		
AOM21.2-USE02	**Implement Initial FRA procedures and processes**	From: 01/01/2015	By: 31/12/2022
Action by:	**Airspace Users**		
Description & purpose:	Take the following actions: • Develop and apply operational Procedures for free route; • Develop and apply operational Procedures to take into account airspace and traffic constraints when planning a route.		
Supporting material(s):	EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 1 - European Airspace Design Methodology - Guidelines - 2.0 / 12/2018 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-1		
Finalisation criteria:	1 - Procedures taking into account Free Route Airspace operations have been promulgated.		
AOM21.2-USE03	**Training**	From: 01/01/2015	By: 31/12/2022
Action by:	**Airspace Users**		
Description & purpose:	All relevant staff must be duly trained.		
Finalisation criteria:	1 - Training has been completed		
AOM21.2-USE04	**Operational use**	From: **Applicability Area 1:** 01/01/2015	By: **Applicability Area 1:** 31/12/2022
Action by:	**Airspace Users**		
Description & purpose:	Initial FRA is in operational use once the systems have been implemented, the procedures are in place, the safety assessment has been delivered and approved, and the training has been completed		
Supporting material(s):	EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 1 - European Airspace Design Methodology - Guidelines - 2.0 / 12/2018 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-1		
Finalisation criteria:	1 - Initial FRA is put into service.		
AOM21.2-NM01	**Implement Initial FRA system improvements**	From: **Applicability Area 1:** 01/01/2015	By: **Applicability Area 1:** 31/12/2022
Action by:	**NM**		
Description & purpose:	Upgrade NM system to support the following: • IFPS routing proposal • Specific ASM improvements for FRA • Network impact assessment for FRA • CACD adaptations for FRA Initial deployment		
	Note :This SLoA needs to be synchronised between ANSPs, AUs and NM.		
Supporting material(s):	EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 1 - European Airspace Design Methodology - Guidelines - 2.0 / 12/2018 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-1		

ATM Master Plan relationship:	[AAMS-16a]-Airspace management functions equipped with tools able to deal with free-routing [NIMS-29]-Network DCB sub-system enhanced for Network Operations Plan (NOP) preparation and dissemination		
Finalisation criteria:	1 - The required adaptations of NM systems (IFPS and Airspace Management tools) to FRA have been deployed		
AOM21.2-NM02	**Implement Initial FRA procedures and processes**	From: 01/01/2015	By: 31/12/2022
Action by:	**NM**		
Description & purpose:	Take the following actions in coordination with ANSPs: • Identify the FRA airspace volume (Lateral and Vertical) and applicable time; • Identify FRA entry and exit points, arrival transition point and departure transition point, and intermediate points; • Adapt Airspace design and ensure FRA horizontal and vertical connectivity; • Network overview-connectivity consistency of Initial FRA application; • ATFCM FRA procedures; • Adapt RAD applicability; • Validate airspace design, RAD and ASM procedures with ANSPs.		
	Note :This SLoA needs to be synchronised between ANSPs and NM.		
Supporting material(s):	EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 1 - European Airspace Design Methodology - Guidelines - 2.0 / 12/2018 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-1 EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 2 - European ATS Route Network - Version 2019-2024 - June 2019 / 07/2019 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-2 EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 3 - Airspace Management Handbook - Guidelines for Airspace Management - 5.5 / 11/2017 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-3		
ATM Master Plan relationship:	[PRO-148]-ASM Procedures for identifying and promulgating 'Free Route' areas		
Finalisation criteria:	1 - European Airspace has been updated with the integration of the coordinated FRA definition. 2 - Route Availability Document has been updated accordingly.		
AOM21.2-NM03	**Safety Assessment**	From: 01/01/2015	By: 31/12/2022
Action by:	**NM**		
Description & purpose:	The safety assessment of the changes must be developed and delivered to the competent authority.		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.		
AOM21.2-NM04	**Training**	From: 01/01/2015	By: 31/12/2022
Action by:	**NM**		
Description & purpose:	All relevant staff must be duly trained		
Finalisation criteria:	1 - Training has been completed.		
AOM21.2-NM05	**Operational use**	From: 01/01/2015	By: 31/12/2022
Action by:			
Description & purpose:	Initial FRA is in operational use once the systems have been implemented, the procedures are in place, the safety assessment has been delivered and approved, and the training has been completed.		
Finalisation criteria:	1 - Initial FRA is put into service.		

CP1		Active							ECAC+	
AOM21.3		Enhanced Free Route Airspace Operations								
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

This implementation objective addresses the following three elements:

• Final FRA implementation
• Cross-border FRA implementation
• FRA connectivity with TMAs.

1) The Final FRA implementation shall eliminate the structural limitations that are permissible for Enhanced FRA in terms of timing limitations (night FRA, weekend FRA, seasonal FRA) and lateral and vertical limitations. RAD restrictions should be applied to the minimum extent possible, where unlimited free route airspace operations would endanger airspace capacity (e.g. in high-density, complex airspaces).

2) Cross-border FRA operations provide further benefits of the FRA concept to Airspace Users. Cross-border FRA shall be implemented with at least one neighbouring State. However, it should be considered by the implementing ANSPs, that maximum benefits for airspace users in terms of time, fuel and CO2 emissions savings will be achieved when cross-border FRA is implemented among all neighbouring states from the lowest mutual flight level upwards. For the time being, there are several cross-border FRA implementations, in some cases addressing the airspace controlled by several ANSPs within FAB and between FABs.

3) FRA connectivity with TMAs must be ensured by one of the following options:

• lowering the FRA vertical limit until the TMAs upper vertical boundaries;
• linking appropriate arrival/departures points;
• defining FRA connecting routes;
• extending the existing standard arrival and departure routes;
• connecting with the underlying fixed ATS routes via set of waypoints reflecting the typical climbing/descending profiles

Final FRA implementation, Cross-border FRA with at least one neighbouring State and FRA connectivity with TMAs shall be provided and operated at least above flight level 305.

The system requirements for implementation of the 3 elements of this objective need to encompass the system upgrades listed for Enhanced FRA and additional system upgrades as follows:

NM systems:

• Environmental database adaptations for cross-border FRA operations and FRA connectivity with TMAs;
• Data exchange for cross border FRA and FRA connectivity with TMAs.

AU systems:

• Optimisation of free routing trajectories taking into account the ATM constraints, including possible differences of FRA lower limit implementations throughout the flight.

ANSPs may decide which system improvements are needed in addition to those required for Initial FRA. The choice of the appropriate tool/function remains a stakeholder decision based on operational environment and may include the tools listed for Enhanced FRA plus additional tool/functions, as for example:

• COP management for FRA supporting Cross Border COP handling;
• Tactical Controller Tool (TCT), managing the Cross-Border clearances;
• Multi-Sector Planner/Extended ATC Planner (MSP/EAP) function.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each Military Authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the Military Authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to MIL Authorities.

Applicability Area(s) & Timescale(s)

AOM21.3	Enhanced Free Route Airspace Operations

Applicability Area 1 (All EU SES States)	All EU SES States
Applicability Area 2	Albania, Bosnia and Herzegovina, Georgia, Moldova, Montenegro, Morocco, North Macedonia, Serbia, Ukraine, United Kingdom

Timescales:	**From:**	**By:**	**Applicable to:**
Initial Operational Capability	01/01/2021		Applicability Area 1 + Applicability Area 2
Full Operational Capability / Target Date		31/12/2025	Applicability Area 1 + Applicability Area 2

References

European ATM Master Plan

OI step -	[AOM-0501]-Free Routing for Flights both in cruise and vertically evolving within low to medium complexity environments								
	Enablers -	AAMS-06c AOM19.5	AAMS-09a AOM19.5	AAMS-11 AOM19.5	AAMS-16a	AOC-ATM-10	ER APP ATC 129 ATC12.1	ER APP ATC 75 AOM21.2	ER APP ATC 77 AOM19.4, AOM19.5
		ER ATC 91 ATC12.1	NIMS-21a FCM10	NIMS-29 AOM21.2	NIMS-42 AOM19.5	PRO-085	STD-033	STD-061	STD-062
		STD-063	STD-064	SWIM-APS-01a	SWIM-APS-02a	SWIM-APS-03a	SWIM-APS-04a		
OI step -	[AOM-0505]-Free Routing for Flights both in cruise and vertically evolving within high and very high complexity environments in Upper En Route airspace								
	Enablers -	ER APP ATC 129 ATC12.1	ER APP ATC 78	ER ATC 91 ATC12.1	NIMS-37 FCM06.1				

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

- COMMISSION IMPLEMENTING REGULATION (EU) 2021/116 of 1 February 2021 on the establishment of the Common Project One supporting the implementation of the European Air Traffic Management Master Plan provided for in Regulation (EC) No 550/2004 of the European Parliament and of the Council, amending Commission Implementing Regulation (EU) No 409/2013 and repealing Commission Implementing Regulation (EU) No 716/2014

Essential Operational Changes

Fully Dynamic and Optimised Airspace

SESAR Solution

#33 - Free Route through Free Routing for Flights both in cruise and vertically evolving above a specified Flight Level, PJ.06-01 - Optimized traffic management to enable Free Routing in high and very high complexity cross border environments.

ICAO GANP - ASBUs

FRTO-B2/3	Large Scale Cross Border Free Route Airspace (FRA)

Deployment Programme

3.2.2	Enhanced Free Route Airspace Operations

European Plan for Aviation Safety

AOM21.3	Enhanced Free Route Airspace Operations

- none -	

Operating Environments

En-Route Network

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
AOM21.3-ASP01	Implement Enhanced FRA procedures and processes in support of the Network dimension	01/01/2021	31/12/2025
AOM21.3-ASP02	Implement Enhanced FRA system improvements	01/01/2021	31/12/2025
AOM21.3-ASP03	Implement Enhanced FRA procedures and processes in support of the local dimension	01/01/2021	31/12/2025
AOM21.3-ASP04	Safety Assessment	01/01/2021	31/12/2025
AOM21.3-ASP05	Training	01/01/2021	31/12/2025
AOM21.3-ASP06	Operational use	01/01/2021	31/12/2025
AOM21.3-USE01	Implement Enhanced FRA system improvements	01/01/2021	31/12/2025
AOM21.3-USE02	Implement Enhanced FRA procedures and processes	01/01/2021	31/12/2025
AOM21.3-USE03	Training	01/01/2021	31/12/2025
AOM21.3-USE04	Operational use	01/01/2021	31/12/2025
AOM21.3-NM01	Implement Enhanced FRA system improvements	01/01/2021	31/12/2025
AOM21.3-NM02	Implement Enhanced FRA procedures and processes	01/01/2021	31/12/2025
AOM21.3-NM03	Safety Assessment	01/01/2021	31/12/2025
AOM21.3-NM04	Training	01/01/2021	31/12/2025
AOM21.3-NM05	Operational use	01/01/2021	31/12/2025

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Safety maintained.
Capacity:	Increased airspace capacity.
Operational Efficiency:	Improved operational efficiency. Optimised flight trajectories.
Cost Efficiency:	-
Environment:	Reduced fuel burn and emissions.
Security:	-

Detailed SLoA Descriptions

AOM21.3-ASP01	**Implement Enhanced FRA procedures and processes in support of the Network dimension**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	Conduct the following actions: • Identify the Final FRA airspace volume (Lateral and Vertical); • Identify the cross-border FRA airspace volume (Lateral and Vertical); • Identify the airspace foreseen for cross-border FRA operations (Lateral and Vertica; • Adapt Airspace design and ensure cross-border FRA horizontal and vertical connectivity and vertical connectivity • Validate airspace design with NM; • Network overview connectivity consistency of FRA application • ATFCM FRA procedures; • Adapt RAD applicability; • Validate RAD with NM.		
	Note :This SLoA needs to be synchronised between ANSPs and NM.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[PRO-148]-ASM Procedures for identifying and promulgating 'Free Route' areas [PRO-220a]-ATC Procedures related to Detection and Resolution of Complexity, Density and Traffic Flow Problems		

AOM21.3	Enhanced Free Route Airspace Operations

Finalisation criteria:	1 - The local FRA airspace supporting Final FRA, Cross-border and TMA connectivity has been identified in coordination with the Network Manager and neighbouring States and the RAD has been updated accordingly 2 - The local ATFCM procedures have been updated in cooperation with the network to take on board the Final FRA, Cross-border and TMA connectivity impact		
AOM21.3-ASP02	**Implement Enhanced FRA system improvements**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	If needed, upgrade ATC systems and/or deploy the ATC functions deemed appropriate to support Initial FRA plus additional functions might be considered for cross-border FRA and FRA connectivity with TMA as: • COP management for FRA supporting Cross Border COP handling; • Tactical Controller Tool (TCT), managing the Cross-Border clearances; • Multi-Sector Planner/Extended ATC Planner (MSP/EAP) function.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[ER APP ATC 78]-Update FDP to support 4D trajectory direct segments in free routing airspace beyond local AoR		
Finalisation criteria:	1 - The ANSP system has been updated according to the specifications representing the identified necessary changes		
AOM21.3-ASP03	**Implement Enhanced FRA procedures and processes in support of the local dimension**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	Take the following actions: • Adapt the LoA with adjacent ATS units; • Publish relevant data for cross-border FRA in a single or multiple AIPs; • Chart the Cross-border FRA and FRA connectivity with TMA operations; • Develop airspace management procedure for the implementation of cross border FRA and FRA connectivity with TMAs operations; • Identify and apply ASM Procedures for Cross-border FRA areas. ; • Develop ATC procedures to cover Cross-border FRA and FRA connectivity with TMAs co-ordination and transfer of control, trajectory change in a free route environment, conflict detection; • Validate airspace design, RAD and ASM procedures with NM.		
	Note :This SLoA needs to be synchronised between ANSPs and NM.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[PRO-085]-ATC procedures to cover issues such as hand-off, transfer of control, and for defining trajectory changes necessitated by changes in airspace availability, weather constraints and other non-nominal events [PRO-148]-ASM Procedures for identifying and promulgating 'Free Route' areas		
Finalisation criteria:	1 - The Final FRA, Cross border FRA and TMA connectivity airspace has been described and published in the AIP and the charts 2 - The Letters of Agreement have been updated if necessary 3 - The ASM and ATC procedures have been updated to take on board the impact of Final FRA, Cross border FRA and TMA connectivity.		
AOM21.3-ASP04	**Safety Assessment**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	The safety assessment of the changes must be developed and delivered to the competent authority.		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.		
AOM21.3-ASP05	**Training**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	All relevant must must be duly trained.		
Finalisation criteria:	1 - Training has been completed		
AOM21.3-ASP06	**Operational use**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025

AOM21.3	Enhanced Free Route Airspace Operations

Action by:	**ANS Providers**		
Description & purpose:	Enhanced Free Route Airspace Operations is in operational use once the systems have been implemented, the procedures are in place, the safety assessment has been delivered and approved, and the training has been completed.		
Finalisation criteria:	1 - Enhanced Free Route Airspace Operations is put into service.		
AOM21.3-USE01	**Implement Enhanced FRA system improvements**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**Airspace Users**		
Description & purpose:	Adapt as necessary the flight Planning system to support cross-border FRA as: • Optimisation of free routing trajectory taking into account the ATM constraints including possible differences of FRA lower limit implementations throughout the flight.		
ATM Master Plan relationship:	[AOC-ATM-10]-Modification of AOC/WOC-ATM trajectory management system (or new systems) to allow quality of service requested by NOP for pre-flight trajectory with dynamic routing		
Finalisation criteria:	1 - Flight Planning system has been adapted as necessary		
AOM21.3-USE02	**Implement Enhanced FRA procedures and processes**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**Airspace Users**		
Description & purpose:	Take the following actions: • Develop and apply operational Procedures for Cross-border FRA and FRA connectivity with TMAs; • Develop and apply operational Procedures to take into account airspace and traffic constraints when planning a route.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Procedures have been updated to take into account Final FRA, Cross border FRA and TMA connectivity.		
AOM21.3-USE03	**Training**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**Airspace Users**		
Description & purpose:	All relevant staff must be duly trained.		
Finalisation criteria:	1 - Training has been completed		
AOM21.3-USE04	**Operational use**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**Airspace Users**		
Description & purpose:	Enhanced Free Route Airspace Operations is in operational use once the systems have been implemented, the procedures are in place, the safety assessment has been delivered and approved, and the training has been completed.		
Finalisation criteria:	1 - Enhanced Free Route Airspace Operations is put into service		
AOM21.3-NM01	**Implement Enhanced FRA system improvements**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**NM**		
Description & purpose:	Upgrade NM system to support: • Environmental database adaptations for FRA cross-border operation and FRA connectivity with TMA; • Data exchange for cross border FRA and FRA connectivity with TMA;		
	Note :This SLoA needs to be synchronised between ANSPs, AUs and NM.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[AAMS-16a]-Airspace management functions equipped with tools able to deal with free-routing [NIMS-36]-Enhanced Complexity assessment tools		
Finalisation criteria:	1 - The required adaptations of NM systems (IFPS and Airspace Management tools) to Final FRA, Cross border FRA and TMA connectivity have been deployed.		
AOM21.3-NM02	**Implement Enhanced FRA procedures and processes**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025

AOM21.3	Enhanced Free Route Airspace Operations

Action by:	**NM**		
Description & purpose:	Take the following actions in coordination with ANSPs: • Identify the cross-border FRA airspace volume (Lateral and Vertical); • Identify Cross-Border FRA entry and exit points, TMAs connection points, and intermediate points; • Adapt Airspace design and ensure FRA horizontal and vertical connectivity; • Network overview-connectivity consistency of FRA cross-border application; • ATFCM Cross-border FRA procedures; • Adapt RAD applicability; • Validate airspace design, RAD and ASM procedures with ANSPs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[PRO-148]-ASM Procedures for identifying and promulgating 'Free Route' areas		
Finalisation criteria:	1 - European Airspace has been updated with the integration of the coordinated Final FRA, Cross border FRA and TMA connectivity definition 2 - Route Availability Document has been updated accordingly		
AOM21.3-NM03	**Safety Assessment**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**NM**		
Description & purpose:	The safety assessment of the changes must be developed and delivered to the competent authority		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority		
AOM21.3-NM04	**Training**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**NM**		
Description & purpose:	All relevant staff must be duly trained.		
Finalisation criteria:	1 - Training has been completed		
AOM21.3-NM05	**Operational use**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**NM**		
Description & purpose:	Enhanced Free Route Airspace Operations is in operational use once the systems have been implemented, the procedures are in place, the safety assessment has been delivered and approved, and the training has been completed.		
Finalisation criteria:	1 - Enhanced Free Route Airspace Operations is put into service.		

SESAR	Active								APT	
AOP04.1	**Advanced Surface Movement Guidance and Control System A-SMGCS Surveillance Service (former ICAO Level 1)**									
REG	**ASP**	**MIL**	**APO**	**USE**	**INT**	**IND**	**NM**	**MET**	**AIS**	**USP**

Subject matter and scope

Implement A-SMGCS Surveillance Service (former ICAO Level 1) which consists of an airport surface surveillance system that provides the Controller with the position and automatic identity of:

- All suitably equipped aircraft on the movement area;
- All suitably equipped vehicles on the maneuvering area.

A-SMGCS Surveillance data may be used to replace visual observation as required, in accordance with ICAO EUR Doc 7030, chapter 6.5.6 (approved March 2009), and as the basis of controller decision making. Traffic will be controlled through the use of appropriate procedures allowing the issuance of information and clearances to traffic on the basis of A-SMGCS Surveillance data.

Apron management units, airlines and other interested parties may also benefit from the provision of A-SMGCS Surveillance data.

A-SMGCS Surveillance is a prerequisite for A-SMGCS Runway Monitoring and Conflict Alerting (RMCA former ICAO Level 2) as the first element of A-SMGCS Airport Safety Support service.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area	See list of airports in MP Level 3 Implementation Plan - Annexes		
Timescales:	**From:**	**By:**	**Applicable to:**
Initial operational capability	01/01/2007		Applicability Area
Full operational capability		31/12/2020	Applicability Area

References

European ATM Master Plan

OI step -	[AO-0201]-Ground Controller Situational Awareness in all Weather Conditions								
	Enablers -	AERODROME -ATC-04	AERODROME -ATC-28	AERODROME -ATC-36	PRO-201a				
OI step -	[AO-0201-A]-Enhanced Ground Controller Situational Awareness in all Weather Conditions with ADS-B								
	Enablers -	A/C-48a	AERODROME -ATC-57 AOP11.2	AERODROME -ATC-59					
OI step -	[POI-0071-SUR]-ADS-B Surveillance of aircraft in flight and on the airport surface								
	Enablers -	CTE-S03b							
OI step -	- No OI Link -								
	Enablers -	CTE-S02b	CTE-S04b						

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

-none-

Essential Operational Changes

Airport and TMA performance

SESAR Solution

#110 - ADS-B surveillance of aircraft in flight and on the surface, #70 - Enhanced Ground Controller Situation Awareness in all Weather Conditions

ICAO GANP - ASBUs

SURF-B0/2	Comprehensive situational awareness of surface operations

Deployment Programme

- none -	

European Plan for Aviation Safety

MST.029	Implementation of SESAR Runway safety solutions

Operating Environments

Airport

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
AOP04.1-REG01	Mandate the carriage of required aircraft equipment to enable location and identification of aircraft on the movement area (including military aircraft, as appropriate)	01/01/2007	31/12/2010
AOP04.1-REG02	Mandate the carriage of required vehicle equipment to enable location and identification of vehicles on the manoeuvring area	01/01/2007	31/12/2010
AOP04.1-REG03	Publish A-SMGCS Surveillance procedures (including transponder operating procedures) in national aeronautical information publications	01/01/2007	31/12/2010
AOP04.1-REG04	Approve A-SMGCS Surveillance implementations for operation	**DELETED**	
AOP04.1-ASP01	Install required surveillance equipment	01/01/2007	01/01/2021
AOP04.1-ASP02	Train aerodrome control staff in the use of A-SMGCS Surveillance in the provision of aerodrome control service	01/01/2007	01/01/2021
AOP04.1-ASP03	Implement approved A-SMGCS operational procedures at airports equipped with A-SMGCS	01/01/2007	01/01/2021
AOP04.1-APO01	Install required surveillance equipment	01/01/2007	01/01/2021
AOP04.1-APO02	Equip Ground Vehicles	01/01/2007	01/01/2021
AOP04.1-APO03	Train ground vehicle drivers	01/01/2007	01/01/2021
AOP04.1-USE01	Update aircrew training manual to include procedures for use of correct Mode-S transponder setting for enabling cooperative A-SMGCS detection on the movement area	**FINALISED**	
AOP04.1-INT01	Coordinate amendments to the related ICAO documentation to include A-SMGCS (Surveillance Service - ICAO Level 1) procedures	**FINALISED**	

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Through improved situational awareness of the controller, especially during periods of reduced visibility and darkness.
Capacity:	Traffic throughput notably increased in low visibility conditions.
Operational Efficiency:	More efficient control of surface traffic.
Cost Efficiency:	-
Environment:	Reduction in fuel burn and emissions.
Security:	-

Detailed SLoA Descriptions

AOP04.1-REG01	**Mandate the carriage of required aircraft equipment to enable location and identification of aircraft on the movement area (including military aircraft, as appropriate)**	From: 01/01/2007	By: 31/12/2010
Action by:	**State Authorities**		
Description & purpose:	Mandate the equipage of aircraft operating into airports equipped with A-SMGCS Surveillance with the necessary systems to provide their position and identity to the A-SMGCS Surveillance system.		

AOP04.1	Advanced Surface Movement Guidance and Control System A-SMGCS Surveillance Service (former ICAO Level 1)

Supporting material(s):	EUROCAE - ED-116 - Minimum Operational Performance Specification for Surface Movement Radar Sensor Systems for Use in A-SMGCS 01/2004 Url : http://boutique.eurocae.net/catalog/index.php EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - Edition 2.0 / 04/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services ETSI - EN 303 213-1 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 1: A-SMGCS Level 1 including external interfaces; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 2.1.1 / 06/2020 Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp ETSI - EN 303 213-3 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 3: Deployed cooperative sensor including its interfaces; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 2.1.1 / 06/2020 Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp ETSI - EN 303 213-4-1 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 4: Deployed non-cooperative sensor including its interfaces; Sub-part 1: Generic requirements for non-cooperative sensor; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 2.1.1. / 09/2020 Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp ETSI - EN 303 213-4-2 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 4: Deployed non-cooperative sensor including its interfaces; Sub-part 2: Specific requirements for a deployed Surface Movement Radar sensor; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 2.1.1 / 09/2020 Url : https://portal.etsi.org/webapp/WorkProgram/Report_WorkItem.asp?WKI_ID=58962&curItemNr=1&totalNrItems=1&optDisplay=10&gSORT=HIGHVERSION&gETSI_ALL=&SearchPage=TRUE&gETSI_NUMBER=303+213%2D4%2D2&gINCLUDE_SUB_TB=True&gINCLUDE_MOVED_ON=&gSTOP_FLG=&gKEYWORD_BOOLEAN=&gCLUSTER_BOOLEAN=&gFREQUENCIES_BOOLEAN=&gSTOPPING_OUTDATED=&butSimple=Search&includeNonActiveTB=FALSE&includeSubProjectCode=&gREPORT_TYPE=SUMMARY ICAO - Doc 9830 - Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Manual - Edition 1 / 12/2004 Url : http://www.icao.int/publications/Pages/catalogue.aspx EUROCAE - ED-117 Revision - A MOPS for Mode S Multilateration Systems for Use in Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-117a/ EUROCAE - ED-87E - MASPS for A-SMGCS including Airport Safety Support Service Routing Service and Guidance Service - April 2022 / 04/2022 Url : https://www.eurocae.net/news/posts/2022/may/ed-87e-masps-for-a-smgcs-including-airport-safety-support-service-routing-service-and-guidance-service/		
Finalisation criteria:	1 - Mandate to equip the aircraft operating into the airports equipped for A-SMGCS Surveillance with necessary systems to provide position and identity to A-SMGCS Surveillance system has been issued by the regulator. 2 - Airworthiness certificate has been issued by the regulator for aircraft equipped with A-SMGCS Surveillance capabilities. 3 - Transponder operating procedure published in AIP.		
AOP04.1-REG02	**Mandate the carriage of required vehicle equipment to enable location and identification of vehicles on the manoeuvring area**	From: 01/01/2007	By: 31/12/2010
Action by:	**State Authorities**		
Description & purpose:	Mandate the equipage of vehicles operating on the manoeuvring area of airports equipped with A-SMGCS Surveillance with the necessary systems to provide their position and identity to the A-SMGCS Surveillance system.		

AOP04.1	Advanced Surface Movement Guidance and Control System A-SMGCS Surveillance Service (former ICAO Level 1)

Supporting material(s):	EUROCAE - ED-116 - Minimum Operational Performance Specification for Surface Movement Radar Sensor Systems for Use in A-SMGCS 01/2004 Url : http://boutique.eurocae.net/catalog/index.php EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - Edition 2.0 / 04/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services ETSI - EN 303 213-1 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 1: A-SMGCS Level 1 including external interfaces; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 2.1.1 / 06/2020 Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp ETSI - EN 303 213-3 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 3: Deployed cooperative sensor including its interfaces; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 2.1.1 / 06/2020 Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp ETSI - EN 303 213-4-1 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 4: Deployed non-cooperative sensor including its interfaces; Sub-part 1: Generic requirements for non-cooperative sensor; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 2.1.1. / 09/2020 Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp ETSI - EN 303 213-4-2 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 4: Deployed non-cooperative sensor including its interfaces; Sub-part 2: Specific requirements for a deployed Surface Movement Radar sensor; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 2.1.1 / 09/2020 Url : https://portal.etsi.org/webapp/WorkProgram/Report_WorkItem.asp?WKI_ID=58962&curItemNr=1&totalNrItems=1&optDisplay=10&gSORT=HIGHVERSION&gETSI_ALL=&SearchPage=TRUE&gETSI_NUMBER=303+213%2D4%2D2&gINCLUDE_SUB_TB=True&gINCLUDE_MOVED_ON=&gSTOP_FLG=&gKEYWORD_BOOLEAN=&gCLUSTER_BOOLEAN=&gFREQUENCIES_BOOLEAN=&gSTOPPING_OUTDATED=&butSimple=Search&includeNonActiveTB=FALSE&includeSubProjectCode=&gREPORT_TYPE=SUMMARY ICAO - Doc 9774 - Manual on Certification of Aerodromes - Edition 1 / 12/2001 Url : https://store.icao.int/ ICAO - Doc 9830 - Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Manual - Edition 1 / 12/2004 Url : http://www.icao.int/publications/Pages/catalogue.aspx EUROCAE - ED-117 Revision - A MOPS for Mode S Multilateration Systems for Use in Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-117a/ EUROCAE - ED-87E - MASPS for A-SMGCS including Airport Safety Support Service Routing Service and Guidance Service - April 2022 / 04/2022 Url : https://www.eurocae.net/news/posts/2022/may/ed-87e-masps-for-a-smgcs-including-airport-safety-support-service-routing-service-and-guidance-service/		
Finalisation criteria:	1 - Mandate to equip the vehicles operating on the manoeuvring area of the airports equipped with A-SMGCS Surveillance with necessary systems to provide position and identity to A-SMGCS surveillance system has been issued by the regulator. 2 - Operating certificate has been issued by the regulator for the vehicles equipped with A-SMGCS Surveillance capabilities.		
AOP04.1-REG03	**Publish A-SMGCS Surveillance procedures (including transponder operating procedures) in national aeronautical information publications**	From: 01/01/2007	By: 31/12/2010
Action by:	**State Authorities**		
Description & purpose:	Incorporate the agreed and validated A-SMGCS Surveillance operating procedures into national aeronautical information publications.		

AOP04.1	Advanced Surface Movement Guidance and Control System A-SMGCS Surveillance Service (former ICAO Level 1)

Supporting material(s):	EUROCAE - ED-116 - Minimum Operational Performance Specification for Surface Movement Radar Sensor Systems for Use in A-SMGCS 01/2004 Url : http://boutique.eurocae.net/catalog/index.php EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - Edition 2.0 / 04/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services ETSI - EN 303 213-1 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 1: A-SMGCS Level 1 including external interfaces; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 2.1.1 / 06/2020 Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp ETSI - EN 303 213-3 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 3: Deployed cooperative sensor including its interfaces; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 2.1.1 / 06/2020 Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp ETSI - EN 303 213-4-1 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 4: Deployed non-cooperative sensor including its interfaces; Sub-part 1: Generic requirements for non-cooperative sensor; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 2.1.1. / 09/2020 Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp ETSI - EN 303 213-4-2 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 4: Deployed non-cooperative sensor including its interfaces; Sub-part 2: Specific requirements for a deployed Surface Movement Radar sensor; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 2.1.1 / 09/2020 Url : https://portal.etsi.org/webapp/WorkProgram/Report_WorkItem.asp?WKI_ID=58962&curItemNr=1&totalNrItems=1&optDisplay=10&gSORT=HIGHVERSION&gETSI_ALL=&SearchPage=TRUE&gETSI_NUMBER=303+213%2D4%2D2&gINCLUDE_SUB_TB=True&gINCLUDE_MOVED_ON=&gSTOP_FLG=&gKEYWORD_BOOLEAN=&gCLUSTER_BOOLEAN=&gFREQUENCIES_BOOLEAN=&gSTOPPING_OUTDATED=&butSimple=Search&includeNonActiveTB=FALSE&includeSubProjectCode=&gREPORT_TYPE=SUMMARY ICAO - Doc 9774 - Manual on Certification of Aerodromes - Edition 1 / 12/2001 Url : https://store.icao.int/ ICAO - Doc 9830 - Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Manual - Edition 1 / 12/2004 Url : http://www.icao.int/publications/Pages/catalogue.aspx EUROCAE - ED-117 Revision - A MOPS for Mode S Multilateration Systems for Use in Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-117a/ EUROCAE - ED-87E - MASPS for A-SMGCS including Airport Safety Support Service Routing Service and Guidance Service - April 2022 / 04/2022 Url : https://www.eurocae.net/news/posts/2022/may/ed-87e-masps-for-a-smgcs-including-airport-safety-support-service-routing-service-and-guidance-service/		
Finalisation criteria:	1 - Agreed and validated procedures have been incorporated into national aeronautical information publication (AIP). 2 - Transponder operating procedure published in AIP.		
AOP04.1-ASP01	**Install required surveillance equipment**	From: 01/01/2007	By: 01/01/2021
Action by:	**ANS Providers**		
Description & purpose:	Install all the surveillance equipment and related systems as specified in the specifications for A-SMGCS Surveillance, in order to enable aerodrome controllers to locate and identify aircraft and vehicles on the manoeuvring area (in co-operation with Airport operators, as appropriate). Such equipment must include both non-cooperative sensors (e.g. SMR) and co-operative sensors (e.g. Mode S Multilateration, ADS-B).		

AOP04.1	Advanced Surface Movement Guidance and Control System A-SMGCS Surveillance Service (former ICAO Level 1)

Supporting material(s):	EUROCAE - ED-116 - Minimum Operational Performance Specification for Surface Movement Radar Sensor Systems for Use in A-SMGCS 01/2004 Url : http://boutique.eurocae.net/catalog/index.php EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - Edition 2.0 / 04/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services ETSI - EN 303 213-1 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 1: A-SMGCS Level 1 including external interfaces; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 2.1.1 / 06/2020 Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp ETSI - EN 303 213-3 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 3: Deployed cooperative sensor including its interfaces; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 2.1.1 / 06/2020 Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp ETSI - EN 303 213-4-1 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 4: Deployed non-cooperative sensor including its interfaces; Sub-part 1: Generic requirements for non-cooperative sensor; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 2.1.1. / 09/2020 Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp ETSI - EN 303 213-4-2 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 4: Deployed non-cooperative sensor including its interfaces; Sub-part 2: Specific requirements for a deployed Surface Movement Radar sensor; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 2.1.1 / 09/2020 Url : https://portal.etsi.org/webapp/WorkProgram/Report_WorkItem.asp?WKI_ID=58962&curItemNr=1&totalNrItems=1&optDisplay=10&gSORT=HIGHVERSION&gETSI_ALL=&SearchPage=TRUE&gETSI_NUMBER=303+213%2D4%2D2&gINCLUDE_SUB_TB=True&gINCLUDE_MOVED_ON=&gSTOP_FLG=&gKEYWORD_BOOLEAN=&gCLUSTER_BOOLEAN=&gFREQUENCIES_BOOLEAN=&gSTOPPING_OUTDATED=&butSimple=Search&includeNonActiveTB=FALSE&includeSubProjectCode=&gREPORT_TYPE=SUMMARY ICAO - Doc 9830 - Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Manual - Edition 1 / 12/2004 Url : http://www.icao.int/publications/Pages/catalogue.aspx EUROCAE - ED-117 Revision - A MOPS for Mode S Multilateration Systems for Use in Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-117a/ EUROCAE - ED-87E - MASPS for A-SMGCS including Airport Safety Support Service Routing Service and Guidance Service - April 2022 / 04/2022 Url : https://www.eurocae.net/news/posts/2022/may/ed-87e-masps-for-a-smgcs-including-airport-safety-support-service-routing-service-and-guidance-service/		
ATM Master Plan relationship:	[AERODROME-ATC-04]-ANSP Civil ATS Aerodrome service providers (incl. Civil AMS Apron Management Service) [AERODROME-ATC-28]-Surface movement control workstation equipped with initial tools for Aerodrome Control Service [AERODROME-ATC-36]-Airport surveillance data processing and distribution upgraded to store and forward flight plan data [AERODROME-ATC-59]-Enhanced Surveillance data processing on Airport Surface (APT) [CTE-S02b]-Surface Movement Radar [CTE-S03b]-ADS-B station for RAD and APT surveillance [CTE-S04b]-Airport Multilateration (MLAT)		
Finalisation criteria:	1 - Surveillance equipment that meets required performance specifications have been installed.		
AOP04.1-ASP02	**Train aerodrome control staff in the use of A-SMGCS Surveillance in the provision of aerodrome control service**	From: 01/01/2007	By: 01/01/2021
Action by:	**ANS Providers**		
Description & purpose:	Train aerodrome controllers in the use of A-SMGCS Surveillance tools and procedures (including phraseology) in accordance with agreed training requirements.		
Supporting material(s):	EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - Edition 2.0 / 04/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services EUROCONTROL - ATCO Rating Training - Training Plans: Aerodrome Training - Annex B: Detailed Training Plans - Edition 1.0 / 03/2004 Url : https://trainingzone.eurocontrol.int		
Finalisation criteria:	1 - Controllers' training has been completed in accordance with agreed training requirements and programme.		
AOP04.1-ASP03	**Implement approved A-SMGCS operational procedures at airports equipped with A-SMGCS**	From: 01/01/2007	By: 01/01/2021

AOP04.1	Advanced Surface Movement Guidance and Control System A-SMGCS Surveillance Service (former ICAO Level 1)

Action by:	**ANS Providers**		
Description & purpose:	Develop and apply agreed and validated A-SMGCS Surveillance procedures as an integral part of the aerodrome control service.		
Supporting material(s):	EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - Edition 2.0 / 04/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services		
ATM Master Plan relationship:	[PRO-201a]-Procedures linked to Improvement of Surveillance on the Manoeuvring Area on and around the Runway		
Finalisation criteria:	1 - Implementation of the procedures at airports equipped with A-SMGCS Surveillance has been completed. 2 - Harmonised application of transponder operating procedures consistent with the equipment in use.		
AOP04.1-APO01	**Install required surveillance equipment**	From: 01/01/2007	By: 01/01/2021
Action by:	**Airport Operators**		
Description & purpose:	Install all the surveillance equipment and related systems as specified in the functional specifications for A-SMGCS, in order to enable aerodrome controllers to locate and identify aircraft and vehicles on the manoeuvring area (in co-operation with ANS provider, as appropriate). Such equipment must include both non-cooperative sensors (e.g. SMR) and co-operative sensors (e.g. Mode S Multilateration, ADS-B).		
Supporting material(s):	EUROCAE - ED-116 - Minimum Operational Performance Specification for Surface Movement Radar Sensor Systems for Use in A-SMGCS 01/2004 Url : http://boutique.eurocae.net/catalog/index.php EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - Edition 2.0 / 04/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services ETSI - EN 303 213-1 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 1: A-SMGCS Level 1 including external interfaces; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 2.1.1 / 06/2020 Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp ETSI - EN 303 213-3 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 3: Deployed cooperative sensor including its interfaces; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 2.1.1 / 06/2020 Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp ETSI - EN 303 213-4-1 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 4: Deployed non-cooperative sensor including its interfaces; Sub-part 1: Generic requirements for non-cooperative sensor; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 2.1.1. / 09/2020 Url : http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp ETSI - EN 303 213-4-2 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 4: Deployed non-cooperative sensor including its interfaces; Sub-part 2: Specific requirements for a deployed Surface Movement Radar sensor; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 2.1.1 / 09/2020 Url : https://portal.etsi.org/webapp/WorkProgram/Report_WorkItem.asp?WKI_ID=58962&curItemNr=1&totalNrItems=1&optDisplay=10&gSORT=HIGHVERSION&gETSI_ALL=&SearchPage=TRUE&gETSI_NUMBER=303+213%2D4%2D2&gINCLUDE_SUB_TB=True&gINCLUDE_MOVED_ON=&gSTOP_FLG=&gKEYWORD_BOOLEAN=&gCLUSTER_BOOLEAN=&gFREQUENCIES_BOOLEAN=&gSTOPPING_OUTDATED=&butSimple=Search&includeNonActiveTB=FALSE&includeSubProjectCode=&gREPORT_TYPE=SUMMARY ICAO - Doc 9830 - Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Manual - Edition 1 / 12/2004 Url : http://www.icao.int/publications/Pages/catalogue.aspx EUROCAE - ED-117 Revision - A MOPS for Mode S Multilateration Systems for Use in Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-117a/ EUROCAE - ED-87E - MASPS for A-SMGCS including Airport Safety Support Service Routing Service and Guidance Service - April 2022 / 04/2022 Url : https://www.eurocae.net/news/posts/2022/may/ed-87e-masps-for-a-smgcs-including-airport-safety-support-service-routing-service-and-guidance-service/		
ATM Master Plan relationship:	[AERODROME-ATC-04]-ANSP Civil ATS Aerodrome service providers (incl. Civil AMS Apron Management Service) [AERODROME-ATC-28]-Surface movement control workstation equipped with initial tools for Aerodrome Control Service [AERODROME-ATC-36]-Airport surveillance data processing and distribution upgraded to store and forward flight plan data [AERODROME-ATC-59]-Enhanced Surveillance data processing on Airport Surface (APT)		
Finalisation criteria:	1 - Surveillance equipment that meets agreed performance specifications has been installed.		
		From:	By:

AOP04.1	Advanced Surface Movement Guidance and Control System A-SMGCS Surveillance Service (former ICAO Level 1)

AOP04.1-APO02	Equip Ground Vehicles	01/01/2007	01/01/2021
Action by:	**Airport Operators**		
Description & purpose:	Ensure vehicles operating on the manoeuvring area of airports equipped with A-SMGCS Surveillance are equipped with the necessary systems as specified in the functional specifications for A-SMGCS, to provide their position and identity to the A-SMGCS Surveillance system.		
Supporting material(s):	EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - Edition 2.0 / 04/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services		
Finalisation criteria:	1 - Vehicle equipment that meets required performance specifications has been installed.		
AOP04.1-APO03	**Train ground vehicle drivers**	From: 01/01/2007	By: 01/01/2021
Action by:	**Airport Operators**		
Description & purpose:	Ensure drivers of vehicles operating on the manoeuvring area of airports equipped with A-SMGCS Surveillance are trained in the operation of equipment associated with A-SMGCS Surveillance.		
Supporting material(s):	EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - Edition 2.0 / 04/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services		
Finalisation criteria:	1 - Vehicle drivers have been trained and authorized.		

SESAR	Active								APT	
AOP04.2	Advanced Surface Movement Guidance and Control System (A-SMGCS) Runway Monitoring and Conflict Alerting (RMCA) (Airport Safety Support Service = former ICAO Level 2)									
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

Runway Monitoring and Conflict Alerting (RMCA) (included in Airport Safety Support Service = former ICAO Level 2) is the first element of the A-SMGCS 'Airport Safety Support' service. Implementation Objective AOP12 covers the other elements of the Airport Safety Support service which are the Conflicting ATC clearances (CATC) and Conformance Monitoring Alerts for Controllers (CMAC).

Implementation of a Runway Monitoring and Conflict Alerting (RMCA) functionality consists of an airport surface surveillance system (i.e. A-SMGCS Surveillance Service - former ICAO Level 1) complemented with a short term conflicting alerting tool that monitors movements on or near the runway and detects conflicts between an aircraft and another mobile as well as runway incursion by intruders. Appropriate alerts are visualised on the controller's HMI.

The implementation of A-SMGCS Surveillance a pre-requisite for the implementation of Runway Monitoring and Conflict Alerting.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area (Non-CP1 Airports)	See list of airports in MP Level 3 Implementation Plan - Annexes		
Timescales:	**From:**	**By:**	**Applicable to:**
Initial operational capability	01/01/2021		Applicability Area
Full operational capability		31/12/2025	Applicability Area

References

European ATM Master Plan

OI step -	[AO-0102]-Automated Alerting of Controller in Case of Runway Incursion or Intrusion into Restricted Areas								
	Enablers -	AERODROME -ATC-03	ASMGCS-0101	ASMGCS-0102	ASMGCS-0103	ASMGCS-0104	ASMGCS-0113	ASMGCS-0114	ASMGCS-0115
		PRO-139	PRO-201b						
OI step -	- No OI Link -								
	Enablers -	CTE-S02b	CTE-S03b	CTE-S04b					

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

-none-

Essential Operational Changes

Airport and TMA performance

SESAR Solution

- none -

ICAO GANP - ASBUs

SURF-B0/3	Initial ATCO alerting service for surface operations

Deployment Programme

- none -	

European Plan for Aviation Safety

MST.029	Implementation of SESAR Runway safety solutions

AOP04.2	Advanced Surface Movement Guidance and Control System (A-SMGCS) Runway Monitoring and Conflict Alerting (RMCA) (Airport Safety Support Service = former ICAO Level 2)

Operating Environments

Airport

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
AOP04.2-REG01	Approve A-SMGCS RMCA implementations for operation	**DELETED**	
AOP04.2-ASP01	Install required A-SMGCS RMCA function equipment	01/01/2007	31/12/2025
AOP04.2-ASP02	Train aerodrome control staff in the use of A-SMGCS RMCA in the provision of an aerodrome control service	01/01/2007	31/12/2025
AOP04.2-ASP03	Implement approved A-SMGCS RMCA operational procedures	01/01/2007	31/12/2025
AOP04.2-APO01	Install required A-SMGCS RMCA function equipment	01/01/2007	31/12/2025
AOP04.2-INT01	Coordinate amendments to the related ICAO documentation to include A-SMGCS Level 2 procedures (Airport Safety Support Service - former ICAO Level 2)	**FINALISED**	

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Better situational awareness and support to controller in detecting potentially hazardous conflicts on or near the runway or infringements of runway.
Capacity:	-
Operational Efficiency:	More efficient control of surface traffic.
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

AOP04.2-ASP01	**Install required A-SMGCS RMCA function equipment**	From: 01/01/2007	By: 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	Install A-SMGCS Runway Monitoring and Conflict Alerting system (former ICAO Level 2) in order to enable the detection of conflicts & intrusions in accordance with A-SMGCS RMCA requirements (in co-operation with Airport Operators, as appropriate). Such equipment should be provided in addition to the equipment requirements for A-SMGCS Surveillance service (former ICAO Level 1).		
Supporting material(s):	EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - Edition 2.0 / 04/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services EUROCAE - ED-87E - MASPS for A-SMGCS including Airport Safety Support Service Routing Service and Guidance Service - April 2022 / 04/2022 Url : https://www.eurocae.net/news/posts/2022/may/ed-87e-masps-for-a-smgcs-including-airport-safety-support-service-routing-service-and-guidance-service/		
ATM Master Plan relationship:	[AERODROME-ATC-03]-Surface movement control workstation equipped with tools for runway incursion detection and alerting [CTE-S02b]-Surface Movement Radar [CTE-S03b]-ADS-B station for RAD and APT surveillance [CTE-S04b]-Airport Multilateration (MLAT)		
Finalisation criteria:	1 - Equipment that meets agreed performance requirements and specifications of A-SMGCS RMCA has been installed.		
AOP04.2-ASP02	**Train aerodrome control staff in the use of A-SMGCS RMCA in the provision of an aerodrome control service**	From: 01/01/2007	By: 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	Train aerodrome controllers in the use of A-SMGCS RMCA systems and procedures (including phraseology) in accordance with agreed training requirements.		
Supporting material(s):	EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - Edition 2.0 / 04/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services EUROCONTROL - ATCO Rating Training - Training Plans: Aerodrome Training - Annex B: Detailed Training Plans - Edition 1.0 / 03/2004 Url : https://trainingzone.eurocontrol.int		
Finalisation criteria:	1 - Controllers training in accordance with agreed training requirements and programme has been completed.		

AOP04.2	Advanced Surface Movement Guidance and Control System (A-SMGCS) Runway Monitoring and Conflict Alerting (RMCA) (Airport Safety Support Service = former ICAO Level 2)

AOP04.2-ASP03	**Implement approved A-SMGCS RMCA operational procedures**	From: 01/01/2007	By: 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	Apply agreed and validated A-SMGCS RMCA procedures as an integral part of the aerodrome control service.		
Supporting material(s):	EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - Edition 2.0 / 04/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services		
ATM Master Plan relationship:	[PRO-139]-ATC Procedures (Airport) for standardised response to runway incursion alerts [PRO-201a]-Procedures linked to Improvement of Surveillance on the Manoeuvring Area on and around the Runway		
Finalisation criteria:	1 - Local procedures have been developed, implemented, approved/certified and are being used by controllers at airports equipped with A-SMGCS RMCA.		
AOP04.2-APO01	**Install required A-SMGCS RMCA function equipment**	From: 01/01/2007	By: 31/12/2025
Action by:	**Airport Operators**		
Description & purpose:	Install A-SMGCS RMCA systems (former ICAO Level 2) in order to enable the detection of conflicts & intrusions in accordance with A-SMGCS RMCA requirements (in co-operation with ANSPs, as appropriate). Such equipment should be provided in addition to the equipment requirements for A-SMGCS Surveillance service (former ICAO Level 1).		
Supporting material(s):	EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - Edition 2.0 / 04/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services EUROCAE - ED-87E - MASPS for A-SMGCS including Airport Safety Support Service Routing Service and Guidance Service - April 2022 / 04/2022 Url : https://www.eurocae.net/news/posts/2022/may/ed-87e-masps-for-a-smgcs-including-airport-safety-support-service-routing-service-and-guidance-service/		
ATM Master Plan relationship:	[CTE-S04b]-Airport Multilateration (MLAT)		
Finalisation criteria:	1 - Equipment that meets agreed performance requirements and specifications of A-SMGCS RMCA has been installed.		

SESAR			Active							APT
AOP05			Airport Collaborative Decision Making (A-CDM)							
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

Implement Airport CDM (A-CDM) to enhance the operational efficiency of airports and improve their integration into the Air Traffic Management Network (ATMN) while maintaining or improving the safety levels. These objectives are achievable by increasing the information sharing between the local ANSP, airport operator, aircraft operators, ground handlers, the NM and other airport service providers; and improving the cooperation between these partners to enhance the predictability of events and optimise the utilisation of resources therefore increase the efficiency of the overall system.

The Airport CDM concept is built on the following elements:

- The foundations for Airport CDM are Information Sharing and the Milestone Approach. They consist in collaborative information sharing and monitoring of the progress of a flight from the initial planning to the take off. Those two elements allow the airport partners to achieve a common situational awareness and predict the forthcoming events for each flight.

- Variable Taxi Time Calculation, Collaborative Pre-Departure Sequencing (i.e. initial DMAN) and CDM in Adverse Conditions allow the airport partners to further improve the local management of airport operations, whatever the situation at the airport.

- Once A-CDM has been implemented locally, the link with the ATMN can be strengthened through the exchange of flight update messages between the CDM airport and the NM. This last building block of the A-CDM concept facilitates the flow and capacity management, helps reduce uncertainty and increases efficiency at the network level.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area	See list of airports in MP Level 3 Implementation Plan - Annexes		
Timescales:	**From:**	**By:**	**Applicable to:**
Initial operational capability	01/01/2004		Applicability Area
Full operational capability		31/12/2020	Applicability Area

References

European ATM Master Plan

OI step -	[AO-0501]-Improved Operations in Adverse Conditions through Airport Collaborative Decision Making								
	Enablers -	PRO-204a	PRO-204b	PRO-204c	PRO-204d				
OI step -	[AO-0601]-Improved Turn-Round Process through Collaborative Decision Making								
	Enablers -	AIRPORT-31	CDM-01 AOP19	PRO-213a	PRO-213b				
OI step -	[AO-0602]-Collaborative Pre-departure Sequencing								
	Enablers -	CDM-01 AOP19	PRO-214a	PRO-214b					
OI step -	[AO-0603]-Improved De-icing Operation through Collaborative Decision Making								
	Enablers -	AIRPORT-31	CDM-01 AOP19	PRO-073	PRO-075 ENV02				
OI step -	[TS-0201]-Basic Departure Management (Pre-departure Management)								
	Enablers -	AERODROME -ATC-08 AOP19							

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

-none-

Essential Operational Changes

AOP05	Airport Collaborative Decision Making (A-CDM)

Airport and TMA performance

SESAR Solution

- none -

ICAO GANP - ASBUs

ACDM-B0/1	Airport CDM Information Sharing (ACIS)
ACDM-B0/2	Integration with ATM Network function
NOPS-B0/4	Initial Airport/ATFM slots and A-CDM Network Interface

Deployment Programme

- none -	

European Plan for Aviation Safety

- none -	

Operating Environments

Airport
En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
AOP05-ASP01	Define and agree performance objectives and KPIs at local level, specific to ANSP in accordance with A-CDM Manual guidelines	01/01/2004	01/01/2021
AOP05-ASP02	Define and implement local Air Navigation Service (ANS) procedures for information sharing through Letters of Agreement (LoAs) and/or Memorandum of Understanding (MoU) in accordance with A-CDM Manual guidelines	01/01/2004	01/01/2021
AOP05-ASP03	Define and implement local procedures for turnaround processes in accordance with CDM manual guidelines	01/01/2004	01/01/2021
AOP05-ASP04	Continually review and measure airport performance in accordance with Airport CDM Manual guidelines	01/01/2004	01/01/2021
AOP05-ASP05	Define and implement variable taxi-time and predeparture sequencing procedure (i.e. initial DMAN) according to airport CDM Manual guidelines	**DELETED**	
AOP05-ASP06	Define and implement procedures for CDM in adverse conditions, including the de-icing according to airport CDM Manual guidelines	01/01/2012	01/01/2021
AOP05-APO01	Define and agree performance objectives and KPIs at local level specific to airport operations in accordance with A-CDM Manual guidelines	01/01/2004	01/01/2021
AOP05-APO02	Define and implement local airport operations procedures for information sharing through Letters of Agreement (LoAs) and/or Memorandum of Understanding (MoU) in accordance with A-CDM Manual guidelines	01/01/2004	01/01/2021
AOP05-APO03	Define and implement local procedures for turnaround processes in accordance with CDM manual guidelines (baseline CDM)	01/01/2004	01/01/2021
AOP05-APO04	Continually review and measure airport performance in accordance with Airport CDM Manual guidelines	01/01/2004	01/01/2021
AOP05-APO05	Define and implement the exchange of messages, Flight Update Message (FUM) and Departure Planning Information (DPI) between NMOC and the airport in accordance with A-CDM Manual guidelines	01/03/2005	01/01/2021
AOP05-APO06	Define and implement procedures for CDM in adverse conditions including the de-icing according to airport CDM Manual guidelines	01/06/2006	01/01/2021
AOP05-USE01	Define and agree performance objectives and KPIs at local level, specific to aircraft operators, in accordance with A-CDM Manual guidelines	01/01/2004	01/01/2021
AOP05-USE02	Define and implement local aircraft operators procedures for information sharing through LoAs and/or MoU in accordance with A-CDM manual guidelines	01/01/2004	01/01/2021
AOP05-USE03	Define and implement local procedures for turnaround processes in accordance with A-CDM manual guidelines	01/01/2004	01/01/2021

AOP05	Airport Collaborative Decision Making (A-CDM)

AOP05-USE04	Continually review and measure airport performance in accordance with Airport CDM Manual guidelines	01/01/2004	01/01/2021
AOP05-USE05	Define and implement procedures for CDM in adverse conditions including the de-icing according to A-CDM Manual guidelines	01/01/2012	01/01/2021
AOP05-NM01	Update NM systems and define procedures to support the exchange of messages, Flight Update Message (FUM) and Departure Planning Information (DPI) between NMOC and airports in accordance with A-CDM Manual guidelines	**FINALISED**	

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	Improved through optimal use of facilities and services, better use of airport and ATFM slots.
Operational Efficiency:	Improved system efficiency and predictability. Significant decrease in fuel burn through better timed operations.
Cost Efficiency:	Increased airport revenue through additional flights and passengers.
Environment:	Reduced noise and emissions due to limiting engine ground running time due to better timed operations.
Security:	-

Detailed SLoA Descriptions

AOP05-ASP01	**Define and agree performance objectives and KPIs at local level, specific to ANSP in accordance with A-CDM Manual guidelines**	From: 01/01/2004	By: 01/01/2021
Action by:	**ANS Providers**		
Description & purpose:	Agree and define specific performance objectives and KPIs through a local A-CDM committee, in co-operation with other stakeholders involved.		
Supporting material(s):	EUROCAE - ED-145 - Airport-CDM Interface Specification 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-145/ EUROCAE - ED-146 - Guidelines for Test and Validation Related to Airport CDM Interoperability 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-141 - Minimum Technical Specifications for Airport Collaborative Decision Making (Airport-CDM) Systems 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-141/#non-member ETSI - EN 303 212 - Airport Collaborative Decision Making (A-CDM); Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010C168/04 / 06/2010 Url : https://www.etsi.org/deliver/etsi_en/303200_303299/303212/01.01.01_30/en_303212v010101v.pdf EUROCONTROL - Airport CDM Implementation Manual - Edition 5.0 / 03/2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/airport-cdm-manual-2017.PDF		
Finalisation criteria:	1 - List of performance objectives and KPIs has been agreed.		
AOP05-ASP02	**Define and implement local Air Navigation Service (ANS) procedures for information sharing through Letters of Agreement (LoAs) and/or Memorandum of Understanding (MoU) in accordance with A-CDM Manual guidelines**	From: 01/01/2004	By: 01/01/2021
Action by:	**ANS Providers**		
Description & purpose:	Agree, define and implement local procedures for information sharing and information management systems based on A-CDM Implementation Manual, in co-operation with other stakeholders involved.		
Supporting material(s):	EUROCAE - ED-145 - Airport-CDM Interface Specification 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-145/ EUROCAE - ED-146 - Guidelines for Test and Validation Related to Airport CDM Interoperability 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-141 - Minimum Technical Specifications for Airport Collaborative Decision Making (Airport-CDM) Systems 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-141/#non-member ETSI - EN 303 212 - Airport Collaborative Decision Making (A-CDM); Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010C168/04 / 06/2010 Url : https://www.etsi.org/deliver/etsi_en/303200_303299/303212/01.01.01_30/en_303212v010101v.pdf EUROCONTROL - Airport CDM Implementation Manual - Edition 5.0 / 03/2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/airport-cdm-manual-2017.PDF		
ATM Master Plan relationship:	[AIRPORT-31]-Airport CDM (levels 1, 2 & 3)		
Finalisation criteria:	1 - Agreed LoA or MoU between the Airport CDM Partners has been signed.		
AOP05-ASP03	**Define and implement local procedures for turnaround processes in accordance with CDM manual guidelines**	From: 01/01/2004	By: 01/01/2021

AOP05	Airport Collaborative Decision Making (A-CDM)

Action by:	**ANS Providers**		
Description & purpose:	Define and implement local procedures for turnaround processes (milestone approach) based on A-CDM Implementation Manual and through LoAs.		
Supporting material(s):	EUROCAE - ED-145 - Airport-CDM Interface Specification 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-145/ EUROCAE - ED-146 - Guidelines for Test and Validation Related to Airport CDM Interoperability 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-141 - Minimum Technical Specifications for Airport Collaborative Decision Making (Airport-CDM) Systems 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-141/#non-member ETSI - EN 303 212 - Airport Collaborative Decision Making (A-CDM); Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010C168/04 / 06/2010 Url : https://www.etsi.org/deliver/etsi_en/303200_303299/303212/01.01.01_30/en_303212v010101v.pdf EUROCONTROL - Airport CDM Implementation Manual - Edition 5.0 / 03/2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/airport-cdm-manual-2017.PDF		
ATM Master Plan relationship:	[PRO-213a]-CDM information sharing Airport Procedures for turn-around		
Finalisation criteria:	1 - Agreed LoA or MoU between the A-CDM Partners has been signed.		
AOP05-ASP04	**Continually review and measure airport performance in accordance with Airport CDM Manual guidelines**	From: 01/01/2004	By: 01/01/2021
Action by:	**ANS Providers**		
Description & purpose:	Measure performance (KPIs) according to agreed success criteria, and quantify the benefits at local airport after implementation and through a local A-CDM committee.		
Supporting material(s):	EUROCAE - ED-145 - Airport-CDM Interface Specification 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-145/ EUROCAE - ED-146 - Guidelines for Test and Validation Related to Airport CDM Interoperability 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-141 - Minimum Technical Specifications for Airport Collaborative Decision Making (Airport-CDM) Systems 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-141/#non-member ETSI - EN 303 212 - Airport Collaborative Decision Making (A-CDM); Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010C168/04 / 06/2010 Url : https://www.etsi.org/deliver/etsi_en/303200_303299/303212/01.01.01_30/en_303212v010101v.pdf EUROCONTROL - Airport CDM Implementation Manual - Edition 5.0 / 03/2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/airport-cdm-manual-2017.PDF		
Finalisation criteria:	1 - Results/benefits at airport have been published.		
AOP05-ASP06	**Define and implement procedures for CDM in adverse conditions, including the de-icing according to airport CDM Manual guidelines**	From: 01/01/2012	By: 01/01/2021
Action by:	**ANS Providers**		
Description & purpose:	Agree, define and implement local CDM procedures to manage adverse conditions based on A-CDM Implementation Manual, in co-operation with other stakeholders involved.		
Supporting material(s):	EUROCAE - ED-145 - Airport-CDM Interface Specification 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-145/ EUROCAE - ED-146 - Guidelines for Test and Validation Related to Airport CDM Interoperability 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-141 - Minimum Technical Specifications for Airport Collaborative Decision Making (Airport-CDM) Systems 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-141/#non-member ETSI - EN 303 212 - Airport Collaborative Decision Making (A-CDM); Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010C168/04 / 06/2010 Url : https://www.etsi.org/deliver/etsi_en/303200_303299/303212/01.01.01_30/en_303212v010101v.pdf EUROCONTROL - Airport CDM Implementation Manual - Edition 5.0 / 03/2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/airport-cdm-manual-2017.PDF		
ATM Master Plan relationship:	[PRO-073]-Airport Procedures to maximise throughput of de-icing stands [PRO-204b]-Collaborative Procedures (ATC) for improving Airport Operations in Adverse Conditions		
Finalisation criteria:	1 - LoA or MoU between the Airport CDM Partners has been agreed. 2 - CDM procedures for the management of adverse conditions, including de-icing, have been established.		
		From:	By:

AOP05	Airport Collaborative Decision Making (A-CDM)

AOP05-APO01	**Define and agree performance objectives and KPIs at local level specific to airport operations in accordance with A-CDM Manual guidelines**	01/01/2004	01/01/2021
Action by:	**Airport Operators**		
Description & purpose:	Agree and define specific performance objectives and KPIs through a local A-CDM committee, in co-operation with other stakeholders involved.		
Supporting material(s):	EUROCAE - ED-145 - Airport-CDM Interface Specification 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-145/ EUROCAE - ED-146 - Guidelines for Test and Validation Related to Airport CDM Interoperability 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-141 - Minimum Technical Specifications for Airport Collaborative Decision Making (Airport-CDM) Systems 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-141/#non-member ETSI - EN 303 212 - Airport Collaborative Decision Making (A-CDM); Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010C168/04 / 06/2010 Url : https://www.etsi.org/deliver/etsi_en/303200_303299/303212/01.01.01_30/en_303212v010101v.pdf EUROCONTROL - Airport CDM Implementation Manual - Edition 5.0 / 03/2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/airport-cdm-manual-2017.PDF		
Finalisation criteria:	1 - List of performance objectives and KPIs has been agreed.		
AOP05-APO02	**Define and implement local airport operations procedures for information sharing through Letters of Agreement (LoAs) and/or Memorandum of Understanding (MoU) in accordance with A-CDM Manual guidelines**	From: 01/01/2004	By: 01/01/2021
Action by:	**Airport Operators**		
Description & purpose:	Agree, define and implement local procedures for information sharing and information management systems based on A-CDM Implementation Manual, in co-operation with other stakeholders involved.		
Supporting material(s):	EUROCAE - ED-145 - Airport-CDM Interface Specification 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-145/ EUROCAE - ED-146 - Guidelines for Test and Validation Related to Airport CDM Interoperability 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-141 - Minimum Technical Specifications for Airport Collaborative Decision Making (Airport-CDM) Systems 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-141/#non-member ETSI - EN 303 212 - Airport Collaborative Decision Making (A-CDM); Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010C168/04 / 06/2010 Url : https://www.etsi.org/deliver/etsi_en/303200_303299/303212/01.01.01_30/en_303212v010101v.pdf EUROCONTROL - Airport CDM Implementation Manual - Edition 5.0 / 03/2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/airport-cdm-manual-2017.PDF		
ATM Master Plan relationship:	[AIRPORT-31]-Airport CDM (levels 1, 2 & 3)		
Finalisation criteria:	1 - LoA or MoU between the A-CDM Partners has been agreed. 2 - Information sharing has been implemented.		
AOP05-APO03	**Define and implement local procedures for turnaround processes in accordance with CDM manual guidelines (baseline CDM)**	From: 01/01/2004	By: 01/01/2021
Action by:	**Airport Operators**		
Description & purpose:	Define and implement local procedures for turnaround processes (milestone approach) based on A-CDM Implementation Manual and through LoAs.		
Supporting material(s):	EUROCAE - ED-145 - Airport-CDM Interface Specification 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-145/ EUROCAE - ED-146 - Guidelines for Test and Validation Related to Airport CDM Interoperability 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-141 - Minimum Technical Specifications for Airport Collaborative Decision Making (Airport-CDM) Systems 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-141/#non-member ETSI - EN 303 212 - Airport Collaborative Decision Making (A-CDM); Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010C168/04 / 06/2010 Url : https://www.etsi.org/deliver/etsi_en/303200_303299/303212/01.01.01_30/en_303212v010101v.pdf EUROCONTROL - Airport CDM Implementation Manual - Edition 5.0 / 03/2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/airport-cdm-manual-2017.PDF		

AOP05	Airport Collaborative Decision Making (A-CDM)

ATM Master Plan relationship:	[PRO-213a]-CDM information sharing Airport Procedures for turn-around		
Finalisation criteria:	1 - LoA or MoU between the A-CDM Partners has been agreed.		
AOP05-APO04	**Continually review and measure airport performance in accordance with Airport CDM Manual guidelines**	From: 01/01/2004	By: 01/01/2021
Action by:	**Airport Operators**		
Description & purpose:	Measure performance (KPIs) according to agreed success criteria, and quantify the benefits at local airport after implementation and through a local A-CDM committee.		
Supporting material(s):	EUROCAE - ED-145 - Airport-CDM Interface Specification 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-145/ EUROCAE - ED-146 - Guidelines for Test and Validation Related to Airport CDM Interoperability 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-141 - Minimum Technical Specifications for Airport Collaborative Decision Making (Airport-CDM) Systems 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-141/#non-member ETSI - EN 303 212 - Airport Collaborative Decision Making (A-CDM); Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010C168/04 / 06/2010 Url : https://www.etsi.org/deliver/etsi_en/303200_303299/303212/01.01.01_30/en_303212v010101v.pdf EUROCONTROL - Airport CDM Implementation Manual - Edition 5.0 / 03/2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/airport-cdm-manual-2017.PDF		
Finalisation criteria:	1 - Results/benefits at airport have been published.		
AOP05-APO05	**Define and implement the exchange of messages, Flight Update Message (FUM) and Departure Planning Information (DPI) between NMOC and the airport in accordance with A-CDM Manual guidelines**	From: 01/03/2005	By: 01/01/2021
Action by:	**Airport Operators**		
Description & purpose:	Agree, define and implement local procedures for exchange of messages (FUMs and DPIs) between NM and the airport based on A-CDM Implementation Manual, in co-operation with other stakeholders involved.		
Supporting material(s):	EUROCAE - ED-145 - Airport-CDM Interface Specification 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-145/ EUROCAE - ED-146 - Guidelines for Test and Validation Related to Airport CDM Interoperability 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-141 - Minimum Technical Specifications for Airport Collaborative Decision Making (Airport-CDM) Systems 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-141/#non-member ETSI - EN 303 212 - Airport Collaborative Decision Making (A-CDM); Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010C168/04 / 06/2010 Url : https://www.etsi.org/deliver/etsi_en/303200_303299/303212/01.01.01_30/en_303212v010101v.pdf EUROCONTROL - Airport CDM Implementation Manual - Edition 5.0 / 03/2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/airport-cdm-manual-2017.PDF		
ATM Master Plan relationship:	[PRO-214a]-Airport CDM Procedures for pre-departure sequencing		
Finalisation criteria:	1 - LoA or MoU between the A-CDM Partners and the NM has been agreed. 2 - Exchange of messages has been implemented.		
AOP05-APO06	**Define and implement procedures for CDM in adverse conditions including the de-icing according to airport CDM Manual guidelines**	From: 01/06/2006	By: 01/01/2021
Action by:	**Airport Operators**		
Description & purpose:	Agree, define and implement local CDM procedures to manage adverse conditions based on A-CDM Implementation Manual, in co-operation with other stakeholders involved.		

AOP05	Airport Collaborative Decision Making (A-CDM)

Supporting material(s):	EUROCAE - ED-145 - Airport-CDM Interface Specification 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-145/ EUROCAE - ED-146 - Guidelines for Test and Validation Related to Airport CDM Interoperability 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-141 - Minimum Technical Specifications for Airport Collaborative Decision Making (Airport-CDM) Systems 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-141/#non-member ETSI - EN 303 212 - Airport Collaborative Decision Making (A-CDM); Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010C168/04 / 06/2010 Url : https://www.etsi.org/deliver/etsi_en/303200_303299/303212/01.01.01_30/en_303212v010101v.pdf EUROCONTROL - Airport CDM Implementation Manual - Edition 5.0 / 03/2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/airport-cdm-manual-2017.PDF		
ATM Master Plan relationship:	[PRO-073]-Airport Procedures to maximise throughput of de-icing stands [PRO-204a]-Collaborative Procedures (Airport) for improving Airport Operations in Adverse Conditions		
Finalisation criteria:	1 - LoA or MoU between the A-CDM partners has been agreed. 2 - CDM procedures for the management of adverse conditions, including de-icing, have been established.		
AOP05-USE01	**Define and agree performance objectives and KPIs at local level, specific to aircraft operators, in accordance with A-CDM Manual guidelines**	From: 01/01/2004	By: 01/01/2021
Action by:	**Airspace Users**		
Description & purpose:	Agree and define specific performance objectives and KPIs at local level, in co-operation with airport and ANSP.		
Supporting material(s):	EUROCAE - ED-145 - Airport-CDM Interface Specification 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-145/ EUROCAE - ED-146 - Guidelines for Test and Validation Related to Airport CDM Interoperability 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-141 - Minimum Technical Specifications for Airport Collaborative Decision Making (Airport-CDM) Systems 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-141/#non-member ETSI - EN 303 212 - Airport Collaborative Decision Making (A-CDM); Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010C168/04 / 06/2010 Url : https://www.etsi.org/deliver/etsi_en/303200_303299/303212/01.01.01_30/en_303212v010101v.pdf EUROCONTROL - Airport CDM Implementation Manual - Edition 5.0 / 03/2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/airport-cdm-manual-2017.PDF		
Finalisation criteria:	1 - List of performance objectives and KPIs have been agreed with ANSP and AO.		
AOP05-USE02	**Define and implement local aircraft operators procedures for information sharing through LoAs and/or MoU in accordance with A-CDM manual guidelines**	From: 01/01/2004	By: 01/01/2021
Action by:	**Airspace Users**		
Description & purpose:	Agree, define and implement local procedures for information sharing and information management systems based on A-CDM Implementation Manual, in co-operation with other stakeholders involved.		
Supporting material(s):	EUROCAE - ED-145 - Airport-CDM Interface Specification 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-145/ EUROCAE - ED-146 - Guidelines for Test and Validation Related to Airport CDM Interoperability 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-141 - Minimum Technical Specifications for Airport Collaborative Decision Making (Airport-CDM) Systems 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-141/#non-member ETSI - EN 303 212 - Airport Collaborative Decision Making (A-CDM); Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010C168/04 / 06/2010 Url : https://www.etsi.org/deliver/etsi_en/303200_303299/303212/01.01.01_30/en_303212v010101v.pdf EUROCONTROL - Airport CDM Implementation Manual - Edition 5.0 / 03/2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/airport-cdm-manual-2017.PDF		
ATM Master Plan relationship:	[AIRPORT-31]-Airport CDM (levels 1, 2 & 3)		
Finalisation criteria:	1 - LoA or MoU between the A-CDM partners has been agreed.		
AOP05-USE03	**Define and implement local procedures for turnaround processes in accordance with A-CDM manual guidelines**	From: 01/01/2004	By: 01/01/2021
Action by:	**Airspace Users**		

AOP05	Airport Collaborative Decision Making (A-CDM)

Description & purpose:	Define and implement local procedures for turnaround processes (milestone approach) based on A-CDM Implementation Manual and through LoAs.		
Supporting material(s):	EUROCAE - ED-145 - Airport-CDM Interface Specification 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-145/ EUROCAE - ED-146 - Guidelines for Test and Validation Related to Airport CDM Interoperability 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-141 - Minimum Technical Specifications for Airport Collaborative Decision Making (Airport-CDM) Systems 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-141/#non-member ETSI - EN 303 212 - Airport Collaborative Decision Making (A-CDM); Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010C168/04 / 06/2010 Url : https://www.etsi.org/deliver/etsi_en/303200_303299/303212/01.01.01_30/en_303212v010101v.pdf EUROCONTROL - Airport CDM Implementation Manual - Edition 5.0 / 03/2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/airport-cdm-manual-2017.PDF		
ATM Master Plan relationship:	[PRO-213b]-CDM information sharing Airline Procedures for turn-around		
Finalisation criteria:	1 - LoA or MoU between the A-CDM partners has been agreed.		
AOP05-USE04	**Continually review and measure airport performance in accordance with Airport CDM Manual guidelines**	From: 01/01/2004	By: 01/01/2021
Action by:	**Airspace Users**		
Description & purpose:	Measure performance (KPIs) according to agreed success criteria and quantify the benefits at local airport after implementation and through a local A-CDM committee.		
Supporting material(s):	EUROCAE - ED-145 - Airport-CDM Interface Specification 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-145/ EUROCAE - ED-146 - Guidelines for Test and Validation Related to Airport CDM Interoperability 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-141 - Minimum Technical Specifications for Airport Collaborative Decision Making (Airport-CDM) Systems 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-141/#non-member ETSI - EN 303 212 - Airport Collaborative Decision Making (A-CDM); Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010C168/04 / 06/2010 Url : https://www.etsi.org/deliver/etsi_en/303200_303299/303212/01.01.01_30/en_303212v010101v.pdf EUROCONTROL - Airport CDM Implementation Manual - Edition 5.0 / 03/2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/airport-cdm-manual-2017.PDF		
Finalisation criteria:	1 - Results/benefits at airport have been published.		
AOP05-USE05	**Define and implement procedures for CDM in adverse conditions including the de-icing according to A-CDM Manual guidelines**	From: 01/01/2012	By: 01/01/2021
Action by:	**Airspace Users**		
Description & purpose:	Agree, define and implement local CDM procedures to manage adverse conditions based on A-CDM Implementation Manual, in co-operation with other stakeholders involved.		
Supporting material(s):	EUROCAE - ED-145 - Airport-CDM Interface Specification 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-145/ EUROCAE - ED-146 - Guidelines for Test and Validation Related to Airport CDM Interoperability 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-141 - Minimum Technical Specifications for Airport Collaborative Decision Making (Airport-CDM) Systems 10/2008 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-141/#non-member ETSI - EN 303 212 - Airport Collaborative Decision Making (A-CDM); Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010C168/04 / 06/2010 Url : https://www.etsi.org/deliver/etsi_en/303200_303299/303212/01.01.01_30/en_303212v010101v.pdf EUROCONTROL - Airport CDM Implementation Manual - Edition 5.0 / 03/2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/airport-cdm-manual-2017.PDF		
ATM Master Plan relationship:	[PRO-204c]-Collaborative Procedures (Airlines) for improving Airport Operations in Adverse Conditions		
Finalisation criteria:	1 - LoA or MoU between the A-CDM partners has been agreed. 2 - CDM procedures for the management of adverse conditions, including de-icing, have been established.		

SESAR	Active								APT	
AOP10	Time-Based Separation									
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

Time-based separation (TBS) consists in the separation of aircraft in sequence on the approach to a runway using time intervals instead of distances. It may be applied during final approach by allowing equivalent distance information to be displayed to the controller taking account of prevailing wind conditions. Radar separation minima and Wake Turbulence Separation parameters shall be integrated to provide guidance to the air traffic controller to enable time-based spacing of aircraft during final approach that considers the effect of headwind.

A TBS system that provides in real-time the separation to apply between two aircraft needs to be fed by:

- the aircraft sequence to anticipate aircraft specific speed management and to define the time separation required for a given wake category pair, and;
- the wind profile, approximately 10 minutes before landing, to define the separation on final approach.

These require respectively the development of an easily usable sequencing tool and a now casting technology based upon merging wind profile measurement and heuristic techniques.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area	See list of airports in MP Level 3 Implementation Plan - Annexes		
Timescales:	**From:**	**By:**	**Applicable to:**
Initial operational capability	01/01/2015		Applicability Area
Full operational capability		31/12/2023	Applicability Area

References

European ATM Master Plan

OI step -	[AO-0303]-Time Based Separation for Final Approach - full concept								
	Enablers -	AERODROME -ATC-17	APP ATC 156	REG-0514	STD-065				

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

-none-

Essential Operational Changes

Airport and TMA performance

SESAR Solution

#64 - Time Based Separation

ICAO GANP - ASBUs

WAKE-B2/7	Time based wake separation minima for arrival based on leader/follower static pair-wise

Deployment Programme

- none -	

European Plan for Aviation Safety

- none -	

AOP10	Time-Based Separation

Operating Environments

Airport

Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
AOP10-REG01	Publish TBS operations procedures in national aeronautical information publications	01/01/2015	01/01/2024
AOP10-ASP01	Ensure AMAN system is compatible with TBS support tool	01/01/2015	01/01/2024
AOP10-ASP02	Modify CWP to integrate TBS Support tool with safety nets	01/01/2015	01/01/2024
AOP10-ASP03	Local MET info with actual glide-slope wind conditions to be provided into TBS Support tool	01/01/2015	01/01/2024
AOP10-ASP04	TBS Support tool to provide automatic monitoring and alerting of non-conformant behaviours, infringements, wrong aircraft	01/01/2015	01/01/2024
AOP10-ASP05	Implement procedures for TBS operations	01/01/2015	01/01/2024
AOP10-ASP06	Train controllers (Tower and Approach) on TBS operations	01/01/2015	31/12/2024
AOP10-USE01	Train flight crews on TBS operations	01/01/2015	01/01/2024

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	More consistent separation delivery on final approach.
Capacity:	Improved aircraft landing rates leading to increased airport throughput. Reduction of holding times and stack entry to touchdown times leading to reduced delays.
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	Reduced emissions due to reduced holding times and stack entry to touchdown times.
Security:	-

Detailed SLoA Descriptions

AOP10-REG01	**Publish TBS operations procedures in national aeronautical information publications**	From: 01/01/2015	By: 01/01/2024
Action by:	**National Supervisory Authorities (NSAs)**		
Description & purpose:	Publish TBS operations procedures in national aeronautical information publications		
Supporting material(s):	SJU - SESAR Solution 64: Data Pack for Time Based Separation Url : https://www.sesarju.eu/sesar-solutions/time-based-separation EUROCONTROL - SPEC-167 - EUROCONTROL Specification for Time Based Separation (TBS) support tool for Final Approach - Edition 1.0 / 02/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-time-based-separation-tbs-support-tool-final-approach EUROCONTROL - GUID-187 - EUROCONTROL Guidelines on Time-Based Separation (TBS) for Final Approach - Edition 1.0 / 05/2021 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-time-based-separation-tbs-final-approach		
Finalisation criteria:	1 - TBS operations procedures are published in national aeronautical information publications.		
AOP10-ASP01	**Ensure AMAN system is compatible with TBS support tool**	From: 01/01/2015	By: 01/01/2024
Action by:	**ANS Providers**		
Description & purpose:	Ensure that the flight data processing and AMAN systems are compatible with the TBS support tool for the visualisation of the final approach separation or spacing, and are able to switch between time and distance based wake turbulence radar separation rules. Switching from TBS to Distance Based Separation (DBS) is necessary to cover contingency and other locally-driven requirements. The TBS support tool and associated CWP shall also calculate headwind independent time based separation to be used by the Arrival manager between arriving aircraft and display it on controller displays to support reduced, time-based separation for aircraft on final approach.		

AOP10	Time-Based Separation

Supporting material(s):	SJU - SESAR Solution 64: Data Pack for Time Based Separation Url : https://www.sesarju.eu/sesar-solutions/time-based-separation EUROCONTROL - SPEC-167 - EUROCONTROL Specification for Time Based Separation (TBS) support tool for Final Approach - Edition 1.0 / 02/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-time-based-separation-tbs-support-tool-final-approach EUROCONTROL - GUID-187 - EUROCONTROL Guidelines on Time-Based Separation (TBS) for Final Approach - Edition 1.0 / 05/2021 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-time-based-separation-tbs-final-approach		
ATM Master Plan relationship:	[AERODROME-ATC-17]-Airport ATC tool to Support Time-Based Separation in Final Approach [APP ATC 156]-ATC System to Support Time-Based Separation in Final Approach		
Finalisation criteria:	1 - FDPS and AMAN system are compatible with the TBS support tool 2 - CWP is modified to display headwind independent time based separation 3 - TBS support tool is able to calculate headwind independent time based separation		
AOP10-ASP02	**Modify CWP to integrate TBS Support tool with safety nets**	From: 01/01/2015	By: 01/01/2024
Action by:	**ANS Providers**		
Description & purpose:	Modify the controller working position (CWP) to integrate the new TBS support tool with safety nets to support the air traffic controller, in order to calculate TBS distance respecting minimum radar separation using actual glide-slope wind conditions.		
Supporting material(s):	SJU - SESAR Solution 64: Data Pack for Time Based Separation Url : https://www.sesarju.eu/sesar-solutions/time-based-separation EUROCONTROL - SPEC-167 - EUROCONTROL Specification for Time Based Separation (TBS) support tool for Final Approach - Edition 1.0 / 02/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-time-based-separation-tbs-support-tool-final-approach EUROCONTROL - GUID-187 - EUROCONTROL Guidelines on Time-Based Separation (TBS) for Final Approach - Edition 1.0 / 05/2021 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-time-based-separation-tbs-final-approach		
Finalisation criteria:	1 - CWP is modified to integrate the new TBS support tool with safety nets.		
AOP10-ASP03	**Local MET info with actual glide-slope wind conditions to be provided into TBS Support tool**	From: 01/01/2015	By: 01/01/2024
Action by:	**ANS Providers**		
Description & purpose:	To feed local meteorological (MET) information providing actual glide slope wind conditions to the TBS support tool.		
Supporting material(s):	SJU - SESAR Solution 64: Data Pack for Time Based Separation Url : https://www.sesarju.eu/sesar-solutions/time-based-separation EUROCONTROL - SPEC-167 - EUROCONTROL Specification for Time Based Separation (TBS) support tool for Final Approach - Edition 1.0 / 02/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-time-based-separation-tbs-support-tool-final-approach EUROCONTROL - GUID-187 - EUROCONTROL Guidelines on Time-Based Separation (TBS) for Final Approach - Edition 1.0 / 05/2021 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-time-based-separation-tbs-final-approach		
Finalisation criteria:	1 - Local meteorological information providing actual glide slope wind conditions is fed into the TBS support tool		
AOP10-ASP04	**TBS Support tool to provide automatic monitoring and alerting of non-conformant behaviours, infringements, wrong aircraft**	From: 01/01/2015	By: 01/01/2024
Action by:	**ANS Providers**		
Description & purpose:	To ensure that the TBS support tool provides automatic monitoring and alerting on non-conformant final approach airspeed behaviour, automatic monitoring and alerting of separation infringement, automatic monitoring and alerting for the wrong aircraft being turned on to a separation indicator.		
Supporting material(s):	SJU - SESAR Solution 64: Data Pack for Time Based Separation Url : https://www.sesarju.eu/sesar-solutions/time-based-separation EUROCONTROL - SPEC-167 - EUROCONTROL Specification for Time Based Separation (TBS) support tool for Final Approach - Edition 1.0 / 02/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-time-based-separation-tbs-support-tool-final-approach EUROCONTROL - GUID-187 - EUROCONTROL Guidelines on Time-Based Separation (TBS) for Final Approach - Edition 1.0 / 05/2021 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-time-based-separation-tbs-final-approach		
Finalisation criteria:	1 - TBS support tool provides automatic monitoring and alerting		
AOP10-ASP05	**Implement procedures for TBS operations**	From: 01/01/2015	By: 01/01/2024
Action by:	**ANS Providers**		

AOP10	Time-Based Separation

Description & purpose:	Implement procedures and practices to be used by the final approach controller for TBS operations.		
Supporting material(s):	SJU - SESAR Solution 64: Data Pack for Time Based Separation Url : https://www.sesarju.eu/sesar-solutions/time-based-separation EUROCONTROL - SPEC-167 - EUROCONTROL Specification for Time Based Separation (TBS) support tool for Final Approach - Edition 1.0 / 02/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-time-based-separation-tbs-support-tool-final-approach EUROCONTROL - GUID-187 - EUROCONTROL Guidelines on Time-Based Separation (TBS) for Final Approach - Edition 1.0 / 05/2021 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-time-based-separation-tbs-final-approach		
Finalisation criteria:	1 - Procedures for TBS operations are implemented operationally		
AOP10-ASP06	**Train controllers (Tower and Approach) on TBS operations**	From: 01/01/2015	By: 31/12/2024
Action by:	**ANS Providers**		
Description & purpose:	Train Tower and Approach controllers on TBS operations. The final approach controller will be required to adopt procedures and practices to ensure that the variations in the distance spacing changes and time spacing changes on final approach are consistently managed.		
Supporting material(s):	SJU - SESAR Solution 64: Data Pack for Time Based Separation Url : https://www.sesarju.eu/sesar-solutions/time-based-separation EUROCONTROL - SPEC-167 - EUROCONTROL Specification for Time Based Separation (TBS) support tool for Final Approach - Edition 1.0 / 02/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-time-based-separation-tbs-support-tool-final-approach EUROCONTROL - GUID-187 - EUROCONTROL Guidelines on Time-Based Separation (TBS) for Final Approach - Edition 1.0 / 05/2021 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-time-based-separation-tbs-final-approach		
Finalisation criteria:	1 - Final approach controllers are trained for TBS procedures and practices.		
AOP10-USE01	**Train flight crews on TBS operations**	From: 01/01/2015	By: 01/01/2024
Action by:	**ANS Providers**		
Description & purpose:	Train flight crews on TBS operations The flight deck will be required to adopt procedures and practices to ensure that the variations in the distance spacing changes and time spacing changes on final approach are consistently managed.		
Supporting material(s):	SJU - SESAR Solution 64: Data Pack for Time Based Separation Url : https://www.sesarju.eu/sesar-solutions/time-based-separation		
Finalisation criteria:	1 - Flight crews are trained to TBS operations		

Subject matter and scope

Airport Operations Plan (AOP) means a single, common and collaboratively agreed rolling plan used by all involved airport stakeholders whose purpose is to provide common situational awareness and to form the basis upon which airport stakeholder decisions relating to process optimization for operations can be made.

The AOP shall make all the information that is relevant for the network available to the NOP in real time.
The AOP is the principal source of information used and shared by all involved airport stakeholders. It requires individual stakeholders to make changes within their own sphere of operations. These changes must be synchronised in order to be consistent and provide common situational awareness.

The AOP supports operations at airports with an increased scope and sharing of data between the airport and the Network Manager, building upon the airport collaborative decision making (A-CDM) supporting systems.
The AOP is a rolling plan comprising different phases including Planning, Execution and Monitoring and Post-operations, that interacts with a number of services, systems and stakeholders gathering information from several systems.

Main stakeholders are Airport Operators. Stakeholders also impacted are all the other involved airports stakeholders such as but not limited to:

• Aircraft operators;
• Ground handlers;
• De-icing handlers;
• ANSPs;
• Network Manager;
• MET services providers;
• Support services (police, customs and immigration, etc.).

The AOP can be implemented in two steps: Initial AOP (iAOP) and Extended AOP.
The initial AOP (iAOP) focuses on the short-term planning phase and the execution phase. The iAOP comprises the basic elements to exchange the data elements with the NOP and paves the way to Extended AOP.

The following data are part of the initial AOP:

• Flight trajectory data: Information sharing related to Flight Progress Information Elements of an Inbound/Outbound/Airport transit Trajectory to/from/at Airport.
• Airport Resources data: resources such as but not limited to runway capacity and configuration, or parking stands.
• Local weather data: Information sharing related to MET Information Elements of the airport.

The iAOP shares flight trajectory data and some airport resources data with the NOP via Arrival Planning Information (API) and Departure Planning Information (DPI) messages.

System requirements:

To support the Initial AOP implementation, the following elements shall be taken into account:

• A-CDM (a pre-requisite for iAOP);
• Arrival planning information and extended departure planning information (in addition to A-CDM DPI messages) for iAOP/NOP exchange;
• MET-data: to allow the outcome of weather impact assessment;
• Airport Operations Plan management tool containing the rolling plan of the airport operations and capabilities for short-term time frame;
• The AOP shall be connected to the NOP via SWIM service(s) when available and shall make available to the network all the network-relevant data.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

NOTE: The SLoAs listed in this document should be addressed to air navigation service providers as well as to airport operators. This is due to the fact that some airports operate their own ground control units for specific areas of responsibility at the airport. Airport operators providing air traffic control services qualify as ANSPs and are therefore covered by the ASP SLoAs. It is up to each

implementer to check and select what is relevant to them, depending on local areas of responsibility.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (CP1 airports)	See list of airports in MP Level 3 Implementation Plan - Annexes
Applicability Area 2 (non-CP1 Airports)	See list of airports in MP Level 3 Implementation Plan - Annexes

Timescales:	**From:**	**By:**	**Applicable to:**
Initial Operational Capability	01/01/2021		Applicability Area 1 + Applicability Area 2 (non-CP1 Airports)
Full Operational Capability / Target Date		31/12/2023	Applicability Area 1 + Applicability Area 2 (non-CP1 Airports)

References

European ATM Master Plan

OI step -	[AO-0801-A]-Collaborative Airport Planning Interface								
	Enablers -	AIRPORT-03	AIRPORT-31 AOP05	AIRPORT-38	AOC-ATM-13	HUM-007	PRO-028 FCM11.1, FCM11.2	SWIM-APS-03a	SWIM-APS-04a
		SWIM-INFR-05a	SWIM-NET-01a						

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) No 2021/116 on the establishment of the Common Project One

Essential Operational Changes

ATM Interconnected Network

SESAR Solution

#21 - Airport Operations Plan and AOP-NOP Seamless Integration

ICAO GANP - ASBUs

ACDM-B1/1	Airport Operations Plan (AOP)

Deployment Programme

2.2.1	Initial AOP

European Plan for Aviation Safety

- none -	

Operating Environments

Airport
Network

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
AOP11.1-ASP01	iAOP Data/Operational elements implementation	01/01/2021	31/12/2023
AOP11.1-ASP02	Data quality service	01/01/2021	31/12/2023
AOP11.1-ASP03	Safety assessment	01/01/2021	31/12/2023
AOP11.1-ASP04	Training	01/01/2021	31/12/2023
AOP11.1-ASP05	Operational use	01/01/2021	31/12/2023
AOP11.1-APO01	iAOP Data/Operational elements implementation	01/01/2021	31/12/2023

AOP11.1-APO02	Data quality service	01/01/2021	31/12/2023
AOP11.1-APO03	Safety assessment	01/01/2021	31/12/2023
AOP11.1-APO04	Training	01/01/2021	31/12/2023
AOP11.1-APO05	Operational use	01/01/2021	31/12/2023

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Enhanced predictability.
Capacity:	Improved airport resilience/limiting capacity reduction in degraded situations.
Operational Efficiency:	Enhanced predictability.
Cost Efficiency:	-
Environment:	Enhanced predictability.
Security:	-

Detailed SLoA Descriptions

AOP11.1-ASP01	**iAOP Data/Operational elements implementation**	From: 01/01/2021	By: 31/12/2023
Action by:	**ANS Providers**		
Description & purpose:	For the iAOP data that is centralised by the ANSP (e.g. flight trajectory or MET data), the ANSP ensures coordination, collection and integration of iAOP data in the system with all airport stakeholders involved. This activity is performed with the airport operator and all airport stakeholders involved, defining a Memorandum of Understanding (MOU)/Memorandum of Cooperation (MOC) if necessary.		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[AIRPORT-03]-Airports Operation Plan (AOP) tool		
Finalisation criteria:	1 - iAOP data have been integrated into the system.		
AOP11.1-ASP02	**Data quality service**	From: 01/01/2021	By: 31/12/2023
Action by:	**ANS Providers**		
Description & purpose:	Set up a service (systems and procedures) to ensure iAOP data quality (accuracy and integrity).		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[AIRPORT-03]-Airports Operation Plan (AOP) tool [AIRPORT-38]-Airport/ATFCM Extended data interface		
Finalisation criteria:	1 - Data Quality Service has been tested and validated.		
AOP11.1-ASP03	**Safety assessment**	From: 01/01/2021	By: 31/12/2023
Action by:	**ANS Providers**		
Description & purpose:	The safety assessment of the changes must be developed in coordination and synchronisation with all concerned stakeholders. This safety assessment must be delivered to the competent authority.		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.		
AOP11.1-ASP04	**Training**	From: 01/01/2021	By: 31/12/2023
Action by:	**ANS Providers**		
Description & purpose:	All relevant staff must be duly trained.		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[HUM-007]-New communication and interaction patterns between stakeholders of airport operations linked to collaborative rolling AOP/NOP management.		
Finalisation criteria:	1 - Training has been completed.		
AOP11.1-ASP05	**Operational use**	From: 01/01/2021	By: 31/12/2023

AOP11.1	Initial Airport Operations Plan

Action by:	**ANS Providers**		
Description & purpose:	iAOP is in operational use once the data have been integrated into the systems, their integrity ensured, the safety assessment has been delivered and accepted, and the training has been completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - iAOP is put into service.		
AOP11.1-APO01	**iAOP Data/Operational elements implementation**	From: 01/01/2021	By: 31/12/2023
Action by:	**Airport Operators**		
Description & purpose:	AO ensure coordination, collection and integration in the system of the following iAOP data: • Flight trajectory data; • Airport Resources data; • MET data. This activity is performed with all airport stakeholders involved, defining a Memorandum of Understanding (MOU)/Memorandum of Cooperation (MOC), if necessary.		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[AIRPORT-03]-Airports Operation Plan (AOP) tool		
Finalisation criteria:	1 - iAOP data have been integrated into the system.		
AOP11.1-APO02	**Data quality service**	From: 01/01/2021	By: 31/12/2023
Action by:	**Airport Operators**		
Description & purpose:	Set up a service (systems and procedures) to ensure iAOP data quality (accuracy and integrity).		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[AIRPORT-03]-Airports Operation Plan (AOP) tool [AIRPORT-38]-Airport/ATFCM Extended data interface		
Finalisation criteria:	1 - Data Quality Service has been tested and validated.		
AOP11.1-APO03	**Safety assessment**	From: 01/01/2021	By: 31/12/2023
Action by:	**Airport Operators**		
Description & purpose:	The safety assessment of the changes must be developed in coordination and synchronization with all concerned stakeholders. This safety assessment must be delivered to the competent authority.		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.		
AOP11.1-APO04	**Training**	From: 01/01/2021	By: 31/12/2023
Action by:	**Airport Operators**		
Description & purpose:	All relevant staff must be duly trained.		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[HUM-007]-New communication and interaction patterns between stakeholders of airport operations linked to collaborative rolling AOP/NOP management.		
Finalisation criteria:	1 - Training has been completed.		
AOP11.1-APO05	**Operational use**	From: 01/01/2021	By: 31/12/2023
Action by:	**Airport Operators**		
Description & purpose:	iAOP is in operational use once the data have been integrated into the systems, their integrity ensured, the safety assessment has been delivered and approved, and the training has been completed.		
Finalisation criteria:	1 - iAOP is put into service.		

Subject matter and scope

The iAOP and Extended AOP are so interdependent and sharing the same operational “philosophy” that it is relevant to also include information about iAOP.

Airport Operations Plan (AOP) means a single, common and collaboratively agreed rolling plan used by all involved airport stakeholders whose purpose is to provide common situational awareness and to form the basis upon which airport stakeholder decisions relating to process optimisation for operations can be made.

The AOP shall make all the information that is relevant for the network available to the NOP in real time.

The AOP is the principal source of information used and shared by all involved airport stakeholders. It requires individual stakeholders to make changes within their own sphere of operations. These changes shall be synchronised in order to be consistent and provide common situational awareness.

The AOP supports operations at airports with an increased scope and sharing of data between the airport and the Network Manager, building upon the airport collaborative decision making (A-CDM) supporting systems.
The AOP is a rolling plan comprising different phases including Planning, Execution and Monitoring and Post-operations, that interacts with a number of services, systems and stakeholders gathering information from several systems.

Main stakeholders are Airport Operators. Stakeholders also impacted are all the other involved airport stakeholders such as but not limited to:

• Aircraft operators;
• Ground handlers;
• De-icing handlers;
• ANSPs;
• Network Manager;
• MET services providers;
• Support services (police, customs and immigration, etc.).

The AOP can be implemented in two steps: Initial AOP (iAOP) and Extended AOP.

The Extended AOP supports landside and airside operations at airports with an increased scope and sharing of data between the airport and the Network Manager. The extended AOP is the fundamental tool supporting the following four operational services by improving the overall operational efficiency and increasing resilience of the airport and the network to resist disruptions such as but not limited to, adverse weather conditions, closure of a runway, security alerts.

The Extended AOP increases the iAOP scope, beyond the airside operating environment and addresses processes within the landside and terminal infrastructure that have a performance impact on flight predictability and efficiency. In this case the Extended AOP monitors the progress of passengers through the airport from check-in to the gate. Monitoring data is stored in the AOP and allows stakeholders to increase their confidence around TOBT accuracy and stability.

The landside and airside airport stakeholders shall make changes within their own sphere of operations and shall use and share the AOP as the principal source of information for airport operations.

The Extended AOP comprises the following Performance Services:

• Steer Airport Performance Service – it is the service that develops the performance standard (i.e., goals, targets, rules, thresholds, trade-off criteria and priorities) for airport operations and sets an overall strategic direction. Airport stakeholders develop a mutually agreed performance standard in a collaborative manner on the basis of the performance regional and/or national scheme(s) and post operations analysis reports. The Steer Airport Performance service is mainly performed in the long-term and medium planning phase and the post-operations phase.

• Monitor Airport Performance service - it is the service that maintains surveillance over airport operations, airport performance (against KPAs), airport surroundings (e.g. weather monitoring), supervising airport related information and any information that can impact the airport performance, providing observations, forecasts, alerts and warnings against predefined thresholds. It is performed from the medium-term planning phase until the execution phase. This surveillance is based on the performance standard set by the Steer Airport Performance service. The Monitor Airport Performance service compares any new information created or updated in the AOP with the plan and raises warnings or alerts if a deviation is detected. The Monitor Airport Performance service also provides the airport stakeholders with a common situational awareness of the airport operations processes and performance in real time.

• Manage Airport Performance service it is the service that instantiates the AOP at the beginning of the medium-term planning phase. It uses the operational data provided by the airport stakeholders and the performance standard defined by the Steer Airport Performance service. In the short-term planning phase and the execution phase, the Manage Airport Performance service also assesses the severity of the deviations from the plan detected by the Monitor Airport Performance service and their impact on the airport processes and on the airport performance. The assessment is not only for searching for reactive solutions but also for forecasting severe disruptions or adverse conditions and, hence, to implement a proactive management. It uses the warnings and alerts and, more generally, the data contained in the AOP to make this impact assessment. It also uses event reports from the stakeholders to perform the impact assessment.
Depending on the magnitude of the deviation and the severity of the impact on the airport processes and on the airport performance, the Manage Airport Performance service triggers the relevant collaborative decision-making processes. In particular, in adverse conditions, these processes take place in the Airport Operations Centre (APOC), where the representatives of the airport stakeholders can use simulation and decision support tools. The decisions are driven by the need to maintain an optimal performance level and to recover from a disruption as quickly and efficiently as possible. These processes result in an update of the AOP, made by the relevant airport stakeholders.

• Perform Post-Operations Analysis service – it is service that records any planned and actual data used in the airport processes during the planning and execution phases. This information is then used to produce post-operations analysis reports in the post-operations phase. These reports allow the airport stakeholders to:
- Fully understand the airport performance against the performance plan and identify the root causes of any deviation;
- Assess the continued relevance of the performance plan;
- Justify the need to improve the way the airport operations are run;
- Investigate any disruption in the operations;
- Analyse actions and decisions made during the planning and execution phases.

For the most complex and critical post-operations analysis reports, the airport stakeholders collaborate to produce an analysis and reach conclusions that will benefit the overall airport community

System requirements:

To support the Extended AOP implementation, the following elements shall be taken into account:

• Initial AOP system requirements as defined in Objective AOP11.1;
• Airport Operations Plan management tools containing the rolling plan of the airport operations and capabilities (landside and airside) for each time frame (from medium term to Post-Ops);
• Airport Performance Monitoring System to monitor performance against the goals;
• Airport Performance Assessment and Management Support System to assess the severity of the deviations from the plan detected by the Monitoring of Airport Performance service and their impact on the airport processes and on the airport performance;
• Airport Post-operations analysis tool to develop standard and ad-hoc Post-Ops Analysis reports.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

NOTE: The SLoAs listed in this document should be addressed to air navigation service providers as well as to airport operators. This is due to the fact that some airports operate their own ground control units for specific areas of responsibility at the airport. Airport operators providing air traffic control services qualify as ANSPs and are therefore covered by the ASP SLoAs. It is up to each implementer to check and select what is relevant to them, depending on local areas of responsibilities.

Applicability Area(s) & Timescale(s)

Applicability Area 1	See list of airports in MP Level 3 Implementation Plan - Annexes
Applicability Area 2 (non-CP1 Airports)	See list of airports in MP Level 3 Implementation Plan - Annexes

Timescales:	**From:**	**By:**	**Applicable to:**
Initial Operational Capability	01/01/2021		Applicability Area 1 + Applicability Area 2 (non-CP1 Airports)
Full Operational Capability / Target Date		31/12/2027	Applicability Area 1 + Applicability Area 2 (non-CP1 Airports)

References

European ATM Master Plan

OI step -	[AO-0801-A]-Collaborative Airport Planning Interface

	Enablers -	AIRPORT-03	AIRPORT-31 AOP05	AIRPORT-38	AOC-ATM-13	HUM-007	PRO-028 FCM11.1, FCM11.2	SWIM-APS-03a	SWIM-APS-04a
		SWIM-INFR-05a	SWIM-NET-01a						
OI step -	[AO-0802-A]-A-CDM process enhanced through integration of landside (passenger only) process outputs								
	Enablers -	AERODROME -ATC-57	AIRPORT-03	AIRPORT-31 AOP05	AIRPORT-35a	AIRPORT-38	HUM-007	HUM-014	HUM-015
OI step -	[AOM-0803]-Dynamically Shaped Sectors Unconstrained By Predetermined Boundaries (Obsolete)								
	Enablers -	None							
OI step -	[DCB-0310]-Improved Efficiency in the Management of Airport and ATFCM Planning								
	Enablers -	AERODROME -ATC-57	AIRPORT-02	AIRPORT-38	NIMS-41	REG-0510			

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) No 2021/116 on the establishment of the Common Project One

Essential Operational Changes

ATM Interconnected Network

SESAR Solution

#21 - Airport Operations Plan and AOP-NOP Seamless Integration

ICAO GANP - ASBUs

ACDM-B1/1	Airport Operations Plan (AOP)

Deployment Programme

2.2.2	Extended AOP

European Plan for Aviation Safety

- none -	

Operating Environments

Airport
Network

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
AOP11.2-ASP01	Extended AOP Data/Operational elements implementation	01/01/2021	31/12/2027
AOP11.2-ASP02	Airport Performance Services Implementation	01/01/2021	31/12/2027
AOP11.2-ASP03	Data quality service	01/01/2021	31/12/2027
AOP11.2-ASP04	Safety assessment	01/01/2021	31/12/2027
AOP11.2-ASP05	Training	01/01/2021	31/12/2027
AOP11.2-ASP06	Operational use	01/01/2021	31/12/2027
AOP11.2-APO01	Extended AOP Data/Operational elements implementation	01/01/2021	31/12/2027
AOP11.2-APO02	Airport Performance Services implementation	01/01/2021	31/12/2027
AOP11.2-APO03	Data quality service	01/01/2021	31/12/2027
AOP11.2-APO04	Safety assessment	01/01/2021	31/12/2027
AOP11.2-APO05	Training	01/01/2021	31/12/2027
AOP11.2-APO06	Operational use	01/01/2021	31/12/2027

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

AOP11.2	Extended Airport Operations Plan

Expected Performance Benefits

Safety:	Enhanced predictability.
Capacity:	Improved airport resilience/limiting capacity reduction in degraded situations.
Operational Efficiency:	Enhanced predictability.
Cost Efficiency:	-
Environment:	Enhanced predictability.
Security:	-

Detailed SLoA Descriptions

AOP11.2-ASP01	**Extended AOP Data/Operational elements implementation**	From: 01/01/2021	By: 31/12/2027
Action by:	**ANS Providers**		
Description & purpose:	ANSPs to ensure coordination, collection and integration in the system of AOP data. This activity is performed with all airport stakeholders involved, defining a Memorandum of Understanding (MOU) / Memorandum of Cooperation (MOC) if necessary. These data comprise: - iAOP data including Flight trajectory Airport resources and MET data. (Applicable ONLY to ANSPs that do not have an iAOP in operation); - Extended AOP data including landside data that have a performance impact on flight predictability and efficiency.		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[AERODROME-ATC-57]-Advanced Airport Tower CWP to support new functionalities [AIRPORT-03]-Airports Operation Plan (AOP) tool		
Finalisation criteria:	1 - iAOP and extended AOP data have been integrated into the systems.		
AOP11.2-ASP02	**Airport Performance Services Implementation**	From: 01/01/2021	By: 31/12/2027
Action by:	**ANS Providers**		
Description & purpose:	ANSP support the AO in the implementation of the following four services: • Steer Performance Service: define common KPIs among all stakeholders • Monitoring Performance Service: develop a system of monitoring and providing alerts in case of deviation of scheduled plan • Manage Performance Service: implement tool to assess the severity and impact of the deviations from the scheduled plan. Propose a solution by triggering the relevant collaborative decision-making processes resulting in an update of the AOP, made by the relevant airport stakeholders. • Post-OPS analysis Service: produce post-operations analysis reports for comparing the airport performance against the performance plan and identify the root causes of any deviation).		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[AIRPORT-40]-Airport Performance Monitoring System		
Finalisation criteria:	1 - Airport Performance Services have been developed and implemented.		
AOP11.2-ASP03	**Data quality service**	From: 01/01/2021	By: 31/12/2027
Action by:	**ANS Providers**		
Description & purpose:	Set up a service (systems and procedures) to ensure AOP data quality (accuracy and integrity).		
	Note :This SLoS needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[AIRPORT-38]-Airport/ATFCM Extended data interface		
Finalisation criteria:	1 - Data Quality Service has been tested and validated.		
AOP11.2-ASP04	**Safety assessment**	From: 01/01/2021	By: 31/12/2027
Action by:	**ANS Providers**		
Description & purpose:	The safety assessment of the changes must be developed in coordination and synchronisation with all concerned stakeholders. This safety assessment must be delivered to the competent authority.		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		

AOP11.2	Extended Airport Operations Plan

Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.		
AOP11.2-ASP05	**Training**	From: 01/01/2021	By: 31/12/2027
Action by:	**ANS Providers**		
Description & purpose:	All relevant staff must be duly trained.		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[HUM-007]-New communication and interaction patterns between stakeholders of airport operations linked to collaborative rolling AOP/NOP management.		
Finalisation criteria:	1 - Training has been completed.		
AOP11.2-ASP06	**Operational use**	From: 01/01/2021	By: 31/12/2027
Action by:	**ANS Providers**		
Description & purpose:	Extended AOP is in operational use once the data have been integrated into the systems, their integrity ensured, the safety assessment has been delivered and accepted, and the training has been completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Extended AOP is put into service.		
AOP11.2-APO01	**Extended AOP Data/Operational elements implementation**	From: 01/01/2021	By: 31/12/2027
Action by:	**Airport Operators**		
Description & purpose:	AO ensure coordination, collection and integration in the system of AOP data. This activity is performed with all airport stakeholders involved, defining a Memorandum of Understanding (MOU)/Memorandum of Cooperation (MOC) if necessary. These data comprise: • iAOP data including Flight trajectory Airport resources and MET data. (ONLY Applicable to AOs that do not have an iAOP in operation) • Extended AOP data including landside data that have a performance impact on flight predictability and efficiency.		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[AIRPORT-03]-Airports Operation Plan (AOP) tool		
Finalisation criteria:	1 - iAOP and extended AOP data have been integrated into the system.		
AOP11.2-APO02	**Airport Performance Services implementation**	From: 01/01/2021	By: 31/12/2027
Action by:	**Airport Operators**		
Description & purpose:	AO implements the following four services: • Steer Performance Service: define common KPIs among all stakeholders • Monitoring Performance Service: develop a system of monitoring and providing alerts in case of deviation of the scheduled plan • Manage Performance Service: implement a tool to assess the severity and impact of the deviations from the scheduled plan. Propose a solution by triggering the relevant collaborative decision-making processes resulting in an update of the AOP, made by the relevant airport stakeholders. • Post-OPS analysis Service: produce post-operation analysis reports for comparing the airport performance against the performance plan and identify the root causes of any deviation.		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[AIRPORT-40]-Airport Performance Monitoring System		
Finalisation criteria:	1 - Airport Performance Services have been developed and implemented.		
AOP11.2-APO03	**Data quality service**	From: 01/01/2021	By: 31/12/2027
Action by:	**Airport Operators**		
Description & purpose:	Set up a service (systems and procedures) to ensure AOP data quality (accuracy and integrity).		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		

AOP11.2	Extended Airport Operations Plan

ATM Master Plan relationship:	[AIRPORT-03]-Airports Operation Plan (AOP) tool [AIRPORT-38]-Airport/ATFCM Extended data interface		
Finalisation criteria:	1 - Data Quality Service has been tested and validated.		
AOP11.2-APO04	**Safety assessment**	From: 01/01/2021	By: 31/12/2027
Action by:	**Airport Operators**		
Description & purpose:	The safety assessment of the changes must be developed in coordination and synchronisation with all concerned stakeholders. This safety assessment must be delivered to the competent authority.		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.		
AOP11.2-APO05	**Training**	From: 01/01/2021	By: 31/12/2027
Action by:	**Airport Operators**		
Description & purpose:	All relevant staff must be duly trained.		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[HUM-007]-New communication and interaction patterns between stakeholders of airport operations linked to collaborative rolling AOP/NOP management.		
Finalisation criteria:	1 - Training has been completed.		
AOP11.2-APO06	**Operational use**	From: 01/01/2021	By: 31/12/2027
Action by:	**Airport Operators**		
Description & purpose:	Extended AOP is in operational use once the data have been integrated into the systems, their integrity ensured, the safety assessment has been delivered and accepted, and the training has been completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Extended AOP is put into service.		

Subject matter and scope

Airport safety nets refers to the Airport Safety Support Service as defined in the EUROCONTROL Specification for Advanced-Surface Movement, Guidance and Control System (A-SMGCS) Services Edition: 2.0 dated: 22 April 2020 and EUROCAE Standard ED87-D: Minimum Aviation System Performance Specification (MASPS) for A-SMGCS, June 2019.

The scope of this Objective covers the Aerodrome Movement Area as defined by the ICAO documents (ICAO Annex 14 Aerodrome Design and Operations, Volume I, Edition 7, 2016).
The A-SMGCS Airport Safety Support Service contributes to airside operations as a safety improvement, enabling Controllers to prevent hazards/incidents/accidents resulting from Controller, Flight Crew or Vehicle Driver operational errors or deviations. This Service depends on the Surveillance Service being in operation.

The Airport Safety Support Service supports Controllers by:

• Anticipating potential conflicts (e.g. hazardous situations between aircraft or aircraft and vehicles).
• Detecting conflicts and incursions.
• Detecting mobiles that are not following given Clearances.
• Providing alerts.

The Airport Safety Support Service is designed on the basis of one or more of the following three functions. These functions may be partially introduced depending on local requirements e.g. not all CATC or CMAC alerts may be suitable depending on the aerodrome layout:

• Runway Monitoring and Conflict Alerting (RMCA)
• Conflicting ATC Clearances (CATC).
• Conformance Monitoring Alerts for Controllers (CMAC).

The RMCA function acts as a short-term alerting tool, whereas the CATC and CMAC serve to be more predictive tools that aim at preventing situations where an RMCA alert may be triggered.
For the CATC and CMAC alerts to function correctly it is important that the system receives the Controller's Clearances, therefore, the Controller shall be provided with an Electronic Clearance Input (ECI) means e.g. Electronic Flight Strips (EFS).
Some of the CMAC alerts work on the assumption that every mobile entering the Runway Protected Area (RPA) or Restricted Area shall have received a Clearance from the Controller.
The clearances to be addressed by the Air Traffic Controllers in the context of the Airport Safety Nets service, are described in the EUROCONTROL A-SMGCS Specification Ed. 2.0. This EUROCONTROL reference document also covers the issues linked to potential local limitations that may arise.

Depending on the local implementation strategy, this Objective could also affect other stakeholders subject to using vehicles on the movement area, such as but not limited to Handling Companies, De-Icing Agents, often operating under the coordination of the airport operator that is responsible for the safeguard of all the stakeholders involved.

System requirements:

The detection of Conflicting ATC Clearances (CATC), the Conformance Monitoring of Alerts for Controllers (CMAC) shall be performed by the ATC system based on the knowledge of:

• Data related to the aircraft or vehicle e.g. identity, type, flight plan, SSR code, stand, Clearances, planned route, cleared route, assigned runway, timing information, de-icing information, aircraft status (e.g. assumed, pending, transferred),
• Airport Operations data e.g. aerodrome maps, reference points (runway thresholds, holding points, stop bars etc…), operational use of runways, ATC procedures, activation/de-activation of LVP etc…

The detection of CMAC alerts requires in some cases the ATC system to know the aircraft route e.g. Route deviation.
The air traffic controller shall input all clearances given to mobiles into the ATC system using an Electronic Clearance Input (ECI) means.
The Airport Safety Support Service may be partially introduced depending on local limitations due to airport specificities, e.g. not all CATC or CMAC alerts may be suitable depending on the aerodrome layout. In these cases, some systems requirements contained in the two documents referred to above (the EUROCONTROL Specification and the EUROCAE document) may have to be adapted to meet the local needs.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the

review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

NOTE: The SLoAs listed in this document should be addressed to air navigation service providers as well as to airport operators. This is due to the fact that some airports operate their own ground control units for specific areas of responsibility at the airport. Airport operators providing air traffic control services qualify as ANSPs and are therefore covered by the ASP SLoAs. It is up to each implementer to check and select what is relevant to them, depending on local areas of responsibilities.

Applicability Area(s) & Timescale(s)

Applicability Area 1	See list of airports in MP Level 3 Implementation Plan - Annexes
Applicability Area 2 (non-CP1 Airports)	See list of airports in MP Level 3 Implementation Plan - Annexes

Timescales:	**From:**	**By:**	**Applicable to:**
Initial Operational Capability	01/01/2021		Applicability Area 1 + Applicability Area 2 (non-CP1 Airports)
Full Operational Capability / Target Date		31/12/2025	Applicability Area 1 + Applicability Area 2 (non-CP1 Airports)

References

European ATM Master Plan

OI step -	[AO-0104-A]-Airport Safety Nets for Controllers at A-SMGCS Airports								
	Enablers -	AERODROME -ATC-06	AERODROME -ATC-07	AERODROME -ATC-12 AOP13	AERODROME -ATC-50 AOP13, AOP16, ATC19				

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) No 2021/116 on the establishment of the Common Project One

Essential Operational Changes

Airport and TMA performance

SESAR Solution

#02 - Airport Safety Nets for controllers: conformance monitoring alerts and detection of conflicting ATC clearances

ICAO GANP - ASBUs

SURF-B1/3	Enhanced ATCO alerting service for surface operations

Deployment Programme

2.3.1	Airport Safety Nets

European Plan for Aviation Safety

- none -	

Operating Environments

Airport

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
AOP12.1-ASP01	Supporting RMCA systems implemented	01/01/2021	31/12/2025
AOP12.1-ASP02	Supporting CATC and CMAC systems implemented	01/01/2021	31/12/2025
AOP12.1-ASP03	Operational procedures developed	01/01/2021	31/12/2025
AOP12.1-ASP04	Safety Assessment	01/01/2021	31/12/2025
AOP12.1-ASP05	Training	01/01/2021	31/12/2025

AOP12.1	Airport Safety Nets

AOP12.1-ASP06	Operational use	01/01/2021	31/12/2025
AOP12.1-APO01	Supporting RMCA systems implemented	01/01/2021	31/05/2025
AOP12.1-APO02	Supporting CATC and CMAC systems implemented	01/01/2021	31/12/2025
AOP12.1-APO03	Develop operational procedures	01/01/2021	31/12/2025
AOP12.1-APO04	Safety assessment	01/01/2021	31/12/2025
AOP12.1-APO05	Training	01/01/2021	31/12/2025
AOP12.1-APO06	Operational use	01/01/2021	31/12/2025

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Improved safety in airport operations.
Capacity:	Increased situational awareness.
Operational Efficiency:	Increased situational awareness.
Cost Efficiency:	-
Environment:	Increased situational awareness.
Security:	-

Detailed SLoA Descriptions

AOP12.1-ASP01	**Supporting RMCA systems implemented**	From: 01/01/2021	By: 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	Active RMCA alerts must be triggered according to the alert's parameters tailored for the local environment and displayed on Controller CWP with a distinction of colours between alarms alerts and information alerts, alarm alerts must trigger audio warning. RMCA alarm alerts must have the highest priority when displayed on Controller CWP. Installed RMCA System must demonstrate the compliance to the EUROCAE ED87-D performance requirements and pass the tests described in paragraph 5.5		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[AERODROME-ATC-06]-A-SMGCS incorporating the function that detects Conflicting ATC Clearances (CATC) for runway operations [AERODROME-ATC-07]-A-SMGCS incorporating the function that provides Conformance Monitoring Alerts for Controllers (CMAC) on the movement area		
Finalisation criteria:	1 - RMCA supporting systems have been installed and tested.		
AOP12.1-ASP02	**Supporting CATC and CMAC systems implemented**	From: 01/01/2021	By: 31/12/2025
Action by:	**Airport Operators**		
Description & purpose:	Implement appropriate systems allowing the detection of CATC and CMAC, integrated with A-SMGCS surveillance data and ECI (Electronic Clearance Input)		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[AERODROME-ATC-06]-A-SMGCS incorporating the function that detects Conflicting ATC Clearances (CATC) for runway operations [AERODROME-ATC-07]-A-SMGCS incorporating the function that provides Conformance Monitoring Alerts for Controllers (CMAC) on the movement area		
Finalisation criteria:	1 - CATC and CMAC supporting systems have been installed and tested.		
AOP12.1-ASP03	**Operational procedures developed**	From: 01/01/2021	By: 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	The Airport Safety Support Service Operational Procedures must be elaborated.		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[AERODROME-ATC-06]-A-SMGCS incorporating the function that detects Conflicting ATC Clearances (CATC) for runway operations [AERODROME-ATC-07]-A-SMGCS incorporating the function that provides Conformance Monitoring Alerts for Controllers (CMAC) on the movement area		
Finalisation criteria:	1 - Operational Procedures have been developed, tested and approved.		

AOP12.1	Airport Safety Nets

AOP12.1-ASP04	**Safety Assessment**	From: 01/01/2021	By: 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	The safety assessment of the changes must be developed in coordination and synchronisation with all concerned stakeholders. This safety assessment must be delivered to the competent authority.		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.		
AOP12.1-ASP05	**Training**	From: 01/01/2021	By: 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	All relevant staff must be duly trained		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Training has been completed.		
AOP12.1-ASP06	**Operational use**	From: 01/01/2021	By: 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	Airport Safety Nets are in operational use once the procedures are in place, systems have been implemented, the safety assessment has been delivered and approved, and the training has been completed.		
Finalisation criteria:	1 - Airport Safety Nets (CATC and CMAC) are put into service		
AOP12.1-APO01	**Supporting RMCA systems implemented**	From: 01/01/2021	By: 31/05/2025
Action by:	**Airport Operators**		
Description & purpose:	Active RMCA alerts must be triggered according to the alert's parameters tailored for the local environment and displayed on Controller CWP with a distinction of colours between alarms alerts and information alerts, alarm alerts must trigger audio warnings. RMCA alarm alerts must have the highest priority when displayed on Controller CWP. Installed RMCA System must demonstrate the compliance to the EUROCAE ED87-D performance requirements and pass the tests described in paragraph 5.5		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[AERODROME-ATC-06]-A-SMGCS incorporating the function that detects Conflicting ATC Clearances (CATC) for runway operations [AERODROME-ATC-07]-A-SMGCS incorporating the function that provides Conformance Monitoring Alerts for Controllers (CMAC) on the movement area		
Finalisation criteria:	1 - RMCA supporting systems have been installed and tested.		
AOP12.1-APO02	**Supporting CATC and CMAC systems implemented**	From: 01/01/2021	By: 31/12/2025
Action by:	**Airport Operators**		
Description & purpose:	Implement appropriate systems allowing the detection of CATC and CMAC, integrated with A-SMGCS surveillance data and ECI (Electronic Clearance Input)		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[AERODROME-ATC-06]-A-SMGCS incorporating the function that detects Conflicting ATC Clearances (CATC) for runway operations [AERODROME-ATC-07]-A-SMGCS incorporating the function that provides Conformance Monitoring Alerts for Controllers (CMAC) on the movement area		
Finalisation criteria:	1 - CATC and CMAC supporting systems have been installed and tested.		
AOP12.1-APO03	**Develop operational procedures**	From: 01/01/2021	By: 31/12/2025
Action by:	**Airport Operators**		
Description & purpose:	The Airport Safety Support Service Operational Procedures must be elaborated.		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		

AOP12.1	Airport Safety Nets

ATM Master Plan relationship:	[AERODROME-ATC-06]-A-SMGCS incorporating the function that detects Conflicting ATC Clearances (CATC) for runway operations [AERODROME-ATC-07]-A-SMGCS incorporating the function that provides Conformance Monitoring Alerts for Controllers (CMAC) on the movement area		
Finalisation criteria:	1 - Operational Procedures have been developed, tested, and approved.		
AOP12.1-APO04	**Safety assessment**	From: 01/01/2021	By: 31/12/2025
Action by:	**Airport Operators**		
Description & purpose:	The safety assessment of the changes must be developed in coordination and synchronisation with all concerned stakeholders. This safety assessment must be delivered to the competent authority.		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.		
AOP12.1-APO05	**Training**	From: 01/01/2021	By: 31/12/2025
Action by:	**Airport Operators**		
Description & purpose:	All relevant staff must be duly trained		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Training has been completed.		
AOP12.1-APO06	**Operational use**	From: 01/01/2021	By: 31/12/2025
Action by:	**Airport Operators**		
Description & purpose:	Airport Safety Nets are in operational use once the procedures are in place, systems have been implemented, the safety assessment has been delivered and approved, and the training has been completed.		
Finalisation criteria:	1 - Airport Safety Nets (CATC and CMAC) are put into service		

Subject matter and scope

The A-SMGCS Routing service provides the generation of taxi routes, with the corresponding estimated taxi time for planning considerations. Taxi routes may be modified by the controller before being assigned to aircraft and vehicles. These routes shall be available in the flight data processing system. Taxi times are continuously updated as the aircraft is operating on the airport surface.

The A-SMGCS Routing shall calculate the most operationally relevant route which permits the aircraft to go from stand to runway, from runway to stand or any other surface movement.

The controller working position shall allow the controller to manage surface route modification and creation if deemed necessary.

The flight data processing system shall be able to receive planned and cleared routes assigned to aircraft and vehicles and manage the status of the route for all concerned aircraft and vehicles.

Traffic will be controlled through the use of appropriate procedures allowing the issuance of information and clearances to traffic.

The A-SMGCS Routing Service should provide to external systems the estimated taxi-out time (EXOT) for aircraft as long as they are before pushback, if benefit provided compared to already existing A-CDM. External systems such as A-CDM might benefit from more accurate taxi times in order to enhance the pre-departure sequencing by providing accurate target take-off times (TTOT).

NOTE: For this objective, there is no requirement for the use of datalink for providing clearances to the pilot or vehicle driver (e.g. D-Taxi).

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area	See list of airports in MP Level 3 Implementation Plan - Annexes		
Timescales:	**From:**	**By:**	**Applicable to:**
Initial operational capability	01/01/2016		Applicability Area
Full operational capability		31/12/2025	Applicability Area

References

European ATM Master Plan

OI step -	[AO-0205]-Automated Assistance to Controller for Surface Movement Planning and Routing								
	Enablers -	AERODROME -ATC-12	AERODROME -ATC-13	AERODROME -ATC-50	REG-0201 AOP16	REG-0513			
OI step -	[TS-0202]-Pre-Departure Sequencing supported by Route Planning								
	Enablers -	AERODROME -ATC-18	AERODROME -ATC-50	AIRPORT-36	REG-0513	STD-059			
OI step -	- No OI Link -								
	Enablers -	AERODROME -ATC-18	AERODROME -ATC-44a						

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

-none-

Essential Operational Changes

Airport and TMA performance

SESAR Solution

AOP13	Automated Assistance to Controller for Surface Movement Planning and Routing

#22 - Automated Assistance to Controller for Surface Movement Planning and Routing, #53 - Pre-Departure Sequencing supported by Route Planning

ICAO GANP - ASBUs

SURF-B1/4	Routing service to support ATCO surface operations management

Deployment Programme

- none -	

European Plan for Aviation Safety

MST.029	Implementation of SESAR Runway safety solutions

Operating Environments

Airport

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
AOP13-REG01	Coordination and final official approval of procedures by the local regulator is required	01/01/2016	31/12/2025
AOP13-ASP01	Upgrade ATS systems to support automated assistance to air traffic controllers for surface movement planning and routing	01/01/2016	31/12/2025
AOP13-ASP02	Ensure the planning and routing function is used to optimise pre-departure sequencing	01/01/2021	31/12/2025
AOP13-ASP03	Implement operational procedures implementing automated assistance to air traffic controllers for surface movement planning and routing	01/01/2016	31/12/2025
AOP13-ASP04	Develop, and deliver as necessary, a safety assessment of the changes imposed by the implementation of automated assistance to air traffic controllers for surface movement planning and routing	01/01/2016	31/12/2025
AOP13-ASP05	Train all operational personnel concerned in the use of automated assistance for surface movement planning and routing	01/01/2016	31/12/2025

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Improved through increased controllers' situational awareness for all ground movements and potential conflicts resolution.
Capacity:	Increased availability of taxiway resources and reduced total taxi time by ground movements. Improved traffic flow on the aerodrome's manoeuvring area.
Operational Efficiency:	Reduced fuel consumption due to reduced taxi time and reduced number of stops while taxiing.
Cost Efficiency:	-
Environment:	Reduced environmental impact by reducing fuel consumption and then CO2 emissions.
Security:	-

Detailed SLoA Descriptions

AOP13-REG01	**Coordination and final official approval of procedures by the local regulator is required**	From: 01/01/2016	By: 31/12/2025
Action by:	**Regulatory Authorities**		
Description & purpose:	Coordinate and discuss the use of new routing & planning functions between all different stakeholders and finally receive the official approval by the local regulator. Note that in some airports, management of ground movement is performed by non ATCO airport personnel.		
Supporting material(s):	SJU - SESAR Solution 22: Data Pack for automated assistance to controller for surface movement planning and routing Url : https://www.sesarju.eu/sesar-solutions/automated-assistance-controller-surface-movement-planning-and-routing		
Finalisation criteria:	1 - All routing and planning functionalities are approved by the regulator for daily operations.		
AOP13-ASP01	**Upgrade ATS systems to support automated assistance to air traffic controllers for surface movement planning and routing**	From: 01/01/2016	By: 31/12/2025
Action by:	**ANS Providers**		

AOP13	Automated Assistance to Controller for Surface Movement Planning and Routing

Description & purpose:	Upgrade ATS systems to support the capability of receiving planned and cleared surface routes assigned to aircraft and vehicles and managing the status of the routes for all concerned aircraft and vehicles. The A-SMGCS routing and planning function shall calculate the most operationally relevant route which permits the aircraft to go from stand to runway, from runway to stand or any other surface movement. A accurate taxi time is provided to the A-CDM platform for predeparture sequencing depending on local needs. The controller working position shall allow the air traffic controller to visualise surface routes, modify/create surface routes, modify any information that participate to the calculation of a route e.g. aircraft holding point for departure, arrival stand. The flight data processing system shall be able to receive planned and cleared routes assigned to aircraft and vehicles and manage the status of the route for all concerned aircraft and vehicles.		
Supporting material(s):	EUROCONTROL - Integrated Tower Working Position (ITWP) Baseline HMI Description - V1.0 / 10/2020 Url : https://www.eurocontrol.int/publication/integrated-tower-working-position-itwp-human-machine-interface-hmi-description EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - Edition 2.0 / 04/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services SJU - SESAR Solution 22: Data Pack for automated assistance to controller for surface movement planning and routing Url : https://www.sesarju.eu/sesar-solutions/automated-assistance-controller-surface-movement-planning-and-routing		
ATM Master Plan relationship:	[AERODROME-ATC-12]-Provision of automatically generated taxi routes for aircraft and vehicles [AERODROME-ATC-13]-Surface movement information processing system enhanced with storage and dissemination of surface routes [AERODROME-ATC-18]-Interfacing between DMAN and Routing module [AERODROME-ATC-44a]-Departure sequence updated taking into account surface management information [AERODROME-ATC-50]-Advanced Airport Tower Controller Working Position (A-CWP)		
Finalisation criteria:	1 - Systems have been upgraded.		
AOP13-ASP02	**Ensure the planning and routing function is used to optimise pre-departure sequencing**	From: 01/01/2021	By: 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	The A-SMGCS Routing Service should provide to external systems the estimated taxi-out time (EXOT) for aircraft as long as they are before pushback, if benefit provided compared to already existing A-CDM. External systems such as A-CDM might benefit from more accurate taxi times in order to enhance the pre-departure sequencing by providing accurate target take-off times (TTOT).		
Supporting material(s):	EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - Edition 2.0 / 04/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services SJU - SESAR Solution 53: Data Pack for Pre-Departure Sequencing Supported by Route Planning Url : https://www.sesarju.eu/sesar-solutions/pre-departure-sequencing-supported-route-planning		
ATM Master Plan relationship:	[AERODROME-ATC-18]-Interfacing between DMAN and Routing module		
Finalisation criteria:	1 - Interaction of DMAN and planning and routing function is implemented.		
AOP13-ASP03	**Implement operational procedures implementing automated assistance to air traffic controllers for surface movement planning and routing**	From: 01/01/2016	By: 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	Define and implement local procedures for surface movement planning and routing. Note that in some airports, management of ground movement is performed by non ATCO airport personnel.		
Supporting material(s):	EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - Edition 2.0 / 04/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services SJU - SESAR Solution 22: Data Pack for automated assistance to controller for surface movement planning and routing Url : https://www.sesarju.eu/sesar-solutions/automated-assistance-controller-surface-movement-planning-and-routing		
Finalisation criteria:	1 - Local procedures have been developed, implemented, approved/certified and are being used by controllers at airports equipped with planning and routing functions.		
AOP13-ASP04	**Develop, and deliver as necessary, a safety assessment of the changes imposed by the implementation of automated assistance to air traffic controllers for surface movement planning and routing**	From: 01/01/2016	By: 31/12/2025
Action by:	**ANS Providers**		

AOP13	Automated Assistance to Controller for Surface Movement Planning and Routing

Description & purpose:	Develop safety assessment of the changes, notably upgrades of ATS systems to support automated assistance to air traffic controllers for surface movement planning and routing. The tasks to be done are as follows: - Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks; - Develop safety assessment; - Deliver safety assessment to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. This safety assessment shall be based on fully validated/recognised method.		
Supporting material(s):	SJU - SESAR Solution 22: Data Pack for automated assistance to controller for surface movement planning and routing Url : https://www.sesarju.eu/sesar-solutions/automated-assistance-controller-surface-movement-planning-and-routing		
Finalisation criteria:	1 - The safety argument for all changes, generated by the deployment of this functionality, has been delivered by the ANSP to the NSA.		
AOP13-ASP05	**Train all operational personnel concerned in the use of automated assistance for surface movement planning and routing**	From: 01/01/2016	By: 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	Train aerodrome controllers in the use of planning and routing systems and procedures (including phraseology) in accordance with agreed training requirements. Note that in some airports, management of ground movement is performed by non ATCO airport personnel.		
Supporting material(s):	EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - Edition 2.0 / 04/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services SJU - SESAR Solution 22: Data Pack for automated assistance to controller for surface movement planning and routing Url : https://www.sesarju.eu/sesar-solutions/automated-assistance-controller-surface-movement-planning-and-routing		
Finalisation criteria:	1 - Controllers training in accordance with agreed training requirements and programme has been completed.		

Subject matter and scope

The remote tower concept enables air traffic control services (ATS) and aerodrome flight information services (AFIS) to be provided at aerodromes where such services are either currently unavailable, or where it is difficult or too expensive to implement and staff a conventional manned facility.

This Objective proposes to remotely provide ATC services and AFIS for one aerodrome handling low to medium traffic volumes or two low-density aerodromes (simultaneous by one operator), typically with traffic schedules comprising single movements, rarely exceeding two simultaneous movements per aerodrome. The basic configuration, which does not include augmentation features, is considered suitable for ATC and AFIS provision at low density airfields. However, the level and flexibility of service provision can be enhanced through the use of augmentation technology, such as an ATC surveillance display, surveillance and visual tracking, infra-red cameras etc.

This Objective also covers the possibility to apply the remote tower concept as a contingency solution in facility known as Remote Contingency Tower (RCT). This solution can be used when the local tower is not available and services need to be provided from a back-up location. The target environment for the majority of RCTs will be medium density aerodromes that are economically important.

NOTE 1: Being a Local objective, to be applied at individual States or ATC Unit level, to achieve their performance targets the objective does not have a mandatory implementation deadline. As indicative guidance, the FOC of the OI Steps on which all the three SESAR Solutions (#12; #13, #52; #71) are based are 31/12/2024 for SDM-0201 and 15/11/2023 for SDM-0205.

NOTE 2: This objective is linked to SESAR Solutions #12, #13, #71, and #52.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area (Low to medium complexity aerodromes, subject to local needs)			
Timescales:	**From:**	**By:**	**Applicable to:**
IOC used for Analytics functioning only - not for implementation planning	31/05/2019		Applicability Area
FOC used for Analytics functioning only - not for implementation planning		01/01/2030	Applicability Area

References

European ATM Master Plan

OI step -	[SDM-0201]-Remotely Provided Air Traffic Service for Single Aerodrome								
	Enablers -	AERODROME -ATC-52	AERODROME -ATC-53	CTE-S02d	REG-0509				
OI step -	[SDM-0204]-Remotely Provided Air Traffic Service for Contingency Situations at Small to Medium Aerodromes (with a Single Main Runway)								
	Enablers -	AERODROME -ATC-51							
OI step -	[SDM-0205]-Remotely Provided Air Traffic Services for Two Low-density Aerodromes								
	Enablers -	AERODROME -ATC-54	CTE-S02d	REG-0525					

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

-none-

Essential Operational Changes

AOP14.1	Remote Tower Services

Virtualisation of Service Provision

SESAR Solution

#12 - Single Remote Tower operations for medium traffic volumes, #13 - Remotely Provided Air Traffic Service for Contingency Situations at Aerodromes, #52 - Remote Tower for two low density aerodromes, #71 - ATC and AFIS service in a single low density aerodrome from a remote CWP

ICAO GANP - ASBUs

RATS-B1/1	Remotely Operated Aerodrome Air Traffic Services

Deployment Programme

- none -	

European Plan for Aviation Safety

RMT.0624	Remote aerodrome ATS

Operating Environments

Airport

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
AOP14.1-REG01	Supervise compliance with regulatory provisions		
AOP14.1-ASP01	Develop, and deliver as necessary, a safety assessment of the changes imposed by the implementation of remote tower		
AOP14.1-ASP02	Define and implement system improvements allowing for the implementation of remote tower		
AOP14.1-ASP03	Develop and implement procedures for the use of Remote Tower		
AOP14.1-ASP04	Train all operational and technical personnel concerned		
AOP14.1-ASP05	Implement remotely provided air traffic service for contingency situations		
AOP14.1-APO01	Define and implement local airport procedures and processes for the implementation of remote tower concept		
AOP14.1-APO02	Train all operational and technical personnel concerned		

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	-
Operational Efficiency:	Improve the uniformity of service provision at low to medium density and remote aerodromes and sustain or increase the availability of the service (for example allowing ATS to be provided at an aerodrome, which previously was unable to financially support a service).
Cost Efficiency:	Cost reduction for ATS by optimisation of working time and conditions of ATCOs. Remote ATS facilities with several remote tower modules will be cheaper to maintain, and enable lower operating costs due to equipment economies of scale. The financial benefit may be further increased when operating in multiple mode, although in spring 2022 no multiple operations has been approved yet. It will also significantly reduce the requirement to maintain tower buildings and infrastructure. Cost benefits of RCT due to customer retention and reduced economic loss during contingency events.
Environment:	-
Security:	-

Detailed SLoA Descriptions

		From:	By:
AOP14.1-REG01	**Supervise compliance with regulatory provisions**	-	-
Action by:	**Regulatory Authorities**		

AOP14.1	Remote Tower Services

Description & purpose:	Supervise compliance with regulatory provisions for implementation of remote tower concept. The tasks to be done cover among others: - Ensure that all aerodromes where remote tower concept will be implemented are certified in accordance with applicable regulations. - Ensure the safety oversight of change related to the implementation of remote tower concept. - Ensure that all concerned operational and technical personnel received appropriate ratings/endorsements for their job functions in relation to the implementation of remote tower concept.		
Supporting material(s):	EASA - ED Decision 2019/004/R - ED Decision 2019/004/R - Guidance Material on remote aerodrome air traffic services and repealing Decision 2015/014/R 02/2019 Url : https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2019004r EASA - NPA 2022-02 (A) and NPA 2022-02 (B) - NPA 2022-02 (A) and NPA 2022-02 (B) Remote aerodrome air traffic services Url : https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2022-02-and-npa-2022-02-b		
ATM Master Plan relationship:	[REG-0509]-Regulatory Provisions for the harmonised deployment of Remote Towers Operations (for a single aerodrome) [REG-0525]-Regulatory provisions for the harmonised deployment of Remote Towers Operations (for two aerodromes)		
Finalisation criteria:	1 - The regulatory authorities have evidence of the status of compliance with regulatory provisions for aerodromes where remote tower concept is implemented.		
AOP14.1-ASP01	**Develop, and deliver as necessary, a safety assessment of the changes imposed by the implementation of remote tower**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Develop safety assessment of the change to functional system imposed by the introduction of the remote tower concept (including Remote Contingency Tower, where applicable). The tasks to be done are as follows: - Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks; - Develop safety assessment; - Deliver safety assessment to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. This safety assessment shall be based on fully validated/recognised method.		
Supporting material(s):	EC - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 - (OJ L 62, 8.03.2017, p. 1) - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011 03/2017 Url : https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R0373&from=EN EUROCONTROL - Air Navigation Systems Safety Assessment Methodology (SAM) - Version 2.1 / 11/2006 Url : https://www.eurocontrol.int/tool/safety-assessment-methodology EASA - ED Decision 2019/004/R - ED Decision 2019/004/R - Guidance Material on remote aerodrome air traffic services and repealing Decision 2015/014/R 02/2019 Url : https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2019004r EASA - NPA 2022-02 (A) and NPA 2022-02 (B) - NPA 2022-02 (A) and NPA 2022-02 (B) Remote aerodrome air traffic services Url : https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2022-02-and-npa-2022-02-b		
Finalisation criteria:	1 - The safety argument has been delivered to the NSA, for all changes generated by the implementation of remote tower concept.		
AOP14.1-ASP02	**Define and implement system improvements allowing for the implementation of remote tower**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	When implementing a remote tower module, a number of system improvements should be implemented in order to display to ATCO/AFISO an "out of the window like" (OTW) image of the airport and its vicinity and to increase ATCO/AFISO situational awareness. In addition, all the tools and facilities available to a tower controller will also need to be remotely controlled, including, inter alia, ground-ground and ground-air communications, traffic light controls and aerodrome lighting controls. A mix of basic and advanced technical features should be considered including: - Basic features: * Visual (panorama) presentation (OTW); and * Binocular functionality camera(s). - Advanced features: * additional visual 'hot spot' cameras * the use of infrared or other optical sensors/cameras outside the visible spectrum * binocular functionality automatically following moving objects (commonly referred to as 'PTZ tracking') * dedicated means to facilitate the detection, identification and automatic following of aircraft or vehicles in the visual presentation (e.g. by labels based on surveillance data, complemented by flight plan correlation when available, commonly referred to as 'radar tracking'); * dedicated means to facilitate the detection and following of moving objects in the visual presentation (e.g. by highlighting/framing such objects based on image processing systems, commonly referred to as 'visual tracking'); * other overlaid information in the visual presentation such as framing and/or designation of runways, taxiways, etc., compass directions, meteorological information, aeronautical information (NOTAM, SNOWTAM, etc.), other operational information (e.g. runway conditions like water, snow or mud presence, coefficient of friction, etc.); * ATS surveillance (air and/or ground radar presentation).		

AOP14.1	Remote Tower Services

Supporting material(s):	EASA - ED Decision 2019/004/R - ED Decision 2019/004/R - Guidance Material on remote aerodrome air traffic services and repealing Decision 2015/014/R 02/2019 Url : https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2019004r EASA - NPA 2022-02 (A) and NPA 2022-02 (B) - NPA 2022-02 (A) and NPA 2022-02 (B) Remote aerodrome air traffic services Url : https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2022-02-and-npa-2022-02-b EUROCAE - ED-240A - Minimum Aviation System Performance Standards (MASPS) for Remote Tower Optical Systems 10/2018 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-240a/#		
ATM Master Plan relationship:	[AERODROME-ATC-52]-Provide Remote Tower Controller position with visual reproduction of both remoted aerodrome views and other sensor data. [AERODROME-ATC-53]-Remote Tower controller position enhanced with additional sources for low visibility conditions [AERODROME-ATC-54]-Provide a Remote CWP that enables one ATCO to control 2 remote towers (low-density) simultaneously [CTE-S02d]-Video Based Surveillance		
Finalisation criteria:	1 - The ANSP system has been upgraded according to the specifications for the remote tower concept.		
AOP14.1-ASP03	**Develop and implement procedures for the use of Remote Tower**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Ensure that all procedures and processes applicable for the remote tower concept are updated to the chosen operating scenario for remote tower aerodrome. These procedures should take into account if the concept is being implemented for a single or for multiple aerodromes, the traffic volumes as well as the acceptable number of simultaneous movements as derived from the safety assessment and approved by the NSA.		
Supporting material(s):	EASA - ED Decision 2019/004/R - ED Decision 2019/004/R - Guidance Material on remote aerodrome air traffic services and repealing Decision 2015/014/R 02/2019 Url : https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2019004r EASA - NPA 2022-02 (A) and NPA 2022-02 (B) - NPA 2022-02 (A) and NPA 2022-02 (B) Remote aerodrome air traffic services Url : https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2022-02-and-npa-2022-02-b		
Finalisation criteria:	1 - The ATC/AFIS procedures have been updated to take on board the remote tower requirements.		
AOP14.1-ASP04	**Train all operational and technical personnel concerned**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Ensure that all operational and technical personnel concerned are adequately trained and hold appropriate ratings/endorsements for their job functions in relation to the approved implementation of remote tower (including for Remote Contingency Tower, where applicable).		
Supporting material(s):	EASA - ED Decision 2019/004/R - ED Decision 2019/004/R - Guidance Material on remote aerodrome air traffic services and repealing Decision 2015/014/R 02/2019 Url : https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2019004r EASA - NPA 2022-02 (A) and NPA 2022-02 (B) - NPA 2022-02 (A) and NPA 2022-02 (B) Remote aerodrome air traffic services Url : https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2022-02-and-npa-2022-02-b		
Finalisation criteria:	1 - Training plans covering remote tower requirements have been developed and implemented.		
AOP14.1-ASP05	**Implement remotely provided air traffic service for contingency situations**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Implement the remote tower concept for contingency situations when the local tower is not available and services are to be provided from the contingency location. This specific solution should cover the following steps: - Definition and implementation of system improvements allowing for the implementation of remote tower for contingency situations, - Definition and implementation of procedures and processes in support of network and local dimension imposed by the implementation of remote tower for contingency situations, including regular training for operational and technical personnel concerned.		
Supporting material(s):	SJU - SESAR Solution 13: Data Pack for Remotely provided air traffic service for contingency situations at aerodromes Url : https://www.sesarju.eu/sesar-solutions/remotely-provided-air-traffic-service-contingency-situations-aerodromes		
ATM Master Plan relationship:	[AERODROME-ATC-51]-Remote Tower Centre (RTC) position that in contingency situation hosts ATCO that will no longer be located at the local Tower.		
Finalisation criteria:	1 - Remote Contingency Tower (RCT) in place and available for operational use.		
AOP14.1-APO01	**Define and implement local airport procedures and processes for the implementation of remote tower concept**	From: -	By: -
Action by:	**Airport Operators**		
Description & purpose:	Ensure that all procedures and processes applicable for the remote tower concept are updated to the chosen operating scenario for remote tower aerodrome and agreed with the ATSP.		

AOP14.1	Remote Tower Services

Supporting material(s):	EASA - ED Decision 2019/004/R - ED Decision 2019/004/R - Guidance Material on remote aerodrome air traffic services and repealing Decision 2015/014/R 02/2019 Url : https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2019004r EASA - NPA 2022-02 (A) and NPA 2022-02 (B) - NPA 2022-02 (A) and NPA 2022-02 (B) Remote aerodrome air traffic services Url : https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2022-02-and-npa-2022-02-b		
Finalisation criteria:	1 - The local airport procedures have been updated to take on board the remote tower service provision.		
AOP14.1-APO02	**Train all operational and technical personnel concerned**	From: -	By: -
Action by:	**Airport Operators**		
Description & purpose:	Ensure that all operational and technical personnel concerned are adequately trained for their job functions in relation to the implementation of remote tower.		
Supporting material(s):	EASA - ED Decision 2019/004/R - ED Decision 2019/004/R - Guidance Material on remote aerodrome air traffic services and repealing Decision 2015/014/R 02/2019 Url : https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2019004r EASA - NPA 2022-02 (A) and NPA 2022-02 (B) - NPA 2022-02 (A) and NPA 2022-02 (B) Remote aerodrome air traffic services Url : https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2022-02-and-npa-2022-02-b		
Finalisation criteria:	1 - Training plans covering remote tower requirements have been developed and all operational and technical personnel concerned has been trained.		

Subject matter and scope

The Remote Tower concept is changing the provision of Air Traffic Services (ATS) in a way that it is more service tailored, dynamically positioned and available when and where needed, enabled by digital solutions replacing the physical presence of controllers and control towers at aerodromes.

This Objective aims for increased cost efficiency by allowing ATCO to maintain situational awareness and provide air traffic services for 2 or 3 airports simultaneously. Implementation is expected address airports with the following traffic characteristics regarding simultaneous movements (including mix of IFR and VFR, as well as aerodrome vehicles):
• 2 airports with 6 simultaneous movements in total, up to 20 movements (ground and air) per hour in peak, 15.000 to 45.000 annual movements
• 3 airports with 4 simultaneous movements in total, up to 15 movements (ground and air) per hour, up to 15.000 annual movements

NOTE 1: This is an "Initial" objective to provide advance notice to stakeholders. Some aspects of the objective require further validation.

NOTE 2: The baseline for multiple remote tower operations is the single remote tower operations (AOP14.1). Transfer from conventional tower service local at the aerodrome to multiple Remote Tower is foreseen to take the step via Single Remotely controlled Air Traffic Service before a combination of more than one aerodrome in multiple mode is in place

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area (Not defined yet)			
Timescales:	**From:**	**By:**	**Applicable to:**
IOC used for Analytics functioning only - not for implementation planning	01/07/2022		
FOC used for Analytics functioning only - not for implementation planning		31/12/2030	

References

European ATM Master Plan

OI step -	[SDM-0207]-Remotely Provided Air Traffic Service for Multiple Aerodromes (up to 3 aerodromes)								
	Enablers -	AERODROME -ATC-79	AERODROME -ATC-81	AERODROME -ATC-82	CTE-C14				

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

None

Essential Operational Changes

Virtualisation of Service Provision

SESAR Solution

PJ.05-02 - Multiple Remote Tower Module

ICAO GANP - ASBUs

RATS-B1/1	Remotely Operated Aerodrome Air Traffic Services

Deployment Programme

- none -	

AOP14.2	Multiple Remote Tower Module

European Plan for Aviation Safety

RMT.0624	Remote aerodrome ATS

Operating Environments

Airport

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
AOP14.2-REG01	Amend the regulatory framework		
AOP14.2-ASP01	Implement a Multiple Remote Tower Module		
AOP14.2-ASP02	Implement procedures supporting the operational use of MRTM		
AOP14.2-ASP03	Safety assessment		
AOP14.2-ASP04	Training		
AOP14.2-ASP05	Operational Use		

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	Reduced costs by a reduction of ATCOs of up to 25% compared to Single Remote Tower
Environment:	-
Security:	-

Detailed SLoA Descriptions

AOP14.2-REG01	**Amend the regulatory framework**	From: -	By: -
Action by:	**Regulatory Authorities**		
Description & purpose:	Amend and/or further evolve the existing regulatory framework if/as deemed necessary		
Supporting material(s):	SJU - SESAR Solution PJ.05-02: Data pack for Multiple Remote Tower Module Url : https://cordis.europa.eu/project/id/730195/results EASA - Guidance Material on remote aerodrome air traffic services — Issue 2 and 'AMC & GM to Part ATCO' — Issue 1, Amendment 2 (Executive Director Decision 2019/004/R) Url : https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2019004r		
ATM Master Plan relationship:	[REG-0509]-Regulatory Provisions for the harmonised deployment of Remote Towers Operations (for a single aerodrome) [REG-0525]-Regulatory provisions for the harmonised deployment of Remote Towers Operations (for two aerodromes)		
Finalisation criteria:	1 - The regulatory authorities have evidence of the status of compliance with regulatory provisions for aerodromes where remote tower concept is implemented		
AOP14.2-ASP01	**Implement a Multiple Remote Tower Module**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	MRTM can be a new Module in the RTC building even though existing modules can be transferred to a MRTM with the new features added. Such module should include a planning tool to present traffic and tasks further ahead for the aerodromes (up to three) the ATCO has control of as well as Advanced VCS (Voice Com System) for a Multiple Remote Tower Module (MRTM).		
	Note :It is considered that a Single Remote Tower is the baseline and it is therefore already in place.		
Supporting material(s):	SJU - SESAR Solution PJ.05-02: Data pack for Multiple Remote Tower Module Url : https://cordis.europa.eu/project/id/730195/results EASA - Guidance Material on remote aerodrome air traffic services — Issue 2 and 'AMC & GM to Part ATCO' — Issue 1, Amendment 2 (Executive Director Decision 2019/004/R) Url : https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2019004r		
ATM Master Plan relationship:	[AERODROME-ATC-79]-Provide a Multiple Remote Tower Module (MRTM) that enables one ATCO to control multiple remote towers simultaneously [AERODROME-ATC-81]-ATCO planning tool for a Multiple Remote Tower Module (MRTM) [AERODROME-ATC-82]-Technical supervision from a Multiple Tower Remote Module (MRTM) [CTE-C14]-Advanced VCS (Voice Com System) for a Multiple Remote Tower Module (MRTM)		

AOP14.2	Multiple Remote Tower Module

Finalisation criteria:	1 - A Single Remote Tower has been upgrade with a Multiple Remote Tower Module.		
AOP14.2-ASP02	**Implement procedures supporting the operational use of MRTM**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Local procedures might change with the introduction of the remote provision of ATS for multiple aerodromes as implementation will require the harmonisation of procedures and systems allowing dynamic allocation of airports to MRTMs. New local procedures might have to be introduced to cover how the switch is made from one MRTM to another during multiple control and has to be included into the new procedures for operating all of the features in the MRTM.		
	Note :It is considered that a Single Remote Tower is the baseline and it is therefore already in place.		
Supporting material(s):	SJU - SESAR Solution PJ.05-02: Data pack for Multiple Remote Tower Module Url : https://cordis.europa.eu/project/id/730195/results EASA - Guidance Material on remote aerodrome air traffic services — Issue 2 and 'AMC & GM to Part ATCO' — Issue 1, Amendment 2 (Executive Director Decision 2019/004/R) Url : https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2019004r		
ATM Master Plan relationship:	[AERODROME-ATC-79]-Provide a Multiple Remote Tower Module (MRTM) that enables one ATCO to control multiple remote towers simultaneously [AERODROME-ATC-81]-ATCO planning tool for a Multiple Remote Tower Module (MRTM) [AERODROME-ATC-82]-Technical supervision from a Multiple Tower Remote Module (MRTM) [CTE-C14]-Advanced VCS (Voice Com System) for a Multiple Remote Tower Module (MRTM)		
Finalisation criteria:	1 - Procedures developed, tested and approved.		
AOP14.2-ASP03	**Safety assessment**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	A safety assessment of the changes shall be developed and delivered to the competent authority in order to ensure that the level of safety is at least maintained when a Multiple Remote Tower Module is operated.		
Supporting material(s):	SJU - SESAR Solution PJ.05-02: Data pack for Multiple Remote Tower Module Url : https://cordis.europa.eu/project/id/730195/results EASA - Guidance Material on remote aerodrome air traffic services — Issue 2 and 'AMC & GM to Part ATCO' — Issue 1, Amendment 2 (Executive Director Decision 2019/004/R) Url : https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2019004r		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.		
AOP14.2-ASP04	**Training**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	All relevant staff shall be duly trained. ATCOs shall be provided with a specific training incorporating knowledge about local airport procedures and conditions - such as local geography, local weather conditions, traffic type & mix, etc – as part of the endorsement training for the aerodromes to which remote services are to be provided.		
Supporting material(s):	SJU - SESAR Solution PJ.05-02: Data pack for Multiple Remote Tower Module Url : https://cordis.europa.eu/project/id/730195/results EASA - Guidance Material on remote aerodrome air traffic services — Issue 2 and 'AMC & GM to Part ATCO' — Issue 1, Amendment 2 (Executive Director Decision 2019/004/R) Url : https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2019004r		
Finalisation criteria:	1 - Training has been completed.		
AOP14.2-ASP05	**Operational Use**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Once the procedures are in place, systems have been upgraded, safety assessment delivered and approved, training has been completed, a Multiple Remote Tower Module is ready for operational use.		
Supporting material(s):	SJU - SESAR Solution PJ.05-02: Data pack for Multiple Remote Tower Module Url : https://cordis.europa.eu/project/id/730195/results EASA - Guidance Material on remote aerodrome air traffic services — Issue 2 and 'AMC & GM to Part ATCO' — Issue 1, Amendment 2 (Executive Director Decision 2019/004/R) Url : https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2019004r		
Finalisation criteria:	1 - A Multiple Remote Tower Module is put into service.		

SESAR	Active									LOC/APT
AOP15	Enhanced traffic situational awareness and airport safety nets for the vehicle drivers									
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

Enhanced Situational Awareness and Airport Safety Nets for the vehicle drivers should be used by those vehicle drivers who are allowed to operate in the manoeuvring area of an aerodrome.

The system consists of the following improvements for the vehicle drivers:

1. Provision of an Airport Moving Map in the vehicle, together with the display of the surrounding traffic, to enhance the driver's situation awareness: The Airport Moving Map function indicates the position of the vehicle on the airfield and the Ground Traffic Display function displays other traffic operating on the movement area of the airport. The other traffic to be displayed includes both aircraft and vehicles.

2. Provision of alerts to vehicle drivers to warn them of situations that if not corrected could end up in hazardous situations. Two types of alerts are considered:
a) Traffic alerts to warn the vehicle driver of a potential or actual conflict with an aircraft. Traffic alerts are not triggered with another vehicle but only with an aircraft.
b) Area infringement alerts to warn the vehicle driver when the vehicle is in a closed or restricted area while the vehicle is operating on the manoeuvring area.

The alerts are provided to the vehicle drivers in the form of an aural and/or visual alert with two levels of alert severity depending on the severity of situations:

• Caution alert for the less critical situations; and
• Warning alert for the most critical situations.

Two implementations have been considered for the generation of alerts:

1. Alerts may be generated by an on-board system; or
2. Alerts may be generated by a centralised server (connected to the A-SMGCS) with an uplink to the vehicle.

In implementation of this functionality, the frequency load of 1030/1090 MHz should be considered.

Increased situational awareness is essential for operations at airports especially in adverse weather conditions or other similar operating situations. Situational Awareness is important for vehicle drivers as they need to operate within the manoeuvring area regardless of weather conditions.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area (Subject to local needs)			
Timescales:	**From:**	**By:**	**Applicable to:**
IOC used for Analytics functioning only - not for implementation planning	31/05/2019		Applicability Area
FOC used for Analytics functioning only - not for implementation planning		01/01/2030	Applicability Area

References

European ATM Master Plan

OI step -	[AO-0105]-Airport Safety Net for Vehicle Drivers								
	Enablers -	AIRPORT-45	AIRPORT-46						
OI step -	[AO-0204]-Airport Vehicle Driver's Traffic Situational Awareness								
	Enablers -	AIRPORT-30	AIRPORT-47	CTE-S03					

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

AOP15	Enhanced traffic situational awareness and airport safety nets for the vehicle drivers

Applicable legislation

-none-

Essential Operational Changes

Airport and TMA performance

SESAR Solution

#04 - Enhanced Traffic Situational Awareness and Airport Safety Nets for the vehicle drivers

ICAO GANP - ASBUs

SURF-B2/2	Comprehensive vehicle driver situational awareness on the airport surface

Deployment Programme

- none -	

European Plan for Aviation Safety

MST.029	Implementation of SESAR Runway safety solutions

Operating Environments

Airport

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
AOP15-REG01	Promulgate the procedures for use of Enhanced Situational Awareness and Airport Safety Nets for vehicle drivers	01/04/2019	
AOP15-APO01	Install "Onboard Ground Vehicle System" to process and display the own position and surrounding traffic		
AOP15-APO02	Install SNET function in "Onboard Ground Vehicle System", to provide alerts to vehicle drivers		
AOP15-APO03	Develop the procedures for use of "Onboard Ground Vehicle System" and SNET		
AOP15-APO04	Develop safety assessment of the changes imposed by "Onboard Ground Vehicle System" and SNET		
AOP15-APO05	Train all relevant staff in the use of "Onboard Ground Vehicle System" and SNET		
AOP15-INT01	Develop standard for interface between A-SMGCS and On Board Ground Vehicle System		

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	This improved situational awareness combined with an alerting/warning system in case potential hazardous situations are detected, will not only improve safety for the vehicles operating in the manoeuvring area but also provide a safety enhancement for the aircraft operations, both on taxiways and runways, at the airport.
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

AOP15-REG01	**Promulgate the procedures for use of Enhanced Situational Awareness and Airport Safety Nets for vehicle drivers**	From: 01/04/2019	By: -
Action by:	**Regulatory Authorities**		
Description & purpose:	Establish and promulgate the procedures for use Enhanced Situational Awareness and Airport Safety Nets for the vehicle drivers at an aerodrome.		

AOP15	Enhanced traffic situational awareness and airport safety nets for the vehicle drivers

Supporting material(s):	EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - Edition 2.0 / 04/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services SJU - SESAR Solution 04: Data Pack for Enhanced traffic situational awareness and airport safety nets for the vehicle drivers Url : https://www.sesarju.eu/sesar-solutions/enhanced-traffic-situational-awareness-and-airport-safety-nets-vehicle-drivers		
Finalisation criteria:	1 - The procedures for use Enhanced Situational Awareness and Airport Safety Nets for the vehicle drivers, have been promulgated.		
AOP15-APO01	**Install "Onboard Ground Vehicle System" to process and display the own position and surrounding traffic**	From: -	By: -
Action by:	**Airport Operators**		
Description & purpose:	Install the system for Surface Traffic Situational Awareness to process and display in an "On-board Vehicle System" the own position and surrounding traffic. The processing and display in an "On-board Vehicle System" of the own position and surrounding traffic may be provided by the central server making use A-SMGCS system or autonomously by Onboard Ground Vehicle system. The system should be used by those vehicle drivers who are allowed to operate in the manoeuvring area of an aerodrome. In implementation of this functionality, the frequency load of 1030/1090 MHz should be considered.		
Supporting material(s):	SJU - SESAR Solution 04: Data Pack for Enhanced traffic situational awareness and airport safety nets for the vehicle drivers Url : https://www.sesarju.eu/sesar-solutions/enhanced-traffic-situational-awareness-and-airport-safety-nets-vehicle-drivers		
ATM Master Plan relationship:	[AIRPORT-30]-Use of airport wireless communication infrastructure for mobile data' [AIRPORT-47]-Surface Traffic Situational Awareness to process and display in an 'On-board Vehicle System' the own position and surrounding traffic.		
Finalisation criteria:	1 - "On-board Vehicle System" displaying the own position and surrounding traffic has been installed and functioning at the vehicles operating on the manoeuvring area.		
AOP15-APO02	**Install SNET function in "Onboard Ground Vehicle System", to provide alerts to vehicle drivers**	From: -	By: -
Action by:	**Airport Operators**		
Description & purpose:	Install the function for SNET alerts generation and display to the vehicle drivers in Onboard Ground Vehicle System. SNET alerts may be generated and displayed by the central server making use A-ASMGCS system or autonomously by Onboard Ground Vehicle system. The system should be used by those vehicle drivers who are allowed to operate in the manoeuvring area of an aerodrome.		
Supporting material(s):	SJU - SESAR Solution 04: Data Pack for Enhanced traffic situational awareness and airport safety nets for the vehicle drivers Url : https://www.sesarju.eu/sesar-solutions/enhanced-traffic-situational-awareness-and-airport-safety-nets-vehicle-drivers		
ATM Master Plan relationship:	[AIRPORT-30]-Use of airport wireless communication infrastructure for mobile data' [AIRPORT-45]-On-board vehicle system to provide safety net alerts to vehicle drivers [AIRPORT-46]-On-board vehicle safety net alerts generation [AIRPORT-47]-Surface Traffic Situational Awareness to process and display in an 'On-board Vehicle System' the own position and surrounding traffic.		
Finalisation criteria:	1 - "On-board Vehicle System" generating SNET alerts to the drivers has been installed and functioning at the vehicles operating on the manoeuvring area.		
AOP15-APO03	**Develop the procedures for use of "Onboard Ground Vehicle System" and SNET**	From: -	By: -
Action by:	**Airport Operators**		
Description & purpose:	Develop the procedures for the vehicle drivers, which specify roles, tasks and responsibilities for use of Enhanced Situational Awareness system and SNET alerts at an aerodrome.		
Supporting material(s):	SJU - SESAR Solution 04: Data Pack for Enhanced traffic situational awareness and airport safety nets for the vehicle drivers Url : https://www.sesarju.eu/sesar-solutions/enhanced-traffic-situational-awareness-and-airport-safety-nets-vehicle-drivers		
Finalisation criteria:	1 - Operations Manual applicable to the vehicle drivers has been updated to contain the procedures concerned.		
AOP15-APO04	**Develop safety assessment of the changes imposed by "Onboard Ground Vehicle System" and SNET**	From: -	By: -
Action by:	**Airport Operators**		
Description & purpose:	Develop safety assessment of the changes, notably installation of "On-board Vehicle System" displaying the own position, surrounding traffic and SNET alerts to the vehicle drivers. The tasks to be done are as follows: - Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks; - Develop safety assessment; - Deliver safety assessment to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. This safety assessment shall be based on fully validated/recognised method. In implementation of this functionality, the frequency load of 1030/1090 MHz should be considered.		

AOP15	Enhanced traffic situational awareness and airport safety nets for the vehicle drivers

Supporting material(s):	SJU - SESAR Solution 04: Data Pack for Enhanced traffic situational awareness and airport safety nets for the vehicle drivers Url : https://www.sesarju.eu/sesar-solutions/enhanced-traffic-situational-awareness-and-airport-safety-nets-vehicle-drivers		
Finalisation criteria:	1 - The safety argument for all changes, generated by the deployment of this functionality, has been delivered by the Airport Operator to the NSA.		
AOP15-APO05	**Train all relevant staff in the use of "Onboard Ground Vehicle System" and SNET**	From: -	By: -
Action by:	**Airport Operators**		
Description & purpose:	Train airport vehicle drivers operating at the manoeuvring area, in the responsibilities and actions that should be taken in relation to use of "On-board Vehicle System" displaying the own position, surrounding traffic and SNET alerts to the driver.		
Supporting material(s):	SJU - SESAR Solution 04: Data Pack for Enhanced traffic situational awareness and airport safety nets for the vehicle drivers Url : https://www.sesarju.eu/sesar-solutions/enhanced-traffic-situational-awareness-and-airport-safety-nets-vehicle-drivers		
Finalisation criteria:	1 - Vehicle drivers training in accordance with agreed training requirements and programme has been completed.		
AOP15-INT01	**Develop standard for interface between A-SMGCS and On Board Ground Vehicle System**	From: -	By: -
Action by:			
Description & purpose:	Develop and publish the standard for interface between A-SMGCS and On Board Vehicle System.		
	Note :This is action for European Standardisation Organisations		
Supporting material(s):	EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - Edition 2.0 / 04/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services SJU - SESAR Solution 04: Data Pack for Enhanced traffic situational awareness and airport safety nets for the vehicle drivers Url : https://www.sesarju.eu/sesar-solutions/enhanced-traffic-situational-awareness-and-airport-safety-nets-vehicle-drivers		
Finalisation criteria:	1 - The standard for interface between A-SMGCS and On Board Vehicle System, have been published.		

SESAR			Active						LOC/APT	
AOP16			Guidance assistance through airfield ground lighting							
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

Guidance assistance through airfield ground lighting (AGL) is intended for controllers, flight crews and vehicle drivers. It corresponds to the A-SMGCS Guidance function foreseen in ICAO's A-SMGCS Manual (Doc. 9830). It links aerodrome lighting infrastructure with the taxi route management system (Routing & Planning), thus providing an unambiguous route for the taxiing aircraft/vehicle to follow.

To achieve this, taxiway centre line lights are automatically and progressively activated (switched on to green), either in segments of several lights or individually, along the route cleared by the controller. If this cleared route includes a limit and if a physical stop bar exists at this point, this stop bar is also automatically activated (switched on to red) when the mobile nears it. The solution strongly relies on the surface movement surveillance system to provide accurate aircraft position data.

Taxi clearances given to aircraft and vehicles are input in the system by the controllers and, the flight crew or vehicle driver is instructed to follow the greens up to a given clearance limit.

The automation might also include the management of priorities at intersections, based on pre-defined criteria (e.g. aerodrome rules, speed or target times). However, controllers are able to override the guidance decisions, which shows activated lights on the HMI.

Implementation of the objective AOP13 (Automated Assistance to Controller for Surface Movement Planning and Routing) is a pre-requisite for this objective.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area (Subject to local need)			
Timescales:	**From:**	**By:**	**Applicable to:**
IOC used for Analytics functioning only - not for implementation planning	31/05/2019		Applicability Area
FOC used for Analytics functioning only - not for implementation planning		01/01/2030	Applicability Area

References

European ATM Master Plan

OI step -	[AO-0222-A]-Enhanced Guidance Assistance to mobiles based on the automated switching of Taxiway lights and Stop bars according to the 'Airfield Ground Lighting' operational service								
	Enablers -	AERODROME -ATC-50	AERODROME -ATC-61	REG-0201					

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

-none-

Essential Operational Changes

Airport and TMA performance

SESAR Solution

#47 - Guidance Assistance through Airfield Ground Lighting

ICAO GANP - ASBUs

SURF-B1/1	Advanced features using visual aids to support traffic management during ground operations

Deployment Programme

AOP16	Guidance assistance through airfield ground lighting

- none -	

European Plan for Aviation Safety

MST.029	Implementation of SESAR Runway safety solutions

Operating Environments

Airport

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
AOP16-ASP01	Upgrade CWP/HMI to display and manage lights and routes		
AOP16-ASP02	Develop and implement procedures for taxi guidance by AGL (controllers and pilots/drivers)		
AOP16-ASP03	Develop safety assessment of the changes imposed by taxi guidance by AGL		
AOP16-ASP04	Train all relevant staff in the taxi guidance by AGL		
AOP16-ASP05	Upgrade A-SMGCS to send taxi instructions as commands to the AGL system		
AOP16-APO01	Upgrade AGL system to enable the selective switching of the lamps		
AOP16-APO02	Upgrade A-SMGCS to send taxi instructions as commands to the AGL system		
AOP16-APO03	Develop and implement procedures for use of taxi guidance by AGL (Vehicle Driver)		
AOP16-APO04	Train all relevant staff in the taxi guidance by AGL		
AOP16-USE01	Develop and implement procedures for use of taxi guidance by AGL (Flight Crew)		
AOP16-USE02	Train all relevant staff in the taxi guidance by AGL (Flight Crew)		
AOP16-INT01	Develop the procedures and phraseology for taxi guidance by AGL		
AOP16-INT02	Integrate taxi guidance by AGL in MASPS for the A-SMGCS		

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Increase of situational awareness from pilots perspectives. Reduction of unplanned / unwanted taxi route deviations. Significantly lower runway incursion risk
Capacity:	Reduction of controller workload (radio communication / instructions) will have a positive impact on the capacity of the airport's ground movement system in particular at the aerodromes with multiple complex taxiways system and large manoeuvring area
Operational Efficiency:	Significant reduction in taxi time in both good and low visibility conditions. The reduction is strongly dependent of local conditions and will therefore differ per airport. The variability of taxi times (for the same combination of used parking position and runway) might be reduced
Cost Efficiency:	Identified by local business cases
Environment:	Fewer speed changes as also reduce the number of stops along routes between runway and parking position (and vice versa). This reduces the fuel burn for taxiing both in good and low visibility conditions, although the benefits have been shown to be larger during low visibility
Security:	Not identified

Detailed SLoA Descriptions

AOP16-ASP01	**Upgrade CWP/HMI to display and manage lights and routes**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	The controller working position should be upgraded to allow the display of activated lights on the radar display and the management of the lights and routes via HMI functionality (e.g. route updates and input of clearances).		
Supporting material(s):	EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - Edition 2.0 / 04/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services EUROCAE - ED-87E - MASPS for A-SMGCS including Airport Safety Support Service Routing Service and Guidance Service - April 2022 / 04/2022 Url : https://www.eurocae.net/news/posts/2022/may/ed-87e-masps-for-a-smgcs-including-airport-safety-support-service-routing-service-and-guidance-service/ SJU - SESAR Solution 47: Data Pack for Guidance assistance through airfield ground lighting Url : https://www.sesarju.eu/sesar-solutions/guidance-assistance-through-airfield-ground-lighting		

AOP16	Guidance assistance through airfield ground lighting

ATM Master Plan relationship:	[AERODROME-ATC-50]-Advanced Airport Tower Controller Working Position (A-CWP) [AERODROME-ATC-61]-Enhanced surface guidance management services to process the automatic triggering of airport ground signs according to the route issued by ATC		
Finalisation criteria:	1 - The radar display shows activated AGL lights 2 - AGL lights and taxi routes managed via CWP/HMI		
AOP16-ASP02	**Develop and implement procedures for taxi guidance by AGL (controllers and pilots/drivers)**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	The procedures specifying responsibilities and actions that should be taken by the controllers in relation to taxi guidance by AGL and pilots/drivers actions should be developed.		
Supporting material(s):	EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - Edition 2.0 / 04/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services ICAO - Deliverable of SLoA INT01, ICAO PANS ATM Amendment. EUROCAE - ED-87E - MASPS for A-SMGCS including Airport Safety Support Service Routing Service and Guidance Service - April 2022 / 04/2022 Url : https://www.eurocae.net/news/posts/2022/may/ed-87e-masps-for-a-smgcs-including-airport-safety-support-service-routing-service-and-guidance-service/ SJU - SESAR Solution 47: Data Pack for Guidance assistance through airfield ground lighting Url : https://www.sesarju.eu/sesar-solutions/guidance-assistance-through-airfield-ground-lighting		
ATM Master Plan relationship:	[AERODROME-ATC-66]-Tower A-CWP interfaced to the Runway Status Lights management tool		
Finalisation criteria:	1 - The procedures specifying responsibilities and actions that should be taken by the controllers in relation to taxi guidance by AGL have been published in the Operations Manual applicable to the controllers		
AOP16-ASP03	**Develop safety assessment of the changes imposed by taxi guidance by AGL**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Develop safety assessment of the changes, notably upgrades of airport and ATS systems to support taxi guidance by AGL. The tasks to be done are as follows: - Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks; - Develop safety assessment; - Deliver safety assessment to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. This safety assessment shall be based on fully validated/recognised method.		
Supporting material(s):	EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - Edition 2.0 / 04/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services ICAO - Deliverable of SLoA INT01, ICAO PANS ATM Amendment. EUROCAE - ED-87E - MASPS for A-SMGCS including Airport Safety Support Service Routing Service and Guidance Service - April 2022 / 04/2022 Url : https://www.eurocae.net/news/posts/2022/may/ed-87e-masps-for-a-smgcs-including-airport-safety-support-service-routing-service-and-guidance-service/ SJU - SESAR Solution 47: Data Pack for Guidance assistance through airfield ground lighting Url : https://www.sesarju.eu/sesar-solutions/guidance-assistance-through-airfield-ground-lighting		
Finalisation criteria:	1 - The safety argument for all changes, generated by the deployment of this functionality, has been delivered by the Airport Operator to the NSA.		
AOP16-ASP04	**Train all relevant staff in the taxi guidance by AGL**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Train TWR controllers in the responsibilities and actions (including phraseology) that should be taken in relation to the taxi guidance by AGL and ATC clearances issued to vehicle drivers and flight crew.		
Supporting material(s):	EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - Edition 2.0 / 04/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services ICAO - Deliverable of SLoA INT01, ICAO PANS ATM Amendment. EUROCAE - ED-87E - MASPS for A-SMGCS including Airport Safety Support Service Routing Service and Guidance Service - April 2022 / 04/2022 Url : https://www.eurocae.net/news/posts/2022/may/ed-87e-masps-for-a-smgcs-including-airport-safety-support-service-routing-service-and-guidance-service/ SJU - SESAR Solution 47: Data Pack for Guidance assistance through airfield ground lighting Url : https://www.sesarju.eu/sesar-solutions/guidance-assistance-through-airfield-ground-lighting		
Finalisation criteria:	1 - TWR controllers training in accordance with agreed training requirements and programme has been completed.		
		From:	By:

AOP16-ASP05	**Upgrade A-SMGCS to send taxi instructions as commands to the AGL system**	-	-
Action by:	**ANS Providers**		
Description & purpose:	A-SMGCS processing should be upgraded to translate taxi routes issued by ATC to individual aircraft and vehicles into commands to the AGL system (taxiway centreline lights and stop bars), to monitor the spacing between mobiles and to determine priorities between mobiles at intersections.		
	Note :In the context of LSSIP reporting, this SLoA is mutually exclusive with SLoA APO02, depending on the ownership and management of A-SMGCS system at a given location.		
Supporting material(s):	EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - Edition 2.0 / 04/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services SJU - SESAR Solution 47: Data Pack for Guidance assistance through airfield ground lighting Url : https://www.sesarju.eu/sesar-solutions/guidance-assistance-through-airfield-ground-lighting		
ATM Master Plan relationship:	[AERODROME-ATC-61]-Enhanced surface guidance management services to process the automatic triggering of airport ground signs according to the route issued by ATC		
Finalisation criteria:	1 - A-SMGCS sends commands to the AGL system (taxiway centreline lights and stop bars) based on taxi routes issued by ATC to individual aircraft and vehicles; 2 - A-SMGCS monitors the spacing between mobiles and to determine priorities between mobiles at intersections.		
AOP16-APO01	**Upgrade AGL system to enable the selective switching of the lamps**	From: -	By: -
Action by:	**Airport Operators**		
Description & purpose:	The Airfield Ground Lighting (AGL) system should be upgraded to enable selective switching of the lamps in segments or, preferably, individually.		
ATM Master Plan relationship:	[AERODROME-ATC-61]-Enhanced surface guidance management services to process the automatic triggering of airport ground signs according to the route issued by ATC		
Finalisation criteria:	1 - Selective switching of the lamps enabled and functioning within AGL system.		
AOP16-APO02	**Upgrade A-SMGCS to send taxi instructions as commands to the AGL system**	From: -	By: -
Action by:	**Airport Operators**		
Description & purpose:	A-SMGCS processing should be upgraded to translate taxi routes issued by ATC to individual aircraft and vehicles into commands to the AGL system (taxiway centreline lights and stop bars), to monitor the spacing between mobiles and to determine priorities between mobiles at intersections.		
	Note :In the context of LSSIP reporting, this SLoA is mutually exclusive with SLoA ASP05, depending on the ownership and management of A-SMGCS system at a given location.		
Supporting material(s):	EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - Edition 2.0 / 04/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services SJU - SESAR Solution 47: Data Pack for Guidance assistance through airfield ground lighting Url : https://www.sesarju.eu/sesar-solutions/guidance-assistance-through-airfield-ground-lighting		
ATM Master Plan relationship:	[AERODROME-ATC-61]-Enhanced surface guidance management services to process the automatic triggering of airport ground signs according to the route issued by ATC		
Finalisation criteria:	1 - A-SMGCS sends commands to the AGL system (taxiway centreline lights and stop bars) based on taxi routes issued by ATC to individual aircraft and vehicles; 2 - A-SMGCS monitors the spacing between mobiles and to determine priorities between mobiles at intersections.		
AOP16-APO03	**Develop and implement procedures for use of taxi guidance by AGL (Vehicle Driver)**	From: -	By: -
Action by:	**Airport Operators**		
Description & purpose:	The procedures specifying responsibilities and actions that should be taken by vehicle drivers in relation to taxi guidance by AGL and ATC clearances should be developed.		
Supporting material(s):	EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - Edition 2.0 / 04/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services ICAO - Deliverable of SLoA INT01, ICAO PANS ATM Amendment. SJU - SESAR Solution 47: Data Pack for Guidance assistance through airfield ground lighting Url : https://www.sesarju.eu/sesar-solutions/guidance-assistance-through-airfield-ground-lighting		
ATM Master Plan relationship:	[PRO-246]-Procedures for standardised response to Runway Status Lights		
Finalisation criteria:	1 - The procedures specifying responsibilities and actions that should be taken by vehicle drivers in relation to taxi guidance by AGL have been published in the Operations Manual applicable to the drivers.		
AOP16-APO04	**Train all relevant staff in the taxi guidance by AGL**	From: -	By: -
Action by:			
Description & purpose:	Train vehicle drivers in the responsibilities and actions (including phraseology) that should be taken in relation to the taxi guidance by AGL and ATC clearances.		

AOP16	Guidance assistance through airfield ground lighting

Supporting material(s):	EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - Edition 2.0 / 04/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services ICAO - Deliverable of SLoA INT01, ICAO PANS ATM Amendment. SJU - SESAR Solution 47: Data Pack for Guidance assistance through airfield ground lighting Url : https://www.sesarju.eu/sesar-solutions/guidance-assistance-through-airfield-ground-lighting		
Finalisation criteria:	1 - The vehicle drivers training in accordance with agreed training requirements and programme has been completed.		
AOP16-USE01	**Develop and implement procedures for use of taxi guidance by AGL (Flight Crew)**	From: -	By: -
Action by:	**Airspace Users**		
Description & purpose:	The procedures specifying responsibilities and actions that should be taken by the flight crew in relation to taxi guidance by AGL should be developed.		
Supporting material(s):	EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - Edition 2.0 / 04/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services SJU - SESAR Solution 47: Data Pack for Guidance assistance through airfield ground lighting Url : https://www.sesarju.eu/sesar-solutions/guidance-assistance-through-airfield-ground-lighting		
ATM Master Plan relationship:	[PRO-246]-Procedures for standardised response to Runway Status Lights		
Finalisation criteria:	1 - The procedures specifying responsibilities and actions that should be taken by flight crew in relation to taxi guidance by AGL have been published in the Operations Manual applicable to the flight crew.		
AOP16-USE02	**Train all relevant staff in the taxi guidance by AGL (Flight Crew)**	From: -	By: -
Action by:	**Airspace Users**		
Description & purpose:	Train flight crew in the responsibilities and actions (including phraseology) that should be taken in relation to taxi guidance by AGL and ATC clearances.		
Supporting material(s):	EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - Edition 2.0 / 04/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services ICAO - Deliverable of SLoA INT01, ICAO PANS ATM Amendment. SJU - SESAR Solution 47: Data Pack for Guidance assistance through airfield ground lighting Url : https://www.sesarju.eu/sesar-solutions/guidance-assistance-through-airfield-ground-lighting		
Finalisation criteria:	1 - Flight crew training in accordance with agreed training requirements and programme has been completed		
AOP16-INT01	**Develop the procedures and phraseology for taxi guidance by AGL**	From: -	By: -
Action by:	**ICAO**		
Description & purpose:	Establish standard procedures specifying responsibilities and actions that should be taken by flight crews, vehicle drivers and aerodrome ATC in relation to taxi guidance by AGL. Publish the procedures in ICAO PANS-ATM.		
Supporting material(s):	ICAO - Deliverable of SLoA INT01, ICAO PANS ATM Amendment. SJU - SESAR Solution 47: Data Pack for Guidance assistance through airfield ground lighting Url : https://www.sesarju.eu/sesar-solutions/guidance-assistance-through-airfield-ground-lighting		
ATM Master Plan relationship:	[REG-HNA-15]-Regulatory Provisions for Surface Guidance (ground signs)		
Finalisation criteria:	1 - The amendment to ICAO PANS-ATM containing the procedures has been published		
AOP16-INT02	**Integrate taxi guidance by AGL in MASPS for the A-SMGCS**	From: -	By: -
Action by:	**EUROCAE**		
Description & purpose:	EUROCAE WG-41 (A-SMGCS), to update the Minimum Aviation System Performance Specification (MASPS) for the A-SMGCS to integrate, inter alia, requirements for taxi guidance by AGL.		
Supporting material(s):	SJU - SESAR Solution 47: Data Pack for Guidance assistance through airfield ground lighting Url : https://www.sesarju.eu/sesar-solutions/guidance-assistance-through-airfield-ground-lighting		
ATM Master Plan relationship:	[REG-0201]-Means of Compliance for A-SMGCS Routing and Planning		
Finalisation criteria:	1 - Amendment to ED-87E containing the requirements of taxi guidance by AGL has been published.		

SESAR	Active									LOC/APT
AOP17	Provision/integration of departure planning information to NMOC									
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

The Network integration of departure estimates from medium and small sized airports via the exchange of Departure Planning Information (DPI), specifically ATC-DPI and CNL-DPI messages is needed to enhance the network benefit and improve the flow management process. This functionality aims to improve integration of departure estimates from medium or small-size airports when serving a complex airspace with dense traffic through improved availability of aircraft pre-departure information to the ATM Network, through the provision of accurate pre-departure information to the NM.

The objective also supports further integration of airports into the Network by addressing the reception from the NM of estimated landing times.

This objective should be considered as not applicable for the airports that already deployed A-CDM or planned to deploy A-CDM in near future.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area (Subject to local need)			
Timescales:	**From:**	**By:**	**Applicable to:**
IOC used for Analytics functioning only - not for implementation planning	31/05/2019		Applicability Area
FOC used for Analytics functioning only - not for implementation planning		01/01/2030	Applicability Area

References

European ATM Master Plan

OI step -	[DCB-0304]-Improved Integration of Regional Airports into the Network								
	Enablers -	AERODROME -ATC-20	NIMS-03						

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

-none-

Essential Operational Changes

ATM Interconnected Network

SESAR Solution

#61 - CWP Airport - Low Cost and Simple Departure Data Entry Panel

ICAO GANP - ASBUs

NOPS-B0/4	Initial Airport/ATFM slots and A-CDM Network Interface

Deployment Programme

- none -	

European Plan for Aviation Safety

- none -	

AOP17	Provision/integration of departure planning information to NMOC

Operating Environments

Airport
Network

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
AOP17-ASP01	Upgrade the local ATC system so as to provide departure planning information		
AOP17-ASP02	Upgrade the local system to support reception of estimated landing time from NM		
AOP17-ASP03	Develop the procedures for information exchanges with the NM		
AOP17-ASP04	Train all relevant staff in the information exchanges with NM		
AOP17-ASP05	Develop local safety case		
AOP17-ASP06	Provide DPI message to NM		
AOP17-NM01	Integrate Departure Planning Information (DPI) in NM systems		

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	There will be an overall minor improvement in the safety of operations through the provision of timely and accurate information that is widely shared amongst all partners in the ATM business.
Capacity:	Improved availability of more accurate departure data will improve the performance of network management, thereby enabling the improvement of capacity through better confidence in NMOC traffic load predictions.
Operational Efficiency:	The improved data will increase predictability within the NMOC systems for demand on a sector, leading to: • Better decision making concerning when to open or close a sector; • Fewer unnecessary regulations leading to a reduction of ATFM delays; • Fewer overloads as sudden increases in demand will be rare.
Cost Efficiency:	No
Environment:	No
Security:	No

Detailed SLoA Descriptions

AOP17-ASP01	**Upgrade the local ATC system so as to provide departure planning information**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	TWR tools and systems (e.g. Advanced Tower tools, Electronic flight strip) are upgraded as necessary so with the capability of providing departure planning information (ATC-DPI and CNL-DPI messages) to NM.		
Supporting material(s):	EUROCONTROL - DPI Implementation Guide - 2.400 / 03/2019 Url : https://www.eurocontrol.int/publication/departure-planning-information-dpi-implementation-guide EUROCONTROL - SPEC-107 - EUROCONTROL Specification for ATS Data Exchange Presentation (ADEXP) - Edition 3.3 / 07/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-ats-data-exchange-presentation-adexp EUROCONTROL - EUROCONTROL Implementation Guidelines Advanced ATC TWR airports - 1.700 / 06/2021 Url : https://www.eurocontrol.int/publication/advanced-atc-twr-implementation-guide SJU - SESAR Solution 61: Data Pack for Controller Working Position (CWP) Airport – Low Cost and Simple Departure Data Entry Panel Url : https://www.sesarju.eu/sesar-solutions/cwp-airport-low-cost-and-simple-departure-data-entry-panel		
ATM Master Plan relationship:	[AERODROME-ATC-20]-Enhanced ADDEP (Airport Departure Data Entry Panel)		
Finalisation criteria:	1 - Installation completed, TWR system capable of generating DPI.		
AOP17-ASP02	**Upgrade the local system to support reception of estimated landing time from NM**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	The upgrade of TWR systems should allow the reception/ presentation of estimated landing time (ELDT) from NM. ELDT may be received via AFTN using the FUM messages or via dedicated NM B2B web services.		

AOP17	Provision/integration of departure planning information to NMOC

Supporting material(s):	EUROCONTROL - DPI Implementation Guide - 2.400 / 03/2019 Url : https://www.eurocontrol.int/publication/departure-planning-information-dpi-implementation-guide EUROCONTROL - SPEC-107 - EUROCONTROL Specification for ATS Data Exchange Presentation (ADEXP) - Edition 3.3 / 07/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-ats-data-exchange-presentation-adexp EUROCONTROL - EUROCONTROL Implementation Guidelines Advanced ATC TWR airports - 1.700 / 06/2021 Url : https://www.eurocontrol.int/publication/advanced-atc-twr-implementation-guide SJU - SESAR Solution 61: Data Pack for Controller Working Position (CWP) Airport – Low Cost and Simple Departure Data Entry Panel Url : https://www.sesarju.eu/sesar-solutions/cwp-airport-low-cost-and-simple-departure-data-entry-panel		
ATM Master Plan relationship:	[AERODROME-ATC-20]-Enhanced ADDEP (Airport Departure Data Entry Panel)		
Finalisation criteria:	1 - Installation completed, TWR system receives estimated landing time from NM.		
AOP17-ASP03	**Develop the procedures for information exchanges with the NM**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	The procedures specifying responsibilities and actions that should be taken by TWR in relation to information exchanges with NM (departure planning information and/or estimated landing time) should be developed.		
Supporting material(s):	EUROCONTROL - DPI Implementation Guide - 2.400 / 03/2019 Url : https://www.eurocontrol.int/publication/departure-planning-information-dpi-implementation-guide EUROCONTROL - SPEC-107 - EUROCONTROL Specification for ATS Data Exchange Presentation (ADEXP) - Edition 3.3 / 07/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-ats-data-exchange-presentation-adexp EUROCONTROL - EUROCONTROL Implementation Guidelines Advanced ATC TWR airports - 1.700 / 06/2021 Url : https://www.eurocontrol.int/publication/advanced-atc-twr-implementation-guide SJU - SESAR Solution 61: Data Pack for Controller Working Position (CWP) Airport – Low Cost and Simple Departure Data Entry Panel Url : https://www.sesarju.eu/sesar-solutions/cwp-airport-low-cost-and-simple-departure-data-entry-panel		
ATM Master Plan relationship:	[AERODROME-ATC-20]-Enhanced ADDEP (Airport Departure Data Entry Panel)		
Finalisation criteria:	1 - The procedures specifying responsibilities and actions that should be taken by TWR in relation information exchanges with NM have been published in the Operations Manual.		
AOP17-ASP04	**Train all relevant staff in the information exchanges with NM**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Train TWR controllers in the responsibilities and actions that should be taken in relation to information exchanges with NM.		
Supporting material(s):	EUROCONTROL - DPI Implementation Guide - 2.400 / 03/2019 Url : https://www.eurocontrol.int/publication/departure-planning-information-dpi-implementation-guide EUROCONTROL - EUROCONTROL Implementation Guidelines Advanced ATC TWR airports - 1.700 / 06/2021 Url : https://www.eurocontrol.int/publication/advanced-atc-twr-implementation-guide SJU - SESAR Solution 61: Data Pack for Controller Working Position (CWP) Airport – Low Cost and Simple Departure Data Entry Panel Url : https://www.sesarju.eu/sesar-solutions/cwp-airport-low-cost-and-simple-departure-data-entry-panel		
ATM Master Plan relationship:	[AERODROME-ATC-20]-Enhanced ADDEP (Airport Departure Data Entry Panel)		
Finalisation criteria:	1 - The training in accordance with agreed training requirements and programme has been completed		
AOP17-ASP05	**Develop local safety case**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Develop safety case for the information exchanges with NM according to applicable legislation.		
Supporting material(s):	EUROCONTROL - DPI Implementation Guide - 2.400 / 03/2019 Url : https://www.eurocontrol.int/publication/departure-planning-information-dpi-implementation-guide EUROCONTROL - EUROCONTROL Implementation Guidelines Advanced ATC TWR airports - 1.700 / 06/2021 Url : https://www.eurocontrol.int/publication/advanced-atc-twr-implementation-guide SJU - SESAR Solution 61: Data Pack for Controller Working Position (CWP) Airport – Low Cost and Simple Departure Data Entry Panel Url : https://www.sesarju.eu/sesar-solutions/cwp-airport-low-cost-and-simple-departure-data-entry-panel		
Finalisation criteria:	1 - Safety case developed and submitted to NSA.		
AOP17-ASP06	**Provide DPI message to NM**	From: -	By: -
Action by:	**ANS Providers**		

AOP17	Provision/integration of departure planning information to NMOC

Description & purpose:	Exchange ATC-DPI and CNL-DPI with NM		
Supporting material(s):	EUROCONTROL - DPI Implementation Guide - 2.400 / 03/2019 Url : https://www.eurocontrol.int/publication/departure-planning-information-dpi-implementation-guide EUROCONTROL - EUROCONTROL Implementation Guidelines Advanced ATC TWR airports - 1.700 / 06/2021 Url : https://www.eurocontrol.int/publication/advanced-atc-twr-implementation-guide SJU - SESAR Solution 61: Data Pack for Controller Working Position (CWP) Airport – Low Cost and Simple Departure Data Entry Panel Url : https://www.sesarju.eu/sesar-solutions/cwp-airport-low-cost-and-simple-departure-data-entry-panel		
ATM Master Plan relationship:	[NIMS-03]-Reception of DPI messages		
Finalisation criteria:	1 - ATC-DPI and CNL-DPI from concerned airport are integrated with NM systems		
AOP17-NM01	**Integrate Departure Planning Information (DPI) in NM systems**	From: -	By: -
Action by:	**NM**		
Description & purpose:	Integrate the received DPI messages with NM systems.		
Supporting material(s):	EUROCONTROL - DPI Implementation Guide - 2.400 / 03/2019 Url : https://www.eurocontrol.int/publication/departure-planning-information-dpi-implementation-guide EUROCONTROL - SPEC-107 - EUROCONTROL Specification for ATS Data Exchange Presentation (ADEXP) - Edition 3.3 / 07/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-ats-data-exchange-presentation-adexp EUROCONTROL - EUROCONTROL Implementation Guidelines Advanced ATC TWR airports - 1.700 / 06/2021 Url : https://www.eurocontrol.int/publication/advanced-atc-twr-implementation-guide SJU - SESAR Solution 61: Data Pack for Controller Working Position (CWP) Airport – Low Cost and Simple Departure Data Entry Panel Url : https://www.sesarju.eu/sesar-solutions/cwp-airport-low-cost-and-simple-departure-data-entry-panel		
ATM Master Plan relationship:	[NIMS-03]-Reception of DPI messages [NIMS-06]-Network information management system equipped with post-analysis tools for airport traffic		
Finalisation criteria:	1 - DPI messages from concerned airport integrated with the NM systems		

SESAR	Active								LOC/APT	
AOP18	Runway Status Lights (RWSL)									
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

Runway Status Lights (RWSL) system is an automatic independent system based on aerodrome surveillance data that can be used on airports to increase safety by preventing runway incursions. The RWSL will provide an independent system that uses A-SMGCS surveillance data to dynamically switch on and off additional and dedicated airfield lights on RWY and on the runway entry TWY.

It will directly inform the flight crews / vehicle drivers about the instantaneous runway usage. Runway status lights switched “on” is an indication that the runway is unsafe for entering (for line-up or crossing) or for taking-off.

The new airfield lights, can be composed of:

• Runway Entrance Lights (REL): sets of red lights illuminating runway entrances when it is not safe to enter or cross the runway;
• Take-off Hold Lights (THL): sets of red lights illuminating along the axis of a runway in front of a departing aircraft when it is unsafe to take-off from that runway due to an obstacle (vehicle or aircraft) already occupying or entering the runway ahead;
• Runway Intersection Lights (RIL): sets of red lights illuminating along the axis of a runway near the intersection with another runway (crossing runways only) when it is not safe to go through the intersection. Note that no validation could be performed on the operational requirements related to crossing runways (RIL) within associated SESAR R&D project.

The system is meant to be compatible with airport operations and independent of ATC clearances, even if TWR will have access to the status of the REL and THL, with no change in their operating methods, except in case of flight crew request or failure of the system.

The purpose of the RWSL system is to act as a safety net for flight crew and vehicle drivers, thus reducing the number of runway incursions without interfering with normal runway operations.
It is recommended to implement RWSL at medium to highly utilized airports with complex runway and taxiway lay-out.

NOTE: In ICAO Annex 14, Volume I, RWSL is designated under the term “Autonomous Runway Incursion Warning System (ARIWS).

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area (Subject to local need)			
Timescales:	**From:**	**By:**	**Applicable to:**
IOC used for Analytics functioning only - not for implementation planning	31/05/2019		Applicability Area
FOC used for Analytics functioning only - not for implementation planning		01/01/2030	Applicability Area

References

European ATM Master Plan

OI step -	[AO-0209]-Enhanced Runway Usage Awareness								
	Enablers -	AERODROME -ATC-66	AERODROME -ATC-87	AIRPORT-49	PRO-246	REG-0201 AOP16			

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

ICAO Annex 14 (Aerodromes), Volume I

Essential Operational Changes

Airport and TMA performance

SESAR Solution

AOP18	Runway Status Lights (RWSL)

#01 - RunWay Status Lights

ICAO GANP - ASBUs

SURF-B2/2	Comprehensive vehicle driver situational awareness on the airport surface
SURF-B2/3	Conflict alerting for pilots for runway operations

Deployment Programme

- none -	

European Plan for Aviation Safety

MST.029	Implementation of SESAR Runway safety solutions

Operating Environments

Airport

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
AOP18-REG01	Promulgate the procedures for use of RWSL		
AOP18-ASP01	Install RWSL management tool		
AOP18-ASP02	Upgrade TWR CWP to interface with RWSL management tool		
AOP18-ASP03	Develop and implement procedures for the use of RWSL		
AOP18-ASP04	Develop safety assessment of the changes imposed by RWSL		
AOP18-ASP05	Train all relevant staff in the use of RWSL		
AOP18-APO01	Upgrade Airfield Ground Lighting system to provide the Runway Status Lights		
AOP18-APO02	Install RWSL management tool		
AOP18-APO03	Develop and implement procedures for the use of RWSL		
AOP18-APO04	Develop safety assessment of the changes imposed by RWSL		
AOP18-APO05	Train all relevant staff in the use of RWSL		
AOP18-USE01	Develop the procedures for use of RWSL		
AOP18-USE02	Train all relevant staff in the use of RWSL		
AOP18-INT01	Develop the standards for operational use of RWSL		
AOP18-INT02	Develop the standards for RWSL design and approval		
AOP18-INT03	Develop standard interfaces and information exchanges of RWSL Management Tool		

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Less severe and less frequent runway incursions due to an increase of runway usage awareness through accurate and timely indication of runway occupancy.
Capacity:	-
Operational Efficiency:	More efficient control of surface traffic.
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

AOP18-REG01	**Promulgate the procedures for use of RWSL**	From:	By:
		-	-
Action by:	**Regulatory Authorities**		
Description & purpose:	Establish and promulgate the procedures for use of RWSL applicable to flight crews, vehicle drivers and aerodrome TWR.		

AOP18	Runway Status Lights (RWSL)

Supporting material(s):	ICAO - Annex 14 - Aerodromes, Volume I and II Url : https://store.icao.int/ ICAO - Annex 11 - Air Traffic Services Url : https://store.icao.int/ SJU - SESAR Solution 01: Data Pack for Runway status lights Url : https://www.sesarju.eu/sesar-solutions/runway-status-lights		
ATM Master Plan relationship:	[PRO-246]-Procedures for standardised response to Runway Status Lights		
Finalisation criteria:	1 - The procedures for use of RWSL applicable to flight crews, vehicle drivers and aerodrome TWR have been promulgated		
AOP18-ASP01	**Install RWSL management tool**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	This action is applicable to ANSP only, where ANS Provider is in charge of (responsible for) airfield ground lighting system at the aerodrome. Otherwise the action is on Airport Operator. An RWSL management processor (tool) will be needed to implement the RWSL safety logic, using the A-SMGCS surveillance data as input to switch on and off the Runway Status Lights accordingly.		
Supporting material(s):	ICAO - Annex 14 - Aerodromes, Volume I and II Url : https://store.icao.int/ EASA - EASA deliverable of SLoA INT02. EUROCAE - EUROCAE deliverable of SLoA INT03 SJU - SESAR Solution 01: Data Pack for Runway status lights Url : https://www.sesarju.eu/sesar-solutions/runway-status-lights		
ATM Master Plan relationship:	[AERODROME-ATC-87]-RWSL management tool fed with airport surveillance data to determine runway usage and to control the airfield Runway Status Lights		
Finalisation criteria:	1 - The RWSL management tool has been installed		
AOP18-ASP02	**Upgrade TWR CWP to interface with RWSL management tool**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Although the RWSL are provided as a safety net to pilots and vehicle drivers, status information and service control will be needed in TWR. For that purpose, the Tower CWP needs to be interfaced to the RWSL management tool to display the appropriate status information and provide the appropriate control functions. An enhanced A-SMGCS Core Surveillance function might be required to ensure that the Runway Status Lights are switched on/off at the right time, without downgrading the runway capacity.		
Supporting material(s):	ICAO - Annex 14 - Aerodromes, Volume I and II Url : https://store.icao.int/ EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - Edition 2.0 / 04/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services EASA - EASA deliverable of SLoA INT02. EUROCAE - EUROCAE deliverable of SLoA INT03 SJU - SESAR Solution 01: Data Pack for Runway status lights Url : https://www.sesarju.eu/sesar-solutions/runway-status-lights		
ATM Master Plan relationship:	[AERODROME-ATC-66]-Tower A-CWP interfaced to the Runway Status Lights management tool		
Finalisation criteria:	1 - The TWR systems have been upgraded		
AOP18-ASP03	**Develop and implement procedures for the use of RWSL**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	The procedures specifying responsibilities and actions that should be taken by TWR in relation to RWSL warnings and the handling of conflicts between RWSL warnings and ATC clearances issued to vehicle drivers and flight crews, should be developed and implemented.		
Supporting material(s):	EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - Edition 2.0 / 04/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services ICAO - Deliverable of SLoA INT01, ICAO PANS ATM Amendment on RWSL. SJU - SESAR Solution 01: Data Pack for Runway status lights Url : https://www.sesarju.eu/sesar-solutions/runway-status-lights		
ATM Master Plan relationship:	[PRO-246]-Procedures for standardised response to Runway Status Lights		

AOP18	Runway Status Lights (RWSL)

Finalisation criteria:	1 - The procedures specifying responsibilities and actions that should be taken by TWR in relation to RWSL have been published in the Operations Manual applicable to the TWR controllers 2 - RWSL is in operational use		
AOP18-ASP04	**Develop safety assessment of the changes imposed by RWSL**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Develop safety assessment of the changes, notably upgrades of airport and ATS systems to support RWSL. The tasks to be done are as follows: - Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks; - Develop safety assessment; - Deliver safety assessment to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. This safety assessment shall be based on fully validated/recognised method.		
Supporting material(s):	ICAO - Annex 14 - Aerodromes, Volume I and II Url : https://store.icao.int/ ICAO - Deliverable of SLoA INT01, ICAO PANS ATM Amendment on RWSL. SJU - SESAR Solution 01: Data Pack for Runway status lights Url : https://www.sesarju.eu/sesar-solutions/runway-status-lights EUROCONTROL - Safety Assessment of Runway Status Lights (RWSL) available upon request (nm.airports@eurocontrol.int)		
Finalisation criteria:	1 - The safety argument for all changes, generated by the deployment of this functionality, has been delivered by the ANS Provider to the NSA.		
AOP18-ASP05	**Train all relevant staff in the use of RWSL**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Train TWR controllers in the responsibilities and actions (including phraseology) that should be taken in relation to RWSL warnings and the handling of conflicts between RWSL warnings and ATC clearances issued to vehicle drivers and flight crew.		
Supporting material(s):	ICAO - Deliverable of SLoA INT01, ICAO PANS ATM Amendment on RWSL. SJU - SESAR Solution 01: Data Pack for Runway status lights Url : https://www.sesarju.eu/sesar-solutions/runway-status-lights		
Finalisation criteria:	1 - TWR controllers training in accordance with agreed training requirements and programme has been completed.		
AOP18-APO01	**Upgrade Airfield Ground Lighting system to provide the Runway Status Lights**	From: -	By: -
Action by:	**Airport Operators**		
Description & purpose:	The Airfield Ground Lighting system should be upgraded to provide the Runway Status Lights, i.e. the Take-off Hold Lights (THL) and Runway Entrance Lights (REL).		
Supporting material(s):	ICAO - Annex 14 - Aerodromes, Volume I and II Url : https://store.icao.int/ EASA - EASA deliverable of SLoA INT02. SJU - SESAR Solution 01: Data Pack for Runway status lights Url : https://www.sesarju.eu/sesar-solutions/runway-status-lights		
ATM Master Plan relationship:	[AIRPORT-49]-Airfield Ground Lighting system upgraded to provide the Runway Status Lights		
Finalisation criteria:	1 - Runway Status Lights installed within Airfield Ground Lighting system		
AOP18-APO02	**Install RWSL management tool**	From: -	By: -
Action by:	**Airport Operators**		
Description & purpose:	An RWSL management processor (tool) will be needed to implement the RWSL safety logic, using the A-SMGCS surveillance data as input to switch on and off the Runway Status Lights accordingly.		
Supporting material(s):	ICAO - Annex 14 - Aerodromes, Volume I and II Url : https://store.icao.int/ EASA - EASA deliverable of SLoA INT02. EUROCAE - EUROCAE deliverable of SLoA INT03 SJU - SESAR Solution 01: Data Pack for Runway status lights Url : https://www.sesarju.eu/sesar-solutions/runway-status-lights		
ATM Master Plan relationship:	[AERODROME-ATC-87]-RWSL management tool fed with airport surveillance data to determine runway usage and to control the airfield Runway Status Lights		
Finalisation criteria:	1 - Controllers training in accordance with agreed training requirements and programme has been completed.		
AOP18-APO03	**Develop and implement procedures for the use of RWSL**	From: -	By: -
Action by:	**Airport Operators**		

AOP18	Runway Status Lights (RWSL)

Description & purpose:	The procedures specifying responsibilities and actions that should be taken by vehicle drivers in relation to RWSL warnings and the handling of conflicts between RWSL warnings and ATC clearances should be developed and implemented.		
Supporting material(s):	ICAO - Annex 14 - Aerodromes, Volume I and II Url : https://store.icao.int/ EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - Edition 2.0 / 04/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services ICAO - Deliverable of SLoA INT01, ICAO PANS ATM Amendment on RWSL. SJU - SESAR Solution 01: Data Pack for Runway status lights Url : https://www.sesarju.eu/sesar-solutions/runway-status-lights		
ATM Master Plan relationship:	[PRO-246]-Procedures for standardised response to Runway Status Lights		
Finalisation criteria:	1 - The procedures specifying responsibilities and actions that should be taken by vehicle drivers in relation to RWSL have been published in the Operations Manual applicable to the drivers. 2 - RWSL is in operational use		
AOP18-APO04	**Develop safety assessment of the changes imposed by RWSL**	From: -	By: -
Action by:	**Airport Operators**		
Description & purpose:	Develop safety assessment of the changes, notably upgrades of airport and ATS systems to support RWSL. The tasks to be done are as follows: - Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks; - Develop safety assessment; - Deliver safety assessment to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. This safety assessment shall be based on fully validated/recognised method.		
Supporting material(s):	ICAO - Annex 14 - Aerodromes, Volume I and II Url : https://store.icao.int/ ICAO - Deliverable of SLoA INT01, ICAO PANS ATM Amendment on RWSL. SJU - SESAR Solution 01: Data Pack for Runway status lights Url : https://www.sesarju.eu/sesar-solutions/runway-status-lights EUROCONTROL - Safety Assessment of Runway Status Lights (RWSL) available upon request (nm.airports@eurocontrol.int)		
Finalisation criteria:	1 - The safety argument for all changes, generated by the deployment of this functionality, has been delivered by the Airport Operator to the NSA.		
AOP18-APO05	**Train all relevant staff in the use of RWSL**	From: -	By: -
Action by:	**Airport Operators**		
Description & purpose:	Train airport vehicle drivers in the responsibilities and actions (including phraseology) that should be taken in relation to RWSL warnings and the handling of conflicts between RWSL warnings and ATC clearances.		
Supporting material(s):	ICAO - Annex 14 - Aerodromes, Volume I and II Url : https://store.icao.int/ ICAO - Deliverable of SLoA INT01, ICAO PANS ATM Amendment on RWSL. SJU - SESAR Solution 01: Data Pack for Runway status lights Url : https://www.sesarju.eu/sesar-solutions/runway-status-lights		
Finalisation criteria:	1 - Vehicle drivers training in accordance with agreed training requirements and programme has been completed		
AOP18-USE01	**Develop the procedures for use of RWSL**	From: -	By: -
Action by:	**Airspace Users**		
Description & purpose:	The procedures specifying responsibilities and actions that should be taken by the flight crew in relation to RWSL warnings and the handling of conflicts between RWSL warnings and ATC clearances, should be developed.		
Supporting material(s):	ICAO - Deliverable of SLoA INT01, ICAO PANS ATM Amendment on RWSL. SJU - SESAR Solution 01: Data Pack for Runway status lights Url : https://www.sesarju.eu/sesar-solutions/runway-status-lights		
ATM Master Plan relationship:	[PRO-246]-Procedures for standardised response to Runway Status Lights		
Finalisation criteria:	1 - The procedures specifying responsibilities and actions that should be taken by flight crew in relation to RWSL have been published in the Operations Manual applicable to the flight crew		
AOP18-USE02	**Train all relevant staff in the use of RWSL**	From: -	By: -
Action by:	**Airspace Users**		
Description & purpose:	Train flight crew in the responsibilities and actions (including phraseology) that should be taken in relation to RWSL warnings and the handling of conflicts between RWSL warnings and ATC clearances.		

AOP18	Runway Status Lights (RWSL)

Supporting material(s):	ICAO - Deliverable of SLoA INT01, ICAO PANS ATM Amendment on RWSL. SJU - SESAR Solution 01: Data Pack for Runway status lights Url : https://www.sesarju.eu/sesar-solutions/runway-status-lights		
Finalisation criteria:	1 - Flight crew training in accordance with agreed training requirements and programme has been completed.		
AOP18-INT01	**Develop the standards for operational use of RWSL**	From: -	By: -
Action by:	**ICAO**		
Description & purpose:	Establish standard procedures specifying responsibilities and actions that should be taken by flight crews, vehicle drivers and aerodrome ATC in relation to RWSL warnings and the handling of conflicts between RWSL warnings and ATC clearances. Publish the procedures in ICAO PANS-ATM.		
Supporting material(s):	EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - Edition 2.0 / 04/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services SJU - SESAR Solution 01: Data Pack for Runway status lights Url : https://www.sesarju.eu/sesar-solutions/runway-status-lights		
ATM Master Plan relationship:	[PRO-246]-Procedures for standardised response to Runway Status Lights [REG-HNA-20]-Regulatory provisions for RWSL		
Finalisation criteria:	1 - The amendment to ICAO PANS-ATM containing the procedures has been published		
AOP18-INT02	**Develop the standards for RWSL design and approval**	From: -	By: -
Action by:	**EASA**		
Description & purpose:	Amend regulatory material by aligning ADR.OPS and CS-ADR-DSN with ICAO Annex 14 Amdt. 13A. Include under ADR.OPS. the operational requirements of ARIWS, as described in ICAO Annex 14; Include in the Certification Specifications for aerodrome design the technical specifications of RWSL;		
Supporting material(s):	ICAO - Annex 14 - Aerodromes, Volume I and II Url : https://store.icao.int/ SJU - SESAR Solution 01: Data Pack for Runway status lights Url : https://www.sesarju.eu/sesar-solutions/runway-status-lights		
ATM Master Plan relationship:	[REG-HNA-20]-Regulatory provisions for RWSL		
Finalisation criteria:	1 - Amendment to ADR.OPS containing the operational requirements of ARIWS has been published 2 - Amendment to CS-ADR-DSN containing the technical specifications of RWSL has been published		
AOP18-INT03	**Develop standard interfaces and information exchanges of RWSL Management Tool**	From: -	By: -
Action by:	**EUROCAE**		
Description & purpose:	The standard defining interfaces and information exchanges of Runway Status Light Management Tool should be developed.		
Supporting material(s):	ICAO - Annex 14 - Aerodromes, Volume I and II Url : https://store.icao.int/ SJU - SESAR Solution 01: Data Pack for Runway status lights Url : https://www.sesarju.eu/sesar-solutions/runway-status-lights		
ATM Master Plan relationship:	[STD-016]-ED-87E MASPS for A-SMGCS including Airport Safety Support Service Routing Service and Guidance Service using airfield ground lighting infrastructure		
Finalisation criteria:	1 - EUROCAE standard on the interfaces and information exchanges of RWSL Management Tool has been published		

CP1			Active						APT	
AOP19			**Departure Management Synchronised with Pre-departure sequencing**							
REG	**ASP**	**MIL**	**APO**	**USE**	**INT**	**IND**	**NM**	**MET**	**AIS**	**USP**

Subject matter and scope

Departure Management (DMAN) system is calculating and metering the departure flow to a chosen runway by managing Off-block-Times (via Start-up-Times), obtained from the turn-round process and from A-SMGCS services if available.

DMAN, synchronised with pre-departure sequencing, is a means to improve the departure flows at airports, ensuring flights to depart from the airport, leaving allocated parking stands in a more efficient and optimal order taking account of the available runway capacity and updated taxi-times.

DMAN automatically calculates in real-time and proposes a sequence of departures to be handled by ATC. DMAN integrated with electronic clearance input (ECI) system will instantly update the departure sequence based on A-CDM information and A-SMGCS system input if available.

Pre-departure sequencing is calculated based on Target Take Off Time (TTOT) and Taxi-times resulting in Target Start Approval Time (TSAT) for each flight, taking account of multiple constraints, such as configuration of taxiways and runways, environmental conditions, construction and maintenance on movement area etc. Pre-departure sequencing is also taking into account concerned Stakeholders operational preferences
By monitoring progress of aircraft turnaround processes based on adherence to Target Off-Block Times (TOBT), as well as the operational traffic situation on aprons, taxiways and runways, ATC can provide a TSAT which positions each aircraft in an efficient pre-departure sequence (off-block).

DMAN is an automated enabler delivering TTOT for departures on mixed mode runway and need close coordination/ integration with AMAN to deliver conflict free planning or sequencing.
Airport Stakeholders working according to the principles of A-CDM shall jointly establish pre-departure sequences, taking into account of agreed principles to be applied for specific circumstances such as but not limited to runway holding time, slot adherence, departure routes, airspace user preferences, night curfew, evacuation of stand/gate for arriving aircraft, adverse weather conditions including de-icing, actual taxi/runway capacity, local constraints.

Departure management synchronised with pre-departure sequencing reduces taxi times, increases Air Traffic Flow Management-Slot adherence (ATFM-Slot) and predictability of departure times. Departure management aims at maximising and optimising traffic flow on the chosen runway by setting up a sequence of departing traffic with optimised separations.

System requirements:
• Systems supporting A-CDM (including DMAN) shall be integrated supporting optimised pre-departure sequencing with appropriate information/data for airspace users (Target Off Block Time (TOBT)) and concerned airport stakeholders (contextual data feeding).
• DMAN systems shall elaborate and calculate a collaborative sequencing and provide both TSAT and TTOT, taking into account variable taxi times and shall be updated according to the actual aircraft take-off time (ATOT). DMAN system shall provide the controller with the list of TSAT and TTOT for the aircraft metering.
• An Electronic Clearance Input (ECI) system, shall be implemented, allowing the controller to input all clearances given to aircraft or vehicles into the ATC system. The system shall have appropriate interfaces with systems such as A-SMGCS with ref. Sub-AF 2.3 “Safety nets” ensuring the integration of the instructions given by the controller with complementary data such as flight plan, surveillance, routing, published routes and procedures.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

NOTE: The SLoAs listed in this document should be addressed to air navigation service providers as well as to airport operators. This is due to the fact that some airports operate their own ground control units for specific areas of responsibility at the airport. Airport operators providing air traffic control services qualify as ANSPs and are therefore covered by the ASP SLoAs. It is up to each implementer to check and select what is relevant to them, depending on local areas of responsibilities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 ((19 CP1 Airports))	See list of airports in MP Level 3 Implementation Plan - Annexes
Applicability Area 2	See list of airports in MP Level 3 Implementation Plan - Annexes

Timescales:	**From:**	**By:**	**Applicable to:**
Initial Operational Capability	01/01/2021		Applicability Area 1
Full Operational Capability / Target Date		31/12/2022	Applicability Area 1

AOP19	Departure Management Synchronised with Pre-departure sequencing

References

European ATM Master Plan

OI step -	[AO-0602]-Collaborative Pre-departure Sequencing								
	Enablers -	CDM-01	PRO-214a	PRO-214b					
OI step -	[TS-0201]-Basic Departure Management (Pre-departure Management)								
	Enablers -	AERODROME -ATC-08							

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) No 2021/116 on the establishment of the Common Project One

Essential Operational Changes

Airport and TMA performance

SESAR Solution

#106 - DMAN Baseline for integrated AMAN DMAN, #53 - Pre-Departure Sequencing supported by Route Planning

ICAO GANP - ASBUs

RSEQ-B0/2	Departure Management

Deployment Programme

2.1.1	Departure Management Synchronised with Pre-departure sequencing

European Plan for Aviation Safety

- none -	

Operating Environments

Airport

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
AOP19-ASP01	Develop appropriate procedures for synchronisation of initial DMAN with pre-departure sequencing	01/01/2021	31/12/2022
AOP19-ASP02	Integrate upgraded DMAN system with ECI system	01/01/2021	31/12/2022
AOP19-ASP03	Integrate upgraded DMAN systems with A-CDM systems	01/01/2021	31/12/2022
AOP19-ASP04	Integrate DMAN with A-SMGCS	01/01/2021	31/12/2022
AOP19-ASP05	Safety Assessment	01/01/2021	31/12/2022
AOP19-ASP06	Training	01/01/2021	31/12/2022
AOP19-ASP07	Operational use	01/01/2021	31/12/2022
AOP19-APO01	Provide relevant additional data to A-CDM systems to feed DMAN synchronised with pre-departure sequencing	01/01/2021	31/12/2022
AOP19-APO02	Develop appropriate procedures for synchronisation of initial DMAN with pre-departure sequencing	01/01/2021	31/12/2022
AOP19-APO03	Integrate upgraded DMAN systems with A-CDM systems	01/01/2021	31/12/2022
AOP19-APO04	Integrate upgraded DMAN system with ECI system	01/01/2021	31/12/2022
AOP19-APO05	Integrate DMAN with A-SMGCS	01/01/2021	31/12/2022
AOP19-APO06	Safety assessment	01/01/2021	31/12/2022
AOP19-APO07	Training	01/01/2021	31/12/2022
AOP19-APO08	Operational use	01/01/2021	31/12/2022

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

AOP19	Departure Management Synchronised with Pre-departure sequencing

Expected Performance Benefits

Safety:	Provision of a more stable pre-departure sequence.
Capacity:	Enhanced tactical runway scheduling. Reduced waiting and taxi times and runway delays.
Operational Efficiency:	Increased accuracy of taxi time-out predication and hence take-off time predictability, which in turn allows the aircraft to adhere to their target take-off time (TTOT).
Cost Efficiency:	-
Environment:	Reduced waiting time at the runway holding point, which saves fuel and CO2 emissions and allows air navigation service efficiency.
Security:	-

Detailed SLoA Descriptions

AOP19-ASP01	**Develop appropriate procedures for synchronisation of initial DMAN with pre-departure sequencing**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	Specific procedures and processes must be implemented to be able to handle, calculate and sequence departing traffic. This activity must be synchronised with all involved stakeholders.		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[PRO-214a]-Airport CDM Procedures for pre-departure sequencing		
Finalisation criteria:	1 - Operational Procedures for synchronization of initial DMAN with pre-departure sequencing have been developed, tested, and approved.		
AOP19-ASP02	**Integrate upgraded DMAN system with ECI system**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	An Electronic Clearance Input (ECI) system must be implemented.		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Data integration of DMAN synchronized with pre-departure sequencing system with ECI system is installed and tested.		
AOP19-ASP03	**Integrate upgraded DMAN systems with A-CDM systems**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	Initial DMAN system needs to be updated/upgraded to meet requirements for pre-departure sequencing and to feed A-CDM processes.		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[AERODROME-ATC-08]-Basic Departure Management (DMAN) integrated with A-CDM systems [CDM-01]-Community Specifications for A-CDM [PRO-214a]-Airport CDM Procedures for pre-departure sequencing		
Finalisation criteria:	1 - To take into account data from upgraded DMAN synchronized with pre-departure sequencing A-CDM processes and appropriate systems are updated/upgraded.		
AOP19-ASP04	**Integrate DMAN with A-SMGCS**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	Integration with A-SMGCS services supports enhanced measuring of variable taxi times as aircraft location and movement on the manoeuvring area is monitored.		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Integration of DMAN with pre-departure sequencing with A-SMGCS have been developed, tested and approved.		
		From:	By:

AOP19	Departure Management Synchronised with Pre-departure sequencing

AOP19-ASP05	**Safety Assessment**	**Applicability Area 1:** 01/01/2021	**Applicability Area 1:** 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	The safety assessment of the changes must be developed in coordination and synchronization with all concerned stakeholders. This safety assessment must be delivered to the competent authority.		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.		
AOP19-ASP06	**Training**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	All relevant staff must be duly trained.		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Training has been completed		
AOP19-ASP07	**Operational use**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	DMAN synchronised with pre-departure sequencing is ready for operational use once the procedures are in place, the systems have been upgraded, the safety assessment has been delivered and approved, and the training has been completed.		
Finalisation criteria:	1 - DMAN with pre-departure sequencing is put into service.		
AOP19-APO01	**Provide relevant additional data to A-CDM systems to feed DMAN synchronised with pre-departure sequencing**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2022
Action by:	**Airport Operators**		
Description & purpose:	Local A-CDM processes must guarantee that appropriate data necessary for establishing a pre-departure sequencing will be provided from concerned stakeholders in real-time to feed DMAN. De-icing data, RWY/TWY availability data, etc.		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[AERODROME-ATC-08]-Basic Departure Management (DMAN) integrated with A-CDM systems		
Finalisation criteria:	1 - Provision of additional relevant data to A-CDM to feed DMAN synchronized with pre-departure sequencing.		
AOP19-APO02	**Develop appropriate procedures for synchronisation of initial DMAN with pre-departure sequencing**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2022
Action by:	**Airport Operators**		
Description & purpose:	Specific procedures and processes must be implemented to be able to handle, calculate and sequence departing traffic. This activity must be synchronised with all involved stakeholders.		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[PRO-214a]-Airport CDM Procedures for pre-departure sequencing		
Finalisation criteria:	1 - Operational Procedures for synchronization of initial DMAN with pre-departure sequencing have been developed, tested, and approved.		
AOP19-APO03	**Integrate upgraded DMAN systems with A-CDM systems**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2022
Action by:	**Airport Operators**		
Description & purpose:	Initial DMAN system needs to be updated/upgraded to meet requirements for pre-departure sequencing and to feeds A-CDM processes.		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		

AOP19	Departure Management Synchronised with Pre-departure sequencing

ATM Master Plan relationship:	[AERODROME-ATC-08]-Basic Departure Management (DMAN) integrated with A-CDM systems [CDM-01]-Community Specifications for A-CDM		
Finalisation criteria:	1 - To take into account data from upgraded DMAN synchronized with pre-departure sequencing A-CDM processes and appropriate systems are updated/upgraded.		
AOP19-APO04	**Integrate upgraded DMAN system with ECI system**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2022
Action by:	**Airport Operators**		
Description & purpose:	An Electronic Clearance Input (ECI) system shall be implemented.		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Data integration of DMAN synchronized with pre-departure sequencing system with ECI system is installed and tested.		
AOP19-APO05	**Integrate DMAN with A-SMGCS**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2022
Action by:	**Airport Operators**		
Description & purpose:	Integration with A-SMGCS services supports enhanced measuring of variable taxi times as aircraft location and movement on the maneuvering area is monitored.		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Integration of DMAN with pre-departure sequencing with A-SMGCS has been developed, tested, and approved.		
AOP19-APO06	**Safety assessment**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2022
Action by:	**Airport Operators**		
Description & purpose:	The safety assessment of the changes must be developed in coordination and synchronization with all concerned stakeholders. This safety assessment must be delivered to the competent authority.		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.		
AOP19-APO07	**Training**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2022
Action by:	**Airport Operators**		
Description & purpose:	All relevant staff must be duly trained.		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Training has been completed.		
AOP19-APO08	**Operational use**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2022
Action by:			
Description & purpose:	DMAN synchronised with pre-departure sequencing is ready for operational use once the procedures are in place, the systems have been upgraded, the safety assessment has been delivered and approved, and the training has been completed.		
Finalisation criteria:	1 - DMAN with pre-departure sequencing is put into service.		

SESAR		Initial							APT	
AOP20		Wake Turbulence Separations for Departures based on Static Aircraft Characteristics (S-PWS-D)								
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

This objective represents optimization of the ICAO wake turbulence separation classes by use of longitudinal wake turbulence static pair-wise separation minima for departures (S-PWS-D), applicable in all operating conditions.

The Static PairWise Separation for Departures concept optimizes wake separations between departures on the initial departure path by moving to a scheme defined between aircraft type pairs for the 96 aircraft types frequently at ECAC major airports, together with a scheme defined by a larger number of wake categories (20-CAT (6-CAT + 14-CAT)) for other aircraft type combinations.

The S-PWS-D is applied using a separation delivery tool, where the pairwise separations will be used as input into the separation delivery tool.

S-PWS-D requires the Optimised Separation for Departure (OSD) tool to be integrated at CWP and the wind measurement or forecast on the final approach path.

This objective targets capacity-constrained runways during high-intensity runway operations and applies to very large, large and possibly medium airports.

NOTE: This is an "Initial" objective to provide advance notice to stakeholders. Some aspects of the objective require further validation.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area (Not yet defined)	See list of airports in MP Level 3 Implementation Plan - Annexes		
Timescales:	**From:**	**By:**	**Applicable to:**
IOC used for Analytics functioning only - not for implementation planning	01/01/2020		
FOC used for Analytics functioning only - not for implementation planning		31/12/2030	

References

European ATM Master Plan

OI step -	[AO-0323]-Static Pairwise Separations (S-PWS) for Departures								
	Enablers -	AERODROME -ATC-42b	REG-0523						

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

-none-

Essential Operational Changes

Airport and TMA performance

SESAR Solution

PJ.02-01-06 - Wake Turbulence Separations (for Departures) based on Static Aircraft Characteristics

ICAO GANP - ASBUs

- none -	

Deployment Programme

- none -	

European Plan for Aviation Safety

- none -	

Operating Environments

Airport

Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
AOP20-ASP01	Install ATC tool to support static pair-wise wake separation for departures		
AOP20-ASP02	Adapt ATC system (DMAN) to use static pair-wise wake separation for departures	21/06/2021	
AOP20-ASP03	Develop procedures for application of static pair-wise wake separation on final approach	21/06/2021	
AOP20-ASP04	Safety Assessment	21/06/2021	
AOP20-ASP05	Training	21/06/2021	
AOP20-ASP06	System in use	21/06/2021	
AOP20-INT01	Regulatory provisions (AMC) for static pair-wise wake separation minima	21/06/2021	

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Safety maintained while increasing capacity
Capacity:	Increased airport capacity
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

AOP20-ASP01	**Install ATC tool to support static pair-wise wake separation for departures**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Install an automated ATC tool (Runway Usage Management sub-system) to enable application of static pair-wise wake separation for departures.		
ATM Master Plan relationship:	[AERODROME-ATC-42b]-Airport ATC tool to support static pair-wise wake separation (S-PWS) for departure operations		
Finalisation criteria:	1 - ATC tool installed.		
AOP20-ASP02	**Adapt ATC system (DMAN) to use static pair-wise wake separation for departures**	From: 21/06/2021	By: -
Action by:	**ANS Providers**		
Description & purpose:	Adapt DMAN to use reduced, pairwise separation for departing aircraft, based on configurable, static parameters.		
ATM Master Plan relationship:	[AERODROME-ATC-42b]-Airport ATC tool to support static pair-wise wake separation (S-PWS) for departure operations		
Finalisation criteria:	1 - The system adapted.		
AOP20-ASP03	**Develop procedures for application of static pair-wise wake separation on final approach**	From: 21/06/2021	By: -
Action by:	**ANS Providers**		
Description & purpose:	Develop ATC procedures as appropriate so as to support the application of static pair-wise wake separation for departures		
Finalisation criteria:	1 - The procedures implemented.		
AOP20-ASP04	**Safety Assessment**	From: 21/06/2021	By: -
Action by:	**ANS Providers**		
Description & purpose:	A safety assessment of the changes shall be developed in coordination and synchronisation with all concerned stakeholders. This safety assessment shall be delivered to the competent authority.		

AOP20	Wake Turbulence Separations for Departures based on Static Aircraft Characteristics (S-PWS-D)

Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.		
AOP20-ASP05	**Training**	From:	By:
		21/06/2021	-
Action by:	**ANS Providers**		
Description & purpose:	Train the air traffic controller on static pair-wise wake separation for departures.		
Finalisation criteria:	1 - Training has been performed		
AOP20-ASP06	**System in use**	From:	By:
		21/06/2021	-
Action by:	**ANS Providers**		
Description & purpose:	Once the systems have been updated, safety assessment delivered and accepted, training has been completed, the system is in operational use		
Finalisation criteria:	1 - The system has been put into service		
AOP20-INT01	**Regulatory provisions (AMC) for static pair-wise wake separation minima**	From:	By:
		21/06/2021	-
Action by:	**EASA**		
Description & purpose:	A regulatory change as per the RECAT-PWS-EU Safety Case Ed. 1.4 has been submitted to EASA and is under review. Pairwise separation is expected to become an EASA AMC to Req. ATS.TR.220 Application of wake turbulence separation from Reg. EC 2017/373 Annex IV Part-ATS.		
ATM Master Plan relationship:	[REG-0523]-Regulatory provisions (AMC) for static pair-wise wake separation minima (S-PWS)		
Finalisation criteria:	1 - Relevant AMC has been published		

SESAR		Initial							APT	
AOP21		Wake Turbulence Separations for Arrivals based on Static Aircraft Characteristics (S-PWS-A)								
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

This objective represents optimisation of the ICAO wake turbulence separation classes by use of longitudinal wake turbulence static pair-wise separation minima on arrivals (S-PWS-A), applicable in all operating conditions.

S-PWS-A is the efficient aircraft type pairwise wake separation rules for final approach consisting of both the 96 x 96 aircraft type based wake separation minima (for the most common aircraft types in ECAC area) and the twenty wake category (20-CAT) based wake separation minima for arrival pairs involving all the remaining aircraft types. This allows reduction of separation minima for most aircraft pairs, enabling runway throughput increase compared to ICAO scheme, whilst maintaining acceptable levels of safety.

The S-PWS-A is applied using a separation delivery tool, where the pairwise separations will be used as input into the separation delivery tool.

S-PWS-A requires the Optimised Runway Delivery (ORD) tool to be integrated at CWP and the wind measurement or forecast on the final approach path.

This objective targets capacity constrained runways during high intensity runway operations and applies to very large, large and possibly medium airports.

NOTE: This is an "Initial" objective to provide advance notice to stakeholders. Some aspects of the objective require further validation.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area (Not yet defined)	See list of airports in MP Level 3 Implementation Plan - Annexes		
Timescales:	**From:**	**By:**	**Applicable to:**
IOC used for Analytics functioning only - not for implementation planning	01/01/2020		
FOC used for Analytics functioning only - not for implementation planning		31/12/2030	

References

European ATM Master Plan

OI step -	[AO-0306]-Static Pairwise Separations (S-PWS) for Arrivals								
	Enablers -	AERODROME -ATC-42a	APP ATC 118	REG-0523					

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

-none-

Essential Operational Changes

Airport and TMA performance

SESAR Solution

PJ.02-01-04 - Wake Turbulence Separations (for Arrivals) based on Static Aircraft Characteristics

ICAO GANP - ASBUs

- none -	

Deployment Programme

AOP21	Wake Turbulence Separations for Arrivals based on Static Aircraft Characteristics (S-PWS-A)

- none -	

European Plan for Aviation Safety

- none -	

Operating Environments

Airport

Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
AOP21-ASP01	Install ATC tool to support static pair-wise wake separation on final approach		
AOP21-ASP02	Adapt ATC system (AMAN) to support static pair-wise wake separation on final approach		
AOP21-ASP03	Develop procedures for application of static pair-wise wake separation on final approach		
AOP21-ASP04	Safety Assessment		
AOP21-ASP05	Training		
AOP21-ASP06	System in use		
AOP21-INT01	Regulatory provisions (AMC) for static pair-wise wake separation minima		

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Safety maintained while increasing capacity
Capacity:	Increased airport capacity
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

AOP21-ASP01	**Install ATC tool to support static pair-wise wake separation on final approach**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Install an automated ATC tool (separation delivery tool) to enable application of static pair-wise wake separation on final approach		
ATM Master Plan relationship:	[AERODROME-ATC-42a]-Airport ATC tool to support static pair-wise wake separation (S-PWS) in final approach		
Finalisation criteria:	1 - ATC tool installed.		
AOP21-ASP02	**Adapt ATC system (AMAN) to support static pair-wise wake separation on final approach**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Adapt AMAN to support reduced, pairwise separation for aircraft on final approach, based on configurable, static parameters.		
ATM Master Plan relationship:	[APP ATC 118]-ATC System to support static pair-wise wake separation (S-PWS) on approach		
Finalisation criteria:	1 - The system adapted.		
AOP21-ASP03	**Develop procedures for application of static pair-wise wake separation on final approach**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Develop ATC procedures as appropriate so as to support the application of static pair-wise wake separation on final approach		
Finalisation criteria:	1 - The procedures implemented.		
AOP21-ASP04	**Safety Assessment**	From: -	By: -
Action by:	**ANS Providers**		

AOP21	Wake Turbulence Separations for Arrivals based on Static Aircraft Characteristics (S-PWS-A)

Description & purpose:	A safety assessment of the changes shall be developed in coordination and synchronisation with all concerned stakeholders. This safety assessment shall be delivered to the competent authority.		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.		
AOP21-ASP05	**Training**	From:	By:
		-	-
Action by:	**ANS Providers**		
Description & purpose:	Train the air traffic controller on static pair-wise wake separation on final approach.		
Finalisation criteria:	1 - Training has been performed		
AOP21-ASP06	**System in use**	From:	By:
		-	-
Action by:			
Description & purpose:	Once the systems have been updated, safety assessment delivered and accepted, training has been completed, the system is in operational use.		
Finalisation criteria:	1 - system has been put into service		
AOP21-INT01	**Regulatory provisions (AMC) for static pair-wise wake separation minima**	From:	By:
		-	-
Action by:	**EASA**		
Description & purpose:	A regulatory change as per the RECAT-PWS-EU Safety Case Ed. 1.4 has been submitted to EASA and is under review. Pairwise separation is expected to become an EASA AMC to Req. ATS.TR.220 Application of wake turbulence separation from Reg. EC 2017/373 Annex IV Part-ATS		
ATM Master Plan relationship:	[REG-0523]-Regulatory provisions (AMC) for static pair-wise wake separation minima (S-PWS)		
Finalisation criteria:	1 - Relevant AMC has been published		

SESAR				Initial						APT
AOP22				Minimum pair separations based on RSP						
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

Minimum Pair Separations Based on Required Surveillance Performance (RSP)" in support of a reduction of the in-trail minimum Radar Separation focus to provide a direct positive impact on runway throughput (capacity, efficiency and resilience).

The runway capacity and in particular the runway throughput resilience in moderate, strong and very strong headwind conditions on the straight-in approach to the runway landing threshold are improved thanks to the implementation of Minimum radar separations based upon required surveillance performance implying the application (by ATC) of a non-wake turbulence separation down to 2 NM for arrivals on final approach, based upon required surveillance performance.

This minimum radar separation could be applied when separation is not constrained by wake turbulence, either because of favourable weather conditions (e.g. cross wind) or simply when the pair-wise wake turbulence separation is less than the MRS.

NOTE: This is an "Initial" objective to provide advance notice to stakeholders. Some aspects of the objective require further validation.

NOTE: The SLoAs listed in this document should be addressed to air navigation service providers as well as to airport operators. This is due to the fact that some airports operate their own ground control units for specific areas of responsibility at the airport. Airport operators providing air traffic control services qualify as ANSPs and are therefore covered by the ASP SLoAs. It is up to each implementer to check and select what is relevant to them, depending on local areas of responsibilities

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area (Not yet defined)	See list of airports in MP Level 3 Implementation Plan - Annexes		
Timescales:	**From:**	**By:**	**Applicable to:**
IOC used for Analytics functioning only - not for implementation planning	01/01/2020		
FOC used for Analytics functioning only - not for implementation planning		31/12/2030	

References

European ATM Master Plan

OI step -	[AO-0309]-Minimum Radar Separations based upon Required Surveillance Performance (RSP)								
	Enablers -	APP ATC 120	APP ATC 159	CTE-S01	CTE-S01a ATC02.8, ATC12.1	CTE-S02	CTE-S02a	METEO-03	METEO-04b
		PRO-257	REG-0526						

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

-none-

Essential Operational Changes

Airport and TMA performance

SESAR Solution

PJ.02-03 - Minimum-Pair separations based on RSP

ICAO GANP - ASBUs

- none -	

AOP22	Minimum pair separations based on RSP

Deployment Programme

- none -	

European Plan for Aviation Safety

- none -	

Operating Environments

Airport
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
AOP22-ASP01	Approach ATC system updated for Minimum Separation Based on Required Surveillance Performance (separation delivery)		
AOP22-ASP02	Develop ATC Procedure to apply spacing minimum down to 2 NM		
AOP22-ASP03	Safety Assessment		
AOP22-ASP04	Training		
AOP22-ASP05	System in use		
AOP22-INT01	Regulatory provisions for Minimum-Pair separations based on RSP (Required Surveillance Performance)		

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Safety maintained while increasing capacity
Capacity:	Increased airport capacity
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

AOP22-ASP01	**Approach ATC system updated for Minimum Separation Based on Required Surveillance Performance (separation delivery)**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Approach ATC system updated to provide the ATCO with: - visual assistance of the minimum separation to be applied (Target Display Indicator), - automated alerting of conflicts when this minima is violated (whilst avoiding false alerts during the use of non-wake turbulence pairwise separation).		
ATM Master Plan relationship:	[APP ATC 159]-Approach ATC system updated for Minimum Separation Based on Required Surveillance Performance (separation delivery)		
Finalisation criteria:	1 - Approach ATC system installed		
AOP22-ASP02	**Develop ATC Procedure to apply spacing minimum down to 2 NM**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Develop ATC Procedure to apply spacing minimum down to 2 NM		
ATM Master Plan relationship:	[PRO-257]-ATC Procedure to apply spacing minimum down to 2 NM		
Finalisation criteria:	1 - The procedure is implemented		
AOP22-ASP03	**Safety Assessment**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	A safety assessment of the changes shall be developed in coordination and synchronisation with all concerned stakeholders. This safety assessment shall be delivered to the competent authority.		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority		
AOP22-ASP04	**Training**	From: -	By: -

AOP22	Minimum pair separations based on RSP

Action by:	**ANS Providers**		
Description & purpose:	Train the air traffic controller minimum pair separations based on SRP		
Finalisation criteria:	1 - Training has been performed		
AOP22-ASP05	**System in use**	From:	By:
		-	-
Action by:	**ANS Providers**		
Description & purpose:	Once the systems have been updated, safety assessment delivered and accepted, training has been completed, the system is in operational use.		
Finalisation criteria:	1 - system has been put into service		
AOP22-INT01	**Regulatory provisions for Minimum-Pair separations based on RSP (Required Surveillance Performance)**	From:	By:
		-	-
Action by:	**EASA**		
Description & purpose:	Regulatory provisions (produced by the competent regulatory authority) that relate to the minimum of separation minima to apply to cope with surveillance performance. These regulatory provisions consist in defining minimum requirements for allowing 2.0NM minimum radar separation for both arrivals and departures operations. "Regulatory provisions" refers here to advise from the regulatory authorities on the acceptability of a safety case supporting an ATM rule modification.		
ATM Master Plan relationship:	[REG-0526]-Regulatory provisions for Minimum-Pair separations based on RSP (Required Surveillance Performance)		
Finalisation criteria:	1 - Regulatory provisions have been published		

SESAR		Initial							APT	
AOP23		Integrated runway sequence for full traffic optimization on single and multiple runway airports								
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

The efficient use of integrated arrival and departure planning requires the development of early and dynamic planning of arrival and departure sequences into the runway of an airport. Today limitations with static patterns, lack of predictability and high manual workload need to be improved. To reduce extensive queuing in the air and on ground for reduction of airline fuel consumption/cost, there is a need of trajectory-based and early planning for improved operational efficiency.

The concept of Traffic Optimisation on single and multiple runway airports is applicable for all airport layouts that have dependencies between arrivals and departures. This includes runways operated in mixed mode as well as runway layouts with interdependencies between arrivals and departures.

The airport layout may bring constraints on the traffic flow management flexibility and then yield less coupling potential. The single runway and parallel runways in mixed mode is currently recognised to be the most constrained situation.

Optimised integration of arrival and departure traffic flows with the use of a trajectory-based Integrated Runway Sequence address a number of significant operational environments and validations are performed with a variation of industrial prototypes in advanced IBP´s.

The main goal for the Integrated RWY Sequence function is to establish an integrated arrival and departure sequence by providing accurate Target Takeoff Times (TTOTs) and Target Landing Times (TLDTs), including dynamic balancing of arrivals and departures while optimising the runway throughput.

The look ahead Time Horizon e.g. 1 hour is the time at which flights become eligible for the integrated sequence. The Stable Sequence Time Horizon is the time horizon within which no automatic swapping of flights in the sequence will occur, but landing and departure time will still be updated. The value of these time horizons is determined by the local implementation and they are not necessarily the same for arrivals and departures.

The Integrated Runway Sequence is planned before Arrival flights top of decent and linked with Airport CDM procedures for departures. Fine-tuning of Arrival and Departure target times is provided to ensure efficient runway throughput.

NOTE 1: This is an "Initial" objective to provide advance notice to stakeholders. Some aspects of the objective require further validation.

NOTE 2: The SLoAs listed in this document should be addressed to air navigation service providers as well as to airport operators. This is due to the fact that some airports operate their own ground control units for specific areas of responsibility at the airport. Airport operators providing air traffic control services qualify as ANSPs and are therefore covered by the ASP SLoAs. It is up to each implementer to check and select what is relevant to them, depending on local areas of responsibilities

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area (Not yet defined)	See list of airports in MP Level 3 Implementation Plan - Annexes		
Timescales:	**From:**	**By:**	**Applicable to:**
IOC used for Analytics functioning only - not for implementation planning	01/01/2020		
FOC used for Analytics functioning only - not for implementation planning		31/12/2030	

References

European ATM Master Plan

OI step -	[TS-0301]-Integrated Arrival Departure Management for Full Traffic Optimisation on the Runway								
	Enablers -	AERODROME -ATC-33	AERODROME -ATC-58	APP ATC 164					

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

AOP23	Integrated runway sequence for full traffic optimization on single and multiple runway airports

Applicable legislation

-none-

Essential Operational Changes

Airport and TMA performance

SESAR Solution

PJ.02-08-01 - Integrated Runway Sequence for full traffic Optimization on Single and Multiple Runway Airports

ICAO GANP - ASBUs

- none -	

Deployment Programme

- none -	

European Plan for Aviation Safety

- none -	

Operating Environments

Airport
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
AOP23-ASP01	Adapt the local systems so as to enhance the coupled AMAN-DMAN		
AOP23-ASP02	Improve the synchronisation between arrivals and departures		
AOP23-ASP03	Adapt the ATC System to support integrated arrival/departure sequence functionalities		
AOP23-ASP04	Develop appropriate procedures		
AOP23-ASP05	Safety assessment		
AOP23-ASP06	Training		
AOP23-ASP07	System in use		
AOP23-APO01	Adapt the local systems so as to enhance the coupled AMAN-DMAN		
AOP23-APO02	Improve the synchronisation between arrivals and departures		
AOP23-APO03	Develop appropriate procedures		
AOP23-APO04	Safety assessment		
AOP23-APO05	Training		
AOP23-APO06	System in use		

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Safety maintained while increasing capacity
Capacity:	Increased airport capacity
Operational Efficiency:	Both fuel efficiency as well as CO2/Flight Time Efficiency
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

AOP23-ASP01	**Adapt the local systems so as to enhance the coupled AMAN-DMAN**	From:	By:
		-	-
Action by:	**ANS Providers**		

AOP23	Integrated runway sequence for full traffic optimization on single and multiple runway airports

Description & purpose:	Enhance the coupled AMAN-DMAN so as to manage mixed mode and dependent runway operations as well as to identify and to resolve complex interacting traffic flows on the runway and possibly within a TMA environment. The Tower ATC system ATCO HMI is to be enhanced to support the display of integrated arrival/departure sequence information and the interactions of the user with it. Integrated Runway Sequence Function will calculate an optimized runway sequence including both arrival and departure flights and be linked to following functionality; • Arrival Management based on arrival Trajectory Prediction to provide estimated arrival landing times, including updates. Upstream En-Route sectors will receive advisories of arrival delay times when applicable. • Departure Management based on Airport CDM procedures to provide estimated take-off times, calculated from airlines preference on readiness with use of target off-block time. To support ATC with an overview of the integrated runway sequence an appropriate HMI presenting the integrated runway sequence order for both arrivals and departures will be provided. This HMI will provide to each ATC role the relevant information on the integrated runway sequence. This HMI may include support functions to enhance awareness and increase controller ability to comply with a predefined integrated runway sequence.		
ATM Master Plan relationship:	[AERODROME-ATC-33]-Coupled sequencing tool enhanced to better handle arrivals and departures		
Finalisation criteria:	1 - Systems have been enhanced		
AOP23-ASP02	**Improve the synchronisation between arrivals and departures**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Improve the service orchestration between AMAN and DMAN to better synchronise arrivals and departures for the same airport. This addresses the calculation of the integrated arrival/departure sequence based on the different inputs as well as the distribution of the arrival/departure sequence		
ATM Master Plan relationship:	[AERODROME-ATC-58]-Agile synchronisation of arrivals with departure information for the same airport		
Finalisation criteria:	1 - Service orchestration improved		
AOP23-ASP03	**Adapt the ATC System to support integrated arrival/departure sequence functionalities**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	The APP ATC system ATCO HMI is enhanced to support the display of integrated arrival/departure sequence information and the interactions of the user with it An overview of the integrated runway sequence an appropriate HMI presenting the integrated runway sequence order for both arrivals and departures will be provided. This HMI will provide to each ATC role the relevant information on the integrated runway sequence. This HMI may include support functions to enhance awareness and increase controller ability to comply with a predefined integrated runway sequence		
ATM Master Plan relationship:	[APP ATC 164]-APP ATC System adapted to support integrated arrival/departure sequence functionalities in ATCO's HMI		
Finalisation criteria:	1 - Systems have been adapted.		
AOP23-ASP04	**Develop appropriate procedures**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Develop ATC procedures as appropriate so as to support the integrated runway sequence		
Finalisation criteria:	1 - Procedures have been implemented		
AOP23-ASP05	**Safety assessment**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	A safety assessment of the changes shall be developed in coordination and synchronisation with all concerned stakeholders. This safety assessment shall be delivered to the competent authority.		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.		
AOP23-ASP06	**Training**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Train the air traffic controller on the traffic optimisation based on the use of integrated runway sequence		
Finalisation criteria:	1 - Training has been completed		
AOP23-ASP07	**System in use**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Once the systems have been updated, safety assessment delivered and accepted, training has been completed, the system is in operational use.		
Finalisation criteria:	1 - system has been put into service		
AOP23-APO01	**Adapt the local systems so as to enhance the coupled AMAN-DMAN**	From: -	By: -

AOP23	Integrated runway sequence for full traffic optimization on single and multiple runway airports

Action by:	**Airport Operators**		
Description & purpose:	Enhance the coupled AMAN-DMAN so as to manage mixed mode and dependent runway operations as well as to identify and to resolve complex interacting traffic flows on the runway and possibly within a TMA environment. The Tower ATC system ATCO HMI is to be enhanced to support the display of integrated arrival/departure sequence information and the interactions of the user with it. Integrated Runway Sequence Function will calculate an optimized runway sequence including both arrival and departure flights and be linked to the following functionality; • Arrival Management based on arrival Trajectory Prediction to provide estimated arrival landing times, including updates. Upstream En-Route sectors will receive advisories of arrival delay times when applicable. • Departure Management based on Airport CDM procedures to provide estimated take-off times, calculated from airlines' preference on readiness with use of target off-block time. To support ATC with an overview of the integrated runway sequence an appropriate HMI presenting the integrated runway sequence order for both arrivals and departures will be provided. This HMI will provide to each ATC role the relevant information on the integrated runway sequence. This HMI may include support functions to enhance awareness and increase controller ability to comply with a predefined integrated runway sequence.		
ATM Master Plan relationship:	[AERODROME-ATC-33]-Coupled sequencing tool enhanced to better handle arrivals and departures		
Finalisation criteria:	1 - Systems have been enhanced		
AOP23-APO02	**Improve the synchronisation between arrivals and departures**	From: -	By: -
Action by:	**Airport Operators**		
Description & purpose:	Improve the service orchestration between AMAN and DMAN to better synchronise arrivals and departures for the same airport. This addresses the calculation of the integrated arrival/departure sequence based on the different inputs as well as the distribution of the arrival/departure sequence		
ATM Master Plan relationship:	[AERODROME-ATC-58]-Agile synchronisation of arrivals with departure information for the same airport		
Finalisation criteria:	1 - Service orchestration improved.		
AOP23-APO03	**Develop appropriate procedures**	From: -	By: -
Action by:	**Airport Operators**		
Description & purpose:	Develop ATC procedures as appropriate so as to support the integrated runway sequence		
Finalisation criteria:	1 - Procedures have been implemented		
AOP23-APO04	**Safety assessment**	From: -	By: -
Action by:	**Airport Operators**		
Description & purpose:	A safety assessment of the changes shall be developed in coordination and synchronisation with all concerned stakeholders. This safety assessment shall be delivered to the competent authority.		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority		
AOP23-APO05	**Training**	From: -	By: -
Action by:	**Airport Operators**		
Description & purpose:	Train the air traffic controller on the traffic optimisation based on the use of integrated runway sequence		
Finalisation criteria:	1 - Training has been completed		
AOP23-APO06	**System in use**	From: -	By: -
Action by:	**Airport Operators**		
Description & purpose:	Once the systems have been updated, safety assessment delivered and accepted, training has been completed, the system is in operational use.		
Finalisation criteria:	1 - System has been put into service		

SESAR			Initial						APT	
AOP24			Optimised use of runway configuration for multiple runway airports							
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

This Implementation Objective focuses on the Runway Manager (RMAN), a support tool for the Tower Supervisor to determine the optimal runway configuration and distribution of demand according to capacity and local constraints.

During the Medium/Short term Planning Phase, the RMAN tool checks the intentional demand versus the available capacity and it is capable of forecasting imbalances, raising alarms and alerts based on the indicators provided.

In the Execution Phase, the Runway Management tool monitors departure, arrival and overall delay and punctuality, in addition to the capacity shortage proposing changes if necessary.

Since the demand is continuously evolving along time, the RMAN continuously computes the optimal runway configuration and the associated Forecasted Landing (FLDT) and Take Off (FTOT) Times of arrival and departures flights that maximises the runway throughput.

As described before, in the same phase, the Integrated Runway Sequence function calculates Target Landing and Take-Off Times based on the flight plan information and considering the active runways.

The combination of the Runway Manager and the Integrated Runway Sequence has the aim of improving the punctuality of flights and reducing flight duration and average delay. The Forecasted Times calculated by the RMAN are provided to the Integrated Runway Sequence using them to calculate the final Target Times.

As a conclusion TLDT and TTOT calculated by the Integrated Sequence follows the Runway DCB Plan allowing the feedback to the RMAN to monitor the status of the Runway and to detect possible imbalances.

NOTE 1: This is an "Initial" objective to provide advance notice to stakeholders. Some aspects of the objective require further validation.

NOTE 2: The SLoAs listed in this document should be addressed to air navigation service providers as well as to airport operators. This is due to the fact that some airports operate their own ground control units for specific areas of responsibility at the airport. Airport operators providing air traffic control services qualify as ANSPs and are therefore covered by the ASP SLoAs. It is up to each implementer to check and select what is relevant to them, depending on local areas of responsibilities

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area (Not yet defined - Potentially Multiple Runway Airports in ECAC+ States)	See list of airports in MP Level 3 Implementation Plan - Annexes		
Timescales:	**From:**	**By:**	**Applicable to:**
IOC used for Analytics functioning only - not for implementation planning	01/01/2020		
FOC used for Analytics functioning only - not for implementation planning		31/12/2030	

References

European ATM Master Plan

OI step -	[TS-0313]-Optimized Use of Runway Configuration for Multiple Runway Airports							
	Enablers -	AERODROME -ATC-74	APP ATC 164					

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

-none-

AOP24	Optimised use of runway configuration for multiple runway airports

Essential Operational Changes

Airport and TMA performance

SESAR Solution

PJ.02-08-02 - Optimised use of runway configuration for multiple runway airports

ICAO GANP - ASBUs

- none -	

Deployment Programme

- none -	

European Plan for Aviation Safety

- none -	

Operating Environments

Airport
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
AOP24-ASP01	Implement a Runway Demand and Capacity system		
AOP24-ASP02	Adapt the ATC System to support optimal runway configuration		
AOP24-ASP03	Develop appropriate procedures		
AOP24-ASP04	Safety assessment		
AOP24-ASP05	Training		
AOP24-ASP06	System in use		
AOP24-APO01	Implement a Runway Demand and Capacity system		
AOP24-APO02	Develop appropriate procedures		
AOP24-APO03	Safety assessment		
AOP24-APO04	Training		
AOP24-APO05	System in use		

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Safety maintained while increasing capacity
Capacity:	Increased airport capacity
Operational Efficiency:	Both fuel efficiency as well as CO2/Flight Time Efficiency
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

AOP24-ASP01	**Implement a Runway Demand and Capacity system**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	In order to ensure that demand vs. capacity needs are met managing the different flows and dependencies between the multiple Runways in the Airport, the Runway Demand and Capacity system is enhanced with new information regarding arrivals and departures. The Tower ATC system ATCO HMI is enhanced to support the display of integrated arrival/departure sequence information and the interactions of the user with it		
ATM Master Plan relationship:	[AERODROME-ATC-74]-Runway Demand and Capacity system enhanced for multiple runway airport working in Tactical and pre-Tactical timeframe		
Finalisation criteria:	1 - Runway Demand and Capacity system deployed.		
		From:	By:

AOP24-ASP02	**Adapt the ATC System to support optimal runway configuration**	-	-
Action by:	**ANS Providers**		
Description & purpose:	The APP ATC system ATCO HMI is enhanced to support the display of integrated arrival/departure sequence information and the interactions of the user with it An overview of the integrated runway sequence an appropriate HMI presenting the integrated runway sequence order for both arrivals and departures will be provided. This HMI will provide to each ATC role the relevant information on the integrated runway sequence. This HMI may include support functions to enhance awareness and increase controller ability to comply with a predefined integrated runway sequence in order to allow the optimal use of the runway configuration		
ATM Master Plan relationship:	[APP ATC 164]-APP ATC System adapted to support integrated arrival/departure sequence functionalities in ATCO's HMI		
Finalisation criteria:	1 - Systems have been adapted		
AOP24-ASP03	**Develop appropriate procedures**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Develop ATC procedures as appropriate so as to support the use of the optimal runway configuration		
Finalisation criteria:	1 - Procedures have been implemented.		
AOP24-ASP04	**Safety assessment**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	A safety assessment of the changes shall be developed in coordination and synchronisation with all concerned stakeholders. This safety assessment shall be delivered to the competent authority.		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.		
AOP24-ASP05	**Training**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Train the air traffic controller on the optimised use of runway configuration		
Finalisation criteria:	1 - Training has been completed		
AOP24-ASP06	**System in use**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Once the systems have been updated, safety assessment delivered and accepted, training has been completed, the system is in operational use.		
Finalisation criteria:	1 - System has been put into service		
AOP24-APO01	**Implement a Runway Demand and Capacity system**	From: -	By: -
Action by:	**Airport Operators**		
Description & purpose:	In order to ensure that demand vs. capacity needs are met managing the different flows and dependencies between the multiple Runways in the Airport, the Runway Demand and Capacity system is enhanced with new information regarding arrivals and departures.The Tower ATC system ATCO HMI is enhanced to support the display of integrated arrival/departure sequence information and the interactions of the user with it		
ATM Master Plan relationship:	[AERODROME-ATC-74]-Runway Demand and Capacity system enhanced for multiple runway airport working in Tactical and pre-Tactical timeframe		
Finalisation criteria:	1 - Runway Demand and Capacity system deployed		
AOP24-APO02	**Develop appropriate procedures**	From: -	By: -
Action by:	**Airport Operators**		
Description & purpose:	Develop ATC procedures as appropriate so as to support the use of the optimal runway configuration		
Finalisation criteria:	1 - Procedures have been implemented		
AOP24-APO03	**Safety assessment**	From: -	By: -
Action by:	**Airport Operators**		
Description & purpose:	A safety assessment of the changes shall be developed in coordination and synchronisation with all concerned stakeholders. This safety assessment shall be delivered to the competent authority.		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.		
AOP24-APO04	**Training**	From: -	By: -
Action by:	**Airport Operators**		
Description & purpose:	Train the air traffic controller on the optimised use of runway configuration		
Finalisation criteria:	1 - Training has been completed		
AOP24-APO05	**System in use**	From: -	By: -

AOP24	Optimised use of runway configuration for multiple runway airports

Action by:	**Airport Operators**
Description & purpose:	Once the systems have been updated, safety assessment delivered and accepted, training has been completed, the system is in operational use.
Finalisation criteria:	1 - System has been put into service

SESAR				Active						LOC/APT
AOP25				De-icing management tool						
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

The objective is addressing a de-icing management tool to be used on airports with an Airport Collaborative Decision Making (A-CDM) implementation, during de-icing conditions.

It aims at improving the predictability of aircraft de-icing operations by increasing the accuracy of information related to when the procedure is going to take place, how long it will take and when the aircraft will be ready to taxi for departure, which is currently calculated at best by predetermined estimates. The concept envisages that de-icing operations are no longer characterised by the A-CDM as 'adverse conditions', i.e. a state that is in need of collaborative recovery procedures, but rather a part of normal operations in the winter period. The de-icing process can therefore become predictable under certain weather conditions and treated as a regular procedure in normal operations.

The implementation of the objective allows for the scheduling and monitoring of de-icing operations by addressing two key functions:
• The first of which is to accurately estimate the duration of the de-icing and/or anti-icing procedures for a given airframe. This elapsed time is dependent on three parameters: the aircraft type, the prevailing weather conditions at the airport during the aircraft's visit and the number of de-icing rigs used for the application of de-icing and anti-icing fluids.
• The second function is to calculate a de-icing sequence that optimises available resources and allocates them to slots in a timeline while taking into account the constraining variables that limit how the problem can be optimised. For on-stand and after-push operations de-icing rigs are assigned to these slots, while remote de-icing considers the track availability at the designated location, i.e. the de-icing pad.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area (Subject to local need)			
Timescales:	**From:**	**By:**	**Applicable to:**
IOC used for Analytics functioning only - not for implementation planning	01/07/2022		
FOC used for Analytics functioning only - not for implementation planning		31/12/2030	

References

European ATM Master Plan

OI step -	[POI-0070-AO]-Improved management of de-icing operations at airports								
	Enablers -	AIRPORT-04							

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

None

Essential Operational Changes

Airport and TMA performance

SESAR Solution

#116 - De-icing Management Tool

ICAO GANP - ASBUs

- none -	

Deployment Programme

- none -	

AOP25	De-icing management tool

European Plan for Aviation Safety

- none -	

Operating Environments

Airport

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
AOP25-ASP01	Adapt the A-CDM platform to exchange information with the de-icing management tool		
AOP25-ASP02	Implement procedures for the use by ATC of the enhanced A-CDM information		
AOP25-ASP03	Safety assessment		
AOP25-ASP04	Training		
AOP25-ASP05	Operational use		
AOP25-APO01	Implement a de-icing management tool		
AOP25-APO02	Implement procedures for the use of the de-icing management tool		
AOP25-APO03	Safety assessment		
AOP25-APO04	Training		
AOP25-APO05	Operational use		

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	Better use of existing airport capacity.
Operational Efficiency:	Increased predictability and flexibility of airport operations (integration of airport operations with the network).
Cost Efficiency:	-
Environment:	More efficient airport operations.
Security:	-

Detailed SLoA Descriptions

AOP25-ASP01	**Adapt the A-CDM platform to exchange information with the de-icing management tool**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	The A-CDM platform will have to accommodate information exchanges with the de-icing management tool. These exchanges will allow the tool to receive information from the A-CDM platform (e.g. General Flight Information, Flight Schedules, Flight Estimates, Flight Targets, Flight Actuals, Weather Information, etc) as well as to provide information to the platform (e.g. De-icing Values (time stamps) for Flight Information, De-icing Unit Sequence).		
Supporting material(s):	SJU - SESAR Solution 116: Data Pack for De-icing management tool Url : https://www.sesarju.eu/index.php/sesar-solutions/de-icing-management-tool		
Finalisation criteria:	1 - Information exchanges between the A-CDM platform and the de-icing management tool are implemented.		
AOP25-ASP02	**Implement procedures for the use by ATC of the enhanced A-CDM information**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Through the integration of the information provided by the de-icing management tool into the A-CDM platform, the Air Traffic Controllers who will have access to enhanced A-CDM information. The use of this information will have to be supported by specific procedures.		
Supporting material(s):	SJU - SESAR Solution 116: Data Pack for De-icing management tool Url : https://www.sesarju.eu/index.php/sesar-solutions/de-icing-management-tool		
Finalisation criteria:	1 - Procedures developed, tested and approved.		
AOP25-ASP03	**Safety assessment**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	A safety assessment of the changes shall be developed and delivered to the competent authority.		
Supporting material(s):	SJU - SESAR Solution 116: Data Pack for De-icing management tool Url : https://www.sesarju.eu/index.php/sesar-solutions/de-icing-management-tool		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.		

AOP25	De-icing management tool

AOP25-ASP04	**Training**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	All relevant staff, particularly Air Traffic Controllers having access to enhanced A-CDM information, shall be duly trained.		
Supporting material(s):	SJU - SESAR Solution 116: Data Pack for De-icing management tool Url : https://www.sesarju.eu/index.php/sesar-solutions/de-icing-management-tool		
Finalisation criteria:	1 - Training has been completed.		
AOP25-ASP05	**Operational use**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Once the procedures are in place, systems have been upgraded, safety assessment delivered and approved, training has been completed, a de-icing management tool is ready for operational use.		
Supporting material(s):	SJU - SESAR Solution 116: Data Pack for De-icing management tool Url : https://www.sesarju.eu/index.php/sesar-solutions/de-icing-management-tool		
Finalisation criteria:	1 - Integration of the de-icing management tool and of the A-CDM platform is put into service.		
AOP25-APO01	**Implement a de-icing management tool**	From: -	By: -
Action by:	**Airport Operators**		
Description & purpose:	The main functionalities of such tool (DIMT) should be: • An assessment of the weather (current and forecasted) in four de-icing conditions: no de-icing, low, medium and severe • Determination of Estimated De-Icing Time (EDIT) for departing flights (flights with EOBT) • Planning of de-icing operations on flights expected to be de-iced • Allocation of de-icing resources to flights planned to be de-iced • Publishing of de-icing timestamps (ECZT - Estimated Commencement of De-icing Time, EDIT - Estimated De-icing Time and EEZT - Estimated End of De-icing Time) to the A-CDM platform.		
Supporting material(s):	SJU - SESAR Solution 116: Data Pack for De-icing management tool Url : https://www.sesarju.eu/index.php/sesar-solutions/de-icing-management-tool		
ATM Master Plan relationship:	[AIRPORT-04]-De-icing support tool in a A-CDM environment		
Finalisation criteria:	1 - A de-icing management tool is put into service and integrated with the A-CDM platform		
AOP25-APO02	**Implement procedures for the use of the de-icing management tool**	From: -	By: -
Action by:	**Airport Operators**		
Description & purpose:	Specific procedures for the use of the de-icing management tool by the De-icing Coordinator and by the De-icing Agent will have to be defined and implemented in order to operate the tool as well as to mitigate and manage system failures.		
Supporting material(s):	SJU - SESAR Solution 116: Data Pack for De-icing management tool Url : https://www.sesarju.eu/index.php/sesar-solutions/de-icing-management-tool		
Finalisation criteria:	1 - Procedures developed, tested and approved.		
AOP25-APO03	**Safety assessment**	From: -	By: -
Action by:	**Airport Operators**		
Description & purpose:	A safety assessment of the changes shall be developed and delivered to the competent authority.		
Supporting material(s):	SJU - SESAR Solution 116: Data Pack for De-icing management tool Url : https://www.sesarju.eu/index.php/sesar-solutions/de-icing-management-tool		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.		
AOP25-APO04	**Training**	From: -	By: -
Action by:	**Airport Operators**		
Description & purpose:	All relevant staff, particularly De-icing Coordinators and De-Icing Agents, shall be duly trained		
Supporting material(s):	SJU - SESAR Solution 116: Data Pack for De-icing management tool Url : https://www.sesarju.eu/index.php/sesar-solutions/de-icing-management-tool		
Finalisation criteria:	1 - Training has been completed.		
AOP25-APO05	**Operational use**	From: -	By: -
Action by:	**Airport Operators**		
Description & purpose:			
Supporting material(s):	SJU - SESAR Solution 116: Data Pack for De-icing management tool Url : https://www.sesarju.eu/index.php/sesar-solutions/de-icing-management-tool		
Finalisation criteria:	1 - De-icing management tool is put into service.		

SESAR	Active									LOC/APT
AOP26	Reduced separation based on local Runway Occupancy Time (ROT) characterisation									
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

The Increased Runway Throughput based on local ROT characterization is a concept that intends to enable to the reduction the in-trail separation on final approach with the aim of increasing runway throughput by taking into account the Runway Occupancy Time (ROT) of lead traffic in an arrival pair. The most constraining factor for the reduction of the longitudinal separation is, beside wake turbulence minima when applicable, the need to maintain sufficient spacing compatible with ROT of the lead landing traffic; and therefore reduced surveillance separation could be enabled, based on individualised ROT characterisation or other applicable criteria (as set in ICAO PANS-ATM Doc 4444 §8.7.3), for the part of the traffic for which the ROT is compatible, while the other traffic part would remain spaced by larger spacing due to ROT.

The operational application can be based either per individual aircraft type (iROT) or per aircraft ROT-based category (ROCAT). Based on local – and runway-specific - ROT characterisation, ROCAT defines separation sub-categories based on runway occupancy time, and these categories could also be similar to the wake RECAT-EU one in order to facilitate a combined implementation.

The solution can increase runway throughput by up to 12% where the aircraft traffic mix is predominantly medium aircraft, and the constraint for separation between medium aircraft is the ROT rather than the Minimum Wake Separation (MWS). Rather than making the same assumption on ROT for all aircraft (which would necessarily need to consider as a constraint the highest observed ROT values and result in higher separation minima), the enhanced ROT spacing application is based on local individualised. Runway Occupancy Time characterisation which allows that different ROT assumptions for different aircraft be made, so that for leading aircraft with lower ROT supports and can be compatible with reduced separation minima.

The objective addresses the development of optimised runway occupancy minima through data analytics to determine runway occupancy time (statistical) values per aircraft type using historical data. The separation minima can be delivered by ATC through a change in the separation minima on final approach used by controllers, either procedurally with ROCAT-based application, or with automation support through a controller decision support tool providing an Optimised Runway Delivery for 'iROT' application and maximising the operational benefits.

NOTE: The SLoAs listed in this document should be addressed to air navigation service providers as well as to airport operators. This is due to the fact that some airports operate their own ground control units for specific areas of responsibility at the airport. Airport operators providing air traffic control services qualify as ANSPs and are therefore covered by the ASP SLoAs. It is up to each implementer to check and select what is relevant to them, depending on local areas of responsibilities.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area (Subject to local need)			
Timescales:	**From:**	**By:**	**Applicable to:**
IOC used for Analytics functioning only - not for implementation planning	01/07/2022		
FOC used for Analytics functioning only - not for implementation planning		31/12/2030	

References

European ATM Master Plan

OI step -	[AO-0337]-Reduced separation based on local Runway Occupancy Time characterisation								
	Enablers -	AERODROME -ATC-55	APP ATC 169						

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

None

Essential Operational Changes

- none -

SESAR Solution

PJ.02-08-03 - Reduced separation based on local Runway Occupancy Time characterisation

ICAO GANP - ASBUs

- none -	

Deployment Programme

- none -	

European Plan for Aviation Safety

- none -	

Operating Environments

Airport

Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
AOP26-ASP01	Establish local ROT characterisation and determine corresponding ROCAT / iROT spacing scheme		
AOP26-ASP02	Implement procedures or separation delivery support function for the use of the optimised ROCAT / iROT spacing scheme		
AOP26-ASP03	Safety assessment		
AOP26-ASP04	Training		
AOP26-ASP05	Operational use		

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	When supported by a separation delivery tool, such as TBS-ORD, the implementation makes easier for controllers to identify separation infringement on final approach so the situation awareness is increased compared to the current way of work, which has a positive impact on safety
Capacity:	A reduced spacing between aircraft has positive impact on the runway throughput. The higher the throughput, the higher the number of movements, leading to a positive impact on Capacity
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

AOP26-ASP01	**Establish local ROT characterisation and determine corresponding ROCAT / iROT spacing scheme**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Establish local ROT characterisation and determine corresponding ROCAT / iROT spacing scheme		
Supporting material(s):	SJU - SESAR Solution PJ.02-08-03: Contextual Note for "Reduced separation based on local Runway Occupancy Time characterisation" Url : https://www.sesarju.eu/sites/default/files/documents/solution/PJ.02-08-03 Contextual Note_Final.pdf SJU - SESAR Solution 02-08 SPRINTEROP/ OSED for V3 – Part I Url : https://www.sesarju.eu/sites/default/files/documents/solution/SESAR_2020_PJ02-08_D6_1_20_V3_SPR_INTEROP OSED Part I - 00.02.00.pdf		
ATM Master Plan relationship:	[AERODROME-ATC-55]-Aerodrome ATC System to support Optimised Runway Delivery on Final Approach based on Aircraft ROT Characterisation [APP_ATC_169]-Approach ATC System to support Optimised Runway Delivery on Approach based on Aircraft ROT Characterisation [STD-094]-EUROCONTROL Guidelines for reduced aircraft separation based on runway occupancy time		
Finalisation criteria:	1 - An optimised RWY delivery function taking ROT into account has been deployed		

AOP26-ASP02	**Implement procedures or separation delivery support function for the use of the optimised ROCAT / iROT spacing scheme**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	A set of working methods / guidelines to cover the proposed time based or distance based procedures for ROT prediction / ROCAT and associated tools (i.e. Separation Delivery Tool or ORD) shall be locally defined validated and approved. For iROT application, implement an optimised runway delivery function which takes into account the Runway Occupancy Time so as a new separation minima is computed on the prediction of the ROT, the minimum radar separation and the wake categorization separation and delivered to the ATC.		
Supporting material(s):	SJU - SESAR Solution PJ.02-08-03: Contextual Note for "Reduced separation based on local Runway Occupancy Time characterisation" Url : https://www.sesarju.eu/sites/default/files/documents/solution/PJ.02-08-03 Contextual Note_Final.pdf SJU - SESAR Solution 02-08 SPRINTEROP/ OSED for V3 – Part I Url : https://www.sesarju.eu/sites/default/files/documents/solution/SESAR_2020_PJ02-08_D6_1_20_V3_SPR_INTEROP OSED Part I - 00.02.00.pdf		
Finalisation criteria:	1 - Procedures developed, tested and approved.		
AOP26-ASP03	**Safety assessment**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	A safety assessment of the changes shall be developed and delivered to the competent authority in order to ensure that reduced separations are safe / acceptable for the environment where the functionality will be implemented. The safety assessment will need to be based on the ROT data collected for each specific runway. Given that the implementation allows a reduction of separation minima based on the distribution of observed ROTs, it can be expected that the regulatory approval will require that a process be set up to monitor ROT values after implementation		
Supporting material(s):	SJU - SESAR Solution PJ.02-08-03: Contextual Note for "Reduced separation based on local Runway Occupancy Time characterisation" Url : https://www.sesarju.eu/sites/default/files/documents/solution/PJ.02-08-03 Contextual Note_Final.pdf SJU - SESAR Solution 02-08 SPRINTEROP/ OSED for V3 – Part I Url : https://www.sesarju.eu/sites/default/files/documents/solution/SESAR_2020_PJ02-08_D6_1_20_V3_SPR_INTEROP OSED Part I - 00.02.00.pdf		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.		
AOP26-ASP04	**Training**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	All relevant staff shall be duly trained. Approach and Tower Controllers shall be fully trained to apply the procedures for the new separation modes e.g. ROT prediction/ ROCAT and to use of the Separation Delivery Tool and supporting systems (e.g. alerts) with indicators prior to deployment. Training shall cover procedures for normal, abnormal and degraded modes of operations.		
Supporting material(s):	SJU - SESAR Solution PJ.02-08-03: Contextual Note for "Reduced separation based on local Runway Occupancy Time characterisation" Url : https://www.sesarju.eu/sites/default/files/documents/solution/PJ.02-08-03 Contextual Note_Final.pdf SJU - SESAR Solution 02-08 SPRINTEROP/ OSED for V3 – Part I Url : https://www.sesarju.eu/sites/default/files/documents/solution/SESAR_2020_PJ02-08_D6_1_20_V3_SPR_INTEROP OSED Part I - 00.02.00.pdf		
Finalisation criteria:	1 - Training has been completed.		
AOP26-ASP05	**Operational use**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Once the procedures are in place, systems have been upgraded, safety assessment delivered and approved, training has been completed, an optimised RWY delivery function based on local Runway Occupancy Time (ROT) is ready for operational use.		
Supporting material(s):	SJU - SESAR Solution PJ.02-08-03: Contextual Note for "Reduced separation based on local Runway Occupancy Time characterisation" Url : https://www.sesarju.eu/sites/default/files/documents/solution/PJ.02-08-03 Contextual Note_Final.pdf SJU - SESAR Solution 02-08 SPRINTEROP/ OSED for V3 – Part I Url : https://www.sesarju.eu/sites/default/files/documents/solution/SESAR_2020_PJ02-08_D6_1_20_V3_SPR_INTEROP OSED Part I - 00.02.00.pdf		
Finalisation criteria:	1 - An optimised RWY delivery function based on local Runway Occupancy Time (ROT) is put into service.		

Subject matter and scope

This objective covers the implementation of Level 2 of the following ground-based safety nets: Area Proximity Warning (APW), Minimum Safe Altitude Warning (MSAW) and Approach Path Monitor (APM).

• Area Proximity Warning (APW) uses surveillance data and flight path prediction to warn the controller when an aircraft is, or is predicted to be, flying into a volume of notified airspace, such as controlled airspace, danger areas, prohibited areas and restricted areas. APW has been identified as an optional system requirement for the implementation of Free Route Airspace (FRA) in Regulation (EU) No 2021/116 (the CP1 Regulation).

• Minimum Safe Altitude Warning (MSAW) is intended to warn the air traffic controller (ATCO) about the increased risk of controlled flight into terrain by generating, in a timely manner, an alert of aircraft proximity to terrain or obstacles.

• An approach path monitor (APM) is intended to warn the ATCO about increased risk of controlled flight into terrain accidents by generating, in a timely manner, an alert of aircraft proximity to terrain or obstacles during final approach.

Before starting first operations, air traffic controllers must receive training, aimed at creating an appropriate level of trust in the concerned safety net. The time-criticality of alerts and the need for immediate attention or action must be well understood, but also the situations in which safety nets are less effective.

The number of nuisance and false alerts must be reduced to a minimum. Air traffic controllers should be encouraged to report unexpected and unwanted safety nets behaviour and feedback should always be provided.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area	All ECAC States except: Bosnia and Herzegovina, Netherlands. Plus: Israel, Morocco

Timescales:	**From:**	**By:**	**Applicable to:**
Initial operational capability	01/01/2009		Applicability Area
Full operational capability		31/12/2021	Applicability Area

References

European ATM Master Plan

OI step -	[CM-0801]-Ground Based Safety Nets (TMA, En-Route)								
	Enablers -	CTE-S01	CTE-S01a	ER APP ATC 133	PRO-059	PRO-219			

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

-none-

Essential Operational Changes

Trajectory Based Operations

SESAR Solution

- none -

ICAO GANP - ASBUs

SNET-B0/2	Minimum Safe Altitude Warning (MSAW)
SNET-B0/3	Area Proximity Warning (APW)

ATC02.8	Ground-Based Safety Nets

SNET-B0/4	Approach Path Monitoring (APM)

Deployment Programme

3.2.1	Initial FRA

European Plan for Aviation Safety

- none -	

Operating Environments

En-Route
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
ATC02.8-ASP01	Implement the APW function	01/01/2009	31/12/2021
ATC02.8-ASP02	Align ATCO training with the use of APW ground-based safety tools	01/01/2009	31/12/2021
ATC02.8-ASP03	Implement the MSAW function	01/01/2009	31/12/2021
ATC02.8-ASP04	Align ATCO training with the use of MSAW ground-based safety tools	01/01/2009	31/12/2021
ATC02.8-ASP05	Implement the APM function	01/01/2009	31/12/2021
ATC02.8-ASP06	Align ATCO training with the use of APM ground-based safety tools	01/01/2009	31/12/2021

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Major safety improvement through the systematic presentation of: - imminent and actual unauthorized penetrations into airspace volumes to controllers ahead of their occurrence, as provided by APW; - possible infringements of minimum safe altitude to controllers ahead of their occurrence, as provided by MSAW; - deviations from the glide path to controllers, as provided by APM.
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

ATC02.8-ASP01	**Implement the APW function**	From: 01/01/2009	By: 31/12/2021
Action by:	**ANS Providers**		
Description & purpose:	Put into service ground-based safety tool systems and associated procedures supporting the APW function. The implementation of APW is recommended for both en-route and terminal airspace. Note that APW has been identified as a pre-requisite for the implementation of Free Route Airspace (FRA) in Regulation (EU) No 716/2014 (the PCP Regulation).		
Supporting material(s):	EUROCONTROL - Safety Nets - A guide for ensuring effectiveness - August 2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/safety-nets-guide-august-2017.pdf EUROCONTROL - GUID-125 - EUROCONTROL Guidance Material for Area Proximity Warning - Edition 1.0 / 05/2009 Url : https://www.eurocontrol.int/sites/default/files/publication/files/20090519-apw-guid-v1.0.pdf		
ATM Master Plan relationship:	[CTE-S01a]-SSR Mode A/C/S [ER APP ATC 133]-Upgrade Ground Safety Nets to provide Area Penetration Warning (APW), Minimum Safe Altitude Warning (MSAW) and Approach Path Monitoring to Controller Workstations. [PRO-059]-ATC Procedures to provide a systematic and common response to ground based Safety Net alerts		
Finalisation criteria:	1 - Ground systems have been upgraded to support the APW function. 2 - APW function in operational use.		
ATC02.8-ASP02	**Align ATCO training with the use of APW ground-based safety tools**	From: 01/01/2009	By: 31/12/2021
Action by:	**ANS Providers**		

ATC02.8	Ground-Based Safety Nets

Description & purpose:	Train operational staff in the use of APW. The tasks to be done are as follows: - Develop a training package (material); - Update the training plans; - Determine staff population to be trained; - Apply the training plans.		
Supporting material(s):	EUROCONTROL - Safety Nets - A guide for ensuring effectiveness - August 2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/safety-nets-guide-august-2017.pdf EUROCONTROL - GUID-125 - EUROCONTROL Guidance Material for Area Proximity Warning - Edition 1.0 / 05/2009 Url : https://www.eurocontrol.int/sites/default/files/publication/files/20090519-apw-guid-v1.0.pdf		
ATM Master Plan relationship:	[PRO-059]-ATC Procedures to provide a systematic and common response to ground based Safety Net alerts		
Finalisation criteria:	1 - The training plans have been updated and a training package has been developed for the use of APW functions. 2 - The concerned personnel have been trained.		
ATC02.8-ASP03	**Implement the MSAW function**	From: 01/01/2009	By: 31/12/2021
Action by:	**ANS Providers**		
Description & purpose:	Put into service ground-based safety tool systems and associated procedures supporting the MSAW function.		
Supporting material(s):	EUROCONTROL - Safety Nets - A guide for ensuring effectiveness - August 2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/safety-nets-guide-august-2017.pdf EUROCONTROL - GUID-160 - EUROCONTROL Guidelines for Minimum Safe Altitude Warning - Part I to III - Edition 1.0 / 01/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-minimum-safe-altitude-warning		
ATM Master Plan relationship:	[CTE-S01a]-SSR Mode A/C/S [ER APP ATC 133]-Upgrade Ground Safety Nets to provide Area Penetration Warning (APW), Minimum Safe Altitude Warning (MSAW) and Approach Path Monitoring to Controller Workstations. [PRO-059]-ATC Procedures to provide a systematic and common response to ground based Safety Net alerts [PRO-219]-ATC Procedures to give priority to SNET alarm		
Finalisation criteria:	1 - Ground systems have been upgraded to support the MSAW function. 2 - MSAW function in operational use.		
ATC02.8-ASP04	**Align ATCO training with the use of MSAW ground-based safety tools**	From: 01/01/2009	By: 31/12/2021
Action by:	**ANS Providers**		
Description & purpose:	Train operational staff in the use of APW. The tasks to be done are as follows: - Develop a training package (material); - Update the training plans; - Determine staff population to be trained; - Apply the training plans.		
Supporting material(s):	EUROCONTROL - Safety Nets - A guide for ensuring effectiveness - August 2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/safety-nets-guide-august-2017.pdf EUROCONTROL - GUID-160 - EUROCONTROL Guidelines for Minimum Safe Altitude Warning - Part I to III - Edition 1.0 / 01/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-minimum-safe-altitude-warning		
ATM Master Plan relationship:	[PRO-059]-ATC Procedures to provide a systematic and common response to ground based Safety Net alerts [PRO-219]-ATC Procedures to give priority to SNET alarm		
Finalisation criteria:	1 - The training plans have been updated and a training package has been developed for the use of MSAW functions. 2 - The concerned personnel have been trained.		
ATC02.8-ASP05	**Implement the APM function**	From: 01/01/2009	By: 31/12/2021
Action by:	**ANS Providers**		
Description & purpose:	Put into service ground-based safety tool systems and associated procedures supporting the APM function.		
Supporting material(s):	EUROCONTROL - Safety Nets - A guide for ensuring effectiveness - August 2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/safety-nets-guide-august-2017.pdf EUROCONTROL - GUID-162 - EUROCONTROL Guidelines for Approach Path Monitor - Part I to III - Edition 1.0 / 01/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-approach-path-monitor		
ATM Master Plan relationship:	[CTE-S01a]-SSR Mode A/C/S [ER APP ATC 133]-Upgrade Ground Safety Nets to provide Area Penetration Warning (APW), Minimum Safe Altitude Warning (MSAW) and Approach Path Monitoring to Controller Workstations. [PRO-059]-ATC Procedures to provide a systematic and common response to ground based Safety Net alerts		
Finalisation criteria:	1 - Ground systems have been upgraded to support the APM function. 2 - APM function in operational use.		
ATC02.8-ASP06	**Align ATCO training with the use of APM ground-based safety tools**	From: 01/01/2009	By: 31/12/2021
Action by:	**ANS Providers**		

ATC02.8	Ground-Based Safety Nets

Description & purpose:	Train operational staff in the use of APM. The tasks to be done are as follows: - Develop a training package (material); - Update the training plans; - Determine staff population to be trained; - Apply the training plans.
Supporting material(s):	EUROCONTROL - Safety Nets - A guide for ensuring effectiveness - August 2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/safety-nets-guide-august-2017.pdf EUROCONTROL - GUID-162 - EUROCONTROL Guidelines for Approach Path Monitor - Part I to III - Edition 1.0 / 01/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-approach-path-monitor
ATM Master Plan relationship:	[PRO-059]-ATC Procedures to provide a systematic and common response to ground based Safety Net alerts
Finalisation criteria:	1 - The training plans have been updated and a training package has been developed for the use of APM functions. 2 - The concerned personnel have been trained.

Subject matter and scope

Implement basic arrival manager (AMAN) tools to improve sequencing and metering of arrival aircraft in selected TMAs and airports.

The AMAN tools interact with several systems, including the host flight data processing system (FDPS) and surveillance data processing system (SDPS) resulting in a 'planned' time for any individual flight.

Since the AMAN has certain conditions it needs to satisfy (such as the required landing rate, or spacing, on the runway), when 2 or more aircraft are predicted at or around the same time on the runway it plans a sequence, generating new 'required' times that need to be applied to the flight(s), in order to create/maintain the sequence.

AMAN also outputs the required time for the ATCO in the form of 'Time To Lose (TTL)/Time To Gain (TTG)' information. The controller is then responsible for finding and applying an appropriate method (vectoring, path stretching, speed changes or holding) for the aircraft to meet its time or position in the sequence.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area (TMAs serving the listed airports)	See list of airports in MP Level 3 Implementation Plan - Annexes

Timescales:	**From:**	**By:**	**Applicable to:**
Initial operational capability	01/01/2007		Applicability Area
Full operational capability		31/12/2019	Applicability Area

References

European ATM Master Plan

OI step -	[TS-0102]-Basic Arrival Management Supporting TMA Improvements (incl. CDA, P-RNAV)								
	Enablers -	ER APP ATC 128	PRO-049	PRO-050					

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

-none-

Essential Operational Changes

Airport and TMA performance

SESAR Solution

- none -

ICAO GANP - ASBUs

RSEQ-B0/1	Arrival Management

Deployment Programme

- none -	

European Plan for Aviation Safety

- none -	

Operating Environments

Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
ATC07.1-ASP01	Implement initial basic arrival management tools	01/01/2007	01/01/2020
ATC07.1-ASP02	Implement initial basic AMAN procedures	01/01/2007	01/01/2020
ATC07.1-ASP03	Adapt TMA organisation to accommodate use of basic AMAN	01/01/2007	01/01/2020
ATC07.1-ASP04	Adapt ground ATC systems to support basic AMAN functions	01/01/2007	01/01/2020

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Maintained or improved.
Capacity:	Improved airport/TMA capacity and reduced delays.
Operational Efficiency:	Optimised arrival sequencing produces a positive effect on fuel burn.
Cost Efficiency:	-
Environment:	Reduced holding and low level vectoring has a positive environmental effect in terms of noise and CO2 emissions.
Security:	-

Detailed SLoA Descriptions

ATC07.1-ASP01	**Implement initial basic arrival management tools**	From: 01/01/2007	By: 01/01/2020
Action by:	**ANS Providers**		
Description & purpose:	Implement initial basic arrival management tools		
Supporting material(s):	EUROCONTROL - Arrival Manager - Implementation Guidelines and Lessons Learned Edition 0.1 12/2010 EUROCONTROL - Operational Requirements for EATCHIP Phase III ATM Added functions - Volume 3: Arrival Manager, Functional Specifications for Arrival Manager - Edition 2.0 / 01/1999		
Finalisation criteria:	1 - Function has been implemented, documented and is in operational use.		
ATC07.1-ASP02	**Implement initial basic AMAN procedures**	From: 01/01/2007	By: 01/01/2020
Action by:	**ANS Providers**		
Description & purpose:	Define, validate and implement ATC procedures for operational use of basic AMAN tools.		
Supporting material(s):	EUROCONTROL - Arrival Manager - Implementation Guidelines and Lessons Learned Edition 0.1 12/2010 EUROCONTROL - Operational Requirements for EATCHIP Phase III ATM Added functions - Volume 3: Arrival Manager, Functional Specifications for Arrival Manager - Edition 2.0 / 01/1999		
ATM Master Plan relationship:	[PRO-049]-ATC Procedures to make use of AMAN tool including assigning responsibility for issuing times [PRO-050]-ATC Procedures to increase the use of CDA during busier time periods using AMAN information		
Finalisation criteria:	1 - Procedures have been implemented, documented and are in operational use.		
ATC07.1-ASP03	**Adapt TMA organisation to accommodate use of basic AMAN**	From: 01/01/2007	By: 01/01/2020
Action by:	**ANS Providers**		
Description & purpose:	Adapt TMA organisation, where necessary, to accommodate the use of basic AMAN.		
Supporting material(s):	EUROCONTROL - Arrival Manager - Implementation Guidelines and Lessons Learned Edition 0.1 12/2010 EUROCONTROL - Operational Requirements for EATCHIP Phase III ATM Added functions - Volume 3: Arrival Manager, Functional Specifications for Arrival Manager - Edition 2.0 / 01/1999		
Finalisation criteria:	1 - TMA organisation is already compliant to basic AMAN use, or has been adapted accordingly.		
ATC07.1-ASP04	**Adapt ground ATC systems to support basic AMAN functions**	From: 01/01/2007	By: 01/01/2020
Action by:	**ANS Providers**		
Description & purpose:	Prepare and adapt ground ATC systems to support and implement basic AMAN functions.		
Supporting material(s):	EUROCONTROL - Arrival Manager - Implementation Guidelines and Lessons Learned Edition 0.1 12/2010 EUROCONTROL - Operational Requirements for EATCHIP Phase III ATM Added functions - Volume 3: Arrival Manager, Functional Specifications for Arrival Manager - Edition 2.0 / 01/1999		
ATM Master Plan relationship:	[ER APP ATC 128]-Introduce Basic AMAN		
Finalisation criteria:	1 - ATC systems are already compliant to basic AMAN use, or have been adapted accordingly.		

SESAR	Active								ECAC+	
ATC12.1	Automated Support for Conflict Detection, Resolution Support Information and Conformance Monitoring									
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

The implementation of free route airspace (FRA) needs to be supported by conflict detection tools (CDT), resolution support information and conformance monitoring.

The conflict detection tools (CDT) include the trajectory based medium conflict detection tool (MTCD) or/and tactical controller tool (TCT).
The decision on whether to implement either one or both tools (MTCD and TCT) is left to the individual ANSP organisation as it depends on local conditions and systems in use.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area	All ECAC States except: Luxembourg. Plus: Israel, Morocco

Timescales:	From:	By:	Applicable to:
Initial operational capability	01/01/2015		Applicability Area
Full operational capability		31/12/2021	Applicability Area

References

European ATM Master Plan

OI step -	[CM-0202]-Automated Assistance to ATC Planning for Preventing Conflicts in En-Route Airspace								
	Enablers -	ER APP ATC 129	PRO-046b						
OI step -	[CM-0203]-Automated Flight Conformance Monitoring								
	Enablers -	CTE-S01a	CTE-S03	CTE-S03a ATC21	CTE-S04	CTE-S04a ATC21	CTE-S04b AOP04.1, AOP04.2	ER APP ATC 130	PRO-046b
OI step -	[CM-0205]-Advanced support for Conflict Detection and Resolution by Tactical Controller in En Route								
	Enablers -	ER ATC 157	PRO-046b						
OI step -	[CM-0207-A]-Advanced Automated Ground Based Flight Conformance Monitoring in En-Route								
	Enablers -	CTE-S01a	CTE-S03b AOP04.1, AOP04.2, ATC21	ER ATC 91					

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

-none-

Essential Operational Changes

Fully Dynamic and Optimised Airspace

SESAR Solution

#104 - Sector Team Operations - En-route Air Traffic Organiser, #27 - MTCD and conformance monitoring tools

ICAO GANP - ASBUs

FRTO-B0/4	Basic conflict detection and conformance monitoring
FRTO-B1/5	Enhanced Conflict Detection Tools and Conformance Monitoring

Deployment Programme

ATC12.1	Automated Support for Conflict Detection, Resolution Support Information and Conformance Monitoring

3.2.1	Initial FRA

European Plan for Aviation Safety

- none -	

Operating Environments

En-Route

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
ATC12.1-ASP01	Implement MTCD and associated procedures	01/01/2015	31/12/2021
ATC12.1-ASP02	Implement resolution support function and associated procedures	01/01/2015	31/12/2021
ATC12.1-ASP03	Implement TCT and associated procedures	01/01/2015	31/12/2021
ATC12.1-ASP04	Implement MONA functions	01/01/2015	31/12/2021
ATC12.1-ASP05	Perform ATCO training for the use of CDT (MTCD and or TCT), resolution support and MONA related functions	01/01/2015	31/12/2021
ATC12.1-ASP06	Develop safety assessment for the changes	01/01/2015	31/12/2021

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Early and systematic conflict detection and conformance monitoring enabled by ground based automated tools will reduce the need for tactical interventions, conformance monitoring reduces the risk of the impact of controllers and pilots errors. Possibility to maintain high level of safety with an increase in capacity due to a reduction of controller workload per aircraft.
Capacity:	Reduction of tactical controller workload, and better sector team productivity, compared to the conventional systems without automated support will open potential for capacity up to 15% in comparison to a baseline case without a detection tool (MTCD and/or TCT).
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

ATC12.1-ASP01	**Implement MTCD and associated procedures**	From: 01/01/2015	By: 31/12/2021
Action by:	**ANS Providers**		
Description & purpose:	Deploy the MTCD related to : * Detection conflicts and risks - between aircraft; - between aircraft and reserved airspace or area (such as Holding stack area), upon activation or de-activation - Including posting detection to the sector responsible for acting on it, as appropriate and in accordance with the ANSP's Concept of Operation and identified needs. Adapt the operational procedures and working methods to support the MTCD deployment.		
Supporting material(s):	EUROCONTROL - SPEC 143 - EUROCONTROL Specification for Trajectory Prediction - Edition 2.0 / 03/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-trajectory-prediction EUROCONTROL - FASTI - Operational Performance Requirements Analysis for the Conflict Detection Tool - Final Draft - 2 / 12/2012 EUROCONTROL - SPEC-139 - EUROCONTROL Specification for Medium-Term Conflict Detection - Edition 2.0 / 03/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-medium-term-conflict-detection-mtcd		
ATM Master Plan relationship:	[ER APP ATC 129]-Upgrade FDP and provide Controller Tools to provide assistance to ATC Planning for Preventing Conflicts in En-Route Airspace [ER ATC 157]-Enhanced ATC System Support to the Tactical Controller for Conflict Detection and Resolution in En-Route [PRO-046b]-ATC Procedures for Using Advanced System Assistance to Medium Term Conflict Detection and Resolution		
Finalisation criteria:	1 - MTCD has been implemented, documented and is in operational use.		
		From:	By:

ATC12.1	Automated Support for Conflict Detection, Resolution Support Information and Conformance Monitoring

ATC12.1-ASP02	**Implement resolution support function and associated procedures**	01/01/2015	31/12/2021
Action by:	**ANS Providers**		
Description & purpose:	Deploy the resolution support function which includes conflict probe and passive conflict resolution assistant (e.g. presentation of context traffic) in support of MTCD, as appropriate and in accordance with the ANSP's concept of operation and identified needs. Adapt the operational procedures and working methods for the resolution support function deployment.		
Supporting material(s):	EUROCONTROL - SPEC-139 - EUROCONTROL Specification for Medium-Term Conflict Detection - Edition 2.0 / 03/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-medium-term-conflict-detection-mtcd		
ATM Master Plan relationship:	[ER ATC 157]-Enhanced ATC System Support to the Tactical Controller for Conflict Detection and Resolution in En-Route [PRO-046b]-ATC Procedures for Using Advanced System Assistance to Medium Term Conflict Detection and Resolution		
Finalisation criteria:	1 - Resolution support function in support of MTCD has been implemented, documented and is in operational use.		
ATC12.1-ASP03	**Implement TCT and associated procedures**	From: 01/01/2015	By: 31/12/2021
Action by:	**ANS Providers**		
Description & purpose:	Deploy the Tactical Controller Tool (TCT) to: - Detection conflicts between state vector trajectories(extended STCA); - Detection conflicts between state vector trajectories and tactical trajectories; - Detection conflicts between tactical trajectories; as appropriate and in accordance with the ANSP's Concept of Operation and identified needs. Adapt the operational procedures and working methods to support the TCT deployment.		
Supporting material(s):	EUROCONTROL - TCT RTS Final report - 0.3 / 04/2009		
ATM Master Plan relationship:	[CTE-S01a]-SSR Mode A/C/S		
Finalisation criteria:	1 - TCT functions have been implemented documented and is in operational use.		
ATC12.1-ASP04	**Implement MONA functions**	From: 01/01/2015	By: 31/12/2021
Action by:	**ANS Providers**		
Description & purpose:	Deploy MONA functions : - Lateral deviation - Longitudinal deviation - Vertical deviation - CFL deviation - Aircraft Derived Data (ADD) deviations as appropriate and in accordance with the ANSP's Concept of Operation and identified needs. Adapt the operational procedures and working methods to support the MONA deployment		
Supporting material(s):	EUROCONTROL - SPEC 143 - EUROCONTROL Specification for Trajectory Prediction - Edition 2.0 / 03/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-trajectory-prediction EUROCONTROL - SPEC-142 - EUROCONTROL Specification for Monitoring Aids - Edition 2.0 / 03/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-monitoring-aids-mona		
ATM Master Plan relationship:	[CTE-S01a]-SSR Mode A/C/S [ER APP ATC 130]-Upgrade FDP and provide Controller Tools to provide Controller with warnings if aircraft deviate from a clearance or plan [ER ATC 91]-ATC System Support for Advanced Conformance Monitoring in En-route Airspace [ER ATC 94]-ATC tools in support of RNP (e.g. RNP1, A-RNP) for En-Route [PRO-046b]-ATC Procedures for Using Advanced System Assistance to Medium Term Conflict Detection and Resolution		
Finalisation criteria:	1 - Conformance Monitoring function has been implemented, documented and is in operational use.		
ATC12.1-ASP05	**Perform ATCO training for the use of CDT (MTCD and or TCT), resolution support and MONA related functions**	From: 01/01/2015	By: 31/12/2021
Action by:	**ANS Providers**		
Description & purpose:	Perform ATCO training in line with EUROCONTROL Specifications and guidelines.		
Supporting material(s):	EUROCONTROL - FASTI - Completing the FASTI Safety Case: Guidance for Service Providers - 1.0 / 01/2009 EUROCONTROL - Good Practice Guidelines for First ATC Support Tools Implementation (FASTI) with a Focus on Human Factors and Managing the Transition - Edition 1.0 / 06/2007 EUROCONTROL - SPEC-139 - EUROCONTROL Specification for Medium-Term Conflict Detection - Edition 2.0 / 03/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-medium-term-conflict-detection-mtcd EUROCONTROL - FASTI - FASTI Specific Human Factors Guidelines for MTCD, MONA and SYSCO 06/2007		
Finalisation criteria:	1 - ATCOs have been trained for the use of CDT (MTCD and/or TCT), resolution support information and MONA.		
ATC12.1-ASP06	**Develop safety assessment for the changes**	From: 01/01/2015	By: 31/12/2021

ATC12.1	Automated Support for Conflict Detection, Resolution Support Information and Conformance Monitoring

Action by:	**ANS Providers**
Description & purpose:	Develop safety assessment of the changes, notably ATC systems and procedures that will implement Conflict Detection Tools, resolution support function and conformance monitoring. The tasks to be done are as follows: - Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks; - Develop safety assessment; - Deliver a safety assessment report to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. This safety assessment shall be based on a fully validated/recognised method.
Supporting material(s):	EUROCONTROL - FASTI - Completing the FASTI Safety Case: Guidance for Service Providers - 1.0 / 01/2009 EUROCONTROL - EAM 4 - ESARR 4 - Risk Assessment and Mitigation in ATM - Edition 1.0 / 04/2001 Url : https://www.eurocontrol.int/publication/esarr-4-risk-assessment-and-mitigation-atm EUROCONTROL - Air Navigation Systems Safety Assessment Methodology (SAM) - Version 2.1 / 11/2006 Url : https://www.eurocontrol.int/tool/safety-assessment-methodology
Finalisation criteria:	1 - The safety assessment report including safety arguments for the changes has been delivered to the NSA and a notification of acceptance was received.

SESAR	Active	Multi-N
ATC15.1	Information Exchange with En-route in Support of AMAN	

REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

Implement, in en-route operations in selected ACCs, information exchange mechanisms, tools and procedures in support of basic AMAN operations in adjacent ACCs and/or subjacent TMAs (including, where relevant, support for AMAN operations involving airports located in adjacent ATSUs).

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area	All EU SES States except: Bulgaria, Cyprus, Greece, Latvia, Lithuania, Luxembourg, Malta, Slovenia. Plus: Bosnia and Herzegovina, Montenegro, Morocco, Serbia, Turkey, United Kingdom

Timescales:	From:	By:	Applicable to:
Initial operational capability	01/01/2012		Applicability Area
Full operational capability		31/12/2019	Applicability Area

References

European ATM Master Plan

OI step -	[TS-0305]-Arrival Management Extended to En-Route Airspace								
	Enablers -	ER APP ATC 111	HUM-TS-0305	PRO-052					

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

-none-

Essential Operational Changes

Fully Dynamic and Optimised Airspace

SESAR Solution

- none -

ICAO GANP - ASBUs

- none -	

Deployment Programme

- none -	

European Plan for Aviation Safety

- none -	

Operating Environments

En-Route

Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
ATC15.1-ASP01	Develop safety assessment for the changes	01/01/2012	31/12/2019

ATC15.1	Information Exchange with En-route in Support of AMAN

ATC15.1-ASP02	Adapt the ATC systems that will implement arrival management functionality in En-Route sectors in support of AMAN operations in adjacent/subjacent TMAs	01/01/2012	31/12/2019
ATC15.1-ASP03	Implement ATC procedures in En-Route airspace/sectors that will implement AMAN information and functionality	01/01/2012	31/12/2019
ATC15.1-ASP04	Train operational and technical staff and update Training Plans	01/01/2012	31/12/2019
ATC15.1-ASP05	Revise and publish Aeronautical Information documents	**DELETED**	

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Maintained or improved
Capacity:	Improved airport/TMA capacity.
Operational Efficiency:	Reduction of low-level holding operations and low-level tactical vectoring.
Cost Efficiency:	-
Environment:	Reduction in holding and in low-level vectoring, by applying delay management at an early stage of flight, has a positive environmental effect in terms of noise and CO2 emissions. Moreover, it reduces delay and has a positive effect on fuel burn.
Security:	N/A

Detailed SLoA Descriptions

ATC15.1-ASP01	**Develop safety assessment for the changes**	From: 01/01/2012	By: 31/12/2019
Action by:	**ANS Providers**		
Description & purpose:	Develop safety assessment of the changes, notably ATC systems and procedures that will implement arrival management functionality in En-Route sectors and associated procedures. The tasks to be done are as follows: - Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks; - Develop safety assessment; - Deliver a safety assessment report to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. This safety assessment shall be based on fully validated/recognised method.		
Supporting material(s):	EUROCONTROL - EAM 4 - ESARR 4 - Risk Assessment and Mitigation in ATM - Edition 1.0 / 04/2001 Url : https://www.eurocontrol.int/publication/esarr-4-risk-assessment-and-mitigation-atm EUROCONTROL - Air Navigation Systems Safety Assessment Methodology (SAM) - Version 2.1 / 11/2006 Url : https://www.eurocontrol.int/tool/safety-assessment-methodology		
Finalisation criteria:	1 - The safety assessment report including safety arguments for the changes has been delivered to the NSA and a notification of acceptance was received.		
ATC15.1-ASP02	**Adapt the ATC systems that will implement arrival management functionality in En-Route sectors in support of AMAN operations in adjacent/subjacent TMAs**	From: 01/01/2012	By: 31/12/2019
Action by:	**ANS Providers**		
Description & purpose:	Implement, in selected ATC systems, the necessary functionality and information exchanges to support the use of AMAN information in En-Route sectors requiring data exchange generated from AMAN systems and operations in adjacent/subjacent TMAs.		
Supporting material(s):	EUROCONTROL - SPEC-106 - EUROCONTROL Specification for On-Line Data Interchange (OLDI) - Edition 5.0 / 07/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-line-data-interchange-oldi EUROCONTROL - GUID-176 - EUROCONTROL Guidelines for On-Line Data Interchange (OLDI) - Edition 1.1 / 07/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-line-data-interchange-oldi		
ATM Master Plan relationship:	[ER APP ATC 111]-Enhance AMAN to provide arrival sequence time information into En-Route decision making.		
Finalisation criteria:	1 - ATC systems are either already compliant to AMAN use in En-Route or have functionality implemented to support the necessary exchange of information needed to support AMAN operations in En-Route airspace that is interfacing with AMANs in adjacent/subjacent areas. 2 - ANSPs have described the level of system support and functionality with direct reference to the relevant complexity level as defined in the AMAN Information Extension to En-Route Sectors - Concept documentation.		
ATC15.1-ASP03	**Implement ATC procedures in En-Route airspace/sectors that will implement AMAN information and functionality**	From: 01/01/2012	By: 31/12/2019
Action by:	**ANS Providers**		

ATC15.1	Information Exchange with En-route in Support of AMAN

Description & purpose:	Define, validate and implement the necessary ATC procedures in selected En-Route airspace/sectors, to support the use of AMAN information in En-Route sectors that are interfacing with AMAN systems operating in adjacent/subjacent TMAs.		
Supporting material(s):	EUROCONTROL - SPEC-106 - EUROCONTROL Specification for On-Line Data Interchange (OLDI) - Edition 5.0 / 07/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-line-data-interchange-oldi EUROCONTROL - GUID-176 - EUROCONTROL Guidelines for On-Line Data Interchange (OLDI) - Edition 1.1 / 07/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-line-data-interchange-oldi		
ATM Master Plan relationship:	[PRO-052]-ATC Procedures for extending sequencing for TMA into the en-route sectors		
Finalisation criteria:	1 - Procedures have been implemented, documented and are in operational use. 2 - ANSPs have defined, validated and implemented procedures directly related to the relevant complexity level chosen (ref. SLoA ATC15-ASP02), as defined in the AMAN Information Extension to En-Route Sectors Concept documentation.		
ATC15.1-ASP04	**Train operational and technical staff and update Training Plans**	From: 01/01/2012	By: 31/12/2019
Action by:	**ANS Providers**		
Description & purpose:	Train operational staff in the use of ATC procedures in En-Route airspace/sectors that will implement AMAN information and functionality in support of AMAN in adjacent/subjacent TMAs. The tasks to be done are as follows: - Develop a training package (material); - Update the training plans; - Determine staff population to be trained; - Apply the training plans.		
Finalisation criteria:	1 - The training plans have been updated and a training package has been developed by the ANSP. 2 - All concerned personnel have been trained.		

CP1	Active								APT	
ATC15.2	**Arrival Management Extended to En-route Airspace**									
REG	**ASP**	**MIL**	**APO**	**USE**	**INT**	**IND**	**NM**	**MET**	**AIS**	**USP**

Subject matter and scope

This Implementation Objective addresses the implementation of extended arrival management by the en-route ATS units feeding the traffic to the busiest airports in Europe.

The Arrival Manager extended to en-route airspace requires an extension of AMAN advisories up to a minimum of 180 nautical miles from the arrival airport. Shorter horizon distance will be considered when, due to the geographical location of the arrival airport, the extension of the AMAN horizon does not provide additional performance benefits. Traffic sequencing/metering should be conducted in the en-route before top-of-descent, to improve predictability and smooth the flow of traffic. Extending the AMAN horizon may affect the airspace design, and it is therefore essential that all stakeholders, including military authorities are consulted.

ATS units implementing extended AMAN operations shall coordinate with Air Traffic Services (ATS) units responsible for adjacent and up-stream en-route sectors as well as ATS units responsible for inbound traffic originating from airports impacted by the Extended AMAN horizon. Input data to Extended AMAN need to be provided by the most accurate trajectory prediction information available (including EFD or flight data available via the NM B2B publish/subscribe mechanism).
ATSU should exchange the relevant Extended AMAN data with the Network Manager for the improved ATFCM and arrival sequencing, overall network impact assessment and relevant network optimisations using Arrival Planning Information (API).

System requirements:

An ATSU operating an Extended AMAN shall be able to communicate with the relevant sectors (not restricted to adjacent ones) by SWIM service when it is available. Until SWIM is available, ATSUs may send and receive the OLDI AMA message to and from adjacent sectors and forward OLDI AMA messages further upstream to communicate with the relevant sectors (not restricted to adjacent ones).

In order to facilitate a timely implementation of the arrival sequence, a sector receiving arrival messages shall display arrival management information for the controller.

ATM systems shall be upgraded to provide coverage to a minimum of 180 nautical miles (or shorter distance as indicated in the relevant SDP Family description) from the arrival airport and the impacted en-route sectors in order to be able to generate, communicate, receive, acknowledge and display arrival management information (i.e. SWIM services or AMA message). Bilateral agreements will be established between all concerned sectors that could be under the responsibility of different ATS units as well as located in different countries.

NOTE: List of ACCs potentially impacted (to be used for LSSIP monitoring purposes): Amsterdam ACC; Brussels ACC; Maastricht UAC; Karlsruhe UAC; Bremen ACC; Munich ACC; Langen ACC; London ACC; Prestwick ACC; Reims ACC; Bordeaux ACC; Marseille ACC; Brest ACC; Paris ACC; Barcelona ACC; Palma ACC; Madrid ACC; Seville ACC; Malmo ACC; Stockholm ACC; Oslo ACC; Stavanger ACC; Bodo ACC; Dublin ACC; Shannon ACC; Milan ACC; Rome ACC; Padua ACC; Zurich ACC; Geneva ACC; Warsaw ACC; Copenhagen ACC; Vienna ACC; Zagreb ACC; Ljubljana ACC; Stockholm ACC; Helsinki ACC; Tallinn ACC; Riga ACC; Prague ACC; Bratislava ACC; Budapest ACC;)

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1	See list of airports in MP Level 3 Implementation Plan - Annexes
Applicability Area 2	See list of airports in MP Level 3 Implementation Plan - Annexes

Timescales:	**From:**	**By:**	**Applicable to:**
Initial Operational Capability	01/01/2021		Applicability Area 1 + Applicability Area 2
Full Operational Capability / Target Date		31/12/2024	Applicability Area 1 + Applicability Area 2

References

European ATM Master Plan

OI step -	[TS-0305-A]-Arrival Management Extended to En-Route Airspace - single TMA								
	Enablers -	APP ATC 111	ER ATC 163	PRO-245	REG-0516	SWIM-INFR-01a	SWIM-SUPT-01a	SWIM-SUPT-03a	

Legend:	WXYZ-001		WXYZ-002	Covered by SLoA(s) in another objective		

ATC15.2	Arrival Management Extended to En-route Airspace

		Covered by SLoA(s) in this objective	zzz	Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) 2021/116 on the establishment of the Common Project One

Essential Operational Changes

Fully Dynamic and Optimised Airspace

SESAR Solution

#05 - Extended Arrival Management (AMAN) horizon

ICAO GANP - ASBUs

NOPS-B1/8	Extended Arrival Management supported by the ATM Network function
RSEQ-B1/1	Extended arrival metering

Deployment Programme

1.1.1	Arrival Management extended to en-route airspace

European Plan for Aviation Safety

- none -	

Operating Environments

En-Route
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
ATC15.2-ASP01	Upgrade ATC systems to support extended AMAN	01/01/2021	31/12/2024
ATC15.2-ASP02	Implement ATC procedures to support extended AMAN	01/01/2021	31/12/2024
ATC15.2-ASP03	Establish Bilateral agreements	01/01/2021	31/12/2024
ATC15.2-ASP04	Safety assessment	01/01/2021	31/12/2024
ATC15.2-ASP05	Training	01/01/2021	31/12/2024
ATC15.2-ASP06	Operational use	01/01/2021	31/12/2024
ATC15.2-NM01	Upgrade NM systems to support extended AMAN	01/01/2021	31/12/2024
ATC15.2-NM02	Establish Bilateral agreements	01/01/2021	31/12/2024
ATC15.2-NM03	Implement ATFCM procedures for management of extended AMAN info	01/01/2021	31/12/2024

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Maintained or improved
Capacity:	Optimal use of TMA capacity
Operational Efficiency:	Improved arrival flow.
Cost Efficiency:	-
Environment:	Delays are resolved by reducing speed in early phases of arrivals leading to reduction of holding and vectoring, which has a positive environmental impact in terms of fuel savings.
Security:	-

Detailed SLoA Descriptions

		From:	By:
ATC15.2-ASP01	**Upgrade ATC systems to support extended AMAN**	**Applicability Area 1:** 01/01/2021	**Applicability Area 1:** 31/12/2024
Action by:	**ANS Providers**		

ATC15.2	Arrival Management Extended to En-route Airspace

Description & purpose:	Upgrade ATC systems to support extended AMAN in En-route sectors (including data exchange, data processing and information display at the ATCO working positions in support the handling of AMAN constrains). ATM systems need to be upgraded in order to be able to generate, communicate, receive and display AMA OLDI messages or the extended AMAN data exchanges via SWIM service (SWIM service is mandated by 2025, before that date E-AMAN can be implemented without SWIM).		
	Note :This SLoA needs to be synchronised between ANSPs.		
Supporting material(s):	SJU - SESAR Solution 05: Data Pack for Extended Arrival Management (AMAN) horizon Url : https://www.sesarju.eu/sesar-solutions/extended-arrival-management-aman-horizon		
ATM Master Plan relationship:	[APP ATC 111]-Enhance AMAN to extend arrival management to en-route airspace - single TMA [ER ATC 163]-Support to En-route delay absorption for cross-border implementation of arrival sequence		
Finalisation criteria:	1 - ATC systems have been upgraded and capable to exchange SWIM and/or OLDI AMA messages and display necessary information.		
ATC15.2-ASP02	**Implement ATC procedures to support extended AMAN**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2024
Action by:	**ANS Providers**		
Description & purpose:	Develop and implement the required ATC procedures to support the extended AMAN functionality.		
	Note :This SLoA needs to be synchronised between ANSPs and AOs (for possible environmental impact).		
Supporting material(s):	SJU - SESAR Solution 05: Data Pack for Extended Arrival Management (AMAN) horizon Url : https://www.sesarju.eu/sesar-solutions/extended-arrival-management-aman-horizon		
ATM Master Plan relationship:	[PRO-245]-ATC Procedures for use of cross border extended Arrival Management		
Finalisation criteria:	1 - ATC Procedures have been developed, validated, and published.		
ATC15.2-ASP03	**Establish Bilateral agreements**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2024
Action by:	**ANS Providers**		
Description & purpose:	Establish Bilateral agreements between the ATS units involved for extended AMAN operational procedures and data exchanges, as well as between the concerned ATS unit and NM.		
	Note :This SLoA needs to be synchronised between ANSPs and NM.		
Supporting material(s):	SJU - SESAR Solution 05: Data Pack for Extended Arrival Management (AMAN) horizon Url : https://www.sesarju.eu/sesar-solutions/extended-arrival-management-aman-horizon		
ATM Master Plan relationship:	[PRO-245]-ATC Procedures for use of cross border extended Arrival Management		
Finalisation criteria:	1 - Bilateral agreements are concluded.		
ATC15.2-ASP04	**Safety assessment**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2024
Action by:	**ANS Providers**		
Description & purpose:	The safety assessment of the changes must be developed and delivered to the competent authority. The competent authority must assess the safety case and eventually approve it.		
Supporting material(s):	EUROCONTROL - Air Navigation Systems Safety Assessment Methodology (SAM) - Version 2.1 / 11/2006 Url : https://www.eurocontrol.int/tool/safety-assessment-methodology		
Finalisation criteria:	1 - The safety assessment has been approved by the competent authority.		
ATC15.2-ASP05	**Training**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2024
Action by:	**ANS Providers**		
Description & purpose:	All relevant staff must be duly trained.		
Finalisation criteria:	1 - Training has been completed		
ATC15.2-ASP06	**Operational use**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2024
Action by:	**ANS Providers**		

ATC15.2	Arrival Management Extended to En-route Airspace

Description & purpose:	Extended AMAN is ready for operational use once the procedures are in place, the systems have been upgraded, the safety assessment has been delivered and approved, and the training has been completed.		
Finalisation criteria:	1 - Extended AMAN is put into service.		
ATC15.2-NM01	**Upgrade NM systems to support extended AMAN**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2024
Action by:	**NM**		
Description & purpose:	Upgrade the NM systems for: - reception and presentation of extended AMAN data; - processing extended AMAN data in NM systems (new estimates used for updating traffic demand data during the execution phase, further updates for trajectory update); - a provision of Network information(EFD improvements regarding accuracy and timely distribution of data); - development of Network Impact Assessment Tool to include extended AMAN requirements.		
Finalisation criteria:	1 - The upgraded system is in service.		
ATC15.2-NM02	**Establish Bilateral agreements**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2024
Action by:	**NM**		
Description & purpose:	Define the data exchanges and operational procedures between NM and concerned ATS units.		
Finalisation criteria:	1 - Bilateral agreements are concluded.		
ATC15.2-NM03	**Implement ATFCM procedures for management of extended AMAN info**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2024
Action by:	**NM**		
Description & purpose:	Define and implement the required ATFCM procedures to support the extended AMAN functionality.		
Finalisation criteria:	1 - ATFCM Procedures have been developed, implemented, and are in operational use.		

Subject matter and scope

The multi-sector planner (MSP) defines a new organisation of controller team(s) and new operating procedures to enable the planning controller to provide support to several tactical controllers operating in different adjacent en-route sectors.

This Implementation Objective proposes a structure whereby, in en-route sectors, a single planner controller (P) is planning and organising the traffic flows for two tactical controllers (T), each of whom is controlling a different sector (1P-2T configuration). There is no need for exit/entry coordination with the airspace volume of multi-sector planner however, the coordination capability with adjacent planner/multi-planner should remain.
In order to guarantee that the workload of the multi-sector planner remains comfortable, even when the executive controllers face traffic levels which are not especially low, some enhancements to the planning tools are needed, improving the efficiency of the planning and decision-making processes.

This concept is intended for operation with suitably configured flight data processing components, flexible allocation of ATC roles and volumes and multi-sector planning.

NOTE 1: A further phase of concept development will extend the concept for MSP during SESAR 2020 to (1P-nT) (SESAR Solution PJ10.1.a) and a further evolution of the MSP concept will develop a novel way of working without the necessity for boundary co-ordinations ('Collaborative Control', SESAR Solution PJ10.1.c]).

NOTE 2: Being a local objective, to be applied at individual States or ATC unit level to achieve their performance targets, the objective does not have a mandatory implementation deadline. As guidance, the FOC of the OI Step on which the SESAR Solution is based is 31/12/2024.

NOTE 3: This objective is linked to SESAR Solution #63.

FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SloAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SloAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area (All ECAC States, based on local needs)	All EU SES States except: Bulgaria, Croatia, Denmark, Estonia, France, Latvia, Luxembourg, Malta, Netherlands, Portugal, Slovak Republic. Plus: Albania, Azerbaijan, Israel, Moldova, North Macedonia, Turkey, United Kingdom

Timescales:	**From:**	**By:**	**Applicable to:**
FOC used for Analytics functioning only - not for implementation planning	31/05/2019		Applicability Area
FOC used for Analytics functioning only - not for implementation planning		01/01/2030	Applicability Area

References

European ATM Master Plan

OI step -	[CM-0301]-Sector Team Operations Adapted to New Responsibilities in En-Route, 1Planning to 2Tactical Controllers team structure								
	Enablers -	ER ATC 95	HUM-004						

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

-none-

Essential Operational Changes

Fully Dynamic and Optimised Airspace

SESAR Solution

#63 - Multi Sector Planning

ATC18	Multi-Sector Planning En-route - 1P2T

ICAO GANP - ASBUs

FRTO-B1/6	Multi-Sector Planning

Deployment Programme

- none -	

European Plan for Aviation Safety

- none -	

Operating Environments

En-Route

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
ATC18-ASP01	ATM system support to permit a single planner role associated to two adjacent tactical roles	31/05/2019	01/01/2030
ATC18-ASP02	Develop multi-sector planning procedures and working methods for en-route sectors	31/05/2019	01/01/2030
ATC18-ASP03	Train air traffic controllers to multi sector planning	31/05/2019	01/01/2030
ATC18-ASP04	Develop, and deliver as necessary, a safety assessment	31/05/2019	01/01/2030

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	The workload reduction might be translated in marginal capacity gains.
Operational Efficiency:	Slight increase in the number of direct routes facilitate by the fact that adjacent sectors share the same planner controller.
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

ATC18-ASP01	**ATM system support to permit a single planner role associated to two adjacent tactical roles**	From: 31/05/2019	By: 01/01/2030
Action by:	**ANS Providers**		
Description & purpose:	The en-route ATM system functions are enhanced to allow a planner role to be associated to two adjacent sector tactical roles. The planner role shall be given the data access and eligibility to modify relevant traffic attributes for the airspace volume allocated to him so that the planner can identify the s potential conflicts or risk of conflicts and de-conflict/smooth the traffic flows in order to avoid the tactical interventions. Traffic flow between the two tactical sector controllers is also smoothed and workload associated with tactical tasks is maintained at a manageable level for the two tactical controllers. The actually necessary capabilities depend on the individual level of complexity.		
Supporting material(s):	SJU - SESAR Solution 63: Data Pack for multi-sector planning Url : https://www.sesarju.eu/sesar-solutions/multi-sector-planning		
ATM Master Plan relationship:	[ER ATC 95]-ATC System Support to Permit a Single Planner Role Associated to Two Adjacent Tactical Roles		
Finalisation criteria:	1 - Systems are adapted to support single multi-planner role associated to two adjacent tactical roles.		
ATC18-ASP02	**Develop multi-sector planning procedures and working methods for en-route sectors**	From: 31/05/2019	By: 01/01/2030
Action by:	**ANS Providers**		
Description & purpose:	With the introduction of a new staffing configuration (e.g. changing from existing 1 tactical (executive) and 1 planning controller to 2 tactical (executive) and 1 planning controller in en-route sectors), the allocation of tasks (including new tasks) changes. Therefore, procedures and working methods have to be developed to cater for enhanced multi-planner needs triggered by the change of coordination.		
Supporting material(s):	SJU - SESAR Solution 63: Data Pack for multi-sector planning Url : https://www.sesarju.eu/sesar-solutions/multi-sector-planning		

ATC18	Multi-Sector Planning En-route - 1P2T

ATM Master Plan relationship:	[HUM-004]-New staffing configuration / Extended ATC Planner in en-route		
Finalisation criteria:	1 - Multi-sector planner concept is in operational use.		
ATC18-ASP03	**Train air traffic controllers to multi sector planning**	From: 31/05/2019	By: 01/01/2030
Action by:	**ANS Providers**		
Description & purpose:	Train operational staff in the use of multi sector planning. The tasks to be done are as follows: - Develop a training package (material); - Update the training plans; - Determine ATCO population to be trained; - Apply the training plans.		
Supporting material(s):	SJU - SESAR Solution 63: Data Pack for multi-sector planning Url : https://www.sesarju.eu/sesar-solutions/multi-sector-planning		
ATM Master Plan relationship:	[HUM-004]-New staffing configuration / Extended ATC Planner in en-route		
Finalisation criteria:	1 - The training plans have been updated and a training package has been developed for the use of multi sector planning. 2 - The concerned personnel have been trained.		
ATC18-ASP04	**Develop, and deliver as necessary, a safety assessment**	From: 31/05/2019	By: 01/01/2030
Action by:	**ANS Providers**		
Description & purpose:	Develop safety assessment of the changes, notably ATC systems and procedures that will implement multi-sector planning. The tasks to be done are as follows: - Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks; - Develop safety assessment; - Deliver a safety assessment report to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. This safety assessment shall be based on a fully validated/recognised method.		
Supporting material(s):	EUROCONTROL - EAM 4 - ESARR 4 - Risk Assessment and Mitigation in ATM - Edition 1.0 / 04/2001 Url : https://www.eurocontrol.int/publication/esarr-4-risk-assessment-and-mitigation-atm EUROCONTROL - Air Navigation Systems Safety Assessment Methodology (SAM) - Version 2.1 / 11/2006 Url : https://www.eurocontrol.int/tool/safety-assessment-methodology		
Finalisation criteria:	1 - The safety assessment report for the changes has been developed and delivered to the NSA, as necessary.		

CP1			Active							APT
ATC19			**AMAN/DMAN Integration**							
REG	**ASP**	**MIL**	**APO**	**USE**	**INT**	**IND**	**NM**	**MET**	**AIS**	**USP**

Subject matter and scope

Integrated Arrival and Departure management aims at increasing airport and TMA throughput, resilience and predictability by improved co-ordination between En-Route/Approach, local ATC and airports.

DMAN provides optimum departure sequence based on information provided by airport operator, airlines and ATC.

Similarly, AMAN calculates the optimum arrival flow to the airport. Integration of runway sequence, respecting AMAN and DMAN constraints, allows for optimum utilisation of runway.
Where this integration interferes with the 180 nautical miles (or shorter distance as indicated in Implementation Objective ATC15.2 – Arrival Management Extended to En-route Airspace Family 1.1.1) requirement for extended AMAN, the system has to be tuned to allow as large horizon as possible.

System requirements:

• Integration of departure and arrival flows are done by integrating existing AMAN and DMAN functions where runways are operated in mixed mode.
• AMAN and DMAN systems shall be able to share data to be included in their planning algorithms calculating arrival and departure flows.
• The integration of AMAN and DMAN must be based on the optimised pre-departure sequence and interfaces with airport CDM systems.
• Controller Working Position (CWP) needs to support the display of AMAN/DMAN overlapping sequences.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1	See list of airports in MP Level 3 Implementation Plan - Annexes
Applicability Area 2	See list of airports in MP Level 3 Implementation Plan - Annexes

Timescales:	**From:**	**By:**	**Applicable to:**
Initial Operational Capability	01/01/2021		Applicability Area 1 + Applicability Area 2
Full Operational Capability / Target Date		31/12/2027	Applicability Area 1 + Applicability Area 2

References

European ATM Master Plan

OI step -	[TS-0308]-Flow based Integration of Arrival and Departure Management								
	Enablers -	AERODROME -ATC-09a	AERODROME -ATC-50	APP ATC 161					

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) 2021/116 on the establishment of the Common Project One

Essential Operational Changes

Airport and TMA performance

SESAR Solution

#54 - Flow based Integration of Arrival and Departure Management

ICAO GANP - ASBUs

RSEQ-B2/1	Integration of arrival and departure management

Deployment Programme

ATC19	AMAN/DMAN Integration

1.2.1	AMAN/DMAN Integration

European Plan for Aviation Safety

- none -	

Operating Environments

Airport
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
ATC19-ASP01	Couple AMAN and DMAN systems	01/01/2021	31/12/2027
ATC19-ASP02	Establish Bilateral Agreements	01/01/2021	31/12/2027
ATC19-ASP03	Upgrade CWP to incorporate the information from integrated AMAN/DMAN	01/01/2021	31/12/2027
ATC19-ASP04	Safety assessment	01/01/2021	31/12/2027
ATC19-ASP05	Training	01/01/2021	31/12/2027
ATC19-ASP06	Operational use	01/01/2021	31/12/2027
ATC19-APO01	Upgrade system to incorporate AMAN/DMAN information	01/01/2021	31/12/2027
ATC19-APO02	Establish Bilateral Agreements	01/01/2021	31/12/2027
ATC19-APO03	Safety assessment	01/01/2021	31/12/2027
ATC19-APO04	Training	01/01/2021	31/12/2027
ATC19-APO05	Operational use	01/01/2021	31/12/2027

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	-
Operational Efficiency:	Contribution to Predictability; increase in resilience.
Cost Efficiency:	-
Environment:	The coupling of AMAN with DMAN has been shown to save departure fuel and improve local air quality due to a reduction in the taxi-out time during peak traffic (up to 7% savings in taxi-out fuel)
Security:	-

Detailed SLoA Descriptions

ATC19-ASP01	**Couple AMAN and DMAN systems**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2027
Action by:	**ANS Providers**		
Description & purpose:	Arrival Management (AMAN) and Departure Management (DMAN) systems must be coupled and must support co-ordination between ACC/APP, local ATC and airports. The AMAN must set-up gaps (Arrival Free Intervals) which must be filled by the DMAN allocating departures in the AFIs.		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[APP ATC 161]-Enhance AMAN to support Flow based Integration of Arrival and Departure Management		
Finalisation criteria:	1 - AMAN and DMAN have been coupled and the AMAN gaps (AFIs) are filled by DMAN.		
ATC19-ASP02	**Establish Bilateral Agreements**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2027
Action by:	**ANS Providers**		
Description & purpose:	Establish Bilateral agreements between the stakeholders and airports involved for AMAN/DMAN operational procedures and data exchanges.		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		

ATC19	AMAN/DMAN Integration

Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[AERODROME-ATC-09a]-Flow based Improvement of operational orchestration among arrival / departure management and surface management services		
Finalisation criteria:	1 - Bilateral agreements are concluded		
ATC19-ASP03	**Upgrade CWP to incorporate the information from integrated AMAN/DMAN**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2027
Action by:	**ANS Providers**		
Description & purpose:	Upgrade CWP to enable display and management of the data coming from integrated AMAN/DMAN.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[AERODROME-ATC-50]-Advanced Airport Tower Controller Working Position (A-CWP)		
Finalisation criteria:	1 - The system has been upgraded.		
ATC19-ASP04	**Safety assessment**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2027
Action by:	**ANS Providers**		
Description & purpose:	The safety assessment of the changes must be developed and delivered to the competent authority.		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority		
ATC19-ASP05	**Training**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2027
Action by:	**ANS Providers**		
Description & purpose:	All relevant staff must be duly trained		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Training has been completed		
ATC19-ASP06	**Operational use**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2027
Action by:	**ANS Providers**		
Description & purpose:	AMAN/DMAN integration is ready for operational use once the procedures are in place, the systems have been upgraded, the safety assessment has been delivered and approved, and the training has been completed.		
Finalisation criteria:	1 - AMAN/DMAN integration is operational and put into service		
ATC19-APO01	**Upgrade system to incorporate AMAN/DMAN information**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2027
Action by:	**Airport Operators**		
Description & purpose:	Upgrade systems to be able to receive, process and use the information coming from the integrated AMAN/DMAN system.		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The system has been upgraded.		
ATC19-APO02	**Establish Bilateral Agreements**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2027
Action by:	**Airport Operators**		
Description & purpose:	Establish Bilateral agreements between the stakeholders and airports involved for AMAN/DMAN operational procedures and data exchanges		
	Note :This SLoA needs to be synchronised between civil and military ANSPs and AOs.		

ATC19	AMAN/DMAN Integration

Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Bilateral agreements are concluded		
ATC19-APO03	**Safety assessment**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2027
Action by:	**Airport Operators**		
Description & purpose:	The safety assessment of the changes must be developed and delivered to the competent authority.		
	Note :This SLoA needs to be synchronised between ANSPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.		
ATC19-APO04	**Training**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2027
Action by:			
Description & purpose:	All relevant staff must be duly trained		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Training has been completed		
ATC19-APO05	**Operational use**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2027
Action by:	**Airport Operators**		
Description & purpose:	AMAN/DMAN information is ready for operational use once the the systems have been upgraded, bilateral agreements are in place, the safety assessment has been delivered and approved, and the training has been completed.		
Finalisation criteria:	1 - AMAN/DMAN information are operational and put into service		

SESAR	Active								LOC	
ATC20	Enhanced STCA with down-linked parameters via Mode S EHS									
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

STCA (Short Term Conflict Alert) is a ground system designed and deployed as last Safety Net against the risk of collisions between aircraft due to separation loss. Enhanced STCA can be used both in En-Route and TMA radar environments to improve prediction of potential conflicts and reduce false alert rate. The difficulty of STCA development lies with the need to avoid a high false alert rate versus the need of ensure that all risk of collision always triggers a timely warning.

This objective addresses the enhancement of the STCA safety net with selected flight level (SFL) information down-linked from the suitably equipped aircraft via the Mode-S EHS protocol. Enhancing the STCA with the information downlinked from the aircraft will improve the warning times, decrease the rate of nuisance alerts and maintain or improve the rate of genuine alerts.

NOTE: The implementation of this functionality requires the appropriate equipment on board. The airborne carriage and operation of Mode S EHS capable transponders is addressed by objective ITY-SPI (ITY-SPI-USE06 and ITY-SPI-MIL02) based on the provision of Regulation (EU) No 2020587/386.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area (ACCs and collocated ACCs/APPs. Stand-alone APP Units providing services to more than 100K IFR movements per year. Subject to local need.)	All EU SES States except: Bulgaria, Estonia, Latvia, Malta, Slovak Republic. Plus: Albania, Israel, Moldova, Montenegro, Serbia, Turkey, United Kingdom

Timescales:	From:	By:	Applicable to:
FOC used for Analytics functioning only - not for implementation planning	31/05/2019		Applicability Area
FOC used for Analytics functioning only - not for implementation planning		01/01/2030	Applicability Area

References

European ATM Master Plan

OI step -	[CM-0807-A]-Enhanced Short Term Conflict Alert using Mode S EHS data								
	Enablers -	ER APP ATC 14							

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) No 2020/587 amending Regulation (EU) No 1207/2011 (SPI)

Essential Operational Changes

Trajectory Based Operations

SESAR Solution

#69 - Enhanced STCA with down-linked parameters

ICAO GANP - ASBUs

SNET-B1/1	Enhanced STCA with aircraft parameters

Deployment Programme

- none -	

European Plan for Aviation Safety

ATC20	Enhanced STCA with down-linked parameters via Mode S EHS

MST.030	Implementation of SESAR solutions aiming to reduce the risk of mid-air collision en-route and TMA

Operating Environments

En-Route
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
ATC20-REG01	Mandate the airborne carriage and operation of suitable equipment (Mode S EHS transponders)	31/05/2019	01/01/2030
ATC20-ASP01	Deploy enhanced STCA function with the use of Selected Flight Level downlinked parameter	31/05/2019	01/01/2030
ATC20-ASP02	Develop and implement ATC procedures related to the availability for display and use of SFL in the STCA functionality	31/05/2019	01/01/2030
ATC20-ASP03	Align ATCO training to address the availability and use of the SFL downlinked parameter	31/05/2019	01/01/2030
ATC20-ASP04	Develop a local safety assessment	31/05/2019	01/01/2030

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	A comparative analysis of STCA enhanced with the SFL DAP against conventional STCA showed that the use of the SFL DAP improves warning times, decreases the rate of nuisance alerts and maintains or increases the rate of genuine alerts.
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

ATC20-REG01	**Mandate the airborne carriage and operation of suitable equipment (Mode S EHS transponders)**	From: 31/05/2019	By: 01/01/2030
Action by:	**Regulatory Authorities**		
Description & purpose:	Mandate the equipage of fixed winged aircraft, with a maximum certified take-off mass exceeding 5700 kg or having a maximum cruising true airspeed capability greater than 250 knots, operating as IFR/GAT with appropriate equipment allowing the downlink of the Selected Flight Level information, via the Mode S EHS protocol.		
	Note :Note: for the EU States, the carriage requirement is addressed by the SPI Regulation (No 2017/386 amending Regulation (EU) No 1207/2011), therefore this SLoA is not relevant and should be considered as not applicable. The non-EU States may have to issue local mandates for the carriage and operation of EHS transponders.		
Supporting material(s):	EASA - CS ACNS - Certification Specifications for Airborne Communications Navigation and Surveillance - Issue 3 / 05/2021 Url : https://www.easa.europa.eu/document-library/certification-specifications/cs-acns-issue-3 EUROCAE - ED-73F - Minimum Operational Performance Specification for Secondary Surveillance Radar Mode S Transponders 12/2020 Url : https://eshop.eurocae.net/eurocae-documents-and-reports ICAO - Doc 9871 - Technical Provisions for Mode S Services and Extended Squitter - Advanced Edition / 04/2012 Url : https://store.icao.int/		
Finalisation criteria:	1 - Mandate to equip the relevant aircraft with appropriate equipment has been issued by the regulator. 2 - Airworthiness certificate has been issued by the regulator for aircraft appropriately equipped (capability to downlink the SFL via Mode S EHS). 3 - Transponder operating procedure published in AIP		
ATC20-ASP01	**Deploy enhanced STCA function with the use of Selected Flight Level downlinked parameter**	From: 31/05/2019	By: 01/01/2030
Action by:	**ANS Providers**		
Description & purpose:	Put into service or enhance STCA functionality acquire and to make use of the SFL parameter downlinked from the aircraft via Mode S EHS. The required system changes may impact: • The surveillance chain • The STCA conflict detection algorithm • The Controller Working Position (CWP)/Human Machine Interface (HMI)		

ATC20	Enhanced STCA with down-linked parameters via Mode S EHS

Supporting material(s):	EUROCONTROL - SPEC-108 - EUROCONTROL Specification for Short Term Conflict Alert - Edition 1.0 / 11/2007 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-short-term-conflict-alert-stca SJU - SESAR Solution 69: Data Pack for Enhanced STCA with down-linked parameters Url : https://www.sesarju.eu/sesar-solutions/enhanced-stca-down-linked-parameters		
ATM Master Plan relationship:	[ER APP ATC 14]-Enhance Short Term Conflict Alert (STCA) to use Downlinked Aircraft Parameters		
Finalisation criteria:	1 - The ground system has the following capabilities: the SFL is considered against the CFL as part of the STCA conflict detection algorithm; the display of STCA alerts		
ATC20-ASP02	**Develop and implement ATC procedures related to the availability for display and use of SFL in the STCA functionality**	From: 31/05/2019	By: 01/01/2030
Action by:	**ANS Providers**		
Description & purpose:	The local ATC procedures should address the display and use of the SFL downlinked parameter		
Supporting material(s):	EUROCONTROL - SPEC-108 - EUROCONTROL Specification for Short Term Conflict Alert - Edition 1.0 / 11/2007 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-short-term-conflict-alert-stca SJU - SESAR Solution 69: Data Pack for Enhanced STCA with down-linked parameters Url : https://www.sesarju.eu/sesar-solutions/enhanced-stca-down-linked-parameters		
Finalisation criteria:	1 - Procedures are in operational use		
ATC20-ASP03	**Align ATCO training to address the availability and use of the SFL downlinked parameter**	From: 31/05/2019	By: 01/01/2030
Action by:	**ANS Providers**		
Description & purpose:	All relevant personnel (e.g. air traffic controllers) have to be trained so as to take into account the availability of the SFL information. The training should take into account also the mixed mode operations, as not all aircraft will be able to downlink the SFL parameter.		
Supporting material(s):	EUROCONTROL - SPEC-108 - EUROCONTROL Specification for Short Term Conflict Alert - Edition 1.0 / 11/2007 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-short-term-conflict-alert-stca SJU - SESAR Solution 69: Data Pack for Enhanced STCA with down-linked parameters Url : https://www.sesarju.eu/sesar-solutions/enhanced-stca-down-linked-parameters		
Finalisation criteria:	1 - The training plans have been updated and a training package has been developed 2 - The concerned personnel has been trained		
ATC20-ASP04	**Develop a local safety assessment**	From: 31/05/2019	By: 01/01/2030
Action by:	**ANS Providers**		
Description & purpose:	When proceeding with the local implementation, changes in the ATM functional system derived from the enhancement of STCA with the use of SFL information are subject to the elaboration of a safety argument considering local specific risks and mitigation measures to those risks, in particular the mixed mode operations (aircraft not providing the SFL information). The tasks to be done are as follows: • Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks; • Develop safety assessment; • Deliver a safety assessment report to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. This safety assessment shall be based on fully validated/recognised method.		
Supporting material(s):	EUROCONTROL - EAM 4 - ESARR 4 - Risk Assessment and Mitigation in ATM - Edition 1.0 / 04/2001 Url : https://www.eurocontrol.int/publication/esarr-4-risk-assessment-and-mitigation-atm EUROCONTROL - GUID-159 - EUROCONTROL Guidelines for Short Term Conflict Alert - Part I to III - Edition 1.0 / 01/2017 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-short-term-conflict-alert-stca EUROCONTROL - SPEC-108 - EUROCONTROL Specification for Short Term Conflict Alert - Edition 1.0 / 11/2007 Url : https://www.eurocontrol.int/publication/eurocontrol-specifications-short-term-conflict-alert-stca EUROCONTROL - Air Navigation Systems Safety Assessment Methodology (SAM) - Version 2.1 / 11/2006 Url : https://www.eurocontrol.int/tool/safety-assessment-methodology SJU - SESAR Solution 69: Data Pack for Enhanced STCA with down-linked parameters Url : https://www.sesarju.eu/sesar-solutions/enhanced-stca-down-linked-parameters		
Finalisation criteria:	1 - The safety assessment report for the changes has been developed and delivered to the Regulator/NSA/Competent Authority, as necessary.		

Subject matter and scope

This implementation objective is addressing a surveillance system that exploits the similarities between the two surveillance techniques (ADS-B and WAM) and combines them into a single system. The term composite is used to signify that various system components and data items are shared whilst ensuring that the required degree of channel autonomy/independence is retained. ADS-B information received by WAM system is evaluated and if matching with WAM information extracted by others methods, then it´s used in the WAM output. Information is then periodically re-evaluated.

The exploitation of synergies between the two surveillance techniques into a “composite surveillance system” supports a number of benefits and performance enhancements, compared with the use of 2 separated systems, WAM and ADS-B. These include:

• cost savings, achieved through the co-mounting of system components into a single unit and the associated savings in terms of site costs, communications and efficient utilization of certain common components
• Use of ADS-B message information to support passive acquisition of an aircraft, reducing the 1030/1090 MHz footprint of a WAM surveillance system, especially a reduction in the number of 1030 MHz interrogations.
• cost effective security mitigation techniques, based on the use of additional ‘raw’ RF and timing data (not available in other components of a surveillance infrastructure), which can be used to derive additional indicators, such as Ground based ‘confidence/credibility’ measure enabling e.g. the early identification of anomalous avionic behaviour, or spoofed ‘ADS-B transmissions’.
• Means for performance monitoring and alerting of faults in the system, by supplementing the WAM channels BITE with the comparison between the ADS-B position and WAM channel data as a way to detect failure conditions.
• Improvement of the performance of the ADS-B channel, e.g. by enabling the allowance of temporary reductions in ADS-B quality indicator values, by resolving ADS-B data-to-track association issues related to non-unique 24-bit addresses, by reducing the effects on the resulting along-track horizontal position error.

NOTE 1: The aircraft systems are assumed compliant with the EU Regulation 1207/2011 (Surveillance Performance and Interoperability Implementing Rule - SPI IR) as amended..

NOTE 2: This objective should be seen as a possible mean of compliance with the applicable Regulations. It is without prejudice to the choice of the ANSPs to deploy the most appropriate surveillance solution taking into account the local conditions.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area (Subject to local needs)	All ECAC+ States		
Timescales:	**From:**	**By:**	**Applicable to:**
IOC used for Analytics functioning only - not for implementation planning	15/09/2020		Applicability Area
FOC used for Analytics functioning only - not for implementation planning		31/12/2030	Applicability Area

References

European ATM Master Plan

OI step -	- No OI Link -								
	Enablers -	CTE-S03a	CTE-S03b	CTE-S04a	CTE-S05	CTE-S06			

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) No 2020/587 amending Regulation (EU) No 1207/2011 (SPI)

Essential Operational Changes

CNS Infrastructure and Services

ATC21	Composite surveillance (ADS-B/WAM)

SESAR Solution

#114 - Cooperative Surveillance ADS-B / WAM

ICAO GANP - ASBUs

ASUR-B0/1	Automatic Dependent Surveillance – Broadcast (ADS-B)
ASUR-B0/2	Multilateration cooperative surveillance systems (MLAT)

Deployment Programme

- none -	

European Plan for Aviation Safety

RMT.0519	Maintaining CS-ACNS
RMT.0679	Revision of surveillance performance and interoperability (SPI)

Operating Environments

Airport
En-Route
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
ATC21-REG01	Mandate the airborne carriage and operation of suitable equipment (ADS-B transponders)	15/09/2020	01/01/2030
ATC21-ASP01	Deploy composite surveillance ADS-B/WAM systems	15/09/2020	01/01/2030
ATC21-ASP02	Develop a local safety assessment	15/09/2020	01/01/2030

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	System provides two surveillance layers sharing HW components, with the associated cost reduction.
Environment:	-
Security:	Increases security of ADS-B surveillance layer by verification of received information.

Detailed SLoA Descriptions

ATC21-REG01	**Mandate the airborne carriage and operation of suitable equipment (ADS-B transponders)**	From: 15/09/2020	By: 01/01/2030
Action by:	**Regulatory Authorities**		
Description & purpose:	Mandate the equipage of aircraft, with a maximum certified take-off mass exceeding 5700 kg or having a maximum cruising true airspeed capability greater than 250 knots, operating as IFR/GAT with appropriate ADS-B equipment		
	Note :for the EU+ States, the carriage requirement is addressed by the SPI Regulation (EU) No 1207/2011 as amended by Regulation 2020/587, therefore this SLoA is not relevant and should be considered as not applicable. However, this SLoA may be applicable in case the States wishes to extend the carriage requirements beyond the scope of the SPI IR. The non-EU States may have to issue local mandates for the carriage and operation of ADS-B transponders.		
Supporting material(s):	EASA - CS ACNS - Certification Specifications for Airborne Communications Navigation and Surveillance - Issue 3 / 05/2021 Url : https://www.easa.europa.eu/document-library/certification-specifications/cs-acns-issue-3 ICAO - Doc 9871 - Technical Provisions for Mode S Services and Extended Squitter - Advanced Edition / 04/2012 Url : https://store.icao.int/		
Finalisation criteria:	1 - Mandate to equip the relevant aircraft with appropriate equipment has been issued by the regulator. 2 - Airworthiness certificate has been issued by the regulator for aircraft appropriately equipped.		
ATC21-ASP01	**Deploy composite surveillance ADS-B/WAM systems**	From: 15/09/2020	By: 01/01/2030
Action by:	**ANS Providers**		

ATC21	Composite surveillance (ADS-B/WAM)

Description & purpose:	Composite Surveillance system is a distributed network of time synchronized ground-based 1090 MHz receivers passing data to a Centralised Processor System (CPS). The CPS processes and consolidates the data received and outputs surveillance data for integration within subsequent surveillance data processing systems of the ANSPs ATM infrastructure or for integration within a local display suite. Composite ADS-B and WAM surveillance systems typically consist of the following main ground components: • Ground Station Components – deployed in a distributed nature. (A suite of 1090 MHz receivers plus, optionally, 1030 MHz transmitter(s)) • Central Processor System - configurable to include those components required to support optional functionality e.g. active 1030 MHz interrogations, output to a legacy display etc. Some association functions can be performed inside the Central Processor System in the Composite surveillance sensor. This functionality will be executed in the CPS and will be performed with position calculation and association of information objectives. Pre-ASTERIX association is performed in the CPS. The tracking function inside the surveillance sensor different than the one used in the tracker. • MSDF Tracker: Element to perform post ASTERIX tracking. This component is not included in the Composite WAM – ADS-B sensor. • Control and Monitoring System: The CMS elements of the system perform the specified control and monitoring system functions of the system. • Network connections: Communication links between the distributed component parts of the Composite Surveillance System and its CPS.
Supporting material(s):	EUROCAE - ED-129B - EUROCAE Technical Specifications for ADS-B Ground system (ED-129B) Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-129b/ EUROCAE - ED-142A - EUROCAE Technical Specification for Wide Area Multilateration (WAM) systems (ED142A) SJU - SESAR Solution 114: Data Pack for Composite surveillance (ADS-B/WAM) Data Pack Url : https://www.sesarju.eu/sesar-solutions/composite-surveillance-ads-b-wam
ATM Master Plan relationship:	[CTE-S03a]-ADS-B station for NRA surveillance [CTE-S03b]-ADS-B station for RAD and APT surveillance [CTE-S04a]-Wide Area Multilateration (WAM) [CTE-S05]-Gradual rationalisation of conventional surveillance infrastructure (ADS-B/WAM vs SSR and MSPSR vs PSR) [CTE-S06]-Composite Surveillance
Finalisation criteria:	1 - The Ground system has been upgraded in terms of composite WAM-ADS-B functionality, including sensors, SDPD and ASTERIX interfaces.

ATC21-ASP02	**Develop a local safety assessment**	From: 15/09/2020	By: 01/01/2030

Action by:	**ANS Providers**
Description & purpose:	When proceeding with the local implementation of this Objective changes in the ATM functional system derived from the deployment of composite surveillance ADS-B/WAM are subject to the elaboration of a safety argument considering local specific risks and mitigation measures to those risks. The tasks to be done are as follows: • Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks; • Develop safety assessment; • Deliver a safety assessment report to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. This safety assessment shall be based on fully validated/recognised method.
Supporting material(s):	EC - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 - (OJ L 62, 8.03.2017, p. 1) - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011 10/2011 Url : https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R0373&from=EN EUROCONTROL - Air Navigation Systems Safety Assessment Methodology (SAM) - Version 2.1 / 11/2006 Url : https://www.eurocontrol.int/tool/safety-assessment-methodology SJU - SESAR Solution 114: Data Pack for Composite surveillance (ADS-B/WAM) Data Pack Url : https://www.sesarju.eu/sesar-solutions/composite-surveillance-ads-b-wam
Finalisation criteria:	1 - The safety assessment report for the changes has been developed and delivered to the Regulator/NSA/Competent Authority, as necessary.

CP1			Initial						EU	
ATC22			**Initial Air-Ground Trajectory Information Sharing (Airborne Domain)**							
REG	**ASP**	**MIL**	**APO**	**USE**	**INT**	**IND**	**NM**	**MET**	**AIS**	**USP**

Subject matter and scope

Trajectory information shall be enhanced by using air-ground trajectory exchange. The preliminary steps for the deployment of Initial Trajectory Information Sharing consists of the downlink of Extended Projected Profile (EPP) data from the aircraft and processing of this data by the ATC systems and NM systems.

Aircraft operators shall equip aircraft intending to operating aircraft above FL285 (with an individual certificate of airworthiness first issued on or after 31st December 2027) with ADS-C/EPP compliant avionics that down-link trajectory information using ADS-C Extended Projected Profile (EPP) as part of the ATS B2 services. The trajectory data will be automatically downlinked from the airborne system in accordance with the contract terms and will be used by the ground system.

System requirements:

• Aircraft operators shall ensure that aircraft operating GAT flights in ICAO EUR region above FL 285 with an individual certificate of airworthiness first issued on or after 31st December 2027 are equipped with ADS-C/EPP as part of ATS B2 capability, in accordance with the applicable standards in order to downlink aircraft trajectory.
• Aircraft equipped with ADS-C/EPP compliant avionics shall down-link trajectory information using ADS-C Extended Projected Profile (EPP) as part of the ATS B2 services. The trajectory data will be automatically downlinked from the airborne system in accordance with the contract terms.

NOTE: Implementation of this Objective can only be done in conjunction with Objective ATC23, which is providing the corresponding system functionalities on the ground.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (All EU SES States)	All EU SES States
Applicability Area 2	

Timescales:	**From:**	**By:**	**Applicable to:**
Initial Operational Capability	01/01/2024		Applicability Area 1
Full Operational Capability / Target Date		31/12/2027	Applicability Area 1

References

European ATM Master Plan

OI step -	[IS-0303-A]-Downlink of on-board 4D trajectory data to enhance ATM ground system performance: initial and time based implementation								
	Enablers -	A/C-33a COM13	A/C-37a	AGDLS-ATC-AC-1	AGDLS-ATC-AC-11a	AGDLS-ATC-AC-11c	CTE-C02c	ER APP ATC 100 ATC23, ATC25	ER APP ATC 119 ATC23, ATC25
		ER APP ATC 149a ATC23, ATC25	REG-0100	STD-004					

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) 2021/116 on the establishment of the Common Project One

Essential Operational Changes

Trajectory Based Operations

SESAR Solution

ATC22	Initial Air-Ground Trajectory Information Sharing (Airborne Domain)

#115 - Extended Projected Profile (EPP) availability on ground

ICAO GANP - ASBUs

- none -	

Deployment Programme

6.1.1	Initial Air-Ground Trajectory Information Sharing (Airborne Domain)

European Plan for Aviation Safety

RMT.0682	Implementation of the regulatory needs of the SESAR common projects

Operating Environments

En-Route

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
ATC22-USE01	New aircraft configuration definition	01/01/2024	31/12/2027
ATC22-USE02	Prepare training procedures	01/01/2024	31/12/2027
ATC22-USE03	Training	01/01/2024	31/12/2027
ATC22-USE04	Perform A/C Acceptance Process & Obtain Operational Approval	01/01/2024	31/12/2027
ATC22-USE05	Operational use	01/01/2024	31/12/2027

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Increased ground situational awareness.
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

ATC22-USE01	**New aircraft configuration definition**	From: **Applicability Area 1 :** 01/01/2024	By: **Applicability Area 1 :** 31/12/2027
Action by:	**Airspace Users**		
Description & purpose:	In the scope of the aircraft configuration management process aircraft operators shall ensure the procurement of the ADS-C/EPP functionality and compliance according to ATS B2 services for aircraft intending to operate as GAT above FL285.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[A/C-37a]-Downlink of trajectory data according to contract terms (ADS-C) compliant to ATN baseline 2 (FANS 3/C)		
Finalisation criteria:	1 - Aircraft operators have taken into account the order of the ADS-C/EPP functionality (part of ATS B2 services) in the aircraft configuration process (for aircraft that are affected by the mandate).		
ATC22-USE02	**Prepare training procedures**	From: **Applicability Area 1 :** 01/01/2024	By: **Applicability Area 1 :** 31/12/2027
Action by:	**Airspace Users**		
Description & purpose:	Ensure the preparation of training material with regard to the new system and procedures.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Aircraft operator has ensured that appropriate procedures and training material are available in due time.		
		From:	By:

ATC22	Initial Air-Ground Trajectory Information Sharing (Airborne Domain)

ATC22-USE03	**Training**	**Applicability Area 1 :** 01/01/2024	**Applicability Area 1 :** 31/12/2027
Action by:	**Airspace Users**		
Description & purpose:	Perform flight crew training for the operational use of the new system		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Aircraft operator has ensured that flight crew training is completed in order to operate equipped aircraft.		
ATC22-USE04	**Perform A/C Acceptance Process & Obtain Operational Approval**	From: **Applicability Area 1 :** 01/01/2024	By: **Applicability Area 1 :** 31/12/2027
Action by:	**Airspace Users**		
Description & purpose:	Ensure that aircraft operators check the availability of the new functionality during the aircraft acceptance/delivery process as well as the availability of the corresponding operational approval from its supervisory authority if an operational approval is required.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Aircraft operator has checked the availability of ADS-C/EPP installation and the operational approval (if required) during the aircraft acceptance/delivery process.		
ATC22-USE05	**Operational use**	From: **Applicability Area 1 :** 01/01/2024	By: **Applicability Area 1 :** 31/12/2027
Action by:	**Airspace Users**		
Description & purpose:	The operational use of the ADS-C/EPP functionality (as part of ATS B2 capability) can start on equipped aircraft.		
Finalisation criteria:	1 - Mandated aircraft are equipped with ADS-C/EPP compliant avionics and are down-linking trajectory information using ADS-C Extended Projected Profile (EPP).		

Subject matter and scope

Trajectory information shall be enhanced by using air-ground trajectory exchange. The preliminary steps for the deployment of Initial Trajectory Information Sharing consists of the downlink of Extended Projected Profile (EPP) data from the aircraft and processing of this data by the ATC systems.

The ground systems will enable controllers to display the downlinked route on the Controller Working Position. It will be automatically cross-checked whether the downlinked route is consistent with what the expected trajectory on the ground. In case of inconsistency, controllers will receive a warning.

System requirements:

• Ground systems shall support ADS-C/ EPP application as part of ATS B2 services while keeping compatibility with Controller Pilot Data Link Communications (CPDLC) services as required by Commission Regulation (EC) No. 29/2009 (amended by IR 310/2015) including the provision of service to flights equipped only with ATN-B1.
• All ATS providers defined in section 6.3.1 of this document and related ATC systems shall be able to receive and process EPP trajectory information.
• The ATC systems shall enable controllers to display the route of the downlinked trajectory.
• The ATC systems shall provide a warning to controllers in case of a discrepancy between the downlinked trajectory and the expected route.

NOTE: Implementation of this Objective can only be done in conjunction with Objective ATC22, which is providing the corresponding aircraft functionalities.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (All EU SES States)	All EU SES States
Applicability Area 2	

Timescales:	**From:**	**By:**	**Applicable to:**
Initial Operational Capability	01/01/2024		Applicability Area 1
Full Operational Capability / Target Date		31/12/2027	Applicability Area 1

References

European ATM Master Plan

OI step -	[IS-0303-A]-Downlink of on-board 4D trajectory data to enhance ATM ground system performance: initial and time based implementation								
	Enablers -	A/C-33a COM13	A/C-37a ATC22	AGDLS-ATC-AC-1	AGDLS-ATC-AC-11a	AGDLS-ATC-AC-11c	CTE-C02c	ER APP ATC 100	ER APP ATC 119
		ER APP ATC 149a	REG-0100	STD-004					

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) 2021/116 on the establishment of the Common Project One

Essential Operational Changes

Trajectory Based Operations

SESAR Solution

#115 - Extended Projected Profile (EPP) availability on ground, PJ.18-06b1 - NM Profile Improvement using ADS-C

ATC23	Initial Air-Ground Trajectory Information Sharing (Ground Domain)

ICAO GANP - ASBUs

- none -	

Deployment Programme

6.1.2	Initial Air-Ground Trajectory Information Sharing (Ground Domain)

European Plan for Aviation Safety

RMT.0682	Implementation of the regulatory needs of the SESAR common projects

Operating Environments

Network

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
ATC23-ASP01	Description of common requirements for ADS-C/EPP Data integration into ANSP Systems	01/01/2024	31/12/2027
ATC23-ASP02	Complete ANSP System deployment	01/01/2024	31/12/2027
ATC23-ASP03	Safety Assessment	01/01/2024	31/12/2027
ATC23-ASP04	Training	01/01/2024	31/12/2027
ATC23-ASP05	Operational use	01/01/2024	31/12/2027

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Increased ground situational awareness.
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

ATC23-ASP01	**Description of common requirements for ADS-C/EPP Data integration into ANSP Systems**	From: **Applicability Area 1:** 01/01/2024	By: **Applicability Area 1:** 31/12/2027
Action by:	**ANS Providers**		
Description & purpose:	Ensure that ANSP Systems requirements for receiving, processing and displaying ADS-C/EPP data to provide warnings to the ATCO in case of discrepancies between the downlinked trajectory and the ground system trajectory are defined.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[ER APP ATC 100]-4D Trajectory Management by Synchronization of Air and Ground Trajectories through EPP [ER APP ATC 119]-Air/Ground Datalink Communication/Protocols for i4D and Controlled Time of Arrival [ER APP ATC 149a]-Air-Ground Datalink Exchange to Support i4D - Extended Projected Profile (EPP)		
Finalisation criteria:	1 - Description of common requirements in terms of ADS-C/EPP data integration, ADS-C contract management as well as functional HMI requirements within the ANSP systems are defined.		
ATC23-ASP02	**Complete ANSP System deployment**	From: **Applicability Area 1:** 01/01/2024	By: **Applicability Area 1:** 31/12/2027
Action by:	**ANS Providers**		
Description & purpose:	Ensure integration of ANSP Systems with ADS-C/EPP data processing and displaying.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[ER APP ATC 100]-4D Trajectory Management by Synchronization of Air and Ground Trajectories through EPP [ER APP ATC 119]-Air/Ground Datalink Communication/Protocols for i4D and Controlled Time of Arrival [ER APP ATC 149a]-Air-Ground Datalink Exchange to Support i4D - Extended Projected Profile (EPP)		

ATC23	Initial Air-Ground Trajectory Information Sharing (Ground Domain)

Finalisation criteria:	1 - Common integration process confirming the integrity of the corresponding equipment has been completed		
ATC23-ASP03	**Safety Assessment**	From: **Applicability Area 1:** 01/01/2024	By: **Applicability Area 1:** 31/12/2027
Action by:	**ANS Providers**		
Description & purpose:	Ensure a safety assessment is done and approved by the appropriate authority.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Submission of a safety case to the competent authority before putting it into service.		
ATC23-ASP04	**Training**	From: **Applicability Area 1:** 01/01/2024	By: **Applicability Area 1:** 31/12/2027
Action by:	**ANS Providers**		
Description & purpose:	Ensure familiarisation with the new system functionalities and training of operational personnel (includes obtaining NSA approval) is completed well in advance of the deployment date.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Controllers have received appropriate training and any necessary approval (training and safety case) from the NSA is obtained.		
ATC23-ASP05	**Operational use**	From: **Applicability Area 1:** 01/01/2024	By: **Applicability Area 1:** 31/12/2027
Action by:	**ANS Providers**		
Description & purpose:	Start of operational use no later than 31st December 2027.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Ground systems supporting ADS-C/ EPP application including the data display and warnings to controllers as described in the requirements are put into operations.		

CP1				Initial						EU
ATC24				Network Manager Trajectory Information Enhancement						
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

The NM Trajectory information could be enhanced by using Extended Projected Profile (EPP) data. Pending further validations, NM system could be capable of receiving and processing EPP data. For increasing the accuracy of NM systems trajectory prediction, some EPP elements might be used for the tactical trajectory update in the flight post departure phase. The displaying of EPP and the EPP warning are not needed for NM, as they are pure ATC functions.

Although there is no confirmed planning for NM EPP validation activities, it should be noted that NM's EPP implementation is not linked with the EPP display and warnings by ANSPs and therefore it will not impact their plans.

System requirements:

Network Manager should, subject to successful industrialisation target date, use some elements of the downlinked trajectories to enhance the calculation/predictions of NM systems trajectories.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (All EU SES States)	All EU SES States
Applicability Area 2 (Based on local/regional needs)	

Timescales:	**From:**	**By:**	**Applicable to:**
Initial Operational Capability	01/01/2024		Applicability Area 1
Full Operational Capability / Target Date		31/12/2027	Applicability Area 1

References

European ATM Master Plan

OI step -	[POI-0011-IS]-Downlink of on-board 4D trajectory data to enhance NM system performance								
	Enablers -	NIMS-62							
OI step -	[POI-0013-IS]-Improving the Tactical Trajectory by using ADS-C Data								
	Enablers -	ER APP ATC 187							

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) 2021/116 on the establishment of the Common Project One

Essential Operational Changes

Trajectory Based Operations

SESAR Solution

PJ.18-06b1 - NM Profile Improvement using ADS-C

ICAO GANP - ASBUs

- none -	

Deployment Programme

6.1.2	Initial Air-Ground Trajectory Information Sharing (Ground Domain)

ATC24	Network Manager Trajectory Information Enhancement

European Plan for Aviation Safety

RMT.0682	Implementation of the regulatory needs of the SESAR common projects

Operating Environments

Network

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
ATC24-NM01	Systems to be upgraded	01/01/2024	31/12/2027

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Increased ground situational awareness.
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

ATC24-NM01	**Systems to be upgraded**	From: **Applicability Area 1:** 01/01/2024	By: **Applicability Area 1:** 31/12/2027
Action by:	**NM**		
Description & purpose:	NM systems to be upgraded in line with the validation results (if the validation is successfully performed).		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Systems are upgraded		

Subject matter and scope

Trajectory information data coming from airborne systems is distributed on the ground to ATS units and NM in order to minimise the air-ground data transmissions. The trajectory data shall be processed and displayed to the controllers in a harmonised way as set out in section 6.1.2.

System requirements:

• ADS-C/EPP trajectory shall be made available to ATS units and the Network Manager systems. The ground communication infrastructure shall be reliable, fast, secure and efficient to support initial trajectory information sharing.
• Ground systems must ensure that trajectory data downlinked from the aircraft is distributed to ATS units and to Network Manager systems.

NOTE: Implementation of this Objective can only be done in conjunction with Objective ATC22, which is providing the corresponding aircraft functionalities; and in conjunction with Objective ATC23, which is providing the corresponding system functionalities on the ground.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (All EU SES States)	All EU SES States
Applicability Area 2	

Timescales:	**From:**	**By:**	**Applicable to:**
Initial Operational Capability	01/01/2024		Applicability Area 1
Full Operational Capability / Target Date		31/12/2027	Applicability Area 1

References

European ATM Master Plan

OI step -	[IS-0303-A]-Downlink of on-board 4D trajectory data to enhance ATM ground system performance: initial and time based implementation								
	Enablers -	A/C-33a COM13	A/C-37a ATC22	AGDLS-ATC-AC-1	AGDLS-ATC-AC-11a	AGDLS-ATC-AC-11c	CTE-C02c	ER APP ATC 100	ER APP ATC 119
		ER APP ATC 149a	REG-0100	STD-004					

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) 2021/116 on the establishment of the Common Project One

Essential Operational Changes

Trajectory Based Operations

SESAR Solution

#115 - Extended Projected Profile (EPP) availability on ground

ICAO GANP - ASBUs

- none -	

Deployment Programme

6.3.1	Initial Trajectory Information Sharing ground distribution

ATC25	Initial Trajectory Information Sharing ground distribution

European Plan for Aviation Safety

RMT.0682	Implementation of the regulatory needs of the SESAR common projects

Operating Environments

Network

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
ATC25-ASP01	Ground distribution Architecture definition	01/01/2024	31/12/2027
ATC25-ASP02	Ground Infrastructure deployment	01/01/2024	31/12/2027
ATC25-ASP03	ATS Units systems connected to Ground distribution Infrastructure	01/01/2024	31/12/2027
ATC25-ASP04	Safety Assessment	01/01/2024	31/12/2027
ATC25-ASP05	Training	01/01/2024	31/12/2027
ATC25-ASP06	Operational use	01/01/2024	31/12/2027
ATC25-NM01	Ground distribution Architecture definition	01/01/2024	31/12/2027
ATC25-NM02	Ground Infrastructure deployment	01/01/2024	31/12/2027
ATC25-NM03	NM systems receiving the EPP data	01/01/2024	31/12/2027

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

ATC25-ASP01	**Ground distribution Architecture definition**	From: **Applicability Area 1:** 01/01/2024	By: **Applicability Area 1:** 31/12/2027
Action by:	**ANS Providers**		
Description & purpose:	Ensure that Ground distribution architecture is defined to meet the required performance levels as defined in the applicable standards.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[ER APP ATC 100]-4D Trajectory Management by Synchronization of Air and Ground Trajectories through EPP [ER APP ATC 119]-Air/Ground Datalink Communication/Protocols for i4D and Controlled Time of Arrival [ER APP ATC 149a]-Air-Ground Datalink Exchange to Support i4D - Extended Projected Profile (EPP)		
Finalisation criteria:	1 - Applicable standards, definitions and technologies are ready and the ground distribution architecture has been defined.		
ATC25-ASP02	**Ground Infrastructure deployment**	From: **Applicability Area 1:** 01/01/2024	By: **Applicability Area 1:** 31/12/2027
Action by:	**ANS Providers**		
Description & purpose:	The ground infrastructure, following the architecture defined in DM1, has to be deployed throughout Europe, tested and prepared for connecting ANSPs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[ER APP ATC 100]-4D Trajectory Management by Synchronization of Air and Ground Trajectories through EPP [ER APP ATC 119]-Air/Ground Datalink Communication/Protocols for i4D and Controlled Time of Arrival [ER APP ATC 149a]-Air-Ground Datalink Exchange to Support i4D - Extended Projected Profile (EPP)		
Finalisation criteria:	1 - The ground infrastructure has been deployed.		
		From:	By:

ATC25	Initial Trajectory Information Sharing ground distribution

ATC25-ASP03	**ATS Units systems connected to Ground distribution Infrastructure**	**Applicability Area 1:** 01/01/2024	**Applicability Area 1:** 31/12/2027
Action by:			
Description & purpose:	The ATS systems have to be connected to the ground distribution infrastructure in order to receive and process ADS-C/EPP information, ensuring a harmonised ground data distribution.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[ER APP ATC 100]-4D Trajectory Management by Synchronization of Air and Ground Trajectories through EPP [ER APP ATC 119]-Air/Ground Datalink Communication/Protocols for i4D and Controlled Time of Arrival [ER APP ATC 149a]-Air-Ground Datalink Exchange to Support i4D - Extended Projected Profile (EPP)		
Finalisation criteria:	1 - ATS systems are tested and connected to the ground infrastructure		
ATC25-ASP04	**Safety Assessment**	From: **Applicability Area 1:** 01/01/2024	By: **Applicability Area 1:** 31/12/2027
Action by:			
Description & purpose:	Ensure a safety assessment is done and approved by the appropriate authority.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Submission of a safety case to the competent authority before putting into service.		
ATC25-ASP05	**Training**	From: **Applicability Area 1:** 01/01/2024	By: **Applicability Area 1:** 31/12/2027
Action by:	**ANS Providers**		
Description & purpose:	All relevant staff (technical and operational) shall be duly trained.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Training has been completed.		
ATC25-ASP06	**Operational use**	From: **Applicability Area 1:** 01/01/2024	By: **Applicability Area 1:** 31/12/2027
Action by:	**ANS Providers**		
Description & purpose:	Once the procedures are in place, systems have been upgraded, safety assessment delivered and approved, training has been completed, Initial Trajectory Information Sharing ground distribution is ready for operational use		
Finalisation criteria:	1 - ATS systems distributing operational data are put into service.		
ATC25-NM01	**Ground distribution Architecture definition**	From: **Applicability Area 1:** 01/01/2024	By: **Applicability Area 1:** 31/12/2027
Action by:	**NM**		
Description & purpose:	Ground distribution architecture is defined to meet the required performance levels as defined in the applicable standards.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[ER APP ATC 100]-4D Trajectory Management by Synchronization of Air and Ground Trajectories through EPP [ER APP ATC 119]-Air/Ground Datalink Communication/Protocols for i4D and Controlled Time of Arrival [ER APP ATC 149a]-Air-Ground Datalink Exchange to Support i4D - Extended Projected Profile (EPP)		
Finalisation criteria:	1 - Applicable standards, definitions and technologies are ready and the ground distribution architecture has been defined		
ATC25-NM02	**Ground Infrastructure deployment**	From: **Applicability Area 1:** 01/01/2024	By: **Applicability Area 1:** 31/12/2027
Action by:	**NM**		
Description & purpose:	The ground infrastructure, following the architecture defined in DM1, has to be deployed throughout Europe, tested and prepared for connecting ANSPs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		

ATC25	Initial Trajectory Information Sharing ground distribution

ATM Master Plan relationship:	[ER APP ATC 100]-4D Trajectory Management by Synchronization of Air and Ground Trajectories through EPP [ER APP ATC 119]-Air/Ground Datalink Communication/Protocols for i4D and Controlled Time of Arrival [ER APP ATC 149a]-Air-Ground Datalink Exchange to Support i4D - Extended Projected Profile (EPP)		
Finalisation criteria:	1 - The ground infrastructure has been deployed.		
ATC25-NM03	**NM systems receiving the EPP data**	From: **Applicability Area 1:** 01/01/2024	By: **Applicability Area 1:** 31/12/2027
Action by:	**NM**		
Description & purpose:	Upgrade NM system for reception of EPP data. The received EPP data might be used for the update of portion of NM's end to end trajectory.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[ER APP ATC 100]-4D Trajectory Management by Synchronization of Air and Ground Trajectories through EPP [ER APP ATC 119]-Air/Ground Datalink Communication/Protocols for i4D and Controlled Time of Arrival [ER APP ATC 149a]-Air-Ground Datalink Exchange to Support i4D - Extended Projected Profile (EPP)		
Finalisation criteria:	1 - The NM interface for EPP data reception is available.		

SESAR				Active						LOC/APT
ATC26				Point Merge in complex TMA						
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

Terminal Control (TC) Approach operations currently employ “Open-loop” techniques to sequence and space the arrival traffic. This entails the use of tactical vectors: heading, speed and vertical altitude intervention, to merge traffic onto the line of the Final Approach ILS (Instrument Landing System).

Point Merge is a method of merging arrival flows with existing technology including PBN. Under a Point Merge System, the aircraft are merged to a point using “Closed-loop” techniques. This technique allows controllers to sequence and merge arrivals without vectoring, while enabling continuous descent operations and maintaining runway throughput, even under high traffic.
This concept builds on previous concept development and implementation by further developing it to cater for a Point Merge centric PBN route structure and operating method for Very High Capacity (VHC) or High Capacity (HC) needs TMAs.

This concept provides a Point Merge centric PBN route structure and operating method for a complex TMA. Therefore, the concept is centred on Point Merge procedures but also incorporates aspects of PBN route structures for Arrivals & Departures so that a fully effective concept for TMA airspace is developed.

NOTE: Point Merge usually relies on existing technology on-board aircraft such as PBN navigation specification. More stringent navigation specifications (RNP x) may be used if deemed necessary depending on local/specific requirements (e.g. airspace complexity, terrain clearance, runway spacing in case of independent parallel approaches, etc...).

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area (Subject to local need)			
Timescales:	**From:**	**By:**	**Applicable to:**
IOC used for Analytics functioning only - not for implementation planning	01/07/2022		
FOC used for Analytics functioning only - not for implementation planning		31/12/2030	

References

European ATM Master Plan

OI step -	[AOM-0601]-Terminal Airspace Organisation Adapted through Use of Best Practice								
	Enablers -	MIL-STD-01	MIL-STD-02	PRO-021					

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

-none-

Essential Operational Changes

Airport and TMA performance

SESAR Solution

#107 - Point Merge in complex TMA

ICAO GANP - ASBUs

RSEQ-B0/3	Point merge

Deployment Programme

- none -	

ATC26	Point Merge in complex TMA

European Plan for Aviation Safety

- none -	

Operating Environments

Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
ATC26-ASP01	Develop and publish Point Merge procedures		
ATC26-ASP02	Adapt ATM systems to support Point Merge procedures		
ATC26-ASP03	Safety assessment		
ATC26-ASP04	Training		
ATC26-ASP05	Operational use		
ATC26-USE01	Train flight crews in Point Merge procedures		

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	TMA safety levels were maintained at current day levels or improved through: a reduction of tactical vectoring; single leg design allowing descent-enabled management of traffic not adequately spaced in the horizontal plane; increased situational awareness
Capacity:	Point Merge enables a significant reduction in ATC tactical interventions, hence in controller's workload, R/T occupancy and communications task load leading to possible increases of the terminal airspace capacity
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	Point Merge offers both the path stretching capability required to build the sequence in dense terminal areas, and, once aircraft are directed to the merge point, the necessary predictability to support continuous descent operations. It also enables a better flow segregation – including departures, which may in turn facilitate Continuous Climb Operations (CCOs)
Security:	-

Detailed SLoA Descriptions

ATC26-ASP01	**Develop and publish Point Merge procedures**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	As any terminal airspace procedure, Point Merge procedures are expected to be published in the form of a PBN STAR or transition, and detailed in an official aeronautical publication (AIP) or a supporting information circular (AIC) by the concerned air navigation service provider. It is recommended to include among others an explicit mention that pilots shall expect to be directed to the merge point at any time while flying along a sequencing leg It is strongly recommended to follow the design guidelines as described in the Operational services and environment definition document (OSED) for "Point Merge" introduced in the Quick Guide.		
Supporting material(s):	SJU - SESAR Solution 107: Data Pack for Point Merge in complex TMA Url : https://www.sesarju.eu/sesar-solutions/point-merge-complex-terminal-airspace EUROCONTROL - Point Merge implementation - A quick guide - Edition 1.4 / 05/2021 Url : https://www.eurocontrol.int/publication/point-merge-implementation EUROCONTROL - Point merge integration of arrival flows enabling extensive RNAV application and continuous descent (reference manual) - OSED - Edition 2.0 / 07/2010 Url : https://www.eurocontrol.int/publication/point-merge-integration-arrival-flows-enabling-extensive-rnav-application-and		
ATM Master Plan relationship:	[PRO-021]-ATC Procedures to facilitate the design and utilization of more noise sensitive and efficient SID/STAR routings including CDA and to integrate P-RNAV or RNAV with APV/Baro VNAV capabilities into the TMA route structure		
Finalisation criteria:	1 - Point Merge procedures are published.		
ATC26-ASP02	**Adapt ATM systems to support Point Merge procedures**	From: -	By: -
Action by:	**ANS Providers**		

ATC26	Point Merge in complex TMA

Description & purpose:	In principle, no new specific ground tool nor system is required. However some adaptations of the ATM systems might be required. They could address: • Simple visual markings on the controllers display (e.g. range rings centered on the merge point) to adequately support the operating method. • Trajectories displayed on the controller's screen • Adaptation of the conflict detection systems and safety nets		
Supporting material(s):	SJU - SESAR Solution 107: Data Pack for Point Merge in complex TMA Url : https://www.sesarju.eu/sesar-solutions/point-merge-complex-terminal-airspace EUROCONTROL - Point Merge supporting documentation Url : https://www.eurocontrol.int/concept/point-merge		
Finalisation criteria:	1 - ATM systems adapted as necessary.		
ATC26-ASP03	**Safety assessment**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	A safety assessment of the changes shall be developed and delivered to the competent authority. The safety assessment should address at least: • The need for airspace redesign in the TMA • The operational procedure requirements • The display of the appropriate information on the controller's screen • The handling of the mixed equipage traffic		
Supporting material(s):	EUROCONTROL - Point Merge supporting documentation Url : https://www.eurocontrol.int/concept/point-merge SJU - Safety and Performance Requirements (SPR) for Point Merge in Complex TMA 07/2013 Url : https://www.sesarju.eu/sites/default/files/documents/solution/Sol107_5_Point_Merge_Complex_TMA_Safety_and_Performance_Requirements.pdf		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.		
ATC26-ASP04	**Training**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	All relevant staff shall be duly trained. Existing and new Controllers will need to be trained to use the Point Merge procedures with PBN route structures From a controller's perspective, one important constraint lies in the risk of loss of controller's vectoring skills, which shall then be mitigated through recurrent training. The risk of a decrease in air traffic controllers' vigilance for the monitoring task shall also be highlighted during training.		
Supporting material(s):	EUROCONTROL - Point Merge supporting documentation Url : https://www.eurocontrol.int/concept/point-merge SJU - Operational Service and Environment Definition (OSED) for Point Merge in Complex TMA Url : https://www.sesarju.eu/sites/default/files/documents/solution/Sol107%204%20Point%20Merge%20Complex%20TMA_OSED.pdf		
Finalisation criteria:	1 - Training has been completed.		
ATC26-ASP05	**Operational use**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Once the procedures are in place, systems have been upgraded, safety assessment delivered and approved, training has been completed, Point Merge is ready for operational use.		
Supporting material(s):	SJU - SESAR Solution 107: Data Pack for Point Merge in complex TMA Url : https://www.sesarju.eu/sesar-solutions/point-merge-complex-terminal-airspace EUROCONTROL - Point Merge supporting documentation Url : https://www.eurocontrol.int/concept/point-merge		
Finalisation criteria:	1 - Point Merge operations are put into service.		
ATC26-USE01	**Train flight crews in Point Merge procedures**	From: -	By: -
Action by:	**Airspace Users**		
Description & purpose:	Training/briefing requirements for pilots are mainly driven by standard PBN implementation considerations. However, a few specific aspects may need to be addressed in certain cases. For instance, when a PBN arrival procedure followed by a precision approach (typically ILS) is interrupted with ATC vectors, pilots used to a vectoring environment may tend to remove the remaining points in the procedure until the runway threshold from the active flight plan in their Flight Management System. This may be done routinely in order to prepare for ILS capture and/or clean the flight plan should a missed approach need to be initiated. However, such waypoint deletion shall be avoided if the intent is to resume the PBN procedure. This may also have further safety implications in case of parallel approaches. Pilot's briefing and/or procedure publication shall highlight this constraint.		
Supporting material(s):	EUROCONTROL - Point Merge supporting documentation Url : https://www.eurocontrol.int/concept/point-merge		

ATC26	Point Merge in complex TMA

Finalisation criteria:	1 - Training manuals have been updated to include Point Merge procedures. 2 - The aircrew has been trained accordingly.

SESAR				Active						ECAC+
COM10.2				Extended AMHS						
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

The purpose of this objective is to enable EATM Network-wide support of a specific profile of the Extended level of service of the ATSMHS (ATS Message Handling Service), as defined by ICAO.

AFTN, complemented in Europe by the CIDIN, has provided an effective store-and-forward messaging service for the conveyance of text messages, using character-oriented procedures, for many years. However, AFTN/CIDIN technology is now becoming obsolete and is not sufficiently flexible to support future messaging requirements. It is intended that existing AFTN and CIDIN users and systems will transition to more modern technology, using the ATSMHS application, defined by ICAO to replace the AFTN telegraphic style of working with a store-and-forward message handling system based on international standards and providing enhanced functionality.

This implementation objective makes use of the EUROCONTROL Specification 0136, Edition number 2.1 "EUROCONTROL specification on the Air Traffic Services Message Handling System (AMHS)" that will be proposed to the European Commission as a new edition of the Community Specification, to help the ground ATS Messaging systems of the EATM Network meet the essential requirements for interoperability mandated by Commission Regulation (EC) No 552/2004. In application of Article 4 of Commission Regulation (EC) No 552/2004, compliance with the essential requirements for interoperability shall be presumed for AMHS systems, together with the associated procedures, that meet the AMHS Community Specification.

NOTE: For global AMHS address management ICAO has strongly recommended the use of the ATS Messaging Management Centre (AMC) implemented by EUROCONTROL under the aegis of the ICAO EUR Office (Paris) to every ICAO Contracting State worldwide, as soon as there is an AMHS project or implementation in that State.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area (All ECAC+ States)	All ECAC+ States		
Timescales:	**From:**	**By:**	**Applicable to:**
Initial Operational Capability	01/12/2011		Applicability Area
Full Operational Capability		31/12/2024	Applicability Area

References

European ATM Master Plan

OI step -	- No OI Link -								
	Enablers -	CTE-C06c							

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

-none-

Essential Operational Changes

CNS Infrastructure and Services

SESAR Solution

- none -

ICAO GANP - ASBUs

COMI-B0/7	ATS Message Handling System (AMHS)

Deployment Programme

- none -	

COM10.2	Extended AMHS

European Plan for Aviation Safety

- none -	

Operating Environments

Airport
En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
COM10.2-ASP01	Enhance AMHS capability (Extended ATSMHS)	01/12/2011	31/12/2024
COM10.2-ASP02	Ensure the conformity of AMHS systems and associated procedures	01/12/2011	31/12/2024
COM10.2-ASP03	Organise personnel awareness and training	01/12/2011	31/12/2024
COM10.2-ASP04	Participate in AMC activities for ATS Messaging Management	01/12/2011	31/12/2024
COM10.2-IND01	Ensure the conformity of AMHS systems	01/02/2011	31/12/2024
COM10.2-AGY01	Provide AMC (ATS Messaging Management Centre) Service	01/12/2011	31/12/2024
COM10.2-AGY02	Enhance AMHS capability (Extended ATSMHS)	01/12/2011	31/12/2024
COM10.2-AGY03	Develop further relevant elements of the Extended ATSMHS in AMHS Community Specification	01/12/2011	31/12/2024
COM10.2-AGY04	Implement AMHS-Community Specification compliance testing methodology and tools	01/12/2011	31/12/2024
COM10.2-AGY05	Support personnel training	01/12/2011	31/12/2024

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Benefits resulting from the application of a harmonised set of safety requirements.
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	Use of COTS messaging systems will de-facto reduce the cost of messaging services and support any kind of message format including the exchange of new binary data leading to lower ANS provision costs.
Environment:	-
Security:	AMHS security services may help to protect against safety hazards such as accidental or deliberate message corruption and can provide protection against undetected misdelivery.

Detailed SLoA Descriptions

COM10.2-ASP01	**Enhance AMHS capability (Extended ATSMHS)**	From: 01/12/2011	By: 31/12/2024
Action by:	**ANS Providers**		
Description & purpose:	Upgrade the AMHS capability in existing COM centres to provide the Extended ATSMHS in accordance with the profile specified in the AMHS Community Specification.		
Supporting material(s):	ICAO - Doc 9880-Part II - Manual on Detailed Technical Specifications for the Aeronautical Telecommunication Network (ATN) using ISO/OSI Standards and Protocols - Part II - Ground-Ground Applications - Air Traffic Services Message Handling Services (ATSMHS) - Edition 1 / 12/2010 Url : https://store.icao.int/ ICAO - EUR-Doc 020 - EUR AMHS Manual - Version 16 / 10/2021 Url : https://www.icao.int/EURNAT/EUR%20and%20NAT%20Documents/EUR%20Documents/EUR%20Documents/020%20-%20EUR%20AMHS%20Manual/EUR%20Doc%20020%20-%20EUR%20AMHS%20Manual_v16_0.pdf EUROCONTROL - SPEC-0136 - EUROCONTROL Specification on the Air Traffic Services Message Handling System (AMHS) - Edition 2.1 / 09/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-air-traffic-services-message-handling-system-amhs		
Finalisation criteria:	1 - Extended ATSMHS capability has been implemented, documented and in operational service.		
COM10.2-ASP02	**Ensure the conformity of AMHS systems and associated procedures**	From: 01/12/2011	By: 31/12/2024
Action by:	**ANS Providers**		
Description & purpose:	Ensure that the AMHS systems and associated procedures comply with the AMHS Community Specification		

COM10.2	Extended AMHS

Supporting material(s):	ICAO - Doc 9880-Part IV - Manual on Detailed Technical Specifications for the Aeronautical Telecommunication Network (ATN) using ISO/OSI Standards and Protocols - Part IV - Directory Services, Security and Systems Management - Edition 1 / 12/2010 Url : https://store.icao.int/ EUROCONTROL - SPEC-0136 - EUROCONTROL Specification on the Air Traffic Services Message Handling System (AMHS) - Edition 2.1 / 09/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-air-traffic-services-message-handling-system-amhs		
Finalisation criteria:	1 - EC declaration of verification has been provided.		
COM10.2-ASP03	**Organise personnel awareness and training**	From: 01/12/2011	By: 31/12/2024
Action by:	**ANS Providers**		
Description & purpose:	Develop and maintain operations manuals and train personnel accordingly to ensure that: - All COM Centre personnel are adequately trained in AMHS technology; - An AMHS "expertise cell" is available in every COM Centre implementing AMHS; - All ANSP personnel involved in ATS Messaging Management (AMC activities) is adequately trained.		
Supporting material(s):	EUROCONTROL - IANS-COM-AMHS - IANS-COM-AMHS Course Url : https://trainingzone.eurocontrol.int ICAO - EUR-Doc 020 - EUR AMHS Manual - Version 16 / 10/2021 Url : https://www.icao.int/EURNAT/EUR%20and%20NAT%20Documents/EUR%20Documents/EUR%20Documents/020%20-%20EUR%20AMHS%20Manual/EUR%20Doc%20020%20-%20EUR%20AMHS%20Manual_v16_0.pdf ICAO - EUR-Doc 021 - ATS Messaging Management Manual - Version 16 / 04/2014 Url : https://www.icao.int/EURNAT/EUR%20and%20NAT%20Documents/EUR%20Documents/EUR%20Documents/021%20-%20ATS%20Messaging%20Management%20Manual/EUR%20Doc%20021%20-%20ATS%20Messaging%20Management%20Manual_v16_0.pdf EUROCONTROL - SPEC-0136 - EUROCONTROL Specification on the Air Traffic Services Message Handling System (AMHS) - Edition 2.1 / 09/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-air-traffic-services-message-handling-system-amhs		
Finalisation criteria:	1 - All COM Centre personnel have been adequately trained to AMHS technology. 2 - An AMHS "expertise cell" has been established in every COM Centre implementing AMHS. 3 - All ANSP personnel involved in ATS Messaging Management (AMC activities) has been adequately trained.		
COM10.2-ASP04	**Participate in AMC activities for ATS Messaging Management**	From: 01/12/2011	By: 31/12/2024
Action by:	**ANS Providers**		
Description & purpose:	Use the services of the ATS Messaging Management Centre (AMC) for AMHS off-line management		
Supporting material(s):	ICAO - EUR-Doc 021 - ATS Messaging Management Manual - Version 16 / 04/2014 Url : https://www.icao.int/EURNAT/EUR%20and%20NAT%20Documents/EUR%20Documents/EUR%20Documents/021%20-%20ATS%20Messaging%20Management%20Manual/EUR%20Doc%20021%20-%20ATS%20Messaging%20Management%20Manual_v16_0.pdf		
Finalisation criteria:	1 - AMC Procedures for Cooperating COM Centres (CCC) operators have been implemented as defined in the ATS Messaging Management Manual.		
COM10.2-IND01	**Ensure the conformity of AMHS systems**	From: 01/02/2011	By: 31/12/2024
Action by:	**Industry**		
Description & purpose:	AMHS system manufacturers to ensure that the available AMHS systems comply with the AMHS Community Specification.		
Supporting material(s):	ICAO - Doc 9880-Part IV - Manual on Detailed Technical Specifications for the Aeronautical Telecommunication Network (ATN) using ISO/OSI Standards and Protocols - Part IV - Directory Services, Security and Systems Management - Edition 1 / 12/2010 Url : https://store.icao.int/ EUROCONTROL - SPEC-0136 - EUROCONTROL Specification on the Air Traffic Services Message Handling System (AMHS) - Edition 2.1 / 09/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-air-traffic-services-message-handling-system-amhs		
Finalisation criteria:	1 - Test reports have been completed in accordance with AMHS Community Specification and testing methodology and tools ensured by the EUROCONTROL Agency. 2 - An EC declaration of conformity has been provided.		
COM10.2-AGY01	**Provide AMC (ATS Messaging Management Centre) Service**	From: 01/12/2011	By: 31/12/2024
Action by:	**EUROCONTROL Agency**		
Description & purpose:	Provide AMHS off-line network management service defined in the ATS Messaging Management Manual (ICAO EUR Doc 021)		

COM10.2	Extended AMHS

Supporting material(s):	ICAO - EUR-Doc 021 - ATS Messaging Management Manual - Version 16 / 04/2014 Url : https://www.icao.int/EURNAT/EUR%20and%20NAT%20Documents/EUR%20Documents/EUR%20Documents/021%20-%20ATS%20Messaging%20Management%20Manual/EUR%20Doc%20021%20-%20ATS%20Messaging%20Management%20Manual_v16_0.pdf		
Finalisation criteria:	1 - Positive indication in AMC user's satisfaction surveys.		
COM10.2-AGY02	**Enhance AMHS capability (Extended ATSMHS)**	From: 01/12/2011	By: 31/12/2024
Action by:	**EUROCONTROL Agency**		
Description & purpose:	Upgrade the AMHS capability in existing CFMU COM centres to provide the Extended ATSMHS in accordance with the profile specified in the AMHS Community Specification		
Supporting material(s):	ICAO - Doc 9880-Part II - Manual on Detailed Technical Specifications for the Aeronautical Telecommunication Network (ATN) using ISO/OSI Standards and Protocols - Part II - Ground-Ground Applications - Air Traffic Services Message Handling Services (ATSMHS) - Edition 1 / 12/2010 Url : https://store.icao.int/ EUROCONTROL - SPEC-0136 - EUROCONTROL Specification on the Air Traffic Services Message Handling System (AMHS) - Edition 2.1 / 09/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-air-traffic-services-message-handling-system-amhs		
Finalisation criteria:	1 - Extended ATSMHS capability has been implemented and put in operational service.		
COM10.2-AGY03	**Develop further relevant elements of the Extended ATSMHS in AMHS Community Specification**	From: 01/12/2011	By: 31/12/2024
Action by:	**EUROCONTROL Agency**		
Description & purpose:	Developed additional requirements regarding functionality of the relevant elements of the Extended ATSMHS and complete AMHS Community specification accordingly. This refers to a set of testing requirements, conformance, interoperability and pre-operational tests covering the Extended ATSMHS		
Supporting material(s):	EUROCONTROL - SPEC-0136 - EUROCONTROL Specification on the Air Traffic Services Message Handling System (AMHS) - Edition 2.1 / 09/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-air-traffic-services-message-handling-system-amhs		
Finalisation criteria:	1 - AMHS Community Specification has been updated with the relevant elements of the Extended ATSMHS.		
COM10.2-AGY04	**Implement AMHS-Community Specification compliance testing methodology and tools**	From: 01/12/2011	By: 31/12/2024
Action by:	**EUROCONTROL Agency**		
Description & purpose:	Take measures to ensure availability of test tools with adequate functionality with regard to AMHS Community Specification (particularly regarding Extended ATSMHS) Develop and implement testing methodology enabling Industry manufacturers and ANS Providers to execute AMHS Community Specification conformance tests		
Supporting material(s):	EUROCONTROL - SPEC-0136 - EUROCONTROL Specification on the Air Traffic Services Message Handling System (AMHS) - Edition 2.1 / 09/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-air-traffic-services-message-handling-system-amhs		
Finalisation criteria:	1 - Test tool has been made available		
COM10.2-AGY05	**Support personnel training**	From: 01/12/2011	By: 31/12/2024
Action by:	**EUROCONTROL Agency**		
Description & purpose:	Support AMHS training of personnel in ANS Providers, including operational procedures		
Finalisation criteria:	1 - Most people working in AFTN/CIDIN environment have been trained on AMHS before 2011.		

SESAR				Active						ECAC+
COM11.1				Voice over Internet Protocol (VoIP) in En-Route						
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

This Implementation Objective aims at an efficient use of Voice over Internet Protocol (VoIP) by harmonised and coordinated implementation for ground/ground and ground part of ground/air aeronautical communications, ensuring network benefits from VoIP implementation.

The initiative covers inter-centre (encompassing all type of ATM Units) voice communication and the links with the ground radio stations. COM11.1 is applicable to 'En-Route' and 'Network' Operating Environments. Inter-centre voice communications not yet migrated to VoIP are currently performed via analogue and digital circuits.

This legacy ATM voice services will soon no longer be supported by the European telecommunication service providers, making the use of new technology necessary. At present and in order to follow the evolution of the communication technologies, ATM-VoIP is the global standard (ICAO DOC 9896 ed2, based on EUROCAE ED137) for ground telephony and ground segment of the Air-Ground voice. ATM-VoIP industrial standard (EUROCAE ED-137) is maintained and evolved over time to ensure that voice communication requirements are met. Transition towards VoIP is bringing interoperability.

Cross-border aspects need to be addressed appropriately within the network perspective. VoIP in ATM constitutes an essential part of Network Operational Excellence Programme WST13.5 – IP Services and VoIP.

This project aims at an efficient use of Voice over Internet Protocol by harmonised and coordinated implementation for ground/ground and ground part of ground/air aeronautical communications, ensuring network benefits from VoIP implementation.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area	All ECAC States except: Luxembourg. Plus: Israel, Morocco

Timescales:	**From:**	**By:**	**Applicable to:**
Initial operational capability	01/01/2013		Applicability Area
Full operational capability		31/12/2021	Applicability Area

References

European ATM Master Plan

OI step -	- No OI Link -								
	Enablers -	CTE-C05a	CTE-C05b						

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

-none-

Essential Operational Changes

CNS Infrastructure and Services

SESAR Solution

- none -

ICAO GANP - ASBUs

COMI-B2/1	Air-Ground ATN/IPS

Deployment Programme

- none -	

COM11.1	Voice over Internet Protocol (VoIP) in En-Route

European Plan for Aviation Safety

- none -	

Operating Environments

En-Route
Network

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
COM11.1-ASP01	Develop safety assessment for the changes	01/01/2012	31/12/2021
COM11.1-ASP03	Upgrade and put into service Voice Communication Systems to support VoIP inter-centre telephony	01/01/2013	31/12/2021
COM11.1-ASP04	Upgrade and put into service Voice Communication Systems to support VoIP links to the ground radio stations	01/01/2013	31/12/2021

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Maintained or improved by providing enhanced signalisation functions. Improved by providing a more resilient infrastructure.
Capacity:	Maintained or improved by providing enhanced signalisation functions.
Operational Efficiency:	-
Cost Efficiency:	Reduced costs by enabling flexible and dynamic use of ANSP resources, leading to long term savings.
Environment:	-
Security:	-

Detailed SLoA Descriptions

COM11.1-ASP01	**Develop safety assessment for the changes**	From: 01/01/2012	By: 31/12/2021
Action by:	**ANS Providers**		
Description & purpose:	Develop safety assessment of the changes, notably upgrades of voice communication systems to support VoIP both for inter-centre telephony and AG radio communication. The tasks to be done are as follows: - Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks; - Develop safety assessment; - Deliver safety assessment to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. This safety assessment shall be based on fully validated/recognised method.		
Supporting material(s):	EC - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 - (OJ L 62, 8.03.2017, p. 1) - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011 03/2017 Url : https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R0373&from=EN EUROCONTROL - EAM 4 - ESARR 4 - Risk Assessment and Mitigation in ATM - Edition 1.0 / 04/2001 Url : https://www.eurocontrol.int/publication/esarr-4-risk-assessment-and-mitigation-atm		
Finalisation criteria:	1 - The Safety argument for all changes, generated by the deployment of VoIP, has been delivered by the ANSP to the NSA.		
COM11.1-ASP03	**Upgrade and put into service Voice Communication Systems to support VoIP inter-centre telephony**	From: 01/01/2013	By: 31/12/2021
Action by:	**ANS Providers**		

COM11.1	Voice over Internet Protocol (VoIP) in En-Route

Description & purpose:	Upgrade and put into service voice communication systems which support ED-137 compliant VoIP inter-centre telephony which will enable the deployment of system enablers listed in -References- section. The tasks to be done are as follows: - Define requirements which fit with operational/technical context and are based on relevant standards; - Upgrade voice communication systems to comply with defined requirements; - Implement or purchase IP network services to enable international communication exchange on IPS based protocol; - Purchase and install VCS equipment and/or gateways able to support VoIP in ATM; - Implement the necessary IPv4/IPv6 translation device if required; - Test voice required connectivity and performance; - Update VoIP addressing and connectivity information in the EUROCONTROL AGVN web-database; - Integrate upgraded voice communication systems into the operational network; - Put into service upgraded voice communication systems. The upgraded voice communication systems and their HMI shall enable the operators to perform the inter-centre communication using VoIP telephony at all types of ATS units. Report yearly the actual achieved performance for implemented VoIP in ATM to the EUROCONTROL Agency.
	Note :Completion of the finalisation criteria should be reflected by updating the VoIP connectivity information in the EUROCONTROL AGVN web-database. Previous versions of ED-137 standard and corresponding VOTER Test Tool are also valid.
Supporting material(s):	EUROCONTROL - VOTER 4.1.x Test Description - VOL 4 - Recorder Interface - Edition 3.6 / 12/2014 Url : https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents EUROCONTROL - SIP v ATS-R2 Gateway Interworking Test Specification - Edition 2 / 12/2013 Url : https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents EUROCONTROL - GUID-137 - EUROCONTROL Guidelines on conformity assessment for the interoperability Regulation of the single European sky - Edition 3.0 / 02/2012 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-conformity-assessment-interoperability-regulation-single EUROCONTROL - VoIP in ATM Cross-Reference Matrix for ED-137C – VOTER 4.x.x 12/2021 Url : https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents EUROCONTROL - SIP v ATS-QSIG Gateway Interworking Test Specification - Edition 2 / 12/2013 Url : https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents EUROCONTROL - VOTER Test Tool - version 4.x.x (ED-137C) EUROCAE - ED-137/2C - Interoperability Standards for VoIP ATM Components - Volume 2: Telephone 03/2019 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-137/2C Addenda 1 to 8 - Interoperability Standards for VoIP ATM Components - Volume 2 Addenda: Telephone 03/2019 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-137/2C Change 1 - Interoperability Standards for VoIP ATM Components - Volume 2: Telephone 05/2020 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-137/4C - Interoperability Standards for VoIP ATM Components - Volume 4: Recording 03/2019 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-137/5C - Interoperability Standards for VoIP ATM Components - Volume 5: Supervision 03/2019 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCONTROL - VOTER 4.0.x Test Description - VOL 7 - Supervision - Edition 3.2 / 01/2020 Url : https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents EUROCONTROL - VOTER 4.0.x Test Description - VOL 6 - Performance for GRS-VCS Interfaces - Edition 3.1 / 01/2020 Url : https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents EUROCAE - ED-136 - Voice over Internet Protocol (VoIP) Air Traffic Management (ATM) System Operational and Technical Requirements 02/2009 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-138 - Network Requirements and Performances for Voice over Internet Protocol (VoIP) Air Traffic Management (ATM) Systems - Part 2 Network Design Guideline 02/2009 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCONTROL - VOTER 4.1.x Test Description - VOL 3 - VCS Telephone Interface - Edition 3.9 / 10/2021 Url : https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents EUROCONTROL - VOTER 4.0.x Test Description - VOL 5 - Interoperability - Edition 3.1 / 12/2021 Url : https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents ICAO - Doc 9896 - Manual for the ATN using IPS Standards and Protocols - Edition 2.0 / 2015 Url : https://store1.icao.int/
ATM Master Plan relationship:	[CTE-C05a]-VoIP for ground telephony

COM11.1	Voice over Internet Protocol (VoIP) in En-Route

Finalisation criteria:	1 - Voice communications equipment has been upgraded. 2 - The technical file (TF) with evidences of compliance and the EC declaration of verification of systems (DoV) has been delivered to the competent National Supervisory Authority (NSA). 3 - Upgraded voice communication equipement has been put into operational service.		
COM11.1-ASP04	**Upgrade and put into service Voice Communication Systems to support VoIP links to the ground radio stations**	From: 01/01/2013	By: 31/12/2021
Action by:	**ANS Providers**		
Description & purpose:	Upgrade and put into service voice communication systems which support ED137 compliant VoIP links to the ground radio stations which will enable the deployment of system enablers listed in -References- section. The tasks to be done are as follows: - Define requirements which fit with operational/technical context and are based on relevant standards; - Upgrade voice communication systems to comply with defined requirements; - Implement or purchase IP network services to enable international communication exchange on IPS based protocol; - Purchase and install VCS and GRS equipment and/or gateways able to support VoIP in ATM; - Implement the necessary IPv4/IPv6 translation device if required; - Test voice required connectivity and performance including AG ground segment voice application; - Updating VoIP addressing and connectivity information in the EUROCONTROL AGVN web-database; - Integrate upgraded voice communication systems into the operational network; - Put into service upgraded voice communication systems. The upgraded voice communication systems shall enable the operators to perform A/G radio communication using VoIP links between VCS and ground radio stations. Report yearly the actual achieved performance for implemented VoIP in ATM to the EUROCONTROL Agency.		
	Note :Completion of the finalisation criteria should be reflected by updating the VoIP connectivity information in the EUROCONTROL AGVN web-database. Previous versions of ED-137 standard and corresponding VOTER Test Tool are also valid.		

COM11.1	Voice over Internet Protocol (VoIP) in En-Route

Supporting material(s):	EUROCONTROL - VOTER 4.1.x Test Description - VOL 4 - Recorder Interface - Edition 3.6 / 12/2014 Url : https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents EUROCAE - ED-137/1C - Interoperability Standards for VoIP ATM Components - Volume 1: Radio 04/2017 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCONTROL - VOTER 4.1.x Test Description -VOL 1- GRS Radio Interface - Edition 3.9 / 10/2021 Url : https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents EUROCONTROL - GUID-137 - EUROCONTROL Guidelines on conformity assessment for the interoperability Regulation of the single European sky - Edition 3.0 / 02/2012 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-conformity-assessment-interoperability-regulation-single EUROCONTROL - VoIP in ATM Cross-Reference Matrix for ED-137C – VOTER 4.x.x 12/2021 Url : https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents EUROCONTROL - VOTER Test Tool - version 4.x.x (ED-137C) EUROCAE - ED-137/4C - Interoperability Standards for VoIP ATM Components - Volume 4: Recording 03/2019 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-137/5C - Interoperability Standards for VoIP ATM Components - Volume 5: Supervision 03/2019 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCONTROL - VOTER 4.0.x Test Description - VOL 7 - Supervision - Edition 3.2 / 01/2020 Url : https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents EUROCAE - ED-137/1C Change 1 - Interoperability Standards for VoIP ATM Components - Volume 1: Radio 05/2020 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCONTROL - VOTER 4.0.x Test Description - VOL 6 - Performance for GRS-VCS Interfaces - Edition 3.1 / 01/2020 Url : https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents EUROCAE - ED-136 - Voice over Internet Protocol (VoIP) Air Traffic Management (ATM) System Operational and Technical Requirements 02/2009 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-138 - Network Requirements and Performances for Voice over Internet Protocol (VoIP) Air Traffic Management (ATM) Systems - Part 2 Network Design Guideline 02/2009 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCONTROL - VOTER 4.1.x Test Description - VOL 3 - VCS Telephone Interface - Edition 3.9 / 10/2021 Url : https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents EUROCONTROL - VOTER 4.0.x Test Description - VOL 5 - Interoperability - Edition 3.1 / 12/2021 Url : https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents EUROCONTROL - VOTER 4.1.x Test Description - VOL 2 - VCS Radio Interface - Edition 3.7 / 10/2021 Url : https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents ICAO - Doc 9896 - Manual for the ATN using IPS Standards and Protocols - Edition 2.0 / 2015 Url : https://store1.icao.int/
ATM Master Plan relationship:	[CTE-C05b]-Digital Voice / VoIP for ground segment of Air-Ground voice
Finalisation criteria:	1 - Voice communications equipment upgraded. 2 - The technical file (TF) with evidences of compliance and the EC declaration of verification of systems (DoV) has been delivered to the competent National Supervisory Authority (NSA). 3 - Upgraded voice communication equipment put into operational service.

SESAR	Active									ECAC+
COM11.2	Voice over Internet Protocol (VoIP) in Airport/Terminal									
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

This Implementation Objective aims at efficient use of Voice over Internet Protocol (VoIP) by harmonized and coordinated implementation for ground/ground and ground part of ground/air aeronautical communications, ensuring network benefits from VoIP implementation.

The initiative covers inter-centre (encompassing all type of ATM Units) voice communication and the links with the ground radio stations. COM11.2 is applicable to 'Airport' and 'Terminal' Operating Environments. Center-tower voice communications not yet migrated to VoIP are currently performed via analogue and digital circuits.

This legacy ATM voice services will soon no longer be supported by the European telecommunication service providers, making the use of new technology necessary. At present and in order to follow the evolution of the communication technologies, ATM-VoIP is the global standard (ICAO DOC 9896 ed2, based on EUROCAE ED137) for ground telephony and ground segment of the Air-Ground voice. ATM-VoIP industrial standard (EUROCAE ED-137) is maintained and evolved over time to ensure that voice communication requirements are met.

The transition towards VoIP is bringing interoperability. Cross-border aspects need to be addressed appropriately within the network perspective. VoIP in ATM constitutes an essential part of Network Operational Excellence Programme WST13.5 – IP Services and VoIP.

This sub-project aims at efficient use of Voice over Internet Protocol by harmonized and coordinated implementation for ground/ground and ground part of ground/air aeronautical communications, ensuring network benefits from VoIP implementation.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area (All ECAC+ States)	All ECAC States except: Armenia, Maastricht UAC, Malta. Plus: Israel, Morocco		
Timescales:	**From:**	**By:**	**Applicable to:**
Initial operational capability	01/01/2013		Applicability Area
Full operational capability		31/12/2023	Applicability Area

References

European ATM Master Plan

OI step -	- No OI Link -								
	Enablers -	CTE-C05a	CTE-C05b						

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

-none-

Essential Operational Changes

CNS Infrastructure and Services

SESAR Solution

- none -

ICAO GANP - ASBUs

COMI-B2/1	Air-Ground ATN/IPS

Deployment Programme

COM11.2	Voice over Internet Protocol (VoIP) in Airport/Terminal

- none -	

European Plan for Aviation Safety

- none -	

Operating Environments

Airport
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
COM11.2-ASP01	Develop safety assessment for the changes	01/01/2013	31/12/2023
COM11.2-ASP03	Upgrade and put into service Voice Communication Systems to support VoIP centre-tower telephony	01/01/2013	31/12/2023
COM11.2-ASP04	Upgrade and put into service Voice Communication Systems to support VoIP links to the ground radio stations	01/01/2013	31/12/2023

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Safety maintained or improved by providing enhanced signalisation functions and by providing a more resilient infrastructure.
Capacity:	Capacity maintained or improved by providing enhanced signalisation functions.
Operational Efficiency:	-
Cost Efficiency:	Reduced costs by enabling flexible and dynamic use of ANSP resources, leading to long-term savings.
Environment:	-
Security:	-

Detailed SLoA Descriptions

COM11.2-ASP01	**Develop safety assessment for the changes**	From: 01/01/2013	By: 31/12/2023
Action by:	**ANS Providers**		
Description & purpose:	Develop safety assessment of the changes, notably upgrades of voice communication systems to support VoIP both for inter-centre telephony and AG radio communication. The tasks to be done are as follows: - Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks; - Develop safety assessment; - Deliver safety assessment to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. This safety assessment shall be based on a fully validated/recognized method.		
Supporting material(s):	EC - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 - (OJ L 62, 8.03.2017, p. 1) - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011 03/2017 Url : https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R0373&from=EN EUROCONTROL - EAM 4 - ESARR 4 - Risk Assessment and Mitigation in ATM - Edition 1.0 / 04/2001 Url : https://www.eurocontrol.int/publication/esarr-4-risk-assessment-and-mitigation-atm		
Finalisation criteria:	1 - The Safety argument for all changes, generated by the deployment of VoIP, has been delivered by the ANSP to the NSA.		
COM11.2-ASP03	**Upgrade and put into service Voice Communication Systems to support VoIP centre-tower telephony**	From: 01/01/2013	By: 31/12/2023
Action by:	**ANS Providers**		

COM11.2	Voice over Internet Protocol (VoIP) in Airport/Terminal

Description & purpose:	Upgrade and put into service voice communication systems which support ED-137 compliant VoIP centre-tower telephony which will enable the deployment of system enablers listed in -References- section. The tasks to be done are as follows: - Define requirements which fit with operational/technical context and are based on relevant standards; - Upgrade voice communication systems to comply with defined requirements; - Implement or purchase IP network services to enable international communication exchange on IPS based protocol; - Purchase and install VCS equipment and/or gateways able to support VoIP in ATM; - Implement the necessary IPv4/IPv6 translation device if required; - Test voice required connectivity and performance; - Update VoIP addressing and connectivity information in the EUROCONTROL AGVN web-database; - Integrate upgraded voice communication systems into the operational network; - Put into service upgraded voice communication systems. The upgraded voice communication systems and their HMI shall enable the operators to perform the centre-tower communication using VoIP telephony at all types of ATS units. Report yearly the actual achieved performance for implemented VoIP in ATM to the EUROCONTROL Agency.
	Note :Completion of the finalization criteria should be reflected by updating the VoIP connectivity information in the EUROCONTROL AGVN web database. Previous versions of ED-137 standard and corresponding VOTER Test Tool are also valid
Supporting material(s):	EUROCONTROL - VOTER 4.1.x Test Description - VOL 4 - Recorder Interface - Edition 3.6 / 12/2014 Url : https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents EUROCONTROL - SIP v ATS-R2 Gateway Interworking Test Specification - Edition 2 / 12/2013 Url : https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents EUROCONTROL - GUID-137 - EUROCONTROL Guidelines on conformity assessment for the interoperability Regulation of the single European sky - Edition 3.0 / 02/2012 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-conformity-assessment-interoperability-regulation-single EUROCONTROL - VoIP in ATM Cross-Reference Matrix for ED-137C – VOTER 4.x.x 12/2021 Url : https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents EUROCONTROL - SIP v ATS-QSIG Gateway Interworking Test Specification - Edition 2 / 12/2013 Url : https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents EUROCONTROL - VOTER Test Tool - version 4.x.x (ED-137C) EUROCAE - ED-137/2C - Interoperability Standards for VoIP ATM Components - Volume 2: Telephone 03/2019 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-137/2C Addenda 1 to 8 - Interoperability Standards for VoIP ATM Components - Volume 2 Addenda: Telephone 03/2019 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-137/2C Change 1 - Interoperability Standards for VoIP ATM Components - Volume 2: Telephone 05/2020 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-137/4C - Interoperability Standards for VoIP ATM Components - Volume 4: Recording 03/2019 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-137/5C - Interoperability Standards for VoIP ATM Components - Volume 5: Supervision 03/2019 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCONTROL - VOTER 4.0.x Test Description - VOL 7 - Supervision - Edition 3.2 / 01/2020 Url : https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents EUROCONTROL - VOTER 4.0.x Test Description - VOL 6 - Performance for GRS-VCS Interfaces - Edition 3.1 / 01/2020 Url : https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents EUROCAE - ED-136 - Voice over Internet Protocol (VoIP) Air Traffic Management (ATM) System Operational and Technical Requirements 02/2009 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-138 - Network Requirements and Performances for Voice over Internet Protocol (VoIP) Air Traffic Management (ATM) Systems - Part 2 Network Design Guideline 02/2009 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCONTROL - VOTER 4.1.x Test Description - VOL 3 - VCS Telephone Interface - Edition 3.9 / 10/2021 Url : https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents EUROCONTROL - VOTER 4.0.x Test Description - VOL 5 - Interoperability - Edition 3.1 / 12/2021 Url : https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents ICAO - Doc 9896 - Manual for the ATN using IPS Standards and Protocols - Edition 2.0 / 2015 Url : https://store1.icao.int/
ATM Master Plan relationship:	[CTE-C05a]-VoIP for ground telephony
Finalisation criteria:	1 - Voice communications equipment has been upgraded. 2 - The technical file (TF) with evidences of compliance and the EC declaration of verification of systems (DoV) has been delivered to the competent National Supervisory Authority (NSA). 3 - Upgraded voice communication equipement has been put into operational service.

COM11.2	Voice over Internet Protocol (VoIP) in Airport/Terminal

COM11.2-ASP04	Upgrade and put into service Voice Communication Systems to support VoIP links to the ground radio stations	From: 01/01/2013	By: 31/12/2023
Action by:	**ANS Providers**		
Description & purpose:	Upgrade and put into service voice communication systems that support ED137 compliant VoIP links to the ground radio stations which will enable the deployment of system enablers listed in -References- section. The tasks to be done are as follows: - Define requirements that fit with operational/technical context and are based on relevant standards; - Upgrade voice communication systems to comply with defined requirements; - Implement or purchase IP network services to enable international communication exchange on IPS based protocol; - Purchase and install VCS and GRS equipment and/or gateways able to support VoIP in ATM; - Implement the necessary IPv4/IPv6 translation device if required; - Test voice required connectivity and performance including AG ground segment voice application; - Updating VoIP addressing and connectivity information in the EUROCONTROL AGVN web database; - Integrate upgraded voice communication systems into the operational network; - Put into service upgraded voice communication systems. The upgraded voice communication systems shall enable the operators to perform A/G radio communication using VoIP links between VCS and ground radio stations. Report yearly the actual achieved performance for implemented VoIP in ATM to the EUROCONTROL Agency		
	Note :Completion of the finalization criteria should be reflected by updating the VoIP connectivity information in the EUROCONTROL AGVN web-database. Previous versions of ED-137 standard and corresponding VOTER Test Tool are also valid.		

COM11.2	Voice over Internet Protocol (VoIP) in Airport/Terminal

Supporting material(s):	EUROCONTROL - VOTER 4.1.x Test Description - VOL 4 - Recorder Interface - Edition 3.6 / 12/2014 Url : https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents EUROCAE - ED-137/1C - Interoperability Standards for VoIP ATM Components - Volume 1: Radio 04/2017 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCONTROL - VOTER 4.1.x Test Description -VOL 1- GRS Radio Interface - Edition 3.9 / 10/2021 Url : https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents EUROCONTROL - GUID-137 - EUROCONTROL Guidelines on conformity assessment for the interoperability Regulation of the single European sky - Edition 3.0 / 02/2012 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-conformity-assessment-interoperability-regulation-single EUROCONTROL - VoIP in ATM Cross-Reference Matrix for ED-137C – VOTER 4.x.x 12/2021 Url : https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents EUROCONTROL - VOTER Test Tool - version 4.x.x (ED-137C) EUROCAE - ED-137/4C - Interoperability Standards for VoIP ATM Components - Volume 4: Recording 03/2019 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-137/5C - Interoperability Standards for VoIP ATM Components - Volume 5: Supervision 03/2019 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCONTROL - VOTER 4.0.x Test Description - VOL 7 - Supervision - Edition 3.2 / 01/2020 Url : https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents EUROCAE - ED-137/1C Change 1 - Interoperability Standards for VoIP ATM Components - Volume 1: Radio 05/2020 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCONTROL - VOTER 4.0.x Test Description - VOL 6 - Performance for GRS-VCS Interfaces - Edition 3.1 / 01/2020 Url : https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents EUROCAE - ED-137/1B - Interoperability Standards for VoIP ATM Components - Volume 1 Radio Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-137/5B - Interoperability Standards for VoIP ATM Components - Volume 5 Supervision 01/2012 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-136 - Voice over Internet Protocol (VoIP) Air Traffic Management (ATM) System Operational and Technical Requirements 02/2009 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCAE - ED-138 - Network Requirements and Performances for Voice over Internet Protocol (VoIP) Air Traffic Management (ATM) Systems - Part 2 Network Design Guideline 02/2009 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCONTROL - VOTER 4.1.x Test Description - VOL 3 - VCS Telephone Interface - Edition 3.9 / 10/2021 Url : https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents EUROCAE - ED-137/4B - Interoperability Standards for VoIP ATM Components - Volume 4 Recording 01/2012 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCONTROL - VOTER 4.0.x Test Description - VOL 5 - Interoperability - Edition 3.1 / 12/2021 Url : https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents EUROCONTROL - VOTER 4.1.x Test Description - VOL 2 - VCS Radio Interface - Edition 3.7 / 10/2021 Url : https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents ICAO - Doc 9896 - Manual for the ATN using IPS Standards and Protocols - Edition 2.0 / 2015 Url : https://store1.icao.int/
ATM Master Plan relationship:	[CTE-C05b]-Digital Voice / VoIP for ground segment of Air-Ground voice
Finalisation criteria:	1 - Voice communications equipment upgraded. 2 - The technical file (TF) with evidences of compliance and the EC declaration of verification of systems (DoV) has been delivered to the competent National Supervisory Authority (NSA). 3 - Upgraded voice communication equipment put into operational service.

SESAR	Active								ECAC+	
COM12	New Pan-European Network Service (NewPENS)									
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

PENS (Pan-European Network Service) is an international ground/ground communications infrastructure jointly implemented by EUROCONTROL and European ANSPs in order to meet existing and future ATM communication requirements.
NewPENS builds on PENS and aims at providing a new framework, with an adapted governance, to reap the benefits of having a single IP backbone for all ATM services in the ICAO EUR/NAT region.

The aim of NewPENS is to support information exchanges for all ATM services, not only for ANSPs and the Network Manager, but also supporting interactions with military, airport and aircraft operator. It is up to these stakeholders, depending on their requirements, to join NewPENS or use public Internet Protocol network

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military Authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (ANSPs signatories of the NewPENS Common Procurement Agreement: AL (Albcontrol), AT (Austrocontrol), BA (BHANSA), BE (BELGOCONTROL), BG(BULATSA), CH (Skyguide), CY (DCA), CZ (ANS CZ), DE (DFS), DK (Naviair), EE (EANS), ES (ENAIRE), FI (Finavia), FR (DSNA), HR (Crocontrol), HU (Hungarocontrol), IE (IAA), IT (ENAV), LU (ANS Luxembourg), LV (LGS), MK (M-NAV), MT (MATS), MUAC, NL (LVNL, RNLAF), NO (AVINOR), PL (PANSA), PT (NAV Portugal), RO (ROMATSA), RS (SMATSA), SE (LFV), SK(LPS SR), UA (UKASTE), UK(NATS))	All EU+ States except: Georgia, Greece, Lithuania, Moldova, Slovenia. Plus: Ukraine, United Kingdom
Applicability Area 2 (Stakeholders from the ECAC States not listed in Applicability Area 1.)	Armenia, Azerbaijan, Georgia, Greece, Israel, Lithuania, Moldova, Morocco, Slovenia, Turkey

Timescales:	From:	By:	Applicable to:
Initial operational capability	01/01/2018		Applicability Area 1 + Applicability Area 2
Full operational capability (33 ANSPs)		31/12/2024	Applicability Area 1
Full operational capability (Other stakeholders)		31/12/2024	Applicability Area 2

References

European ATM Master Plan

OI step -	- No OI Link -								
	Enablers -	CTE-C06b							

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan	

Applicable legislation

-none-

Essential Operational Changes

ATM Interconnected Network

SESAR Solution

- none -

ICAO GANP - ASBUs

COMI-B1/1	Ground-Ground Aeronautical Telecommunication Network/Internet Protocol Suite (ATN/IPS)

Deployment Programme

- none -	

European Plan for Aviation Safety

COM12	New Pan-European Network Service (NewPENS)

- none -	

Operating Environments

Airport
En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
COM12-ASP01	Provide NewPENS connectivity infrastructure	01/01/2018	31/12/2024 31/12/2024
COM12-ASP02	Migrate to NewPENS	01/01/2018	31/12/2024 31/12/2024
COM12-APO01	Migrate to NewPENS, if deemed beneficial	01/01/2018	31/12/2024
COM12-USE01	Migrate to NewPENS, if deemed beneficial	01/01/2018	31/12/2024
COM12-NM01	Adapt NM systems to allow stakeholders have access to existing datacentres via NewPENS	01/01/2018	31/12/2020 31/12/2024
COM12-NM02	Migrate to NewPENS	01/01/2018	31/12/2020 31/12/2024

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	Significant cost savings for the international communications of all connected stakeholders compared to: - Keeping the inter-stakeholder connections separate from the network. - Continuing to run all international communications on bilateral international links.
Environment:	-
Security:	NewPENS will further enhance security protection, detection and remediation capabilities with respect to PENS. It shall be compliant with the Security levels requested by the applications it will support. Security will be handled on multiple levels: technical, processes and people.

Detailed SLoA Descriptions

COM12-ASP01	**Provide NewPENS connectivity infrastructure**	From: 01/01/2018	By: 31/12/2024
Action by:	**ANS Providers**		
Description & purpose:	Adapt communications systems and infrastructure to enable connectivity between NewPENS and the ANSP's network according to technical requirements established by the NewPENS governance arrangements. NOTE: This SLoA applies both to ANSPs who provide COM services using their own infrastructure and to those who subcontract the service to other COM service providers; these will have to ensure the appropriate contractual and technical arrangements are made to provide connectivity to NewPENS.		
ATM Master Plan relationship:	[CTE-C06b]-PENS - Phase 2		
Finalisation criteria:	1 - Connectivity with NewPENS is enabled.		
COM12-ASP02	**Migrate to NewPENS**	From: 01/01/2018	By: 31/12/2024
Action by:	**ANS Providers**		
Description & purpose:	Migrate the selected services and applications to NewPENS. This shall include, when and where applicable, the exchange of Flight Object information as described in Section 5 of the Annex to Regulation (EU) No 716/2014.		
ATM Master Plan relationship:	[CTE-C06b]-PENS - Phase 2		
Finalisation criteria:	1 - NewPENS contract has been signed 2 - Selected applications and services have been migrated to NewPENS		
COM12-APO01	**Migrate to NewPENS, if deemed beneficial**	From: 01/01/2018	By: 31/12/2024
Action by:	**Airport Operators**		

COM12	New Pan-European Network Service (NewPENS)

Description & purpose:	According to local needs and requirements, migrate to NewPENS for communications with ANSPs and NM (e.g. CDM, messages).		
ATM Master Plan relationship:	[CTE-C06b]-PENS - Phase 2		
Finalisation criteria:	1 - NewPENS contract has been signed 2 - Selected applications and services have been migrated to NewPENS		
COM12-USE01	**Migrate to NewPENS, if deemed beneficial**	From: 01/01/2018	By: 31/12/2024
Action by:	**Airspace Users**		
Description & purpose:	According to local needs and requirements, migrate to NewPENS for communications with ANSPs and NM (e.g. CDM, messages).		
ATM Master Plan relationship:	[CTE-C06b]-PENS - Phase 2		
Finalisation criteria:	1 - NewPENS contract has been signed 2 - Selected applications and services have been migrated to NewPENS		
COM12-NM01	**Adapt NM systems to allow stakeholders have access to existing datacentres via NewPENS**	From: 01/01/2018	By: **Applicability Area 1:** 31/12/2020 **Applicability Area 2:** 31/12/2024
Action by:	**NM**		
Description & purpose:	Adapt NM systems to allow stakeholders have access to existing datacentres (e.g. EAD) via NewPENS.		
ATM Master Plan relationship:	[CTE-C06b]-PENS - Phase 2		
Finalisation criteria:	1 - NM systems have been adapted.		
COM12-NM02	**Migrate to NewPENS**	From: 01/01/2018	By: **Applicability Area 1:** 31/12/2020 **Applicability Area 2:** 31/12/2024
Action by:	**NM**		
Description & purpose:	Migrate the selected services and applications to NewPENS. This shall include the exchange of Flight Object information as described in Section 5 of the Annex to Regulation (EU) No 716/2014.		
ATM Master Plan relationship:	[CTE-C06b]-PENS - Phase 2		
Finalisation criteria:	1 - NewPENS contract has been signed 2 - Selected applications and services have been migrated to NewPENS		

SESAR	Active								LOC	
COM13	Air Traffic Services (ATS) datalink using SatCom Class B									
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

Communication services in terms of datalink systems and services are required in support of i4D and Aeronautical information data sharing.

The Iris Precursor service establishes the necessary communication infrastructure to support interoperable Oceanic and Continental i4D operations.The Iris Precursor service deploys an aviation communications service based on the existing Inmarsat SwiftBroadband (SBB) service. This would augment existing VHF Datalink (VDL) capability in Europe to improve current Link2000+ and planned I4D ATS datalink services delivery through increased reliability and capacity, and help establish satellite communications as a key component in the future ATM communications landscape.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area (Subject to local need)			
Timescales:	**From:**	**By:**	**Applicable to:**
IOC used for Analytics functioning only - not for implementation planning	01/07/2022		
FOC used for Analytics functioning only - not for implementation planning		31/12/2030	

References

European ATM Master Plan

OI step -	[POI-0018-COM]-SatCOM Class B for ATM								
	Enablers -	A/C-33a	CTE-C02f						

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

None

Essential Operational Changes

CNS Infrastructure and Services

SESAR Solution

#109 - Air Traffic Services datalink using SatCom Class B

ICAO GANP - ASBUs

- none -	

Deployment Programme

- none -	

European Plan for Aviation Safety

- none -	

Operating Environments

COM13	Air Traffic Services (ATS) datalink using SatCom Class B

Airport
En-Route
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
COM13-REG01	Approve compliance with safety requirements		
COM13-ASP01	Install and operate commercial SATCOM systems		
COM13-ASP02	Safety Assessment		
COM13-USE01	Upgrade Aircraft avionics		

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Improvements through enabling initial i4D operations.
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	Improvements through enabling initial i4D operations.
Environment:	-
Security:	-

Detailed SLoA Descriptions

COM13-REG01	**Approve compliance with safety requirements**	From: -	By: -
Action by:	**Regulatory Authorities**		
Description & purpose:	Regulatory Authorities need to ensure that the safety requirements are implemented in line with the safety assessment performed.		
Supporting material(s):	ICAO - Doc 9925 - ICAO Manual for Class B (Inmarsat SBB and IRIDIUM Next) Url : https://store.icao.int/ ICAO - Doc 9896 - Manual for the ATN using IPS Standards and Protocols - Edition 2.0 / 2015 Url : https://store1.icao.int/ EUROCAE - ED-243B - Minimum Operational Performance Standards for Avionics Supporting Next Generation Satellite Systems (NGSS) 03/2020 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-243b/ EUROCAE - ED-242B - MASPS for AMS(R)S Data and Voice Communications supporting RCP and RSP 03/2020 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-242b/ ICAO - Annex 10 - Aeronautical Telecommunications Url : http://store1.icao.int/		
Finalisation criteria:	1 - Safety requirements in place approved.		
COM13-ASP01	**Install and operate commercial SATCOM systems**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Air Navigation Service Providers to install and operate commercial SATCOM system with a satellite A/G datalink to provide service redundancy to the existing terrestrial datalink VDL2, both in multilink and in a standalone environment.		
Supporting material(s):	ICAO - Doc 9925 - ICAO Manual for Class B (Inmarsat SBB and IRIDIUM Next) Url : https://store.icao.int/ EUROCAE - ED-242B - MASPS for AMS(R)S Data and Voice Communications supporting RCP and RSP 03/2020 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-242b/ EUROCAE - ED-243B - Minimum Operational Performance Standards for Avionics Supporting Next Generation Satellite Systems (NGSS) 03/2020 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-243b/ ICAO - Doc 9896 - Manual for the ATN using IPS Standards and Protocols - Edition 2.0 / 2015 Url : https://store1.icao.int/ ICAO - Annex 10 - Aeronautical Telecommunications Url : http://store1.icao.int/		
ATM Master Plan relationship:	[CTE-C02f]-Future Satcom for ATM: SATCOM Class B in Multilink		
Finalisation criteria:	1 - The SATCOM system is installed and operational.		

COM13	Air Traffic Services (ATS) datalink using SatCom Class B

COM13-ASP02	Safety Assessment	From:	By:
		-	-
Action by:	**ANS Providers**		
Description & purpose:	A safety assessment of the changes shall be developed in coordination and synchronization with all concerned stakeholders. This safety assessment shall be delivered to the competent authority.		
Supporting material(s):	ICAO - Doc 9925 - ICAO Manual for Class B (Inmarsat SBB and IRIDIUM Next) Url : https://store.icao.int/ ICAO - Doc 9896 - Manual for the ATN using IPS Standards and Protocols - Edition 2.0 / 2015 Url : https://store1.icao.int/ EUROCAE - ED-243B - Minimum Operational Performance Standards for Avionics Supporting Next Generation Satellite Systems (NGSS) 03/2020 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-243b/ EUROCAE - ED-242B - MASPS for AMS(R)S Data and Voice Communications supporting RCP and RSP 03/2020 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-242b/ ICAO - Annex 10 - Aeronautical Telecommunications Url : http://store1.icao.int/		
ATM Master Plan relationship:	[CTE-C02f]-Future Satcom for ATM: SATCOM Class B in Multilink		
Finalisation criteria:	1 - Safety assessment developed and delivered to the competent authority.		

COM13-USE01	Upgrade Aircraft avionics	From:	By:
		-	-
Action by:	**Airspace Users**		
Description & purpose:	Upgrade the aircraft avionics with Satellite A-G datalink in multilink or in a standalone environment, based on existing recent commercial SATCOM systems (e.g. Inmarsat SBB). This allows augmentation of the terrestrial VDL2 network capability for increased datalink capacity and availability in continental airspace, and also the capability to extend support for i4D operations in oceanic areas (where the terrestrial VDL capability is not available).		
Supporting material(s):	EUROCAE - ED-243B - Minimum Operational Performance Standards for Avionics Supporting Next Generation Satellite Systems (NGSS) 03/2020 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-243b/ EUROCAE - ED-242B - MASPS for AMS(R)S Data and Voice Communications supporting RCP and RSP 03/2020 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-242b/		
ATM Master Plan relationship:	[A/C-33a]-Class B SATCOM		
Finalisation criteria:	1 - Aircraft avionics upgraded.		

SESAR	Active								APT	
ENV01	Continuous Descent Operations (CDO)									
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

A continuous descent operation (CDO) (1) is an aircraft operating technique, enabled by airspace design, procedure design and ATC clearances in which arriving aircraft descend without interruption, to the greatest possible extent, by employing minimum thrust in order to optimise the descent profile in terms of fuel burn. The optimum vertical profile takes the form of a continuously descending path.

Operating at optimum flight levels is a key driver to improving fuel efficiency and minimise carbon emissions as a large proportion of fuel burn occurs during the climb phase.

Many major airports now employ PBN procedures which can enable both CDO and continuous climb operations (CCO) and, in a large number of cases, judicious airspace and procedure design has resulted in significant reductions in environmental impacts. This is particularly the case where the airspace design has supported CCO and CDO.

CDO does not adversely affect safety and capacity and will produce environmental and operational benefits including reductions to fuel burn, gaseous emissions and noise impact.

It is important that monitoring and measuring of CDO execution is defined across ECAC using harmonised definitions to avoid misleading interpretations of performance measurement. It is equally important that CDO execution is measured across ECAC, as far as practicable, using a harmonised methodology and parameters. Whilst reporting can be undertaken at the local level according to local legislation and requirements, when CDO execution is reported on an international basis, this measurement should always be based upon a harmonised method, parameters and metric. The proposed methodology (4) identified by the European TF on CCO/CDO is detailed at http://www.eurocontrol.int/articles/continuous-climb-and-descent-operations.

Notes:
(1) Since the publication of ICAO Doc 9931, the term Continuous Descent Operations (CDO) has generally replaced the term CDA (Continuous Descent Approach).
(2) In principle, it is not required to implement CDO on a 24/7 basis, but it should be facilitated to the extent possible, according to local conditions.
(3) The methodology is detailed in the European CCO / CDO Action Plan, see https://www.eurocontrol.int/publication/european-cco-cdo-action-plan.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area	See list of airports in MP Level 3 Implementation Plan - Annexes		
Timescales:	**From:**	**By:**	**Applicable to:**
Initial operational capability	01/07/2007		Applicability Area
Full operational capability		31/12/2023	Applicability Area

References

European ATM Master Plan

OI step -	[AOM-0701]-Continuous Descent Approach (CDA)								
	Enablers -	None							
OI step -	[AOM-0702-A]-Continuous Descent Operations (CDO)								
	Enablers -	PRO-029							

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) 598/2014 of 16 April 2014 on the establishment of rules and procedures with regard to the introduction of noise-related operating restrictions at Union airports within a Balanced Approach and repealing Directive 2002/30/EC (as from 16/06/2016).
EC Directive 2002/49/EC, dated 25.06.2002 relating to the assessment and management of environmental noise.
EC Directive 2008/50/EC, dated 21.05.2008 on ambient air quality and cleaner air for Europe.

ENV01	Continuous Descent Operations (CDO)

Essential Operational Changes

Airport and TMA performance

SESAR Solution

#11 - Continuous Descent Operations (CDO)

ICAO GANP - ASBUs

APTA-B0/4	CDO (Basic)
APTA-B1/4	CDO (Advanced)

Deployment Programme

- none -	

European Plan for Aviation Safety

- none -	

Operating Environments

Airport
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
ENV01-ASP01	Implement rules and procedures for the application of CDO techniques	01/07/2007	31/12/2023
ENV01-ASP02	Design and implement CDO procedures enabled by PBN	01/01/2018	31/12/2023
ENV01-ASP03	Train controllers in the application of CDO techniques whenever practicable	01/07/2007	31/12/2023
ENV01-ASP04	Monitor and measure the execution of CDO	23/03/2018	31/12/2023
ENV01-APO01	Monitor and measure the execution of CDO	01/01/2018	31/12/2023
ENV01-USE01	Include CDO techniques in the aircrew training manual and support its implementation wherever possible	01/07/2007	31/12/2023

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	-
Operational Efficiency:	CDOs contribute to reducing airlines operating costs including a reduction in fuel consumption by the flying of optimised profiles (no vertical containment required). If the CDO is flown as part of a PBN procedure, the predictability of the vertical profile will be enhanced for ATC. CDOs are also a proxy for Vertical Flight Efficiency (VFE) and should be monitored according to harmonised definitions and parameters in order to measure efficiency.
Cost Efficiency:	-
Environment:	Reduction of fuel burn (and consequently, atmospheric emissions) has been estimated to be 51kg per flight for those flying CDO over those flying non-CDO. In addition, studies have indicated that due to lower drag and thrust facilitated by CDO, over certain portions of the arrival profile, noise can be reduced by up to 5dB.
Security:	-

Detailed SLoA Descriptions

ENV01-ASP01	**Implement rules and procedures for the application of CDO techniques**	From: 01/07/2007	By: 31/12/2023
Action by:	**ANS Providers**		
Description & purpose:	Coordinate activities and implement rules and ATC procedures for the application of CDO techniques in the TMA, whenever practicable. Coordination should be, in all circumstances, undertaken with adjacent ATS units, the NM, aircraft operators and airport operators. Provide the tactical and operational situational awareness support to allow aircrew to apply CDO.		

ENV01	Continuous Descent Operations (CDO)

Supporting material(s):	EUROCONTROL - EUROCONTROL CDO/CCO Supporting Material Url : https://www.eurocontrol.int/concept/continuous-climb-and-descent-operations ICAO - Doc 9426 - Air Traffic Services Planning Manual - Edition 1 / 12/1992 Url : http://www.icao.int/publications/Pages/catalogue.aspx EUROCONTROL - European CCO/CDO Action Plan Url : https://www.eurocontrol.int/publication/european-continuous-climb-and-descent-operations-action-plan ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : https://store.icao.int/en/performance-based-navigation-pbn-manual-doc-9613 ICAO - Doc 4444 - Air Traffic Management - Edition 16 / 11/2016 Url : https://store.icao.int/ ICAO - Doc 9931 - Continuous Descent Operations (CDO) Manual - Edition 1 / 12/2010 Url : https://cfapp.icao.int/tools/ATMiKIT/story_content/external_files/102600063919931_en.pdf EUROCONTROL - CCO / CDO Performance dashboard Url : https://www.eurocontrol.int/dashboard/continuous-climb-and-descent-operations-performance-monitoring-dashboard		
Finalisation criteria:	1 - CDO procedures have been published in the local/State AIP 2 - CDOs are made available to airspace users, whenever practicable		
ENV01-ASP02	**Design and implement CDO procedures enabled by PBN**	From: 01/01/2018	By: 31/12/2023
Action by:	**ANS Providers**		
Description & purpose:	Deploy performance-based airspace and arrival procedures that allow the aircraft to fly a continuous descent approach taking into account airspace and traffic complexity This enhances vertical flight path precision during descent, arrival, and enables aircraft to fly an arrival procedure not reliant on ground-based equipment for vertical guidance.		
Supporting material(s):	EUROCONTROL - EUROCONTROL CDO/CCO Supporting Material Url : https://www.eurocontrol.int/concept/continuous-climb-and-descent-operations ICAO - Doc 9426 - Air Traffic Services Planning Manual - Edition 1 / 12/1992 Url : http://www.icao.int/publications/Pages/catalogue.aspx EUROCONTROL - European CCO/CDO Action Plan Url : https://www.eurocontrol.int/publication/european-continuous-climb-and-descent-operations-action-plan ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : https://store.icao.int/en/performance-based-navigation-pbn-manual-doc-9613 ICAO - Doc 4444 - Air Traffic Management - Edition 16 / 11/2016 Url : https://store.icao.int/ ICAO - Doc 9931 - Continuous Descent Operations (CDO) Manual - Edition 1 / 12/2010 Url : https://cfapp.icao.int/tools/ATMiKIT/story_content/external_files/102600063919931_en.pdf		
ATM Master Plan relationship:	[PRO-029]-ATC Procedures to build a sequence and coordinate with other AoR in order to facilitate CCO/CDO		
Finalisation criteria:	1 - CDO procedures enabled by PBN have been published in the local/State AIP 2 - CDOs enabled by PBN are made available to airspace users, whenever practicable		
ENV01-ASP03	**Train controllers in the application of CDO techniques whenever practicable**	From: 01/07/2007	By: 31/12/2023
Action by:	**ANS Providers**		
Description & purpose:	Train controllers in the application of CDO techniques and the benefits that the facilitation of such techniques can provide to airspace users in terms of airspace efficiency together with fuel, emissions and cost savings.		
Supporting material(s):	EUROCONTROL - IANS-ENV-INTRO - Introduction to Environment -e-learning training course 12/2012 Url : https://trainingzone.eurocontrol.int/ EUROCONTROL - EUROCONTROL CDO/CCO Supporting Material Url : https://www.eurocontrol.int/concept/continuous-climb-and-descent-operations EUROCONTROL - European CCO/CDO Action Plan Url : https://www.eurocontrol.int/publication/european-continuous-climb-and-descent-operations-action-plan ICAO - Doc 9931 - Continuous Descent Operations (CDO) Manual - Edition 1 / 12/2010 Url : https://cfapp.icao.int/tools/ATMiKIT/story_content/external_files/102600063919931_en.pdf EUROCONTROL - CDO refresher course for ATCs Url : https://trainingzone.eurocontrol.int/ilp/pages/coursedescription.jsf?courseId=8117329&catalogId=232380 EUROCONTROL - CCO / CDO Performance dashboard Url : https://www.eurocontrol.int/dashboard/continuous-climb-and-descent-operations-performance-monitoring-dashboard		
Finalisation criteria:	1 - Approach controllers have been suitably trained in the application CDO techniques		
ENV01-ASP04	**Monitor and measure the execution of CDO**	From: 23/03/2018	By: 31/12/2023

ENV01	Continuous Descent Operations (CDO)

Action by:	**ANS Providers**		
Description & purpose:	In cooperation with airports, monitor and measure CDO execution, where possible based upon a harmonised methodology and metrics. The methodology should be used also to identify the cause of any restrictions to CDO (such as inefficient LoAs (reflecting older more inefficient aircraft types and their corresponding vertical profiles)). Route changes should then be proposed to facilitate CDOs, in order to enhance vertical flight efficiency. Provide any feedback to airports, aircraft operators and the NM on the level of CDO execution together with any other trends observed by the CDO performance monitoring.		
	Note :(4) At the time of publication of this document, the methodology released in 2016 by the CCO/CDO TF1 is currently being reviewed by the CCO/CDO TF2.		
Supporting material(s):	EUROCONTROL - EUROCONTROL CDO/CCO Supporting Material Url : https://www.eurocontrol.int/concept/continuous-climb-and-descent-operations EUROCONTROL - European CCO/CDO Action Plan Url : https://www.eurocontrol.int/publication/european-continuous-climb-and-descent-operations-action-plan EUROCONTROL - CCO, CDO harmonised definitions, metrics and parameters Url : https://youtu.be/PdeNroWY8Y0 EUROCONTROL - CDO refresher course for ATCs Url : https://trainingzone.eurocontrol.int/ilp/pages/coursedescription.jsf?courseId=8117329&catalogId=232380 EUROCONTROL - CCO / CDO Performance dashboard Url : https://www.eurocontrol.int/dashboard/continuous-climb-and-descent-operations-performance-monitoring-dashboard		
Finalisation criteria:	1 - In cooperation with the airport operator, the monitoring and measurement of CDO execution is performed and available. 2 - Arrangements are in place to provide feedback of CDO performance to the airport operator, the NM and the local community where practicable.		
ENV01-APO01	**Monitor and measure the execution of CDO**	From: 01/01/2018	By: 31/12/2023
Action by:	**Airport Operators**		
Description & purpose:	In cooperation with the ANSP, monitor and measure CDO execution, where possible based upon a harmonised methodology. The methodology should be used also to identify the cause of any restrictions to CDO (such as inefficient LoAs (reflecting older more inefficient aircraft types and their corresponding vertical profiles)). Route changes should then be proposed by the ANSP to facilitate CDOs, in order to enhance vertical flight efficiency. Provide any feedback to the ANSP, aircraft operators and the NM on the level of CDO execution together with any other trends observed by the CDO performance monitoring.		
	Note :At the time of publication of this document, the methodology released in 2016 by the CCO/CDO TF1 is currently being reviewed by the CCO/CDO TF2.		
Supporting material(s):	EUROCONTROL - EUROCONTROL CDO/CCO Supporting Material Url : https://www.eurocontrol.int/concept/continuous-climb-and-descent-operations EUROCONTROL - European CCO/CDO Action Plan Url : https://www.eurocontrol.int/publication/european-continuous-climb-and-descent-operations-action-plan EUROCONTROL - CCO, CDO harmonised definitions, metrics and parameters Url : https://youtu.be/PdeNroWY8Y0 EUROCONTROL - CDO refresher course for ATCs Url : https://trainingzone.eurocontrol.int/ilp/pages/coursedescription.jsf?courseId=8117329&catalogId=232380 EUROCONTROL - CCO / CDO Performance dashboard Url : https://www.eurocontrol.int/dashboard/continuous-climb-and-descent-operations-performance-monitoring-dashboard		
Finalisation criteria:	1 - In cooperation with the ANSP, the monitoring and measurement of CDO execution is performed and available. 2 - Arrangements are in place to provide feedback of CDO performance to the ANSP, the NM and the local community where practicable.		
ENV01-USE01	**Include CDO techniques in the aircrew training manual and support its implementation wherever possible**	From: 01/07/2007	By: 31/12/2023
Action by:	**Airspace Users**		
Description & purpose:	Provide suitable training, ensure awareness and encourage application of CDO techniques.		

ENV01	Continuous Descent Operations (CDO)

Supporting material(s):	EUROCONTROL - IANS-ENV-INTRO - Introduction to Environment -e-learning training course 12/2012 Url : https://trainingzone.eurocontrol.int/ EUROCONTROL - EUROCONTROL CDO/CCO Supporting Material Url : https://www.eurocontrol.int/concept/continuous-climb-and-descent-operations EUROCONTROL - European CCO/CDO Action Plan Url : https://www.eurocontrol.int/publication/european-continuous-climb-and-descent-operations-action-plan EUROCONTROL - CCO, CDO harmonised definitions, metrics and parameters Url : https://youtu.be/PdeNroWY8Y0 ICAO - Doc 9931 - Continuous Descent Operations (CDO) Manual - Edition 1 / 12/2010 Url : https://cfapp.icao.int/tools/ATMiKIT/story_content/external_files/102600063919931_en.pdf EUROCONTROL - CDO refresher course for ATCs Url : https://trainingzone.eurocontrol.int/ilp/pages/coursedescription.jsf?courseId=8117329&catalogId=232380 EUROCONTROL - CCO / CDO Performance dashboard Url : https://www.eurocontrol.int/dashboard/continuous-climb-and-descent-operations-performance-monitoring-dashboard
Finalisation criteria:	1 - CDO techniques have been integrated in the aircrew training manual.

SESAR	Active	LOC/APT
ENV02	Airport Collaborative Environmental Management	

REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

Implement or identify existing formal working partnership arrangements between ANSP, Airport and Aircraft Operators at individual airports to address and assess the environmental challenges at and around the vicinity of the airport. These challenges can be a significant constraining factor to efficient and sustainable operations.

Topics include but are not limited to:
• minimising noise and atmospheric emissions in particular CO2 and NOx (including fuel burn);
• introduction of new operational changes such as airspace design to include new entrants such as UAM, Hybrid and or hydrogen aircraft, different approach or departure procedures including CDO/CCO and PBN implementation, new airport infrastructure
• Compliance with airport-related legislation and environmental certification requirements
• Management of aircraft and airfield de-icing resulting from combined aircraft operations at the terminal airspace and ground.
• Adaptation to Climate Change (risk to infrastructure, de-icing strategies, water);
• Facilitate implementation and uptake of Sustainable Aviation Fuels;
• Contribute to robust community engagement dialogue and relations with local authorities.

CEM working arrangements will enable a greater understanding and awareness of interdependencies and facilitate jointly agreed solutions for sustainable environmental operational performance improvements that can benefit joint operations as well as local community engagement and relationships with local authorities.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

NOTE: A CEM Online tool is available at the link below with the purpose of providing a common platform to assist key operational stakeholders at airports in setting up a CEM Working Arrangement and to demonstrate compliance with the CEM Specification's Requirements:
https://www.eurocontrol.int/portal/collaborative-environment-management-online

Applicability Area(s) & Timescale(s)

Applicability Area			
Timescales:	**From:**	**By:**	**Applicable to:**
FOC used for Analytics functioning only - not for implementation planning	31/05/2018		Applicability Area
FOC used for Analytics functioning only - not for implementation planning		01/01/2030	Applicability Area

References

European ATM Master Plan

OI step -	[AO-0703]-Aircraft Environmental Impact Management and Mitigation at and around Airports								
	Enablers -	A/C-53	ENV-05	ENV-06	PRO-190	PRO-AC-53	PRO-ENV-12a	PRO-ENV-12b	PRO-ENV-13a
		PRO-ENV-13b							
OI step -	[AO-0705]-Reduced Water Pollution								
	Enablers -	AIRPORT-34	ENV-06	PRO-075					
OI step -	[AO-0706]-(Local) Monitoring of Environmental Performance								
	Enablers -	AIRPORT-34	ENV-06	ENV-07					

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

ENV02	Airport Collaborative Environmental Management

Regulation (EU) 2018/1139 of the European Parliament and of the Council of 4 July 2018 on common rules in the field of civil aviation and establishing a European Union Aviation Safety Agency, and amending Regulations (EC) No 2111/2005, (EC) No 1008/2008, (EU) No 996/2010, (EU) No 376/2014 and Directives 2014/30/EU and 2014/53/EU of the European Parliament and of the Council, and repealing Regulations (EC) No 552/2004 and (EC) No 216/2008 of the European Parliament and of the Council and Council Regulation (EEC) No 3922/91: Annex VIII, paragraph 3.2'the EATMN, its systems and their constituents shall support, on a coordinated basis, new agreed and validated concepts of operation that improve the quality, sustainability and effectiveness of air navigation services' Regulation (EU) 598/2014 of the European Parliament and of the Council of 16 April 2014 on the establishment of rules and procedures with regard to the introduction of noise-related operating restrictions at Union airports within a Balanced Approach and repealing Directive 2002/30/EC.

EC Directive 2002/49/EC, dated 25.06.2002 relating to the assessment and management of environmental noise. EC Directive 2008/50/EC, dated 21.05.2008 on ambient air quality and cleaner air for Europe. Regulation (EC) No 1221/2009 of the European Parliament and of the Council of 25 November 2009 on the voluntary participation by organisations in a Community eco-management and audit scheme (EMAS). Annexes I, II and III amended by Commission Regulation (EU) 2017/1505 of 28 August 2017 amending Annexes I, II and III to Regulation (EC) No 1221/2009 of the European Parliament and of the Council on the voluntary participation by organisations in a Community eco-management and audit scheme (EMAS) Annex IV amended by Commission Regulation (EU) 2018/2026 of 19 December 2018 amending Annex IV to Regulation (EC) No 1221/2009 of the European Parliament and of the Council on the voluntary participation by organisations in a Community eco-management and audit scheme (EMAS) Directive 2001/81/EC of the European Parliament and of the Council of 23 October 2001 on national emission ceilings for certain atmospheric pollutants Directive 2002/49/EC of the European Parliament and of the Council of 25 June 2002 relating to the assessment and management of environmental noise. Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe.

Essential Operational Changes

Airport and TMA performance

SESAR Solution

- none -

ICAO GANP - ASBUs

- none -	

Deployment Programme

- none -	

European Plan for Aviation Safety

- none -	

Operating Environments

Airport

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
ENV02-ASP01	Initiate and participate actively in formal collaborative working arrangements with the Airport and Aircraft Operators. Deliverable to identify and prioritise joint actions to minimise environmental impacts of air traffic procedures in and around the airport		
ENV02-ASP02	Train and raise awareness of controllers on the environmental impacts of aircraft operations and ways to improve performance		
ENV02-APO01	Initiate and participate actively in formal CEM working partnership arrangements with the ANSP and Aircraft Operators to minimise the environmental impact of air traffic procedures in and around the airport		
ENV02-APO02	Ensure appropriate and relevant performance data availability at Airports		
ENV02-APO03	Ensure appropriate Airport policy and procedures and, if required, relevant infrastructures needed to manage and mitigate pollution due to de-icing activities		
ENV02-APO04	Train and raise awareness of controllers on the environmental impacts of aircraft operations and ways to improve performance		
ENV02-USE01	Initiate and participate actively in formal working partnership arrangements with the ANSP and Airport to manage and minimise environmental impacts of air traffic procedures in and around the airport		
ENV02-AGY01	Provide assistance and guidelines to assist airports in setting up formal partnership arrangements between ATSP, Airport and Aircraft Operators for achieving control of environmental impact mitigation	**FINALISED**	

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

ENV02	Airport Collaborative Environmental Management

Safety:	-
Capacity:	Airports may see a gain in capacity if noise restrictions are lowered
Operational Efficiency:	Reduction of noise, fuel burn and CO2. Contributing to cost and Noise/CO2 savings for airlines and airports. Airports may see a gain in capacity if noise restrictions are lowered.
Cost Efficiency:	-
Environment:	Reduction of fuel use, noise, emissions and de-icing water pollution resulting from a structured collaborative approach that jointly identifies effective sustainable operational solutions for implementation and monitoring.
Security:	-

Detailed SLoA Descriptions

ENV02-ASP01	**Initiate and participate actively in formal collaborative working arrangements with the Airport and Aircraft Operators. Deliverable to identify and prioritise joint actions to minimise environmental impacts of air traffic procedures in and around the airport**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Implement and or initiate formal CEM working arrangements. In parallel, provide proactive practical support to minimise environmental impact and secure or safeguard ATM capacity in supporting compliance to the relevant legislation. CEM joint actions should be endorsed and supported by senior management. The purpose of CEM is to facilitate collaboration between the key operational stakeholders at airports to address the environmental impacts and understand interdependencies caused by their combined air traffic operations. The CEM working arrangements can provide timely and accurate operational or environmental data that is relevant to locally identified and jointly agreed actions. These can include aircraft noise, introduction of new operational changes such as airspace design, new entrants such as UAM, hybrid and or hydrogen aircraft, different approach or departure procedures including CDO and PBN implementation, new airport infrastructure, de-icing, fuel use and atmospheric emissions or any other ATM-related environmental imperative that is locally important including Climate Change adaptation and provision of sustainable Aviation Fuels		
	Note :Awareness and understanding of interdependencies. Jointly agreed environmental objectives, solutions and delivery plan, new procedures and trials, provision of data.		
Supporting material(s):	EUROCONTROL - Environmental Awareness Training Package Url : https://trainingzone.eurocontrol.int/ilp/pages/coursedescription.jsf?courseId=6220451&catalogId=896425 ICAO - Doc 9958 - Assembly Resolution A37-18: Consolidated statement of continuing ICAO policies and practices related to environmental protection - General provisions, noise and local air quality 10/2010 Url : https://store.icao.int/ ICAO - Doc 9646 - Engine Exhaust Emissions Databank - First Edition / 12/1995 Url : http://www.icao.int/publications/Pages/catalogue.aspx EUROCONTROL - SPEC-156 - EUROCONTROL Specification for Collaborative Environmental Management (CEM) - Edition 1.1 / 08/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-collaborative-environmental-management-cem ICAO - Doc 9829 - Guidance on the Balanced Approach to Aircraft Noise Management - Edition 2 / 10/2010 Url : https://www.icao.int/environmental-protection/Pages/noise.aspx#NoiseAbatement ICAO - Doc 9889 - Airport Air Quality Manual - Edition 1 / 01/2012 Url : https://www.icao.int/publications/Documents/9889_cons_en.pdf EUROCONTROL - Collaborative Environmental Management (CEM) animation Url : https://youtu.be/nUIMYw28mrQ EUROCONTROL - CEM Online Url : https://www.eurocontrol.int/portal/collaborative-environment-management-online ICAO - Doc 9184-Part 2 - Airport Planning Manual - Part 2 - Land Use and Environmental Control - Edition 4 / 01/2018 Url : https://store.icao.int/en/shop-by-areas/capacity-and-efficiency/aerodromes		
ATM Master Plan relationship:	[ENV-05]-Guidance for community relations at airports [ENV-06]-Central environmental guidance web-portal [PRO-190]-ATC Procedures for Managing Environmental Noise Capacity [PRO-ENV-12b]-Exploiting new ATM and aircraft capabilities to optimise the aircraft noise footprint at airports (Airports) [PRO-ENV-13b]-Airport Procedures for exploiting new ATM and aircraft capabilities with a view to optimising atmospheric emissions from aircraft operations		
Finalisation criteria:	1 - A Local Memorandum of Understanding (MoU) or Memorandum of Cooperation (MoC) officially signed by the key operational stakeholders 2 - A Terms of Reference (TOR) document detailing the working arrangement or document of similar authority covering the implementation of CEM		
ENV02-ASP02	**Train and raise awareness of controllers on the environmental impacts of aircraft operations and ways to improve performance**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Provide a regular training and awareness course in accordance with demand. This should include potentially CDO/CCO aircraft noise, aircraft and airfield de-icing, aircraft fuel use and atmospheric emissions or any other ATM-related environment imperative locally planned including new entrants.		

ENV02	Airport Collaborative Environmental Management

Supporting material(s):	ICAO - Doc 9958 - Assembly Resolution A37-18: Consolidated statement of continuing ICAO policies and practices related to environmental protection - General provisions, noise and local air quality 10/2010 Url : https://store.icao.int/ ICAO - Doc 9993 - Continuous Climb Operations (CCO) Manual - Edition 1 / 11/2013 Url : https://cfapp.icao.int/tools/ATMiKIT/story_content/external_files/10260008117raft_en_CCO.pdf ICAO - Doc 9646 - Engine Exhaust Emissions Databank - First Edition / 12/1995 Url : http://www.icao.int/publications/Pages/catalogue.aspx EUROCONTROL - SPEC-156 - EUROCONTROL Specification for Collaborative Environmental Management (CEM) - Edition 1.1 / 08/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-collaborative-environmental-management-cem EUROCONTROL - European CCO/CDO Action Plan Url : https://www.eurocontrol.int/publication/european-continuous-climb-and-descent-operations-action-plan ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : https://store.icao.int/en/performance-based-navigation-pbn-manual-doc-9613 ICAO - Doc 9829 - Guidance on the Balanced Approach to Aircraft Noise Management - Edition 2 / 10/2010 Url : https://www.icao.int/environmental-protection/Pages/noise.aspx#NoiseAbatement ICAO - Doc 9889 - Airport Air Quality Manual - Edition 1 / 01/2012 Url : https://www.icao.int/publications/Documents/9889_cons_en.pdf EUROCONTROL - CDO refresher course for ATCs Url : https://trainingzone.eurocontrol.int/ilp/pages/coursedescription.jsf?courseId=8117329&catalogId=232380 EUROCONTROL - European CCO / CDO Task Force web pages Url : https://www.eurocontrol.int/concept/continuous-climb-and-descent-operations EUROCONTROL - CEM Online Url : https://www.eurocontrol.int/portal/collaborative-environment-management-online ICAO - Doc 9184-Part 2 - Airport Planning Manual - Part 2 - Land Use and Environmental Control - Edition 4 / 01/2018 Url : https://store.icao.int/en/shop-by-areas/capacity-and-efficiency/aerodromes		
Finalisation criteria:	1 - Continuous or refresher controller awareness training on the environmental impacts of aircraft operations has been implemented.		
ENV02-APO01	**Initiate and participate actively in formal CEM working partnership arrangements with the ANSP and Aircraft Operators to minimise the environmental impact of air traffic procedures in and around the airport**	From: -	By: -
Action by:	**Airport Operators**		
Description & purpose:	Initiate and promulgate formal CEM partnership working arrangements with key operational stakeholders in order to manage and minimise environmental impacts of combined air traffic procedures in and around the airport. CEM can facilitate understanding and awareness of interdependencies and enable joint collaborative actions. Provide proactive practical mutual support to each other to ensure sustainable operations and secure or safeguard ATM capacity whilst facilitating compliance to relevant legislation. This can include aircraft noise, introduction of new operational changes such as airspace design, different approach or departure procedures including CDO and PBN implementation, new airport infrastructure, de-icing, fuel use and atmospheric emissions or any other ATM-related environment impact that is identified locally as important including Climate Change adaptation and provision of sustainable Aviation Fuels. CEM working arrangements should be endorsed and supported by senior management.		
	Note :Awareness and understanding of interdependencies. Jointly agreed environmental objectives, solutions and delivery plan, new procedures and trials, provision of data.		

ENV02	Airport Collaborative Environmental Management

Supporting material(s):	EUROCONTROL - Environmental Awareness Training Package Url : https://trainingzone.eurocontrol.int/ilp/pages/coursedescription.jsf?courseId=6220451&catalogId=896425 ICAO - Doc 9958 - Assembly Resolution A37-18: Consolidated statement of continuing ICAO policies and practices related to environmental protection - General provisions, noise and local air quality 10/2010 Url : https://store.icao.int/ ICAO - Doc 9646 - Engine Exhaust Emissions Databank - First Edition / 12/1995 Url : http://www.icao.int/publications/Pages/catalogue.aspx EUROCONTROL - SPEC-156 - EUROCONTROL Specification for Collaborative Environmental Management (CEM) - Edition 1.1 / 08/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-collaborative-environmental-management-cem ICAO - Doc 9829 - Guidance on the Balanced Approach to Aircraft Noise Management - Edition 2 / 10/2010 Url : https://www.icao.int/environmental-protection/Pages/noise.aspx#NoiseAbatement ICAO - Doc 9889 - Airport Air Quality Manual - Edition 1 / 01/2012 Url : https://www.icao.int/publications/Documents/9889_cons_en.pdf EUROCONTROL - Collaborative Environmental Management (CEM) animation Url : https://youtu.be/nUIMYw28mrQ EUROCONTROL - CEM Online Url : https://www.eurocontrol.int/portal/collaborative-environment-management-online ICAO - Doc 9184-Part 2 - Airport Planning Manual - Part 2 - Land Use and Environmental Control - Edition 4 / 01/2018 Url : https://store.icao.int/en/shop-by-areas/capacity-and-efficiency/aerodromes		
ATM Master Plan relationship:	[PRO-ENV-12b]-Exploiting new ATM and aircraft capabilities to optimise the aircraft noise footprint at airports (Airports)		
Finalisation criteria:	1 - A Local Memorandum of Understanding (MoU) or Memorandum of Cooperation (MoC) officially signed by the key operational stakeholders. 2 - A Terms of Reference (TOR) document detailing the working arrangement or document of similar authority covering the implementation of CEM.		
ENV02-APO02	**Ensure appropriate and relevant performance data availability at Airports**	From: -	By: -
Action by:	**Airport Operators**		
Description & purpose:	In accordance with locally agreed CEM priorities, ensure the availability of timely, accurate and relevant environmental information. This may entail investment in appropriate environmental monitoring or modelling systems at Airports in order to record and monitor locally significant environmental impacts that could include noise, introduction of new operational changes such as airspace design, different approach or departure procedures including CDO and PBN implementation, new airport infrastructure, emissions, air quality, etc. This data availability is essential in support of the continuous performance improvement process. In particular, it should be possible to determine the amount of airport related versus external pollution.		
Supporting material(s):	EUROCONTROL - Environmental Awareness Training Package Url : https://trainingzone.eurocontrol.int/ilp/pages/coursedescription.jsf?courseId=6220451&catalogId=896425 ICAO - Doc 9958 - Assembly Resolution A37-18: Consolidated statement of continuing ICAO policies and practices related to environmental protection - General provisions, noise and local air quality 10/2010 Url : https://store.icao.int/ ICAO - Doc 9646 - Engine Exhaust Emissions Databank - First Edition / 12/1995 Url : http://www.icao.int/publications/Pages/catalogue.aspx EUROCONTROL - SPEC-156 - EUROCONTROL Specification for Collaborative Environmental Management (CEM) - Edition 1.1 / 08/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-collaborative-environmental-management-cem ICAO - Doc 9829 - Guidance on the Balanced Approach to Aircraft Noise Management - Edition 2 / 10/2010 Url : https://www.icao.int/environmental-protection/Pages/noise.aspx#NoiseAbatement ICAO - Doc 9889 - Airport Air Quality Manual - Edition 1 / 01/2012 Url : https://www.icao.int/publications/Documents/9889_cons_en.pdf EUROCONTROL - Collaborative Environmental Management (CEM) animation Url : https://youtu.be/nUIMYw28mrQ EUROCONTROL - CEM Online Url : https://www.eurocontrol.int/portal/collaborative-environment-management-online ICAO - Doc 9184-Part 2 - Airport Planning Manual - Part 2 - Land Use and Environmental Control - Edition 4 / 01/2018 Url : https://store.icao.int/en/shop-by-areas/capacity-and-efficiency/aerodromes		
ATM Master Plan relationship:	[AIRPORT-34]-Airport equipped with (real time) environmental monitoring systems [ENV-05]-Guidance for community relations at airports [ENV-06]-Central environmental guidance web-portal [ENV-07]-(Local) monitoring of environmental performance		
Finalisation criteria:	1 - If relevant environmental monitoring or information systems have been implemented and deliver relevant and accurate performance data on time.		

ENV02	Airport Collaborative Environmental Management

ENV02-APO03	**Ensure appropriate Airport policy and procedures and, if required, relevant infrastructures needed to manage and mitigate pollution due to de-icing activities**	From: -	By: -
Action by:	**Airport Operators**		
Description & purpose:	Develop policy, procedures and technical applications in collaboration with airlines and ANSPs to manage and control the pollution of ground and surface water coming from de-icing activities. When required, ensure the implementation of relevant mitigation infrastructure for collection, disposal and possible treatment of fluids.		
Supporting material(s):	ICAO - Doc 9958 - Assembly Resolution A37-18: Consolidated statement of continuing ICAO policies and practices related to environmental protection - General provisions, noise and local air quality 10/2010 Url : https://store.icao.int/ ICAO - Doc 9646 - Engine Exhaust Emissions Databank - First Edition / 12/1995 Url : http://www.icao.int/publications/Pages/catalogue.aspx EUROCONTROL - SPEC-156 - EUROCONTROL Specification for Collaborative Environmental Management (CEM) - Edition 1.1 / 08/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-collaborative-environmental-management-cem ICAO - Doc 9829 - Guidance on the Balanced Approach to Aircraft Noise Management - Edition 2 / 10/2010 Url : https://www.icao.int/environmental-protection/Pages/noise.aspx#NoiseAbatement ICAO - Doc 9889 - Airport Air Quality Manual - Edition 1 / 01/2012 Url : https://www.icao.int/publications/Documents/9889_cons_en.pdf EUROCONTROL - Collaborative Environmental Management (CEM) animation Url : https://youtu.be/nUIMYw28mrQ EUROCONTROL - CEM Online Url : https://www.eurocontrol.int/portal/collaborative-environment-management-online ICAO - Doc 9184-Part 2 - Airport Planning Manual - Part 2 - Land Use and Environmental Control - Edition 4 / 01/2018 Url : https://store.icao.int/en/shop-by-areas/capacity-and-efficiency/aerodromes		
ATM Master Plan relationship:	[PRO-075]-Airport infrastructure and procedures governing de-icing to isolate surface water systems, collect and dispose of run-off, use the least harmful chemical, reduce the quantities required, reduce delays and increase recovered volumes of fluid		
Finalisation criteria:	1 - Information and procedures on de-icing pollution mitigation has been agreed and is published locally and accessible. 2 - Relevant infrastructure has been implemented, when and where required.		
ENV02-APO04	**Train and raise awareness of controllers on the environmental impacts of aircraft operations and ways to improve performance**	From: -	By: -
Action by:	**Airport Operators**		
Description & purpose:	Provide regular training and awareness course. Identify and ensure that all relevant operational staff is covered. The course should include where relevant aircraft noise, aircraft and airfield de-icing, aircraft fuel use and atmospheric emissions or any other locally identified environmental impact.		
Supporting material(s):	EUROCONTROL - Environmental Awareness Training Package Url : https://trainingzone.eurocontrol.int/ilp/pages/coursedescription.jsf?courseId=6220451&catalogId=896425 ICAO - Doc 9958 - Assembly Resolution A37-18: Consolidated statement of continuing ICAO policies and practices related to environmental protection - General provisions, noise and local air quality 10/2010 Url : https://store.icao.int/ ICAO - Doc 9646 - Engine Exhaust Emissions Databank - First Edition / 12/1995 Url : http://www.icao.int/publications/Pages/catalogue.aspx EUROCONTROL - SPEC-156 - EUROCONTROL Specification for Collaborative Environmental Management (CEM) - Edition 1.1 / 08/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-collaborative-environmental-management-cem ICAO - Doc 9829 - Guidance on the Balanced Approach to Aircraft Noise Management - Edition 2 / 10/2010 Url : https://www.icao.int/environmental-protection/Pages/noise.aspx#NoiseAbatement ICAO - Doc 9889 - Airport Air Quality Manual - Edition 1 / 01/2012 Url : https://www.icao.int/publications/Documents/9889_cons_en.pdf EUROCONTROL - Collaborative Environmental Management (CEM) animation Url : https://youtu.be/nUIMYw28mrQ EUROCONTROL - CEM Online Url : https://www.eurocontrol.int/portal/collaborative-environment-management-online ICAO - Doc 9184-Part 2 - Airport Planning Manual - Part 2 - Land Use and Environmental Control - Edition 4 / 01/2018 Url : https://store.icao.int/en/shop-by-areas/capacity-and-efficiency/aerodromes		
Finalisation criteria:	1 - Airport Operational staff awareness training on the environmental impacts of aircraft operations has been implemented and completed.		
ENV02-USE01	**Initiate and participate actively in formal working partnership arrangements with the ANSP and Airport to manage and minimise environmental impacts of air traffic procedures in and around the airport**	From: -	By: -

ENV02	Airport Collaborative Environmental Management

Action by:	**Airspace Users**
Description & purpose:	Enter into formal CEM partnership working arrangements with key operational stakeholders in order to manage and minimise environmental impacts of combined air traffic procedures in and around the airport. CEM can facilitate understanding and awareness of interdependencies and enable joint collaborative actions. Provide proactive practical mutual support to each other to ensure sustainable operations and secure or safeguard ATM capacity whilst facilitating compliance to relevant legislation. This can include aircraft noise, introduction of new operational changes such as airspace design, new entrants, different approach or departure procedures including CDO and PBN implementation, new airport infrastructure, de-icing, fuel use and atmospheric emissions or any other ATM-related environment impact that is identified locally as important including Climate Change adaptation and provision of sustainable Aviation Fuels. CEM working arrangements should be endorsed and supported by senior management.
	Note :Awareness and understanding of interdependencies. Jointly agreed environmental objectives, sustainable solutions and delivery plan, new procedures and trials, provision of robust data.
Supporting material(s):	EUROCONTROL - Environmental Awareness Training Package Url : https://trainingzone.eurocontrol.int/ilp/pages/coursedescription.jsf?courseId=6220451&catalogId=896425 ICAO - Doc 9958 - Assembly Resolution A37-18: Consolidated statement of continuing ICAO policies and practices related to environmental protection - General provisions, noise and local air quality 10/2010 Url : https://store.icao.int/ ICAO - Doc 9646 - Engine Exhaust Emissions Databank - First Edition / 12/1995 Url : http://www.icao.int/publications/Pages/catalogue.aspx EUROCONTROL - SPEC-156 - EUROCONTROL Specification for Collaborative Environmental Management (CEM) - Edition 1.1 / 08/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-collaborative-environmental-management-cem EUROCONTROL - European CCO/CDO Action Plan Url : https://www.eurocontrol.int/publication/european-continuous-climb-and-descent-operations-action-plan ICAO - Doc 9829 - Guidance on the Balanced Approach to Aircraft Noise Management - Edition 2 / 10/2010 Url : https://www.icao.int/environmental-protection/Pages/noise.aspx#NoiseAbatement ICAO - Doc 9889 - Airport Air Quality Manual - Edition 1 / 01/2012 Url : https://www.icao.int/publications/Documents/9889_cons_en.pdf EUROCONTROL - Collaborative Environmental Management (CEM) animation Url : https://youtu.be/nUIMYw28mrQ EUROCONTROL - CEM Online Url : https://www.eurocontrol.int/portal/collaborative-environment-management-online ICAO - Doc 9184-Part 2 - Airport Planning Manual - Part 2 - Land Use and Environmental Control - Edition 4 / 01/2018 Url : https://store.icao.int/en/shop-by-areas/capacity-and-efficiency/aerodromes
ATM Master Plan relationship:	[ENV-05]-Guidance for community relations at airports [PRO-AC-53]-Cockpit Procedure for Noise Abatement Departure Procedure [PRO-ENV-12a]-Exploiting new ATM and aircraft capabilities to optimise the aircraft noise footprint at airports (Airlines) [PRO-ENV-13a]-Airline Procedures for exploiting new ATM and aircraft capabilities with a view to optimising atmospheric emissions from aircraft operations
Finalisation criteria:	1 - A Local Memorandum of Understanding (MoU) or Memorandum of Cooperation (MoC) officially signed by the key operational stakeholders. 2 - A Terms of Reference (TOR) document detailing the working arrangement or document of similar authority covering the implementation of CEM

SESAR	Active								LOC/APT	
ENV03	Continuous Climb Operations (CCO)									
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

A continuous climb operation (CCO) (1) is an aircraft operating technique, enabled by airspace design, procedure design and ATC clearances in which departing aircraft climb without interruption, to the greatest possible extent, by employing optimum climb engine thrust at climb speeds until reaching the cruise flight level. The optimum vertical profile takes the form of a continuously climbing path.

Operating at optimum flight levels is a key driver to improving fuel efficiency and minimise carbon emissions as a large proportion of fuel burn occurs during the climb phase.

Many major airports now employ PBN procedures which can enable both CCO and continuous descent operations (CDO) and, in a large number of cases, judicious airspace and procedure design has resulted in significant reductions in environmental impacts. This is particularly the case where the airspace design has supported CCO and CDO.

CCO does not adversely affect safety and capacity and will produce environmental and operational benefits including reductions to fuel burn, gaseous emissions and noise impact.

It is important that monitoring and measuring of CCO execution is defined across ECAC using harmonised definitions to avoid misleading interpretations of performance measurement. It is equally important that CCO execution is measured across ECAC, as far as practicable, using a harmonised methodology and parameters. Whilst reporting can be undertaken at the local level according to local legislation and requirements, when CCO execution is reported on an international basis, this measurement should always be based upon a harmonised method, parameters and metric. The proposed methodology (4) identified by the European TF on CCO/CDO is detailed at http://www.eurocontrol.int/articles/continuous-climb-and-descent-operations.

NOTES:
(1) Since the publication of ICAO Doc 9993, the term Continuous Climb Operation (CCO) has generally replaced the term CCD (Continuous Climb Departure).
(2) In principle, it is not required to implement CCO on a 24/7 basis, but it should be facilitated to the extent possible, according to local conditions.
(3) Being a Local objective to be applied at individual airports according to their local needs, this objective does not have a mandatory implementation deadline. As reference guidance the expected date for deployment of Block 0 modules in the ICAO GANP, to which this objective is linked through ASBU B0-CCO, is 2013-2019.
(4) At the time of publication of this document, the methodology released in 2016 by the CCO/CDO TF1 is currently being reviewed by the CCO/CDO TF2.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area (Aerodromes subject to local needs and complexity)			
Timescales:	**From:**	**By:**	**Applicable to:**
FOC used for Analytics functioning only - not for implementation planning	01/01/2013		Applicability Area
FOC used for Analytics functioning only - not for implementation planning		01/01/2030	Applicability Area

References

European ATM Master Plan

OI step -	[AOM-0703]-Continuous Climb Departure								
	Enablers -	PRO-ENV-15							

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

ENV03	Continuous Climb Operations (CCO)

- Regulation (EU) 598/2014 of 16 April 2014 on the establishment of rules and procedures with regard to the introduction of noise-related operating restrictions at Union airports within a Balanced Approach and repealing Directive 2002/30/EC (as from 16/06/2016).
- EC Directive 2002/49/EC, dated 25.06.2002 relating to the assessment and management of environmental noise.
- EC Directive 2008/50/EC, dated 21.05.2008 on ambient air quality and cleaner air for Europe.

Essential Operational Changes

Airport and TMA performance

SESAR Solution

- none -

ICAO GANP - ASBUs

APTA-B0/5	CCO (Basic)
APTA-B1/5	CCO (Advanced)

Deployment Programme

- none -	

European Plan for Aviation Safety

- none -	

Operating Environments

Airport
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
ENV03-ASP01	Implement rules and procedures for the application of CCO techniques		
ENV03-ASP02	Train controllers in the application of CCO techniques		
ENV03-ASP03	Monitor and measure the execution of CCO		
ENV03-APO01	Monitor and measure the execution of CCO		
ENV03-USE01	Include CCO techniques in the aircrew training manual wherever possible		

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	-
Operational Efficiency:	CCOs contribute to reducing airlines operating costs including a reduction in fuel consumption by the flying of optimised profiles (no vertical containment required). If the CCO is flown as part of a PBN procedure, the predictability of the vertical profile will be enhanced for ATC. CCOs are also a proxy for Vertical Flight Efficiency (VFE) and should be monitored according to harmonised definitions and parameters in order to measure efficiency.
Cost Efficiency:	-
Environment:	Reduction of fuel burn (and consequently, atmospheric emissions) has been estimated to be 17kg per flight for those flying CCO over those flying non-CCO. In addition, studies have indicated that due to lower drag and thrust facilitated by CCO, over certain portions of the arrival profile, noise may be reduced. Studies are currently ongoing to gauge such noise reductions.
Security:	-

Detailed SLoA Descriptions

ENV03-ASP01	**Implement rules and procedures for the application of CCO techniques**	From:	By:
		-	-
Action by:	**ANS Providers**		
Description & purpose:	Coordinate activities and implement rules and ATC procedures for the application of CCO techniques in the TMA, whenever practicable. Coordination should be, in all circumstances, undertaken with adjacent ATS units, the NM, aircraft operators and airport operators. Provide the tactical and operational situational awareness support to allow aircrew to apply CCO.		

ENV03	Continuous Climb Operations (CCO)

Supporting material(s):	ICAO - Doc 9993 - Continuous Climb Operations (CCO) Manual - Edition 1 / 11/2013 Url : https://cfapp.icao.int/tools/ATMiKIT/story_content/external_files/10260008117raft_en_CCO.pdf EUROCONTROL - EUROCONTROL CDO/CCO Supporting Material Url : https://www.eurocontrol.int/concept/continuous-climb-and-descent-operations ICAO - Doc 9426 - Air Traffic Services Planning Manual - Edition 1 / 12/1992 Url : http://www.icao.int/publications/Pages/catalogue.aspx EUROCONTROL - European CCO/CDO Action Plan Url : https://www.eurocontrol.int/publication/european-continuous-climb-and-descent-operations-action-plan ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : https://store.icao.int/en/performance-based-navigation-pbn-manual-doc-9613 ICAO - Doc 4444 - Air Traffic Management - Edition 16 / 11/2016 Url : https://store.icao.int/ EUROCONTROL - CCO / CDO Performance dashboard Url : https://www.eurocontrol.int/dashboard/continuous-climb-and-descent-operations-performance-monitoring-dashboard		
ATM Master Plan relationship:	[PRO-ENV-15]-ATC Procedures and LoA with adjacent ATS units to ensure that airspace is designed to permit the aircraft continuous climb in order to avoid the unnecessary noise and excessive fuel emissions from non-optimal departure profiles		
Finalisation criteria:	1 - CCO procedures have been published in the local/State AIP. 2 - CCOs are made available to airspace users, whenever practicable.		
ENV03-ASP02	**Train controllers in the application of CCO techniques**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Train controllers in the application of CCO techniques and the benefits that the facilitation of such techniques can provide to airspace users in terms of airspace efficiency together with fuel, emissions and cost savings.		
Supporting material(s):	ICAO - Doc 9993 - Continuous Climb Operations (CCO) Manual - Edition 1 / 11/2013 Url : https://cfapp.icao.int/tools/ATMiKIT/story_content/external_files/10260008117raft_en_CCO.pdf EUROCONTROL - IANS-ENV-INTRO - Introduction to Environment -e-learning training course 12/2012 Url : https://trainingzone.eurocontrol.int/ EUROCONTROL - EUROCONTROL CDO/CCO Supporting Material Url : https://www.eurocontrol.int/concept/continuous-climb-and-descent-operations EUROCONTROL - CDO refresher course for ATCs Url : https://trainingzone.eurocontrol.int/ilp/pages/coursedescription.jsf?courseId=8117329&catalogId=232380 EUROCONTROL - CCO / CDO Performance dashboard Url : https://www.eurocontrol.int/dashboard/continuous-climb-and-descent-operations-performance-monitoring-dashboard		
Finalisation criteria:	1 - Approach controllers have been suitably trained in the application of CCO techniques		
ENV03-ASP03	**Monitor and measure the execution of CCO**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	In cooperation with airports, monitor and measure CCO execution, where possible based upon a harmonised methodology and metrics. The methodology should be used also to identify the cause of any restrictions to CCO (such as inefficient LoAs (reflecting older more inefficient aircraft types and their corresponding vertical profiles)). Route changes should then be proposed to facilitate CCOs, in order to enhance vertical flight efficiency. Provide any feedback to airports, aircraft operators and the NM on the level of CCO execution together with any other trends observed by the CCO performance monitoring.		
	Note :At the time of publication of this document, the methodology released in 2016 by the CCO/CDO TF1 is currently being reviewed by the CCO/CDO TF2.		
Supporting material(s):	EUROCONTROL - EUROCONTROL CDO/CCO Supporting Material Url : https://www.eurocontrol.int/concept/continuous-climb-and-descent-operations EUROCONTROL - European CCO/CDO Action Plan Url : https://www.eurocontrol.int/publication/european-continuous-climb-and-descent-operations-action-plan EUROCONTROL - CCO, CDO harmonised definitions, metrics and parameters Url : https://youtu.be/PdeNroWY8Y0 EUROCONTROL - CDO refresher course for ATCs Url : https://trainingzone.eurocontrol.int/ilp/pages/coursedescription.jsf?courseId=8117329&catalogId=232380 EUROCONTROL - CCO / CDO Performance dashboard Url : https://www.eurocontrol.int/dashboard/continuous-climb-and-descent-operations-performance-monitoring-dashboard		
Finalisation criteria:	1 - In cooperation with the airport operator, the monitoring and measurement of CCO execution is performed and available. 2 - Arrangements are in place to provide feedback of CCO performance to the airport operator, the NM and the local community where practicable		

ENV03	Continuous Climb Operations (CCO)

ENV03-APO01	Monitor and measure the execution of CCO	From:	By:
		-	-
Action by:	**Airport Operators**		
Description & purpose:	In cooperation with the ANSP, monitor and measure CCO execution, where possible based upon a harmonised methodology. The methodology should be used also to identify the cause of any restrictions to CCO (such as inefficient LoAs (reflecting older more inefficient aircraft types and their corresponding vertical profiles)). Route changes should then be proposed, by the ANSP, to facilitate CCOs, in order to enhance vertical flight efficiency. Provide any feedback to the ANSP, aircraft operators and the NM on the level of CCO execution together with any other trends observed by the CCO performance monitoring.		
	Note :At the time of publication of this document, the methodology released in 2016 by the CCO/CDO TF1 is currently being reviewed by the CCO/CDO TF2.		
Supporting material(s):	EUROCONTROL - EUROCONTROL CDO/CCO Supporting Material Url : https://www.eurocontrol.int/concept/continuous-climb-and-descent-operations EUROCONTROL - European CCO/CDO Action Plan Url : https://www.eurocontrol.int/publication/european-continuous-climb-and-descent-operations-action-plan EUROCONTROL - CCO, CDO harmonised definitions, metrics and parameters Url : https://youtu.be/PdeNroWY8Y0 EUROCONTROL - CDO refresher course for ATCs Url : https://trainingzone.eurocontrol.int/ilp/pages/coursedescription.jsf?courseId=8117329&catalogId=232380 EUROCONTROL - CCO / CDO Performance dashboard Url : https://www.eurocontrol.int/dashboard/continuous-climb-and-descent-operations-performance-monitoring-dashboard		
Finalisation criteria:	1 - In cooperation with the ANSP, the monitoring and measurement of CCO execution is performed and available. 2 - Arrangements are in place to provide feedback of CCO performance to the ANSP, the NM and the local community where practicable		

ENV03-USE01	Include CCO techniques in the aircrew training manual wherever possible	From:	By:
		-	-
Action by:	**Airspace Users**		
Description & purpose:	Provide suitable training, ensure awareness of and encourage application of CCO techniques.		
Supporting material(s):	ICAO - Doc 9993 - Continuous Climb Operations (CCO) Manual - Edition 1 / 11/2013 Url : https://cfapp.icao.int/tools/ATMiKIT/story_content/external_files/10260008117raft_en_CCO.pdf EUROCONTROL - IANS-ENV-INTRO - Introduction to Environment -e-learning training course 12/2012 Url : https://trainingzone.eurocontrol.int/ EUROCONTROL - EUROCONTROL CDO/CCO Supporting Material Url : https://www.eurocontrol.int/concept/continuous-climb-and-descent-operations EUROCONTROL - European CCO/CDO Action Plan Url : https://www.eurocontrol.int/publication/european-continuous-climb-and-descent-operations-action-plan EUROCONTROL - CCO, CDO harmonised definitions, metrics and parameters Url : https://youtu.be/PdeNroWY8Y0 EUROCONTROL - CDO refresher course for ATCs Url : https://trainingzone.eurocontrol.int/ilp/pages/coursedescription.jsf?courseId=8117329&catalogId=232380 EUROCONTROL - CCO / CDO Performance dashboard Url : https://www.eurocontrol.int/dashboard/continuous-climb-and-descent-operations-performance-monitoring-dashboard		
Finalisation criteria:	1 - CCO techniques have been integrated in the aircrew training manual.		

SESAR	Active									ECAC+
FCM03	Collaborative Flight Planning									
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

Improve collaboration between the NM, ANSPs, airports and airspace users in flight plan (FP) filing, in particular to assist airspace users in filing their FPs and in re-routings according to the airspace availability and ATFM situation.

The ATC flight plan (AFP) messages sent to the NM serve purpose of:

• Enabling NM to provide ATC Units with more accurate FP information, improving their traffic situation awareness and reducing the workload caused by last minute updates or missing FPs.
• Updating the ETFMS with FP information in order to reflect as accurately as possible the current and future flight trajectories, providing accurate sector load calculations.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area	All ECAC+ States		
Timescales:	**From:**	**By:**	**Applicable to:**
Initial operational capability	01/01/2000		Applicability Area
Full operational capability		31/12/2022	Applicability Area

References

European ATM Master Plan

OI step -	[IS-0102]-Improved Management of Flight Plan After Departure								
	Enablers -	NIMS-02	NIMS-20 FCM06.1	PRO-005					

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

-none-

Essential Operational Changes

ATM Interconnected Network

SESAR Solution

- none -

ICAO GANP - ASBUs

NOPS-B0/2	Collaborative Network Flight Updates

Deployment Programme

- none -	

European Plan for Aviation Safety

- none -	

Operating Environments

FCM03	Collaborative Flight Planning

Airport
En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
FCM03-ASP01	Provide flight plan message processing in ICAO format	**FINALISED**	
FCM03-ASP02	Automatically process FPLs derived from RPLs	**FINALISED**	
FCM03-ASP03	Provide flight plan message processing in ADEXP format	01/12/1997	31/12/2022
FCM03-ASP04	Processing of APL and ACH messages	**FINALISED**	
FCM03-ASP05	Automatically provide AFP for missing flight plans	01/03/1998	31/12/2022
FCM03-ASP06	Automatically provide AFP message for change of route	01/03/2003	31/12/2022
FCM03-ASP07	Automatically provide AFP message for a diversion	01/03/2008	31/12/2022
FCM03-ASP08	Automatically provide AFP message for a change of flight rules or flight type	01/03/2003	31/12/2022
FCM03-ASP09	Automatically provide AFP message for a change of requested cruising level	**DELETED**	
FCM03-ASP10	Provide AFP messages in ADEXP format	**DELETED**	
FCM03-ASP11	Use IFPLID in all messages to ETFMS	**DELETED**	
FCM03-ASP12	Use IFPLID in exchange of route-charge data	**DELETED**	
FCM03-ASP13	Automatically provide AFP message for change of aircraft type	01/03/2003	31/12/2022
FCM03-ASP14	Automatically provide AFP message for change of aircraft equipment	01/03/2008	31/12/2022
FCM03-NM01	Integration of Automatic AFP in NM systems	01/01/2010	31/12/2022

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Prevention of ATCO overload.
Capacity:	Better use of the available network capacity hence reducing delays.
Operational Efficiency:	A better traffic prediction will enhance traffic smoothing allowing less 'unnecessary' actions to be taken. Earlier awareness of the updated traffic situation will permit the flow management positions to consider and implement remedial actions to reduce the impact of the measures taken to accommodate the traffic. From the perspective of the airspace users, better traffic prediction will provide improved ability to maintain accurate estimated off-block times (EOBTs) for the return and subsequent legs for a flight/aircraft.
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

FCM03-ASP03	**Provide flight plan message processing in ADEXP format**	From: 01/12/1997	By: 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	Receive and automatically process IFPS output of all defined flight plan messages for input into local ATC systems in ADEXP format in line with ICAO State Letter (AN 13/2.1-08/50) - 25 June 2008. Impact of Flight Plan 2012 changes: The basic flight plan form and the field composition within the FPL message remains unchanged, but the content of some fields will change. - changes to indications in Items 10 and 18 (including the use of digits) describing the precise NAV/COM/SUR capabilities of the flight - the ability to file a FPL up to 5 days (120 hours) before the flight, using the Date of Flight (DOF/) in Item 18 - addition of new Item 18 indicators and changes to the contents of several existing indicators. - a change to the description of a significant point which may now be described by range and bearing The field composition within associated messages (CHG, DEP, CNL, ARR, RQP) will change to include the EOBT and Item 18 DOF/ thus ensuring association to the correct FPL.		
	Note :All national ATC systems that receive flight plan data from IFPS receive and process the data in ADEXP format. The SloA can be considered as not applicable if the amount of IFR/GAT traffic does not justify automation.		
Specific applicability:	ECAC States, IFR/GAT only.		
Supporting material(s):	EUROCONTROL - SPEC-107 - EUROCONTROL Specification for ATS Data Exchange Presentation (ADEXP) - Edition 3.3 / 07/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-ats-data-exchange-presentation-adexp		
Finalisation criteria:	1 - ATC system is able to receive and process flight plan data from IFPS in ADEXP format.		

FCM03-ASP05	**Automatically provide AFP for missing flight plans**	From: 01/03/1998	By: 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	Automatically provide IFPS with updated flight plan information on airborne flights by means of AFP message. Provide the AFP in case an IFR-GAT flight exists but no IFPL has been received from IFPS. The related AFP message can be sent in either ICAO or ADEXP format.		
Specific applicability:	ECAC States, IFR/GAT only.		
Supporting material(s):	EUROCONTROL - SPEC-107 - EUROCONTROL Specification for ATS Data Exchange Presentation (ADEXP) - Edition 3.3 / 07/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-ats-data-exchange-presentation-adexp EUROCONTROL - IFPS Users Manual - 24 Url : https://www.eurocontrol.int/publication/ifps-users-manual		
ATM Master Plan relationship:	[NIMS-02]-Provision , reception and processing of collaborative flight plan updates		
Finalisation criteria:	1 - Reception of AFP messages by NM has been ensured.		
FCM03-ASP06	**Automatically provide AFP message for change of route**	From: 01/03/2003	By: 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	Automatically provide IFPS with updated flight plan information on airborne flights by means of AFP message; provide the AFP for a change of route where the exit coordination point from the Air Traffic Services Unit (ATSU) has changed and the next downstream ATSU is new when compared to the last flight plan data. The related AFP message must be provided in ADEXP format only		
Specific applicability:	ECAC States, IFR/GAT only.		
Supporting material(s):	EUROCONTROL - SPEC-107 - EUROCONTROL Specification for ATS Data Exchange Presentation (ADEXP) - Edition 3.3 / 07/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-ats-data-exchange-presentation-adexp EUROCONTROL - IFPS Users Manual - 24 Url : https://www.eurocontrol.int/publication/ifps-users-manual		
ATM Master Plan relationship:	[NIMS-02]-Provision , reception and processing of collaborative flight plan updates		
Finalisation criteria:	1 - Transmission of AFP messages for route changes by the ANSP has been implemented.		
FCM03-ASP07	**Automatically provide AFP message for a diversion**	From: 01/03/2008	By: 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	Automatically provide IFPS with updated flight plan information on airborne flights by means of AFP message; provide the AFP in case of a diversion. The related AFP message must be provided in ADEXP format only.		
Specific applicability:	ECAC States, IFR/GAT only.		
Supporting material(s):	EUROCONTROL - SPEC-107 - EUROCONTROL Specification for ATS Data Exchange Presentation (ADEXP) - Edition 3.3 / 07/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-ats-data-exchange-presentation-adexp EUROCONTROL - IFPS Users Manual - 24 Url : https://www.eurocontrol.int/publication/ifps-users-manual		
ATM Master Plan relationship:	[NIMS-02]-Provision , reception and processing of collaborative flight plan updates		
Finalisation criteria:	1 - Transmission of AFP messages for diversions by the ANSP has been implemented.		
FCM03-ASP08	**Automatically provide AFP message for a change of flight rules or flight type**	From: 01/03/2003	By: 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	Automatically provide IFPS with updated flight plan information on airborne flights by means of AFP message; provide the AFP in case of a change of flight rules from VFR to IFR, or IFR to VFR, or a change of flight type from OAT to GAT, or GAT to OAT.		
Specific applicability:	ECAC States, IFR/GAT only.		
Supporting material(s):	EUROCONTROL - SPEC-107 - EUROCONTROL Specification for ATS Data Exchange Presentation (ADEXP) - Edition 3.3 / 07/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-ats-data-exchange-presentation-adexp EUROCONTROL - IFPS Users Manual - 24 Url : https://www.eurocontrol.int/publication/ifps-users-manual		
ATM Master Plan relationship:	[NIMS-02]-Provision , reception and processing of collaborative flight plan updates		
Finalisation criteria:	1 - Transmission of AFP messages for changes of flight rules and flight types by the ANSP has been implemented.		
FCM03-ASP13	**Automatically provide AFP message for change of aircraft type**	From: 01/03/2003	By: 31/12/2022

FCM03	Collaborative Flight Planning

Action by:	**ANS Providers**		
Description & purpose:	Automatically provide IFPS with updated Flight Plan information on airborne flights by means of AFP message. Provide the AFP in case of a change of aircraft type.		
Specific applicability:	ECAC States, IFR/GAT only.		
Supporting material(s):	EUROCONTROL - SPEC-107 - EUROCONTROL Specification for ATS Data Exchange Presentation (ADEXP) - Edition 3.3 / 07/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-ats-data-exchange-presentation-adexp EUROCONTROL - IFPS Users Manual - 24 Url : https://www.eurocontrol.int/publication/ifps-users-manual		
ATM Master Plan relationship:	[NIMS-02]-Provision , reception and processing of collaborative flight plan updates		
Finalisation criteria:	1 - Transmission of AFP messages for changes of aircraft type by ANSP has been implemented.		
FCM03-ASP14	**Automatically provide AFP message for change of aircraft equipment**	From: 01/03/2008	By: 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	Automatically provide IFPS with updated Flight Plan information on airborne flights by means of AFP message. Provide the AFP in case of a change of aircraft equipment. The related AFP message must be provided in ADEXP format only.		
Specific applicability:	ECAC States, IFR/GAT only.		
Supporting material(s):	EUROCONTROL - SPEC-107 - EUROCONTROL Specification for ATS Data Exchange Presentation (ADEXP) - Edition 3.3 / 07/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-ats-data-exchange-presentation-adexp EUROCONTROL - IFPS Users Manual - 24 Url : https://www.eurocontrol.int/publication/ifps-users-manual		
ATM Master Plan relationship:	[NIMS-02]-Provision , reception and processing of collaborative flight plan updates		
Finalisation criteria:	1 - Transmission of AFP messages for changes of aircraft equipment by ANSP has been implemented.		
FCM03-NM01	**Integration of Automatic AFP in NM systems**	From: 01/01/2010	By: 31/12/2022
Action by:	**NM**		
Description & purpose:	The automatic AFP messages should not be transmitted to IFPS without prior coordination and test validation by NM. NM should ensure the correctness of AFP messages by testing and validate t hem. If the testing is correct, the received AFP messages from a specific ASTC unit will be integrated in NM systems.		
ATM Master Plan relationship:	[NIMS-02]-Provision , reception and processing of collaborative flight plan updates		
Finalisation criteria:	1 - Integration of AFP messages in NM systems		

CP1	Active	ECAC+
FCM04.2	**Enhanced Short Term ATFCM Measures**	

REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

ATFCM is coordinated at network level by the Network Manager and at local level by the flow management position to support hot-spot detection, execution of Short-Term ATFCM Measures (STAM), network assessment and continuous monitoring of network activity. STAM is established requiring coordination between Air Traffic Control, Airport, Airspace Users and Network Manager.

Tactical capacity management using STAM shall ensure a close and efficient coordination between ATC and the network management function. Tactical capacity management shall implement STAM using cooperative decision-making to manage flow before flights enter a sector.

Additional tasks relevant to the STAM scope should encompass:

• utilisation of approved STAM concept of operations;
• development of operational guidance documentation;
• development of training package;
• development of harmonized operational procedures.

ANSP, AU and airport will apply harmonized operational procedures, taking into account the STAM prerequisites such as the traffic information and flight predictability.
Airspace Users should at minimum update their flight plans, manage the slot and the mandatory rerouting, but could also provide simple priorities, participate to CDM process, manage rerouting proposal.

System requirements:

NM systems shall implement the STAM functionalities and shall support the coordination of STAM measures implementation, including Network Impact assessment capabilities.

The STAM tool should include occupancy traffic monitoring values (OTMV), hotspot detection and coordination. The enhancements should mainly focus on:

• enhanced monitoring techniques (including hotspot management and complexity indicators);
• coordination systems (including interfaces with local tools);
• what-if function (local measures, flight-based, flow-based and multiple measure alternative);
• network impact assessment.

ANSP and AU shall use either the NM-provided STAM application or may deploy local tools, which shall interact with the NM systems using SWIM services, when and where available, at the latest by December 2025.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (All EU SES States)	All EU SES States
Applicability Area 2	Albania, Bosnia and Herzegovina, Montenegro, North Macedonia, Serbia, Turkey, United Kingdom

Timescales:	**From:**	**By:**	**Applicable to:**
Initial operational capability	01/11/2017		Applicability Area 1 + Applicability Area 2
Full Operational Capability / Target Date		31/12/2022	Applicability Area 1 + Applicability Area 2

References

European ATM Master Plan

OI step -	[DCB-0308]-Advanced Short Term ATFCM								
	Enablers -	NIMS-13b	NIMS-27	PRO-022	PRO-247	SWIM-APS-03a	SWIM-APS-04a	SWIM-INFR-05a	SWIM-NET-01a
OI step -	- No OI Link -								
	Enablers -	ER APP ATC 17							

FCM04.2	Enhanced Short Term ATFCM Measures

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) 2021/116 on the establishment of the Common Project One

Essential Operational Changes

ATM Interconnected Network

SESAR Solution

#17 - Advanced Short-Term ATFCM Measures (STAM)

ICAO GANP - ASBUs

NOPS-B1/1	Short Term ATFM measures

Deployment Programme

4.1.1	Enhanced Short Term ATFCM Measures

European Plan for Aviation Safety

- none -	

Operating Environments

En-Route
Network

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
FCM04.2-ASP01	Develop STAM procedure	01/11/2017	31/12/2022
FCM04.2-ASP02	Upgrade and use the local systems	01/11/2017	31/12/2022
FCM04.2-ASP03	Use of NM STAM application	01/11/2017	31/12/2022
FCM04.2-ASP04	Safety assessment	01/11/2017	31/12/2022
FCM04.2-ASP05	Training	01/11/2017	31/12/2022
FCM04.2-ASP06	Operational use	01/11/2017	31/12/2022
FCM04.2-USE01	Follow the validity of the flight plan and ATFM slot vs STAM measure	01/11/2017	31/12/2022
FCM04.2-NM01	Develop STAM procedures and upgrade the local systems	01/11/2017	31/12/2022
FCM04.2-NM02	Provide interface between NM and local tool	01/11/2017	31/12/2022
FCM04.2-NM03	Safety assessment	01/11/2017	31/12/2022
FCM04.2-NM04	Training	01/11/2017	31/12/2022
FCM04.2-NM05	Operational use	01/11/2017	31/12/2022

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Improved situational awareness of the European network.
Capacity:	Better use of airspace capacity in terminal and enroute airspace.
Operational Efficiency:	-
Cost Efficiency:	Increased cost efficiency.
Environment:	Better use of airspace capacity in terminal and enroute airspace.
Security:	-

Detailed SLoA Descriptions

FCM04.2-ASP01	Develop STAM procedure	From: 01/11/2017	By: 31/12/2022

FCM04.2	Enhanced Short Term ATFCM Measures

Action by:	**ANS Providers**		
Description & purpose:	Decide, based on specific operational needs, if a local STAM system is required or use of tools provided by NM is sufficient. Develop the associated procedures to ensure that the ATFCM planning at local level allows the STAM coordination process.		
	Note :This SLoA needs to be synchronised between ANSPs and NM		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[PRO-247]-FCM Procedures for hotspots information sharing and for CDM process to support STAM coordination and implementation..		
Finalisation criteria:	1 - The local procedures for STAM have been developed, either with local tool or NM tool.		
FCM04.2-ASP02	**Upgrade and use the local systems**	From: 01/11/2017	By: 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	Ensure that the ATFCM planning at local level allows the STAM coordination process (system-based), involving all actors and Procure/ Upgrade the local STAM systems, if required and justified with specific operational needs, and develop the connectivity with NM by using the NM B2B Services that support the STAM processes (INAP function).		
	Note :FCM04.2-ASP02 and FCM04.2-ASP03 can be implemented in parallel. This SLoA needs to be synchronised between ANSPs, AUs and NM.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[NIMS-13b]-Enhanced short term ATFM measures (STAM) [PRO-247]-FCM Procedures for hotspots information sharing and for CDM process to support STAM coordination and implementation..		
Finalisation criteria:	1 - Local STAM tool has been used and connected to NM tool.		
FCM04.2-ASP03	**Use of NM STAM application**	From: 01/11/2017	By: 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	Use of STAM application and services provided by NM HMI. Additional STAM features as the enhanced monitoring techniques, what-if functionality for local measures and system-based coordination are required.		
	Note :FCM04.2-ASP02 and FCM04.2-ASP03 can be implemented in parallel. This SLoA needs to be synchronised between ANSPs and NM.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[NIMS-13b]-Enhanced short term ATFM measures (STAM) [PRO-247]-FCM Procedures for hotspots information sharing and for CDM process to support STAM coordination and implementation..		
Finalisation criteria:	1 - NM STAM tool has been used		
FCM04.2-ASP04	**Safety assessment**	From: 01/11/2017	By: 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	The safety assessment of the changes must be developed and delivered to the competent authority.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.		
FCM04.2-ASP05	**Training**	From: 01/11/2017	By: 31/12/2022
Action by:	**ANS Providers** **NM**		
Description & purpose:	All relevant staff must be duly trained.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Training has been completed.		
FCM04.2-ASP06	**Operational use**	From: 01/11/2017	By: 31/12/2022
Action by:	**ANS Providers** **Airspace Users**		
Description & purpose:	Enhanced Short Term ATFCM Measures is ready for operational use once the procedures are in place, the systems have been upgraded, the safety assessment has been delivered and approved, and the training has been completed.		

FCM04.2	Enhanced Short Term ATFCM Measures

Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Enhanced Short Term ATFCM Measures are put into service		
FCM04.2-USE01	**Follow the validity of the flight plan and ATFM slot vs STAM measure**	From: 01/11/2017	By: 31/12/2022
Action by:	**Airspace Users** **NM**		
Description & purpose:	Follow the implementation of STAM measure either automatically or manually by reception of mandatory rerouting and/or modification of slot.		
	Note :This SLoA needs to be synchronised between ANSPs, AUs and NM.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[NIMS-13b]-Enhanced short term ATFM measures (STAM)		
Finalisation criteria:	1 - The flight has a valid flight plan and the amended slot if any is transmitted to the crew.		
FCM04.2-NM01	**Develop STAM procedures and upgrade the local systems**	From: 01/11/2017	By: 31/12/2022
Action by:	**NM**		
Description & purpose:	Update the NM systems and develop the associated procedures to ensure that the ATFCM planning at network level supports hot-spot detection, what-if function, STAM CDM, execution of STAM, network impact assessment and continuous monitoring of network activity.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[NIMS-13b]-Enhanced short term ATFM measures (STAM) [NIMS-27]-Network DCB sub-system enhanced with improved accuracy of processing real-time data [PRO-022]-FCM procedures for collaborating on SBT changes with Airspace Users [PRO-247]-FCM Procedures for hotspots information sharing and for CDM process to support STAM coordination and implementation..		
Finalisation criteria:	1 - Tools supporting STAM are available		
FCM04.2-NM02	**Provide interface between NM and local tool**	From: 01/11/2017	By: 31/12/2022
Action by:	**NM**		
Description & purpose:	Upgrade the NM system to provide the NM B2B Services interfaces necessary to support the local ANSP tool.		
	Note :This SLoA needs to be synchronised between ANSPs and NM.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[NIMS-13b]-Enhanced short term ATFM measures (STAM) [NIMS-27]-Network DCB sub-system enhanced with improved accuracy of processing real-time data [PRO-022]-FCM procedures for collaborating on SBT changes with Airspace Users [PRO-247]-FCM Procedures for hotspots information sharing and for CDM process to support STAM coordination and implementation..		
Finalisation criteria:	1 - NM B2B Services supporting the local STAM ANSP tool are available.		
FCM04.2-NM03	**Safety assessment**	From: 01/11/2017	By: 31/12/2022
Action by:	**NM**		
Description & purpose:	The safety assessment of the changes must be developed and delivered to the competent authority.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.		
FCM04.2-NM04	**Training**	From: 01/11/2017	By: 31/12/2022
Action by:	**NM**		
Description & purpose:	All relevant staff must be duly trained.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Training has been completed.		
FCM04.2-NM05	**Operational use**	From: 01/11/2017	By: 31/12/2022
Action by:	**NM**		

FCM04.2	Enhanced Short Term ATFCM Measures

Description & purpose:	Enhanced Short Term ATFCM Measures is ready for operational use once the procedures are in place, the systems have been upgraded, the safety assessment has been delivered and approved, and the training has been completed.
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme
Finalisation criteria:	1 - Enhanced Short Term ATFCM Measures are put into service.

Subject matter and scope

The Traffic Complexity tool continuously monitors and evaluates current and expected traffic loads and estimates the impact of traffic complexity on controllers' workload.

The predicted complexity enables ATFCM to take timely action to adjust capacity or request the traffic profile changes in coordination with Network Manager, ATC and airspace users.

The rigid application of ATFCM regulations based on standard demand thresholds as the pre-dominant tactical capacity measure needs to be replaced by a dynamic working relationship between ANSPs and Network Manager, which evolves towards monitoring of the real controller's workload, the resulting sector capacity and their dynamic management.

As the Trajectory predictability is crucial for complexity management, this objective also addresses the FF-ICE Release 1 implementation and message exchange between NM systems and operational Stakeholders in respect of collaborative flight planning, improving flight plan distribution and enhanced tactical flow management.

This encompasses the exchanges of following messages between NM systems, ATC systems and AU systems such as:

• ATC Flight Plan Proposal (AFP);
• ATC Flight Plan Change message (ACH);
• ATC Flight Plan message (APL);
• eFPL based on FF-ICE.

ANSPs shall provide the automatic AFPs in cases of tactical trajectory changes and process the APL/ACH data from IFPS. The NM system needs to integrate the automatic AFPs from ATC systems. The eFPL will include the 4D trajectory of the flight, as well as flight performance data, in addition to ICAO 2012 FPL data. The first phase should address only the exchange of eFPL between AUs and NM.

The eFPLs distribution will be exploited when ANSP's transition to FF-ICE provisions is achieved, transition that is not considered as mandatory within this objective.

System requirements:

Concerning the traffic complexity tools, it is suggested that ANSPs develop the concept for the complexity tools utilisation before considering the procurement/upgrades of ATM systems with this functionality.

ANSPs have two options:

• Use NM tools and systems
• Develop and install a local traffic complexity tool and connect with NM via the NM B2B Services;

The system requirements below are related to the second option of local traffic complexity tool:

• The Traffic Complexity tool continuously monitors and evaluates current and expected traffic loads and estimates controller's workload.
• It provides a support in the determination of solutions in order to plan airspace, sectors and staff to handle the predicted traffic. It is suggested that ANSPs develop concept for the complexity tools utilisation before considering the procurement/upgrades of ATM systems with this functionality;
• The local complexity tools need to receive process and integrate the EFD (or the NM B2B Services flight updates) provided by NM. This is required in order to supplement the local traffic counts with the flight plan data from ETFMS;
• Additionally, the use of the NM B2B Services for the reception/processing of NM traffic counts and for the provision of traffic monitoring values to NM might also need to be envisaged.

The NM systems adaptation activities:

• Deal with improving the quality of the planned trajectory (processing of tactical ATC information, processing of eFPL, support to mixed mode operations, implementation of traffic count methodologies that do not impact trajectory calculation) thus enhancing NM complexity assessment.
• Implementation of tools in support of traffic complexity will rely on the planned trajectory and allows simulating options optimising the use of available capacity. This will help NM operations identify possible mitigation strategies to be applied at network or local level, in

coordination with FMPs and airspace users if applicable.

AFP, APL and ACH

• ANSPs automatically provide AFP message to NM
• The local ATC system shall be capable to process APL and ACH messages sent by IFPS in order to exploit the full benefits of AFP distribution to NM.
• NM systems shall integrate the received AFP and provide APL/ACH messages.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (All EU SES States)	All EU SES States
Applicability Area 2	Albania, Armenia, Bosnia and Herzegovina, Georgia, Israel, Moldova, Montenegro, Morocco, North Macedonia, Serbia, Turkey, Ukraine, United Kingdom

Timescales:	**From:**	**By:**	**Applicable to:**
Initial Operational Capability	01/01/2021		Applicability Area 1 + Applicability Area 2
Full Operational Capability / Target date		31/12/2022	Applicability Area 1 + Applicability Area 2

References

European ATM Master Plan

OI step -	[CM-0101]-Automated Support for Traffic Load (Density) Management								
	Enablers -	ER APP ATC 124							
OI step -	[CM-0103-A]-Automated Support for Traffic Complexity Assessment								
	Enablers -	ER APP ATC 93	NIMS-37	PRO-220a	PRO-220b	SWIM-APS-03a	SWIM-APS-04a	SWIM-INFR-05a	SWIM-NET-01a
OI step -	[IS-0102]-Improved Management of Flight Plan After Departure								
	Enablers -	NIMS-02	NIMS-20	PRO-005					

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) No 2019/123 laying down detailed rules for the implementation of air traffic management (ATM) network functions and repealing Regulation (EU) No 677/2011 Regulation (EU) 2021/116 on the establishment of the Common Project One

Essential Operational Changes

ATM Interconnected Network

SESAR Solution

#19 - Automated support for Traffic Complexity Detection and Resolution, #37 - Extended Flight Plan, PJ.18-02c - eFPL distribution to ATC

ICAO GANP - ASBUs

NOPS-B0/2	Collaborative Network Flight Updates
NOPS-B1/4	Dynamic Traffic Complexity Management

Deployment Programme

4.3.1	Automated Support for Traffic Complexity Assessment and Flight Planning Interfaces

European Plan for Aviation Safety

- none -	

Operating Environments

FCM06.1	Automated Support for Traffic Complexity Assessment and Flight Planning interfaces

En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
FCM06.1-ASP01	Automatically provide AFP for airborne flights	01/01/2021	31/12/2022
FCM06.1-ASP02	Processing of APL and ACH messages	01/01/2021	31/12/2022
FCM06.1-ASP03	Use NM systems for traffic complexity management	01/01/2021	31/12/2022
FCM06.1-ASP04	Implement Local Traffic Complexity tool	01/01/2021	31/12/2022
FCM06.1-ASP05	Process and Integrate EFD for Local Traffic Complexity Tool	01/01/2021	31/12/2022
FCM06.1-ASP06	Local Traffic Complexity procedures	01/01/2021	31/12/2022
FCM06.1-ASP07	Safety Assessment	01/01/2021	31/12/2022
FCM06.1-ASP08	Training	01/01/2021	31/12/2022
FCM06.1-ASP09	Operational use	01/01/2021	31/12/2022
FCM06.1-NM01	Implement Traffic Complexity supporting tools	01/01/2021	31/12/2022
FCM06.1-NM02	Provide flight update information	01/01/2021	31/12/2022
FCM06.1-NM03	Integration of Automatic AFP in NM systems	01/01/2021	31/12/2022
FCM06.1-NM04	Upgrade the NM systems related to FF-ICE Release 1	01/01/2021	31/12/2022
FCM06.1-NM05	Safety Assessment	01/01/2021	31/12/2022
FCM06.1-NM06	Training	01/01/2021	31/12/2022
FCM06.1-NM07	Operational use	01/01/2021	31/12/2022

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Enhanced safety.
Capacity:	Increased ATC capacity.
Operational Efficiency:	-
Cost Efficiency:	Increased cost efficiency. Reduced fuel and emissions.
Environment:	-
Security:	-

Detailed SLoA Descriptions

FCM06.1-ASP01	**Automatically provide AFP for airborne flights**	From: 01/01/2021	By: 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	Automatically provide IFPS with updated flight plan information on airborne flights by means of AFP message related to missing flights, change of route, diversion, change of flight rule, flight type, A/C type and equipment.		
	Note :This SLoA needs to be synchronised between ANSPs and NM		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[NIMS-02]-Provision , reception and processing of collaborative flight plan updates		
Finalisation criteria:	1 - AFP messages are automatically provided to NM.		
FCM06.1-ASP02	**Processing of APL and ACH messages**	From: 01/01/2021	By: 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	Process automatically by ATC systems, the real-time updates to flight plan information as provided by IFPS via APL and ACH messages.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[NIMS-02]-Provision , reception and processing of collaborative flight plan updates		
Finalisation criteria:	1 - APL and ACH messages are automatically processed.		
FCM06.1-ASP03	**Use NM systems for traffic complexity management**	From: 01/01/2021	By: 31/12/2022

FCM06.1	Automated Support for Traffic Complexity Assessment and Flight Planning interfaces

Action by:	**ANS Providers**		
Description & purpose:	Instead of procuring a separate traffic complexity tool, some ANSPs may opt to use the existing tools provided by NM (in context of Network Collaborative Management) for the de-complexation of traffic situation within their AoR.		
	Note :FCM06.1-ASP03 and FCM06.1-ASP04 can be implemented in parallel. This SLoA needs to be synchronised between ANSPs and NM		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[ER APP ATC 124]-Basic Resource Management and Planning Tools. [ER APP ATC 93]-Enhance Resource Management and Planning Tools to use Traffic Complexity Assessment. [NIMS-37]-Basic Complexity assessment tools		
Finalisation criteria:	1 - NM complexity tool is used		
FCM06.1-ASP04	**Implement Local Traffic Complexity tool**	From: 01/01/2021	By: 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	Implement a local automated tool to support the continuous monitoring of the traffic loads per network node (sector, waypoint, route, route segment) according to declared capacities, assess the current and future sector plans and provide support to the local resource management. If deemed necessary, "sector" may include APP and/or TWR sectors.		
	Note :FCM06.1-ASP03 and FCM06.1-ASP04 can be implemented in parallel.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[ER APP ATC 124]-Basic Resource Management and Planning Tools. [ER APP ATC 93]-Enhance Resource Management and Planning Tools to use Traffic Complexity Assessment. [NIMS-37]-Basic Complexity assessment tools		
Finalisation criteria:	1 - The local complexity tool is implemented.		
FCM06.1-ASP05	**Process and Integrate EFD for Local Traffic Complexity Tool**	From: 01/01/2021	By: 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	The local traffic complexity tool to receive, process and integrate ETFMS Flight Data (EFD) or the flight data available via the NM B2B publish/subscribe mechanism. This activity is needed in order to supplement the local traffic count with the flight plan data from ETFMS.		
	Note :This SLoA needs to be synchronised between ANSPs and NM.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[NIMS-02]-Provision , reception and processing of collaborative flight plan updates [NIMS-20]-Provision, reception and processing of ATFCM flight progress messages		
Finalisation criteria:	1 - EFD data (the flight data available via the NM B2B publish/subscribe mechanism) are processed and integrated into the local complexity tool.		
FCM06.1-ASP06	**Local Traffic Complexity procedures**	From: 01/01/2021	By: 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	Develop and Implement local traffic complexity procedures.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[PRO-220a]-ATC Procedures related to Detection and Resolution of Complexity, Density and Traffic Flow Problems [PRO-220b]-FCM procedures to describe how detection and resolution of complexity, density or traffic flow issues are managed.		
Finalisation criteria:	1 - Local complexity procedures are developed and implemented.		
FCM06.1-ASP07	**Safety Assessment**	From: 01/01/2021	By: 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	The safety assessment of the changes must be developed and delivered to the competent authority.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.		
FCM06.1-ASP08	**Training**	From: 01/01/2021	By: 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	All relevant staff must be duly trained.		

FCM06.1	Automated Support for Traffic Complexity Assessment and Flight Planning interfaces

Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Training has been completed.		
FCM06.1-ASP09	**Operational use**	From: 01/01/2021	By: 31/12/2022
Action by:	**ANS Providers**		
Description & purpose:	Automated Support for Traffic Complexity Assessment and Flight Planning interfaces is ready for operational use once the procedures are in place, the systems have been upgraded, the safety assessment has been delivered and approved, and the training has been completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Automated Support for Traffic Complexity Assessment and Flight Planning interfaces is put into service.		
FCM06.1-NM01	**Implement Traffic Complexity supporting tools**	From: 01/01/2021	By: 31/12/2022
Action by:	**NM**		
Description & purpose:	Implementation of tools in support of traffic complexity management in the pre-tactical phase. It is intended to support NM operations by identifying the possible mitigation strategies to be applied at the network or local level, in coordination with FMPs and airspace users.		
	Note :This SLoA needs to be synchronised between ANSPs, AUs and NM.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[NIMS-37]-Basic Complexity assessment tools [PRO-220b]-FCM procedures to describe how detection and resolution of complexity, density or traffic flow issues are managed.		
Finalisation criteria:	1 - NM traffic complexity tool is implemented.		
FCM06.1-NM02	**Provide flight update information**	From: 01/01/2021	By: 31/12/2022
Action by:	**NM**		
Description & purpose:	Provide the dynamic flight updates via the EFD and via the NM B2B Services publish/subscribe mechanism to the local Traffic Complexity tool.		
	Note :This SLoA needs to be synchronised between ANSPs and NM.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[NIMS-02]-Provision , reception and processing of collaborative flight plan updates [NIMS-20]-Provision, reception and processing of ATFCM flight progress messages		
Finalisation criteria:	1 - B2B services providing the dynamic flight updates via EFD are implemented and published to the local complexity tool.		
FCM06.1-NM03	**Integration of Automatic AFP in NM systems**	From: 01/01/2021	By: 31/12/2022
Action by:	**NM**		
Description & purpose:	The NM systems AFP integration activities related to trajectory improvement with ATC tactical updates, thus enhancing flight planning and complexity assessment. NM needs ensure the correctness of AFP messages by testing and validate them. If the testing is correct, the received AFP messages from a specific ATC unit will be integrated in NM systems.		
	Note :This SLoA needs to be synchronised between ANSPs and NM.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[NIMS-02]-Provision , reception and processing of collaborative flight plan updates		
Finalisation criteria:	1 - AFP messages are integrated into the NM system.		
FCM06.1-NM04	**Upgrade the NM systems related to FF-ICE Release 1**	From: 01/01/2021	By: 31/12/2022
Action by:	**NM**		
Description & purpose:	Upgrade the NM systems with FF-ICE Release 1 filing and trial service and support to mixed mode operations.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[NIMS-02]-Provision , reception and processing of collaborative flight plan updates		
Finalisation criteria:	1 - FF-ICE release 1 filing and trial services are implemented in NM systems		
FCM06.1-NM05	**Safety Assessment**	From: 01/01/2021	By: 31/12/2022
Action by:	**NM**		

FCM06.1	Automated Support for Traffic Complexity Assessment and Flight Planning interfaces

Description & purpose:	The safety assessment of the changes must be developed and delivered to the competent authority.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.		
FCM06.1-NM06	**Training**	From: 01/01/2021	By: 31/12/2022
Action by:	**NM**		
Description & purpose:	All relevant staff must be duly trained.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Training has been completed.		
FCM06.1-NM07	**Operational use**	From: 01/01/2021	By: 31/12/2022
Action by:	**NM**		
Description & purpose:	Initial AOP/NOP Information Sharing is ready for operational use once the procedures are in place, the systems have been upgraded, the safety assessment has been delivered and approved, and the training has been completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Automated Support for Traffic Complexity Assessment and Flight Planning interfaces is put into service.		

Subject matter and scope

The rolling view of the network situation and the support to the collaborative processes is based on an information management platform, accessible online by all stakeholders for consultation, (not only passive but including dialogue opportunities) and updated as and when needed, in a secure and tailored way.

An initial implementation of the Interactive Rolling NOP was achieved through the deployment of the NOP Portal. The scope of this objective consists of the implementation of a platform that uses the state-of-the-art technologies.

This platform supports the network collaborative rolling processes from strategic to real-time operations, including capabilities for online performance monitoring integrated and feeding back into the collaborative network planning. The platform provides both a workplace tool, as well as system interfaces to allow integration in the stakeholders' own systems. Access to information is provided in a secure way, tailored according to the stakeholders needs and subject to access control rules, so that only those who have an operational need to access particular information are able to do so.

The platform allows building the Rolling NOP through a continuous exchange between the Network Manager and the operational stakeholders.

The Target Time (TT) management is an important part of Collaborative NOP. NM systems shall be able to derive the TT from the trajectory and the constraint and adjust calculated take-off times ('CTOT') based on refined and agreed TTs. NM shall assess the network impact of TT proposals, facilitate the coordination process if required, and transmit (updated) CTOT/TT messages to operational stakeholders. This process will be limited to the planning phase and transmission of updated CTOT. Operational Stakeholders need to be capable of receiving and processing these TT's.

ANSPs/AUs might foresee some adaptation of their systems for reception and handling of TTs. Where agreed, TT information will be used by flight crew and ATC in executive operations.

System requirements:

For NM:

• Provision of the NM technical platform and services for supporting collaborative NOP;
• Development of required NM B2B Services;
• Develop procedures handling the collaborative NOP updates (e.g. capacities values, runway configurations);
• Provision of TT by slot allocation and revision messages.

For ANSPs, Airports and AUs:

• Use of NM technical platform and services for supporting collaborative NOP;
• Use of the NM B2B Services (if required) for interaction with collaborative NOP;
• Develop procedures to provide updates to collaborative NOP (e.g. capacities values, runway configurations);
• Reception and handling of TT for ATFCM purposes.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (All EU SES States)	All EU SES States		
Applicability Area 2	Israel		
Timescales:	**From:**	**By:**	**Applicable to:**
Initial Operational Capability	01/01/2021		Applicability Area 1 + Applicability Area 2
Full Operational Capability / Target Date		31/12/2023	Applicability Area 1 + Applicability Area 2

References

European ATM Master Plan

OI step -	[DCB-0102]-Interactive Rolling NOP

FCM10	Interactive Rolling NOP

	Enablers -	AAMS-06a	AIMS-21	PRO-035					
OI step -	[DCB-0208]-DCB in a trajectory management context								
	Enablers -	AOC-ATM-11	AOC-ATM-13	AOC-ATM-20	ER APP ATC 17	NIMS-21a	NIMS-38	SWIM-APS-03a	SWIM-APS-04a
		SWIM-INFR-05a	SWIM-NET-01a						

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) 2021/116 on the establishment of the Common Project One

Essential Operational Changes

ATM Interconnected Network

SESAR Solution

#18 - CTOT and TTA, #20 - Collaborative NOP for Step 1

ICAO GANP - ASBUs

NOPS-B1/2	Enhanced Network Operations Planning
NOPS-B1/9	Target Times for ATFM purposes

Deployment Programme

4.2.1	Interactive Rolling NOP

European Plan for Aviation Safety

- none -	

Operating Environments

Airport
En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
FCM10-ASP01	Use of NM technical platform and NM B2B service	01/01/2021	31/12/2023
FCM10-ASP02	Develop and implement procedures for interaction with the NOP	01/01/2021	31/12/2023
FCM10-ASP03	Adapt systems to receive TT for ATFCM purposes	01/01/2021	31/12/2023
FCM10-ASP04	Safety assessment	01/01/2021	31/12/2023
FCM10-ASP05	Training	01/01/2021	31/12/2023
FCM10-ASP06	Operational use	01/01/2021	31/12/2023
FCM10-APO01	Use of NM technical platform and NM B2B service	01/01/2021	31/12/2023
FCM10-USE01	Implement procedures and processes in reception of Target Time	01/01/2021	31/12/2023
FCM10-NM01	Enhance the NM technical platform and services	01/01/2021	31/12/2023
FCM10-NM02	Develop Network Manager B2B services	01/01/2021	31/12/2023
FCM10-NM03	Implement the Collaborative NOP procedures	01/01/2021	31/12/2023
FCM10-NM04	Adapt NM systems to support Target Time sharing	01/01/2021	31/12/2023
FCM10-NM05	Safety Assessment	01/01/2021	31/12/2023
FCM10-NM06	Training	01/01/2021	31/12/2023
FCM10-NM07	Operational use	01/01/2021	31/12/2023

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

FCM10	Interactive Rolling NOP

Expected Performance Benefits

Safety:	Improved information sharing. Enhanced safety.
Capacity:	Enhanced predictability. Increased capacity.
Operational Efficiency:	-
Cost Efficiency:	Improved situational awareness.
Environment:	-
Security:	-

Detailed SLoA Descriptions

FCM10-ASP01	**Use of NM technical platform and NM B2B service**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2023
Action by:	**ANS Providers**		
Description & purpose:	Utilisation of NM technical platform for collaborative NOP (for manual access to NM platform) and NM B2B services (if system to system data exchange is deemed necessary).		
	Note :This SLoA needs to be synchronised between ANSPs and NM		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Technical connection to NM platform has been established.		
FCM10-ASP02	**Develop and implement procedures for interaction with the NOP**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2023
Action by:	**ANS Providers**		
Description & purpose:	Definition, validation and deployment of the new/changed operational procedures related to information updates to collaborative NOP.		
	Note :This SLoA needs to be synchronised between ANSPs and NM		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[PRO-035]-FCM Procedures for on-line access/update to the NOP and notification of updates		
Finalisation criteria:	1 - Operational procedures for the interaction with the NOP have been established.		
FCM10-ASP03	**Adapt systems to receive TT for ATFCM purposes**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2023
Action by:	**ANS Providers**		
Description & purpose:	Adapt ATC systems for handling of SAM/SRM messages and extraction of Target Times (TTs).		
	Note :This SLoA needs to be synchronised between ANSPs and NM		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Systems have been updated to receive TT.		
FCM10-ASP04	**Safety assessment**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2023
Action by:	**ANS Providers**		
Description & purpose:	The safety assessment of the changes must be developed and delivered to the competent authority.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.		
FCM10-ASP05	**Training**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2023
Action by:	**ANS Providers**		
Description & purpose:	All relevant staff must be duly trained.		

FCM10	Interactive Rolling NOP

Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Training has been completed.		
FCM10-ASP06	**Operational use**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2023
Action by:	**ANS Providers**		
Description & purpose:	Interactive rolling NOP is ready for operational use once the procedures are in place, the systems have been upgraded, the safety assessment has been delivered and approved, and the training has been completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Interactive rolling NOP is put into service.		
FCM10-APO01	**Use of NM technical platform and NM B2B service**	From: 01/01/2021	By: 31/12/2023
Action by:	**Airport Operators**		
Description & purpose:	Utilisation of NM technical platform for collaborative NOP (for manual access to NM platform) and NM B2B services (if system-to-system data exchange is deemed necessary).		
	Note :This SLoA needs to be synchronised between AOs and NM		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Technical connection to NM platform has been established.		
FCM10-USE01	**Implement procedures and processes in reception of Target Time**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2023
Action by:	**Airspace Users**		
Description & purpose:	Receive Target Times and inform the crew.		
	Note :This SLoA needs to be synchronised between ANSPs, AUs and NM		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Procedures and processes for the reception and transmission of TT have been developed and implemented.		
FCM10-NM01	**Enhance the NM technical platform and services**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2023
Action by:	**NM**		
Description & purpose:	The enhancement of NM's technical platform and services will address the following: - Improvement and integration of the different functionalities/interfaces in support of the Interactive Rolling NOP - Improved usability - Technical support for the capabilities required by the other families - Enhancements of post-analysis tools and process.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Implementation of technical platform and services upgrades is completed.		
FCM10-NM02	**Develop Network Manager B2B services**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2023
Action by:	**NM**		
Description & purpose:	Development and implementation of NM B2B Services in support of the information exchanges required by this objective.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Implementation of additional NM B2B interfaces related to services in FCM10-NM01 is completed.		
FCM10-NM03	**Implement the Collaborative NOP procedures**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2023
Action by:	**NM**		

FCM10	Interactive Rolling NOP

Description & purpose:	Definition, validation and deployment of the new/changed operational procedures related to information updates to collaborative NOP.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[PRO-035]-FCM Procedures for on-line access/update to the NOP and notification of updates		
Finalisation criteria:	1 - Operational procedures related to information updates to collaborative NOP have been implemented.		
FCM10-NM04	**Adapt NM systems to support Target Time sharing**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2023
Action by:	**NM**		
Description & purpose:	NM to provide the Target Times related to the most penalised regulation as part of the Slot Allocation Message (SAM) sent to ATSUs concerned by the flight and to the airline's Flight Operations Center. NM to include the Target Times information as part of SAM/SRM messages via the NM B2B Services (e.g. flight updates).		
	Note :This SLoA needs to be synchronised between ANSPs, AUs and NM.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[NIMS-21a]-Initial Flight Planning management enhanced to support 4D for Step 1 [NIMS-38]-Calculation and dissemination of the TTO & TTA [NIMS-46]-Integrated local DCB working position		
Finalisation criteria:	1 - Target times have been incorporated into SAM and equivalent NM B2B services.		
FCM10-NM05	**Safety Assessment**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2023
Action by:	**NM**		
Description & purpose:	The safety assessment of the changes must be developed and delivered to the competent authority.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.		
FCM10-NM06	**Training**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2023
Action by:	**NM**		
Description & purpose:	All relevant staff must be duly trained.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Training has been completed.		
FCM10-NM07	**Operational use**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2023
Action by:	**NM**		
Description & purpose:	Interactive rolling NOP is ready for operational use once the procedures are in place, the systems have been upgraded, the safety assessment has been delivered and approved, and the training has been completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Interactive rolling NOP is put into service.		

CP1				Active						APT
FCM11.1				**Initial AOP/NOP Information Sharing**						
REG	**ASP**	**MIL**	**APO**	**USE**	**INT**	**IND**	**NM**	**MET**	**AIS**	**USP**

Subject matter and scope

The AOP is a single, common and collaboratively agreed rolling plan available to all airport stakeholders whose purpose is to provide common situational awareness and to form the basis upon which stakeholder decisions relating to process optimization can be made. The AOP can be implemented in two steps: Initial AOP (iAOP) and Extended AOP, as described in objectives AOP11.1 and AOP11.2.

The collaborative NOP is the continuous data exchanges between the Network Manager and operational stakeholder systems in order to cover the entire flight trajectory lifecycle and to reflect priorities as required.

In order to improve the European ATM network performance, notably capacity and flight efficiency through exchange, modification and management of trajectory information there is a clear need for information sharing between the AOP and the NOP. The initial AOP/NOP integration is the technical data layer for the collaborative NOP information sharing.

The integration of AOP and NOP provides a rolling picture of the network and airport situation used by stakeholders to prepare and update their plans and their inputs to the network CDM processes, with a focus on the availability of shared operational planning and real-time data.

The iAOP/NOP integration focuses on exchanging between Airports/Airports Operational stakeholders' systems and NM systems the Arrival Planning Information (API) and Departure Planning Information (DPI) messages; those messages are an add-on to DPI messages currently provided by CDM Airports. The procedures to generate those messages and their detailed contents have to be defined in collaboration between the NM and the implementing stakeholders. NM has an implementation work plan with Airports in CEF projects for deployment of the Family.

Stakeholders also impacted are all the other involved airports stakeholders such as but not limited to:

• Aircraft operators
• Ground handlers
• De-icing handlers
• ANSPs
• MET services providers

System requirements:

• Network Manager systems shall handle arrival planning information and departure planning information from the iAOP via NM B2B services;
• In Airports, iAOP shall provide arrival and departure planning information to the NOP via NM B2B services. DPI messages might still be provided in ADEXP format until 2025, while P-DPI and API interfaces are available only via NM B2B services.
• Operational stakeholders' ground systems shall be adapted to directly interface with Network Manager systems via NM B2B services.
• Arrival and departure planning information for iAOP/NOP integration consists of the following mandatory messages:
  o P-DPI;
  o DPI used in CDM process;
  o General-API;
  o The other API messages (e.g. TTO, TTA) are considered for optional deployment in the iAOP/NOP integration.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (CP1 airports)	See list of airports in MP Level 3 Implementation Plan - Annexes
Applicability Area 2 (non-CP1 Airports) (Non-CP1 airports)	See list of airports in MP Level 3 Implementation Plan - Annexes

Timescales:	**From:**	**By:**	**Applicable to:**
Initial Operational Capability	01/01/2021		Applicability Area 1 + Applicability Area 2 (non-CP1 Airports)
Full Operational Capability / Target Date		31/12/2023	Applicability Area 1 + Applicability Area 2 (non-CP1 Airports)

References

FCM11.1	Initial AOP/NOP Information Sharing

European ATM Master Plan

OI step -	[AO-0801-A]-Collaborative Airport Planning Interface								
	Enablers -	AIRPORT-03 AOP11.1, AOP11.2	AIRPORT-31 AOP05	AIRPORT-38	AOC-ATM-13	HUM-007 AOP11.1, AOP11.2, FCM11.2	PRO-028	SWIM-APS-03a	SWIM-APS-04a
		SWIM-INFR-05a	SWIM-NET-01a						
OI step -	[DCB-0103-A]-Initial collaborative NOP								
	Enablers -	AIRPORT-38	METEO-06b	MIL-0502	NIMS-13b FCM04.2	NIMS-14b	NIMS-25	PRO-028	REG-0518
		SWIM-APS-01a	SWIM-APS-02a	SWIM-APS-03a	SWIM-APS-04a	SWIM-INFR-05a	SWIM-NET-01a		

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) 2021/116 on the establishment of the Common Project One

Essential Operational Changes

ATM Interconnected Network

SESAR Solution

#20 - Collaborative NOP for Step 1, #21 - Airport Operations Plan and AOP-NOP Seamless Integration

ICAO GANP - ASBUs

NOPS-B0/4	Initial Airport/ATFM slots and A-CDM Network Interface

Deployment Programme

4.2.2	Initial AOP/NOP Information Sharing

European Plan for Aviation Safety

- none -	

Operating Environments

Airport
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
FCM11.1-ASP01	Arrival and Departure Plan Information implementation	01/01/2021	31/12/2023
FCM11.1-ASP02	Implement Network Manager B2B services	01/01/2021	31/12/2023
FCM11.1-ASP03	Data validation	01/01/2021	31/12/2023
FCM11.1-ASP04	Safety assessment	01/01/2021	31/12/2023
FCM11.1-ASP05	Training	01/01/2021	31/12/2023
FCM11.1-ASP06	Operational use	01/01/2021	31/12/2023
FCM11.1-APO01	Arrival and Departure Plan Information implementation	01/01/2021	31/12/2023
FCM11.1-APO02	Implement Network Manager B2B services	01/01/2021	31/12/2023
FCM11.1-APO03	Data validation	01/01/2021	31/12/2023
FCM11.1-APO04	Safety assessment	01/01/2021	31/12/2023
FCM11.1-APO05	Training	01/01/2021	31/12/2023
FCM11.1-APO06	Operational use	01/01/2021	31/12/2023

FCM11.1	Initial AOP/NOP Information Sharing

FCM11.1-NM01	Develop API and DPI operational requirements	01/01/2021	31/12/2023
FCM11.1-NM02	Enhance the NM technical platform and services for Collaborative NOP	01/01/2021	31/12/2023
FCM11.1-NM03	API and DPI are ready to be integrated into the NM systems.	01/01/2021	31/12/2023
FCM11.1-NM04	Data validation	01/01/2021	31/12/2023
FCM11.1-NM05	Safety assessment	01/01/2021	31/12/2023
FCM11.1-NM06	Training	01/01/2021	31/12/2023
FCM11.1-NM07	Operational use	01/01/2021	31/12/2023

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Enhanced safety.
Capacity:	Increased capacity. Improved airport resilience/limiting capacity reduction in degraded situations.
Operational Efficiency:	-
Cost Efficiency:	Enhanced predictability.
Environment:	-
Security:	-

Detailed SLoA Descriptions

FCM11.1-ASP01	**Arrival and Departure Plan Information implementation**	From: 01/01/2021	By: 31/12/2023
Action by:	**ANS Providers**		
Description & purpose:	ANSP in coordination with NM, AO and all relevant local implementing stakeholders have to coordinate on procedures and content related to the content of API and DPI messages. ANSP has to ensure collection and integration of data with all airport operational stakeholders, as necessary.		
	Note :This SLoA needs to be synchronised between ANSPs, AOs and NM		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[AIRPORT-38]-Airport/ATFCM Extended data interface [PRO-028]-Procedures to support AOP-NOP collaborative process		
Finalisation criteria:	1 - API and DPI content and procedures have been agreed and data for those messages has been integrated into the system.		
FCM11.1-ASP02	**Implement Network Manager B2B services**	From: 01/01/2021	By: 31/12/2023
Action by:	**ANS Providers**		
Description & purpose:	ANSP technically implement in their local system the creation and exchange of API and DPI messages via NM B2B Services.		
	Note :This SLoA needs to be synchronised between ANSPs, AOs and NM		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - NM B2B services have been implemented in the systems for iAOP/NOP data exchange.		
FCM11.1-ASP03	**Data validation**	From: 01/01/2021	By: 31/12/2023
Action by:	**ANS Providers**		
Description & purpose:	ANSP in coordination with AO and NM ensure the validation of API and DPI data performing a process of systems testing of the data exchange.		
	Note :This SLoA needs to be synchronised between ANSPs, AOs and NM		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[AIRPORT-38]-Airport/ATFCM Extended data interface [PRO-028]-Procedures to support AOP-NOP collaborative process		
Finalisation criteria:	1 - Systems have been tested and validated.		
FCM11.1-ASP04	**Safety assessment**	From: 01/01/2021	By: 31/12/2023
Action by:	**ANS Providers**		
Description & purpose:	The safety assessment of the changes must be developed and delivered to the competent authority.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.		

FCM11.1	Initial AOP/NOP Information Sharing

FCM11.1-ASP05	**Training**	From: 01/01/2021	By: 31/12/2023
Action by:	**ANS Providers**		
Description & purpose:	All relevant staff must be duly trained.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Training has been completed.		
FCM11.1-ASP06	**Operational use**	From: 01/01/2021	By: 31/12/2023
Action by:	**ANS Providers**		
Description & purpose:	Initial AOP/NOP Information Sharing is ready for operational use once the procedures are in place, the systems have been upgraded, the safety assessment has been delivered and approved, and the training has been completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Initial AOP/NOP Information Sharing is put into service		
FCM11.1-APO01	**Arrival and Departure Plan Information implementation**	From: 01/01/2021	By: 31/12/2023
Action by:	**Airport Operators**		
Description & purpose:	AO in coordination with NM, ANSP and all relevant local implementing stakeholders have to coordinate on procedures and content related to the content of API and DPI messages. AO has to ensure collection and integration of data with all airport operational stakeholders, as necessary.		
	Note :This SLoA needs to be synchronised between ANSPs, AOs and NM		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[AIRPORT-38]-Airport/ATFCM Extended data interface [PRO-028]-Procedures to support AOP-NOP collaborative process		
Finalisation criteria:	1 - API and DPI content and procedures have been agreed and data for those messages has been integrated into the system.		
FCM11.1-APO02	**Implement Network Manager B2B services**	From: 01/01/2021	By: 31/12/2023
Action by:	**Airport Operators**		
Description & purpose:	AO technically implement in their local system the creation and exchange of API and DPI messages via NM B2B Services.		
	Note :This SLoA needs to be synchronised between ANSPs, AOs and NM		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - NM B2B services have been implemented in the systems for iAOP/NOP data exchange		
FCM11.1-APO03	**Data validation**	From: 01/01/2021	By: 31/12/2023
Action by:	**Airport Operators**		
Description & purpose:	AO in coordination with ANSP and NM ensure the validation of API and DPI data performing a process of systems testing of the data exchange.		
	Note :This SLoA needs to be synchronised between ANSPs, AOs and NM		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[AIRPORT-38]-Airport/ATFCM Extended data interface [PRO-028]-Procedures to support AOP-NOP collaborative process		
Finalisation criteria:	1 - Systems have been tested and validated		
FCM11.1-APO04	**Safety assessment**	From: 01/01/2021	By: 31/12/2023
Action by:	**Airport Operators**		
Description & purpose:	The safety assessment of the changes must be developed and delivered to the competent authority.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.		
FCM11.1-APO05	**Training**	From: 01/01/2021	By: 31/12/2023
Action by:	**Airport Operators**		
Description & purpose:	All relevant staff must be duly trained.		

FCM11.1	Initial AOP/NOP Information Sharing

Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Training has been completed.		
FCM11.1-APO06	**Operational use**	From: 01/01/2021	By: 31/12/2023
Action by:	**Airport Operators**		
Description & purpose:	Initial AOP/NOP Information Sharing is ready for operational use once the procedures are in place, the systems have been upgraded, the safety assessment has been delivered and approved, and the training has been completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Initial AOP/NOP Information Sharing is put into service.		
FCM11.1-NM01	**Develop API and DPI operational requirements**	From: 01/01/2021	By: 31/12/2023
Action by:	**NM**		
Description & purpose:	In the context of CDM process, NM in coordination with Airport operational stakeholders develops the requirements for API and DPI messages		
	Note :This SLoA needs to be synchronised between ANSPs, AOs and NM		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[PRO-028]-Procedures to support AOP-NOP collaborative process		
Finalisation criteria:	1 - API and DPI messages requirements have been agreed and developed.		
FCM11.1-NM02	**Enhance the NM technical platform and services for Collaborative NOP**	From: 01/01/2021	By: 31/12/2023
Action by:			
Description & purpose:	NM has to develop API and DPI messages and provide improvements upgrades in subsequent NM software releases to incorporate this data into NM services. NM supports also the needs in terms of user interfaces and additional data needs from other objectives (e.g. iAOP data) in the context of Collaborative NOP.		
	Note :This SloA needs to be synchronised between ANSPs, AOs and NM		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[PRO-028]-Procedures to support AOP-NOP collaborative process		
Finalisation criteria:	1 - API and DPI are ready to be integrated into the NM systems.		
FCM11.1-NM03	**API and DPI are ready to be integrated into the NM systems.**	From: 01/01/2021	By: 31/12/2023
Action by:	**NM**		
Description & purpose:	Development and implementation of NM B2B Services in support of the information exchanges required by this objective.		
	Note :This SLoA needs to be synchronised between ANSPs, AOs and NM		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - NM B2B services have been implemented in the systems for iAOP/NOP data exchange.		
FCM11.1-NM04	**Data validation**	From: 01/01/2021	By: 31/12/2023
Action by:	**NM**		
Description & purpose:	NM ensures the validation of API and DPI data performing a process of systems testing of the data exchange.		
	Note :This SLoA needs to be synchronised between ANSPs, AOs and NM		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[PRO-028]-Procedures to support AOP-NOP collaborative process		
Finalisation criteria:	1 - Systems have been tested and validated		
FCM11.1-NM05	**Safety assessment**	From: 01/01/2021	By: 31/12/2023
Action by:	**NM**		
Description & purpose:	The safety assessment of the changes must be developed and delivered to the competent authority.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.		
		From:	By:

FCM11.1	Initial AOP/NOP Information Sharing

FCM11.1-NM06	**Training**	01/01/2021	31/12/2023
Action by:	**NM**		
Description & purpose:	All relevant staff must be duly trained.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Training has been completed.		
FCM11.1-NM07	**Operational use**	From: 01/01/2021	By: 31/12/2023
Action by:	**NM**		
Description & purpose:	Initial AOP/NOP Information Sharing is ready for operational use once the procedures are in place, the systems have been upgraded, the safety assessment has been delivered and approved, and the training has been completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Initial AOP/NOP Information Sharing is put into service.		

CP1	Active								APT	
FCM11.2	**AOP/NOP integration**									
REG	**ASP**	**MIL**	**APO**	**USE**	**INT**	**IND**	**NM**	**MET**	**AIS**	**USP**

Subject matter and scope

As part of the evolution of processes and procedures, new data elements will be shared and also negotiated between AOP and NOP. These will have to be integrated in addition to the information that is shared in the iAOP-NOP exchange. The processes, procedures and underlying concepts for the creation and integration will have to be agreed upon and/or adapted.

This will apply to arrival planning information (e.g. TTO/TTA via API), as well as departure information (e.g. P-DPI based on airport capacity information), and also enhanced management of capacities (e.g. diversion capabilities).

System requirements:

The Network Manager shall implement an increased integration of NOP and Airport Operations Plan (AOP) relevant information (for example, TTAs) resulting from a Cooperative Decision-Making Process (ref. Article 2.14 of the EC Regulation of the Network Function).

The AOP shall make available in real time to the NOP data that is appropriate and relevant to inform actions by Network Manager to adjust capacity in the network where appropriate. Such data shall be mutually agreed by the Network Manager and the Airport.

For airports with AOP, the NM shall share with the AOP the arrival demand and establish a collaborative decision-making process at local ATFM level to allow amendments to the TTAs based on the AOP.

AOP system requirements:

• The AOP systems must consume and process the flight updates published by NM via the NM B2B Services;
• The AOP systems must provide to NM the Extended Departure Planning Information via the NM B2B Services;
• The AOP systems must provide to NM the Arrival Planning Information via the NM B2B Services;
• If bilaterally agreed between NM and concerned airports and defined in respective ICD, the AOP systems should be capable of providing additional airport information (runway configurations, airport performance measurement) to NM.

NM system requirements:

• The NM system must be upgraded to process the information provided by the AOP system concerning the Extended DPI and API;
• The NM system must provide the flight updates information necessary to the AOP systems;
• If bilaterally agreed between NM and concerned airports and defined in respective ICD, the NM systems must be capable of integrating additional airport information (runway configurations, airport performance measurement).

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (30 CP1 airports)	See list of airports in MP Level 3 Implementation Plan - Annexes
Applicability Area 2 (non-CP1 Airports) (Non-CP1 Airports)	See list of airports in MP Level 3 Implementation Plan - Annexes

Timescales:	**From:**	**By:**	**Applicable to:**
Initial Operational Capability	01/01/2021		Applicability Area 1 + Applicability Area 2 (non-CP1 Airports)
Full Operational Capability / Target Date		31/12/2027	Applicability Area 1 + Applicability Area 2 (non-CP1 Airports)

References

European ATM Master Plan

OI step -	[AO-0801-A]-Collaborative Airport Planning Interface								
	Enablers -	AIRPORT-03 AOP11.1, AOP11.2	AIRPORT-31 AOP05	AIRPORT-38	AOC-ATM-13	HUM-007	PRO-028	SWIM-APS-03a	SWIM-APS-04a
		SWIM-INFR-05a	SWIM-NET-01a						

FCM11.2	AOP/NOP integration

OI step -	[AO-0802-A]-A-CDM process enhanced through integration of landside (passenger only) process outputs								
	Enablers -	AERODROME -ATC-57 AOP11.2	AIRPORT-03 AOP11.1, AOP11.2	AIRPORT-31 AOP05	AIRPORT-35a	AIRPORT-38	HUM-007	HUM-014	HUM-015
OI step -	[AO-0803]-Integration of Airports into ATM through Monitoring of Airport Transit View (Extension of Performance Monitoring building on A-CDM)								
	Enablers -	AERODROME -ATC-57 AOP11.2	AIRPORT-03 AOP11.1, AOP11.2	AIRPORT-31 AOP05	AIRPORT-38	AIRPORT-40 AOP11.2	CTE-C06b COM12	HUM-007	HUM-016
		METEO-03	METEO-04b	SWIM-APS-03a	SWIM-APS-04a	SWIM-INFR-05a	SWIM-NET-01a		
OI step -	[DCB-0103-A]-Initial collaborative NOP								
	Enablers -	AIRPORT-38	METEO-06b	MIL-0502	NIMS-13b FCM04.2	NIMS-14b	NIMS-25	PRO-028	REG-0518
		SWIM-APS-01a	SWIM-APS-02a	SWIM-APS-03a	SWIM-APS-04a	SWIM-INFR-05a	SWIM-NET-01a		
OI step -	[DCB-0208]-DCB in a trajectory management context								
	Enablers -	AOC-ATM-11	AOC-ATM-13	AOC-ATM-20	ER APP ATC 17	NIMS-21a FCM10	NIMS-38 FCM10	SWIM-APS-03a	SWIM-APS-04a
		SWIM-INFR-05a	SWIM-NET-01a						
OI step -	[DCB-0310]-Improved Efficiency in the Management of Airport and ATFCM Planning								
	Enablers -	AERODROME -ATC-57 AOP11.2	AIRPORT-02	AIRPORT-38	NIMS-41	REG-0510			

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) 2021/116 on the establishment of the Common Project One

Essential Operational Changes

ATM Interconnected Network

SESAR Solution

#18 - CTOT and TTA, #20 - Collaborative NOP for Step 1, #21 - Airport Operations Plan and AOP-NOP Seamless Integration

ICAO GANP - ASBUs

NOPS-B1/3	Enhanced integration of Airport operations planning with network operations planning

Deployment Programme

4.4.1	AOP/NOP Integration

European Plan for Aviation Safety

- none -	

Operating Environments

Airport
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
FCM11.2-ASP01	Define AOP/NOP integration data and procedures	01/01/2021	31/12/2027
FCM11.2-APO01	Define AOP/NOP integration data and procedures	01/01/2021	31/12/2027
FCM11.2-APO02	Prepare AOP for the exchange with NOP	01/01/2021	31/12/2027

FCM11.2	AOP/NOP integration

FCM11.2-APO03	Safety assessment	01/01/2021	31/12/2027
FCM11.2-APO04	Training	01/01/2021	31/12/2027
FCM11.2-APO05	Operational use	01/01/2021	31/12/2027
FCM11.2-NM01	Define AOP/NOP integration data and procedures	01/01/2021	31/12/2027
FCM11.2-NM02	Prepare NOP for integration with AOPs	01/01/2021	31/12/2027
FCM11.2-NM03	Safety assessment	01/01/2021	31/12/2027
FCM11.2-NM04	Training	01/01/2021	31/12/2027
FCM11.2-NM05	Operational use	01/01/2021	31/12/2027

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Improved situational awareness.
Capacity:	Increased capacity. Enhanced safety. Improved airport resilience/limiting capacity reduction in degraded situations.
Operational Efficiency:	-
Cost Efficiency:	Improved information sharing. Enhanced predictability.
Environment:	-
Security:	-

Detailed SLoA Descriptions

FCM11.2-ASP01	**Define AOP/NOP integration data and procedures**	From: 01/01/2021	By: 31/12/2027
Action by:	**ANS Providers**		
Description & purpose:	Coordinate with Airport's community and Network Manager the data that need to be exchanged between AOPs and NOP. That includes precise definition, purpose, responsibility and procedure to use every data element exchanged.		
	Note :This SLoA needs to be synchronised between ANSPs, AOs and NM		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[AIRPORT-38]-Airport/ATFCM Extended data interface [HUM-007]-New communication and interaction patterns between stakeholders of airport operations linked to collaborative rolling AOP/NOP management. [PRO-028]-Procedures to support AOP-NOP collaborative process		
Finalisation criteria:	1 - A Handbook is published with all the format, definition, purpose and procedure for all the exchanged data, including the performance requirements		

FCM11.2-APO01	**Define AOP/NOP integration data and procedures**	From: 01/01/2021	By: 31/12/2027
Action by:	**Airport Operators**		
Description & purpose:	Define, together with Airport's community and Network Manager the data that need to be exchanged between AOPs and NOP, coordinating with ANSP. That includes precise definition, purpose, responsibility and procedure to use every data element exchanged.		
	Note :This SLoA needs to be synchronised between ANSPs, AOs and NM		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[AIRPORT-38]-Airport/ATFCM Extended data interface [HUM-007]-New communication and interaction patterns between stakeholders of airport operations linked to collaborative rolling AOP/NOP management. [PRO-028]-Procedures to support AOP-NOP collaborative process		
Finalisation criteria:	1 - A Handbook is published with all the format, definition, purpose and procedure for all the exchanged data, including the performance requirements.		

FCM11.2-APO02	**Prepare AOP for the exchange with NOP**	From: 01/01/2021	By: 31/12/2027
Action by:	**Airport Operators**		
Description & purpose:	Ensure that AOP contains all the required data. Ensure all necessary data is received from NM. Perform data validation and system testing for new NM B2B services.		
	Note :This SLoA needs to be synchronised between ANSPs, AOs and NM		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		

FCM11.2	AOP/NOP integration

ATM Master Plan relationship:	[AIRPORT-38]-Airport/ATFCM Extended data interface [HUM-007]-New communication and interaction patterns between stakeholders of airport operations linked to collaborative rolling AOP/NOP management. [PRO-028]-Procedures to support AOP-NOP collaborative process		
Finalisation criteria:	1 - AOP is ready for information exchange.		
FCM11.2-APO03	**Safety assessment**	From: 01/01/2021	By: 31/12/2027
Action by:	**Airport Operators**		
Description & purpose:	The safety assessment of the changes must be developed and delivered to the competent authority.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.		
FCM11.2-APO04	**Training**	From: 01/01/2021	By: 31/12/2027
Action by:	**Airport Operators**		
Description & purpose:	All relevant staff must be duly trained.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Training has been completed.		
FCM11.2-APO05	**Operational use**	From: **Applicability Area 1:** 01/01/2021	By: 31/12/2027
Action by:	**Airport Operators**		
Description & purpose:	AOP/NOP Integration is ready for operational use once the procedures are in place, the systems have been upgraded, the safety assessment has been delivered and approved, and the training has been completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - AOP/NOP Integration is put into service.		
FCM11.2-NM01	**Define AOP/NOP integration data and procedures**	From: 01/01/2021	By: 31/12/2027
Action by:	**NM**		
Description & purpose:	Define, together with Airport's community and Network Manager the data that need to be exchanged between AOPs and NOP. That includes precise definition, purpose, responsibility and procedure to use every data element exchanged.		
	Note :This SLoA needs to be synchronised between ANSPs, AOs and NM		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[HUM-007]-New communication and interaction patterns between stakeholders of airport operations linked to collaborative rolling AOP/NOP management. [PRO-028]-Procedures to support AOP-NOP collaborative process		
Finalisation criteria:	1 - A Handbook is published with all the format, definition, purpose and procedure for all the exchanged data, including the performance requirements.		
FCM11.2-NM02	**Prepare NOP for integration with AOPs**	From: 01/01/2021	By: 31/12/2027
Action by:	**NM**		
Description & purpose:	Ensure integration into NOP of new data received from exchange with AOPs. Perform system testing and data validation.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
ATM Master Plan relationship:	[HUM-007]-New communication and interaction patterns between stakeholders of airport operations linked to collaborative rolling AOP/NOP management. [PRO-028]-Procedures to support AOP-NOP collaborative process		
Finalisation criteria:	1 - First AOP is integrated with NOP.		
FCM11.2-NM03	**Safety assessment**	From: 01/01/2021	By: 31/12/2027
Action by:	**NM**		
Description & purpose:	The safety assessment of the changes must be developed and delivered to the competent authority.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the competent authority.		
		From:	By:

FCM11.2	AOP/NOP integration

FCM11.2-NM04	**Training**	01/01/2021	31/12/2027
Action by:	**NM**		
Description & purpose:	All relevant staff must be duly trained.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Training has been completed.		
FCM11.2-NM05	**Operational use**	From: 01/01/2021	By: 31/12/2027
Action by:	**NM**		
Description & purpose:	AOP/NOP Integration is ready for operational use once the procedures are in place, the systems have been upgraded, the safety assessment has been delivered and approved, and the training has been completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - AOP/NOP Integration is put into service.		

Subject matter and scope

This objective has been introduced in order to aid the States in establishing a robust framework that will ensure the timely provision of electronic terrain and obstacle data (TOD)

ICAO Annex 15, Aeronautical Information Services, and ICAO Doc. 10066 PANS-AIM requires the States to provide TOD for their own territory and to announce it in the national AIPs. TOD is sub-divided into four areas:
• Area 1 - the entire territory of a State
• Area 2 - the terminal control area
• Area 3 - aerodromes/heliport area
• Area 4 - CAT II or CAT III operation area

States need to assess the existing national regulations and policies, including the safeguarding of aerodromes and obstacle permission processes, in order to evaluate their suitability in relation to the electronic terrain and obstacle data requirements of ICAO Annex 15 and PANS-AIM and to allocate responsibilities.

In addition, States will need to create capabilities for the origination, collection, exchange, management and distribution of the digital terrain and obstacle information in the form of digital datasets. This implies the establishment of efficient and reliable processes (e.g. data acquisition, cross-border provision, data validation and verification, data maintenance, data storage, data transmission, and oversight, etc.) ensuring the provision of up-to-date data which meets the operational requirements in support of an enhanced overall situational awareness and separation assurance and at the same time complies with the requirements of EU Regulation 73/2010 on the quality of aeronautical data and aeronautical information for the Single European Sky.

The operational capability dates given for this objective are not meant to replace, amend or modify in any way the deadline for implementation of the ICAO Annex 15/and PANS-AIM requirements for electronic terrain and obstacle data (TOD). The aim of this objective is to ensure that all States of the ECAC area provide the required TOD as soon as possible in line with the ICAO Annex 15/and PANS-AIM.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

NOTE: EU Regulation 73/2010 has been replaced by COMMISSION IMPLEMENTING REGULATION (EU) 2020/469 of 14 February 2020 amending Regulation (EU) No 923/2012, Regulation (EU) No 139/2014 and Regulation (EU) 2017/373 as regards requirements for air traffic management/air navigation services, design of airspace structures and data quality, runway safety and repealing Regulation (EC) No 73/2010

Applicability Area(s) & Timescale(s)

Applicability Area	All ECAC States except: Maastricht UAC. Plus: Israel, Morocco		
Timescales:	**From:**	**By:**	**Applicable to:**
Initial operational capability	01/11/2014		Applicability Area
Full operational capability		31/12/2018	Applicability Area

References

European ATM Master Plan

OI step -	- No OI Link -								
	Enablers -	AIMS-16							

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

COMMISSION IMPLEMENTING REGULATION (EU) 2020/469 of 14 February 2020 amending Regulation (EU) No 923/2012, Regulation (EU) No 139/2014 and Regulation (EU) 2017/373 as regards requirements for air traffic management/air navigation services, design of airspace structures and data quality, runway safety and repealing Regulation (EC) No 73/2010; EU Regulation 139/2014 - Requirements and administrative procedures related to aerodromes

INF07	Electronic Terrain and Obstacle Data (eTOD)

Essential Operational Changes

Digital AIM and MET Services

SESAR Solution

- none -

ICAO GANP - ASBUs

DAIM-B1/3	Provision of digital terrain data sets
DAIM-B1/4	Provision of digital obstacle data sets

Deployment Programme

- none -	

European Plan for Aviation Safety

RMT.0703	Runway Safety
RMT.0722	Provision of aeronautical data by the aerodrome operator

Operating Environments

Airport
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
INF07-REG01	Establish National TOD policy	01/11/2014	01/01/2019
INF07-REG02	Establish TOD regulatory framework	01/05/2015	01/01/2019
INF07-REG03	Establish oversight of TOD implementation	01/06/2015	01/01/2019
INF07-REG04	Verify the regulatory compliance of TOD implementation	01/12/2017	01/01/2019
INF07-ASP01	Plan the required activities for the collection, management and provision of TOD in accordance with national TOD policy	01/11/2014	01/01/2019
INF07-ASP02	Implement the collection, management and provision of TOD in accordance with the national TOD policy and regulatory framework	01/05/2015	01/01/2019
INF07-APO01	Plan the required activities for the collection, management and provision of TOD in accordance with national TOD policy	01/11/2014	01/01/2019
INF07-APO02	Implement the collection, management and provision of TOD in accordance with the national TOD policy and regulatory framework	01/05/2015	01/01/2019

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	The availability of quality-assured electronic terrain and obstacle data from the State's authoritative sources will significantly improve situational awareness with respect to terrain or obstacle hazards, separation assurance and the visualization of approaches in challenging terrain environments, and thereby contribute to increased safety levels and performance in airborne and ground-based systems (e.g. EGPWS, MSAW, APM, SVS, A-SMGCS and Instrument Procedure Design).
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

		From:	By:
INF07-REG01	**Establish National TOD policy**	01/11/2014	01/01/2019
Action by:	**State Authorities**		

INF07	Electronic Terrain and Obstacle Data (eTOD)

Description & purpose:	In close coordination with ANSPs, airport operators and other organisations or bodies relevant in the TOD processes to establishing commonly agreed national TOD policy and implementation programmes, setting up the necessary steps to enable the provision of electronic terrain and obstacle data. The national TOD policy, being a binding document for TOD stakeholders, should include, as a minimum: - TOD affected stakeholders within the State, their roles and responsibilities (cost recovery models, where appropriate) for TOD origination, collection, verification, validation, management and provision; - TOD to be made available, including the survey requirements based on the data quality requirements, methods for verification and validation and delivery formats; - list of aerodromes where Area 2, 3 and 4 TOD would be provided; - the milestones and tasks of the TOD stakeholders and implementation timeline; - the list of rules/regulations constituting the TOD regulatory framework that would require to be developed or updated; - where appropriate, principles for exchange and harmonisation of the common TOD with neighbouring States.		
Supporting material(s):	EUROCONTROL - GUID-158 - Terrain and Obstacle Data Manual (TOD) - Edition 3 / 05/2021 Url : https://www.eurocontrol.int/publication/eurocontrol-terrain-and-obstacle-data-manual EC - REGULATION (EU) 2020/469 of 14 February 2020 - COMMISSION IMPLEMENTING REGULATION (EU) 2020/469 of 14 February 2020 amending Regulation (EU) No 923/2012, Regulation (EU) No 139/2014 and Regulation (EU) 2017/373 as regards requirements for air traffic management/air navigation services, design of airspace structures and data quality, runway safety and repealing Regulation (EC) No 73/2010. 01/2010 Url : https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32020R0469 EC - EU Regulation 139/2014 Requirements and administrative procedures related to aerodromes ICAO - Doc 9881 - Guidelines for Electronic Terrain, Obstacle and Aerodrome Mapping Information Url : https://store.icao.int/ ICAO - Annex 4 - Aeronautical charts Url : https://store.icao.int/ ICAO - Annex 14 - Aerodromes, Volume I and II Url : https://store.icao.int/ ICAO - Doc 9137-Part 6 - Airport Services Manual - Part 6 - Control of Obstacles - Edition 2 / 12/1983 Url : https://store.icao.int/ EUROCONTROL - National TOD Policy template ICAO - Annex 15 - Aeronautical Information Services Url : https://store.icao.int/ EASA - Acceptable Means of Compliance and Guidance Material to Regulation (EU) No 139/2014 Url : https://www.easa.europa.eu/document-library/acceptable-means-of-compliance-and-guidance-materials/group/adr--aerodromes#group-table ICAO - Doc 10066 - Air Navigation Procedures for Aeronautical Information Management Url : https://store.icao.int/		
Finalisation criteria:	1 - In coordination with relevant TOD stakeholders, national TOD policy and implementation programme is established		
INF07-REG02	**Establish TOD regulatory framework**	From: 01/05/2015	By: 01/01/2019
Action by:	**State Authorities**		
Description & purpose:	- Establish the TOD regulatory framework based on National TOD Policy (REG01) through the development or updating of the national rules and regulations affecting the provision of TOD (e.g. suitability of the existing national safeguarding policy for obstacle development in all four areas in relation to electronic obstacle data requirements or origination responsibilities and processes). - Where appropriate, changes to State legislation should be initiated to ensure timely implementation.		

Supporting material(s):	EUROCONTROL - GUID-158 - Terrain and Obstacle Data Manual (TOD) - Edition 3 / 05/2021 Url : https://www.eurocontrol.int/publication/eurocontrol-terrain-and-obstacle-data-manual EC - REGULATION (EU) 2020/469 of 14 February 2020 - COMMISSION IMPLEMENTING REGULATION (EU) 2020/469 of 14 February 2020 amending Regulation (EU) No 923/2012, Regulation (EU) No 139/2014 and Regulation (EU) 2017/373 as regards requirements for air traffic management/air navigation services, design of airspace structures and data quality, runway safety and repealing Regulation (EC) No 73/2010. 01/2010 Url : https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32020R0469 EC - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 - (OJ L 62, 8.03.2017, p. 1) - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011 03/2017 Url : https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R0373&from=EN EC - EU Regulation 139/2014 Requirements and administrative procedures related to aerodromes ICAO - Doc 9881 - Guidelines for Electronic Terrain, Obstacle and Aerodrome Mapping Information Url : https://store.icao.int/ ICAO - Annex 4 - Aeronautical charts Url : https://store.icao.int/ ICAO - Annex 14 - Aerodromes, Volume I and II Url : https://store.icao.int/ ICAO - Doc 9137-Part 6 - Airport Services Manual - Part 6 - Control of Obstacles - Edition 2 / 12/1983 Url : https://store.icao.int/ ICAO - Annex 15 - Aeronautical Information Services Url : https://store.icao.int/ EASA - Acceptable Means of Compliance and Guidance Material to Regulation (EU) No 139/2014 Url : https://www.easa.europa.eu/document-library/acceptable-means-of-compliance-and-guidance-materials/group/adr--aerodromes#group-table ICAO - Doc 10066 - Air Navigation Procedures for Aeronautical Information Management Url : https://store.icao.int/		
Finalisation criteria:	1 - The TOD regulatory framework based on National TOD Policy (REG01) is established 2 - Change process to state legislation is initiated as required		
INF07-REG03	**Establish oversight of TOD implementation**	From: 01/06/2015	By: 01/01/2019
Action by:	**State Authorities**		
Description & purpose:	The regulatory oversight of TOD implementation for data origination, collection, verification and validation, management and provision based on the national TOD policy and regulatory framework.		
Supporting material(s):	EUROCONTROL - GUID-158 - Terrain and Obstacle Data Manual (TOD) - Edition 3 / 05/2021 Url : https://www.eurocontrol.int/publication/eurocontrol-terrain-and-obstacle-data-manual EC - REGULATION (EU) 2020/469 of 14 February 2020 - COMMISSION IMPLEMENTING REGULATION (EU) 2020/469 of 14 February 2020 amending Regulation (EU) No 923/2012, Regulation (EU) No 139/2014 and Regulation (EU) 2017/373 as regards requirements for air traffic management/air navigation services, design of airspace structures and data quality, runway safety and repealing Regulation (EC) No 73/2010. 01/2010 Url : https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32020R0469 ICAO - Doc 9881 - Guidelines for Electronic Terrain, Obstacle and Aerodrome Mapping Information Url : https://store.icao.int/ ICAO - Annex 4 - Aeronautical charts Url : https://store.icao.int/ ICAO - Annex 14 - Aerodromes, Volume I and II Url : https://store.icao.int/ ICAO - Doc 9734 - Safety Oversight Manual - Edition 2 Url : https://store.icao.int/ ICAO - Annex 15 - Aeronautical Information Services Url : https://store.icao.int/		
Finalisation criteria:	1 - State TOD oversight plan, including all TOD affected stakeholders, in accordance with the national TOD policy and regulatory framework is established 2 - Procedures are established for the national supervision of the ongoing TOD operation.		
INF07-REG04	**Verify the regulatory compliance of TOD implementation**	From: 01/12/2017	By: 01/01/2019
Action by:	**State Authorities**		
Description & purpose:	The verification of compliance with the regulatory TOD requirements through oversight and acceptance of TOD implementation for data origination, collection, verification and validation, management and provision based on the international TOD requirements and the national TOD regulatory framework.		

INF07	Electronic Terrain and Obstacle Data (eTOD)

Supporting material(s):	EUROCONTROL - GUID-158 - Terrain and Obstacle Data Manual (TOD) - Edition 3 / 05/2021 Url : https://www.eurocontrol.int/publication/eurocontrol-terrain-and-obstacle-data-manual EC - REGULATION (EU) 2020/469 of 14 February 2020 - COMMISSION IMPLEMENTING REGULATION (EU) 2020/469 of 14 February 2020 amending Regulation (EU) No 923/2012, Regulation (EU) No 139/2014 and Regulation (EU) 2017/373 as regards requirements for air traffic management/air navigation services, design of airspace structures and data quality, runway safety and repealing Regulation (EC) No 73/2010. 01/2010 Url : https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32020R0469 ICAO - Doc 9881 - Guidelines for Electronic Terrain, Obstacle and Aerodrome Mapping Information Url : https://store.icao.int/ ICAO - Annex 4 - Aeronautical charts Url : https://store.icao.int/ ICAO - Annex 14 - Aerodromes, Volume I and II Url : https://store.icao.int/ ICAO - Doc 9734 - Safety Oversight Manual - Edition 2 Url : https://store.icao.int/ ICAO - Annex 15 - Aeronautical Information Services Url : https://store.icao.int/ ICAO - Doc 10066 - Air Navigation Procedures for Aeronautical Information Management Url : https://store.icao.int/		
Finalisation criteria:	1 - Implementation of TOD is verified through oversight and acceptance and corrective action where required		
INF07-ASP01	**Plan the required activities for the collection, management and provision of TOD in accordance with national TOD policy**	From: 01/11/2014	By: 01/01/2019
Action by:	**ANS Providers**		
Description & purpose:	In close coordination with the State authorities and related TOD stakeholders, analyse the current environment and develop a plan/roadmap demonstrating the feasibility of achieving the necessary steps to enable the collection (where applicable), management and provision of electronic terrain and obstacle data in accordance with the national TOD policy. The implementation planning should cover the following topics, as applicable: - System change; - Change management; - Process development; - Migration of processes and data; - Data validation and verification; - Financial and human resources; - Performance monitoring; - Risk management; - Compliance management; - Training		
Supporting material(s):	EUROCONTROL - GUID-158 - Terrain and Obstacle Data Manual (TOD) - Edition 3 / 05/2021 Url : https://www.eurocontrol.int/publication/eurocontrol-terrain-and-obstacle-data-manual EC - REGULATION (EU) 2020/469 of 14 February 2020 - COMMISSION IMPLEMENTING REGULATION (EU) 2020/469 of 14 February 2020 amending Regulation (EU) No 923/2012, Regulation (EU) No 139/2014 and Regulation (EU) 2017/373 as regards requirements for air traffic management/air navigation services, design of airspace structures and data quality, runway safety and repealing Regulation (EC) No 73/2010. 01/2010 Url : https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32020R0469 ICAO - Doc 9881 - Guidelines for Electronic Terrain, Obstacle and Aerodrome Mapping Information Url : https://store.icao.int/ ICAO - Annex 4 - Aeronautical charts Url : https://store.icao.int/ ICAO - Annex 15 - Aeronautical Information Services Url : https://store.icao.int/ ICAO - Doc 10066 - Air Navigation Procedures for Aeronautical Information Management Url : https://store.icao.int/		
Finalisation criteria:	1 - The availability of a plan/roadmap by the ANSP demonstrating the feasibility of implementation of TOD as defined by the national TOD policy in line with the national TOD implementation programme		
INF07-ASP02	**Implement the collection, management and provision of TOD in accordance with the national TOD policy and regulatory framework**	From: 01/05/2015	By: 01/01/2019
Action by:	**ANS Providers**		
Description & purpose:	Adjust the AIM system (i.e. people, equipment and procedures) to ensure the collection (where applicable), management and provision of TOD in accordance with the national TOD policy and regulatory framework.		

INF07	Electronic Terrain and Obstacle Data (eTOD)

Supporting material(s):	ICAO - Doc 9881 - Guidelines for Electronic Terrain, Obstacle and Aerodrome Mapping Information Url : https://store.icao.int/ ICAO - Annex 15 - Aeronautical Information Services Url : https://store.icao.int/ ICAO - Doc 10066 - Air Navigation Procedures for Aeronautical Information Management Url : https://store.icao.int/		
ATM Master Plan relationship:	[AIMS-16]-Electronic Terrain and Obstacle Data (TOD)		
Finalisation criteria:	1 - The requirements defined in the national TOD policy and regulatory framework for ANSP are fulfilled in accordance with the national TOD implementation programme		
INF07-APO01	**Plan the required activities for the collection, management and provision of TOD in accordance with national TOD policy**	From: 01/11/2014	By: 01/01/2019
Action by:	**Airport Operators**		
Description & purpose:	In close coordination with the State authorities and related TOD stakeholders, analyse the current environment and develop a plan/roadmap demonstrating the feasibility of achieving the necessary steps to enable the collection, management and provision of electronic terrain and obstacle data in accordance with the national TOD policy.		
Supporting material(s):	EUROCONTROL - GUID-158 - Terrain and Obstacle Data Manual (TOD) - Edition 3 / 05/2021 Url : https://www.eurocontrol.int/publication/eurocontrol-terrain-and-obstacle-data-manual EC - REGULATION (EU) 2020/469 of 14 February 2020 - COMMISSION IMPLEMENTING REGULATION (EU) 2020/469 of 14 February 2020 amending Regulation (EU) No 923/2012, Regulation (EU) No 139/2014 and Regulation (EU) 2017/373 as regards requirements for air traffic management/air navigation services, design of airspace structures and data quality, runway safety and repealing Regulation (EC) No 73/2010. 01/2010 Url : https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32020R0469 EC - EU Regulation 139/2014 Requirements and administrative procedures related to aerodromes ICAO - Doc 9881 - Guidelines for Electronic Terrain, Obstacle and Aerodrome Mapping Information Url : https://store.icao.int/ ICAO - Annex 4 - Aeronautical charts Url : https://store.icao.int/ ICAO - Annex 14 - Aerodromes, Volume I and II Url : https://store.icao.int/ ICAO - Doc 9137-Part 6 - Airport Services Manual - Part 6 - Control of Obstacles - Edition 2 / 12/1983 Url : https://store.icao.int/ ICAO - Annex 15 - Aeronautical Information Services Url : https://store.icao.int/ EASA - Acceptable Means of Compliance and Guidance Material to Regulation (EU) No 139/2014 Url : https://www.easa.europa.eu/document-library/acceptable-means-of-compliance-and-guidance-materials/group/adr--aerodromes#group-table ICAO - Doc 10066 - Air Navigation Procedures for Aeronautical Information Management Url : https://store.icao.int/		
Finalisation criteria:	1 - The availability of a plan/roadmap by the airport operator demonstrating the feasibility of implementation of TOD as defined by the national TOD policy in line with the national TOD implementation programme		
INF07-APO02	**Implement the collection, management and provision of TOD in accordance with the national TOD policy and regulatory framework**	From: 01/05/2015	By: 01/01/2019
Action by:	**Airport Operators**		
Description & purpose:	Adjust the related airport operation system (i.e. people, equipment and procedures) to ensure the collection, management and provision of TOD in accordance with the national TOD policy and regulatory framework.		

INF07	Electronic Terrain and Obstacle Data (eTOD)

Supporting material(s):	EUROCONTROL - GUID-158 - Terrain and Obstacle Data Manual (TOD) - Edition 3 / 05/2021 Url : https://www.eurocontrol.int/publication/eurocontrol-terrain-and-obstacle-data-manual EC - REGULATION (EU) 2020/469 of 14 February 2020 - COMMISSION IMPLEMENTING REGULATION (EU) 2020/469 of 14 February 2020 amending Regulation (EU) No 923/2012, Regulation (EU) No 139/2014 and Regulation (EU) 2017/373 as regards requirements for air traffic management/air navigation services, design of airspace structures and data quality, runway safety and repealing Regulation (EC) No 73/2010. 01/2010 Url : https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32020R0469 EC - EU Regulation 139/2014 Requirements and administrative procedures related to aerodromes ICAO - Doc 9881 - Guidelines for Electronic Terrain, Obstacle and Aerodrome Mapping Information Url : https://store.icao.int/ ICAO - Annex 4 - Aeronautical charts Url : https://store.icao.int/ ICAO - Annex 14 - Aerodromes, Volume I and II Url : https://store.icao.int/ ICAO - Doc 9137-Part 6 - Airport Services Manual - Part 6 - Control of Obstacles - Edition 2 / 12/1983 Url : https://store.icao.int/ ICAO - Annex 15 - Aeronautical Information Services Url : https://store.icao.int/ EASA - Acceptable Means of Compliance and Guidance Material to Regulation (EU) No 139/2014 Url : https://www.easa.europa.eu/document-library/acceptable-means-of-compliance-and-guidance-materials/group/adr--aerodromes#group-table ICAO - Doc 10066 - Air Navigation Procedures for Aeronautical Information Management Url : https://store.icao.int/
ATM Master Plan relationship:	[AIMS-16]-Electronic Terrain and Obstacle Data (TOD)
Finalisation criteria:	1 - The requirements defined in the national TOD policy and regulatory framework for airport operators are fulfilled in accordance with the national TOD implementation programme

Subject matter and scope

This Objective is dealing with the Stakeholders' SWIM PKI and cybersecurity. It aims at implementing basic/generic public key infrastructure management at each civil or military stakeholder, in line with their own Security Management System approved by their National Supervisory Authority (NSA). The local implementation may differ depending on whether the stakeholders will become a CA (Certificate Authority) themselves or use the European Common Aviation PKI (EACP) to generate certificates.

The stakeholder's local implementation includes two options (the options are also addressed in the description of the individual SLoAs):

• If the stakeholder decides to develop its own PKI:
- o definition of local policies and procedures for authorising and mandating local organisation to do certificate management in compliance with EACP policies;
- o implementation of audit programmes ensuring continuous compliance with common and local policies and standards;
- o implementation of its own local PKI while benefiting from the interoperability with other PKIs by using the EACP solution;
- o adaptation of systems (equipment and procedures) to use local certificates and EACP services.

• If the stakeholder decides to use the EACP solution
- o Use of EACP policies and procedures for authorising and mandating local organisation to use EACP certificates and services;
- o implementation of audit programmes ensuring continuous compliance with EACP policies and standards;
- o adaptation of systems (equipment and procedures) to use EACP solution;

• Whatever the decision will be, the following activities must be operated:
- o training of technical personnel;
- o monitoring and control, e.g. establish a local or multi-stakeholders Security Operations Centre (or equivalent) to monitor and protect the IT systems against cyber-attacks.

Combining both options is a valid and acceptable approach (they are not exclusive) as:
• National regulation may impose to use a national PKI for critical infrastructure or operator of essential service or government-related organisations;
• Some stakeholders may already have a PKI that would have to be upgraded to be auditable and conform with EACP solution and they may wish to keep on using it;
• Some stakeholders may decide to implement a local PKI for internal or specific uses and use EACP for other purposes.

System requirements:

Stakeholders shall implement, on one hand a Public Key Infrastructure (PKI) and, on the other hand cyber-security monitoring and control means. To implement the PKI, stakeholders have two main options:

• To use the European Aviation Common PKI (EACP) solution. In such case, stakeholders must:
- o define the local framework to use digital certificates (policies, procedures);
- o implement audit programmes to ensure that their organisation and its policies & procedures are auditable and that consequently they can be trusted to use EACP certificates and thus by parties with whom information exchanges are secured using EACP digital certificates;
- o adapt their systems to use the EACP solution (e.g. access to EACP certificate publication and validation services);
- o train their staff to ensure that they have the required demonstrated level of competence to use EACP digital certificates and services.

• To deploy their own local PKI and to benefit from the EACP solution only to ensure the interoperability of their local PKI with other stakeholders. In such case, stakeholders must:
- o define the local framework to deploy their local PKI (policies, procedures). If stakeholders want to benefit from the EACP interoperability and validation services, they will have to ensure that the policies and procedures of their local PKI is also compliant with EACP framework trust framework;
- o implement audit programmes to ensure that their organisation and its policies & procedures are auditable and that consequently they can be trusted to benefit from EACP interoperability service and thus by parties with whom information exchanges are secured using EACP interoperability and validation services;
- o adapt their systems to use their local PKI solution as well as EACP validation service;
- o train their staff to ensure that they have the required demonstrated level of competence to use their local digital certificates and EACP interoperability and validation services.

Combining both options is a valid and acceptable approach (they are not exclusive) as:
- o National Regulation may impose to use a national PKI for critical infrastructure or operator of essential service or government-related organisations;

o some stakeholders may already have a PKI that would have to be upgraded to be auditable and conform with EACP solution and they may wish to keep on using it;
o some stakeholders may decide to implement a local PKI for internal or specific uses and use EACP for other purposes.

NOTE: For a description of the EACP solution, see Family 5.1.1 of the Deployment Programme.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (All SES EU States)	All EU SES States
Applicability Area 2	Georgia, Israel, Moldova, Montenegro, Serbia, United Kingdom

Timescales:	**From:**	**By:**	**Applicable to:**
Initial Operational Capability	01/01/2021		Applicability Area 1 + Applicability Area 2
Full Operational Capability / Target Date		31/12/2025	Applicability Area 1 + Applicability Area 2

References

European ATM Master Plan

OI step -	[IS-0901-A]-SWIM for sharing G/G data, traffic flow management information and aeronautical information								
	Enablers -	AAMS-06b AOM19.5	ATC-STD-01	ER APP ATC 160	MIL-0501	MIL-0502	REG-0013	REG-0014	REG-0519
		STD-007	STD-008	STD-033	SWIM-APS-01a	SWIM-APS-02a	SWIM-APS-03a	SWIM-APS-04a	SWIM-APS-05a
		SWIM-APS-06a	SWIM-APS-07a	SWIM-GOV-05a	SWIM-INFR-01a	SWIM-INFR-05a	SWIM-NET-01a	SWIM-STD-04	SWIM-SUPT-01a

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) 2021/116 on the establishment of the Common Project One

Essential Operational Changes

ATM Interconnected Network
Airport and TMA performance

SESAR Solution

#46 - SWIM Yellow Profile

ICAO GANP - ASBUs

SWIM-B2/3	SWIM registry

Deployment Programme

5.2.1	Stakeholders' SWIM PKI and cybersecurity

European Plan for Aviation Safety

- none -	

Operating Environments

Airport
En-Route
Network
Terminal Airspace

INF10.2	Stakeholders' SWIM PKI and cyber security

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
INF10.2-ASP01	Local PKI framework	01/01/2021	31/12/2025
INF10.2-ASP02	Continuous PKI audit process has been set up	01/01/2021	31/12/2025
INF10.2-ASP03	Adapt systems to use PKI	01/01/2021	31/12/2025
INF10.2-ASP04	Implement local (own) PKI	01/01/2021	31/12/2025
INF10.2-ASP05	Training	01/01/2021	31/12/2025
INF10.2-ASP06	Implement cyber monitoring and control	01/01/2021	31/12/2025
INF10.2-APO01	Local PKI framework	01/01/2021	31/12/2025
INF10.2-APO02	Continuous PKI audit process has been set up	01/01/2021	31/12/2025
INF10.2-APO03	Adapt systems to use PKI	01/01/2021	31/12/2025
INF10.2-APO04	Implement local (own) PKI	01/01/2021	31/12/2025
INF10.2-APO05	Training	01/01/2021	31/12/2025
INF10.2-APO06	Implement cyber monitoring and control	01/01/2021	31/12/2025
INF10.2-USE01	Local PKI framework	01/01/2021	31/12/2025
INF10.2-USE02	Continuous PKI audit process has been set up	01/01/2021	31/12/2025
INF10.2-USE03	Adapt systems to use PKI	01/01/2021	31/12/2025
INF10.2-USE04	Implement local (own) PKI	01/01/2021	31/12/2025
INF10.2-USE05	Training	01/01/2021	31/12/2025
INF10.2-USE06	Implement cyber monitoring and control	01/01/2021	31/12/2025
INF10.2-MET01	Local PKI framework	01/01/2021	31/12/2025
INF10.2-MET02	Continuous PKI audit process has been set up	01/01/2021	31/12/2025
INF10.2-MET03	Adapt systems to use PKI	01/01/2021	31/12/2025
INF10.2-MET04	Implement local (own) PKI	01/01/2021	31/12/2025
INF10.2-MET05	Training	01/01/2021	31/12/2025
INF10.2-MET06	Implement cyber monitoring and control	01/01/2021	31/12/2025
INF10.2-NM01	Local PKI framework	01/01/2021	31/12/2025
INF10.2-NM02	Continuous PKI audit process has been set up	01/01/2021	31/12/2025
INF10.2-NM03	Adapt systems to use PKI	01/01/2021	31/12/2025
INF10.2-NM04	Implement local (own) PKI	01/01/2021	31/12/2025
INF10.2-NM05	Training	01/01/2021	31/12/2025
INF10.2-NM06	Implement cyber monitoring and control	01/01/2021	31/12/2025

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

INF10.2-ASP01	**Local PKI framework**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	SLoA relevant for BOTH implementation options, using common PKI/EACP or own PKI. Use of EACP policies and procedures for authorising and mandating local organisation to use EACP certificates and services. In case own PKI is used, interacting with the Common PKI, define local policies and procedures for authorising and mandating local organisation to do certificate management in compliance with EACP policies		

INF10.2	Stakeholders' SWIM PKI and cyber security

Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - PKI framework is completed		
INF10.2-ASP02	**Continuous PKI audit process has been set up**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	SLoA relevant for BOTH implementation options, using common PKI/EACP or own PKI. Implement audit programmes ensuring continuous compliance with EACP policies and standards. In case own PKI is used, interacting with the Common PKI, implement audit programmes ensuring continuous compliance with common (EACP) and local policies and standards.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - PKI has been audited		
INF10.2-ASP03	**Adapt systems to use PKI**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	SLoA relevant for BOTH implementation options, using common PKI/EACP or own PKI. Adapt the systems (equipment and procedures) to use EACP solution. In case own PKI is used, interacting with the Common PKI, adapt systems (equipment and procedures) to use local certificates and EACP services.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - System using PKI has been adapted		
INF10.2-ASP04	**Implement local (own) PKI**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	ONLY In case own PKI is used, interacting with the Common PKI, implement its own local PKI while benefiting from the interoperability with other PKIs by using the EACP services.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - System(s) is (are) upgraded		
INF10.2-ASP05	**Training**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	SLoA relevant for BOTH implementation options, using common PKI/EACP or own PKI. Training of technical personal is completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Staff has been certified		
INF10.2-ASP06	**Implement cyber monitoring and control**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	SLoA relevant for BOTH implementation options, using common PKI/EACP or own PKI. Implement monitoring and control to protect the IT systems against cyber-attacks		

INF10.2	Stakeholders' SWIM PKI and cyber security

Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Cyber monitoring and control systems implemented.		
INF10.2-APO01	**Local PKI framework**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**Airport Operators**		
Description & purpose:	SLoA relevant for BOTH implementation options, using common PKI/EACP or own PKI. Use of EACP policies and procedures for authorising and mandating local organisation to use EACP certificates and services. In case own PKI is used, interacting with the Common PKI, define local policies and procedures for authorising and mandating local organisation to do certificate management in compliance with EACP policies		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - PKI framework is completed		
INF10.2-APO02	**Continuous PKI audit process has been set up**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**Airport Operators**		
Description & purpose:	SLoA relevant for BOTH implementation options, using common PKI/EACP or own PKI. Implement audit programmes ensuring continuous compliance with EACP policies and standards. In case own PKI is used, interacting with the Common PKI, implement audit programmes ensuring continuous compliance with common (EACP) and local policies and standards.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - PKI has been audited		
INF10.2-APO03	**Adapt systems to use PKI**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**Airport Operators**		
Description & purpose:	SLoA relevant for BOTH implementation options, using common PKI/EACP or own PKI. Adapt the systems (equipment and procedures) to use EACP solution. In case own PKI is used, interacting with the Common PKI, adapt systems (equipment and procedures) to use local certificates and EACP services.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - System using PKI has been adapted		
INF10.2-APO04	**Implement local (own) PKI**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**Airport Operators**		
Description & purpose:	ONLY In case own PKI is used, interacting with the Common PKI, implement its own local PKI while benefiting from the interoperability with other PKIs by using the EACP services.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - System(s) is (are) upgraded		
INF10.2-APO05	**Training**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**Airport Operators**		

INF10.2	Stakeholders' SWIM PKI and cyber security

Description & purpose:	SLoA relevant for BOTH implementation options, using common PKI/EACP or own PKI. Training of technical personal is completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Staff has been certified		
INF10.2-APO06	**Implement cyber monitoring and control**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**Airport Operators**		
Description & purpose:	SLoA relevant for BOTH implementation options, using common PKI/EACP or own PKI. Implement monitoring and control to protect the IT systems against cyber-attacks		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Cyber monitoring and control systems implemented.		
INF10.2-USE01	**Local PKI framework**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**Airspace Users**		
Description & purpose:	SLoA relevant for BOTH implementation options, using common PKI/EACP or own PKI. Use of EACP policies and procedures for authorising and mandating local organisation to use EACP certificates and services. In case own PKI is used, interacting with the Common PKI, define local policies and procedures for authorising and mandating local organisation to do certificate management in compliance with EACP policies		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - PKI framework is completed		
INF10.2-USE02	**Continuous PKI audit process has been set up**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**Airspace Users**		
Description & purpose:	SLoA relevant for BOTH implementation options, using common PKI/EACP or own PKI. Implement audit programmes ensuring continuous compliance with EACP policies and standards. In case own PKI is used, interacting with the Common PKI, implement audit programmes ensuring continuous compliance with common (EACP) and local policies and standards.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - PKI has been audited		
INF10.2-USE03	**Adapt systems to use PKI**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**Airspace Users**		
Description & purpose:	SLoA relevant for BOTH implementation options, using common PKI/EACP or own PKI. Adapt the systems (equipment and procedures) to use EACP solution. In case own PKI is used, interacting with the Common PKI, adapt systems (equipment and procedures) to use local certificates and EACP services.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - System using PKI has been adapted		
		From:	By:

INF10.2	Stakeholders' SWIM PKI and cyber security

INF10.2-USE04	**Implement local (own) PKI**	**Applicability Area 1:** 01/01/2021	**Applicability Area 1:** 31/12/2025
Action by:	**Airspace Users**		
Description & purpose:	ONLY In case own PKI is used, interacting with the Common PKI, implement its own local PKI while benefiting from the interoperability with other PKIs by using the EACP services.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - System(s) is (are) upgraded		
INF10.2-USE05	**Training**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**Airspace Users**		
Description & purpose:	SLoA relevant for BOTH implementation options, using common PKI/EACP or own PKI. Training of technical personal is completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Staff has been certified		
INF10.2-USE06	**Implement cyber monitoring and control**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**Airspace Users**		
Description & purpose:	SLoA relevant for BOTH implementation options, using common PKI/EACP or own PKI. Implement monitoring and control to protect the IT systems against cyber-attacks		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Cyber monitoring and control systems implemented.		
INF10.2-MET01	**Local PKI framework**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**MET Providers**		
Description & purpose:	SLoA relevant for BOTH implementation options, using common PKI/EACP or own PKI. Use of EACP policies and procedures for authorising and mandating local organisation to use EACP certificates and services. In case own PKI is used, interacting with the Common PKI, define local policies and procedures for authorising and mandating local organisation to do certificate management in compliance with EACP policies		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - PKI framework is completed		
INF10.2-MET02	**Continuous PKI audit process has been set up**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**MET Providers**		
Description & purpose:	SLoA relevant for BOTH implementation options, using common PKI/EACP or own PKI. Implement audit programmes ensuring continuous compliance with EACP policies and standards. In case own PKI is used, interacting with the Common PKI, implement audit programmes ensuring continuous compliance with common (EACP) and local policies and standards.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - PKI has been audited		
		From:	By:

INF10.2	Stakeholders' SWIM PKI and cyber security

INF10.2-MET03	**Adapt systems to use PKI**	**Applicability Area 1:** 01/01/2021	**Applicability Area 1:** 31/12/2025
Action by:	**MET Providers**		
Description & purpose:	SLoA relevant for BOTH implementation options, using common PKI/EACP or own PKI. Adapt the systems (equipment and procedures) to use EACP solution. In case own PKI is used, interacting with the Common PKI, adapt systems (equipment and procedures) to use local certificates and EACP services.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - System using PKI has been adapted		
INF10.2-MET04	**Implement local (own) PKI**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**MET Providers**		
Description & purpose:	ONLY In case own PKI is used, interacting with the Common PKI, implement its own local PKI while benefiting from the interoperability with other PKIs by using the EACP services.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - System(s) is (are) upgraded		
INF10.2-MET05	**Training**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**MET Providers**		
Description & purpose:	SLoA relevant for BOTH implementation options, using common PKI/EACP or own PKI. Training of technical personal is completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Staff has been certified		
INF10.2-MET06	**Implement cyber monitoring and control**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**MET Providers**		
Description & purpose:	SLoA relevant for BOTH implementation options, using common PKI/EACP or own PKI. Implement monitoring and control to protect the IT systems against cyber-attacks		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Cyber monitoring and control systems implemented.		
INF10.2-NM01	**Local PKI framework**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**NM**		
Description & purpose:	SLoA relevant for BOTH implementation options, using common PKI/EACP or own PKI. Use of EACP policies and procedures for authorising and mandating local organisation to use EACP certificates and services. In case own PKI is used, interacting with the Common PKI, define local policies and procedures for authorising and mandating local organisation to do certificate management in compliance with EACP policies		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - PKI framework is completed		
		From:	By:

INF10.2	Stakeholders' SWIM PKI and cyber security

INF10.2-NM02	**Continuous PKI audit process has been set up**	**Applicability Area 1:** 01/01/2021	**Applicability Area 1:** 31/12/2025
Action by:	**NM**		
Description & purpose:	SLoA relevant for BOTH implementation options, using common PKI/EACP or own PKI. Implement audit programmes ensuring continuous compliance with EACP policies and standards. In case own PKI is used, interacting with the Common PKI, implement audit programmes ensuring continuous compliance with common (EACP) and local policies and standards.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - PKI has been audited		
INF10.2-NM03	**Adapt systems to use PKI**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**NM**		
Description & purpose:	SLoA relevant for BOTH implementation options, using common PKI/EACP or own PKI. Adapt the systems (equipment and procedures) to use EACP solution. In case own PKI is used, interacting with the Common PKI, adapt systems (equipment and procedures) to use local certificates and EACP services.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - System using PKI has been adapted		
INF10.2-NM04	**Implement local (own) PKI**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**NM**		
Description & purpose:	ONLY In case own PKI is used, interacting with the Common PKI, implement its own local PKI while benefiting from the interoperability with other PKIs by using the EACP services.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - System(s) is (are) upgraded		
INF10.2-NM05	**Training**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**NM**		
Description & purpose:	SLoA relevant for BOTH implementation options, using common PKI/EACP or own PKI. Training of technical personal is completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Staff has been certified		
INF10.2-NM06	**Implement cyber monitoring and control**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**NM**		
Description & purpose:	SLoA relevant for BOTH implementation options, using common PKI/EACP or own PKI. Implement monitoring and control to protect the IT systems against cyber-attacks		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Cyber monitoring and control systems implemented.		

Subject matter and scope

SWIM comprises standards, infrastructure and governance enabling the management of information and its exchange between operational stakeholders via interoperable services.

This implementation objective is addressing one of the services in support of Airspace Management and Advanced Flexible Use of Airspace

• ASM Level 1 is the strategic level of FUA, with the involvement of relevant civil and military stakeholders. ASM Level 1 establishes airspace structures and defines their conditions of use, it includes exchange of long-term airspace planning e.g. major exercises and events. The management of airspace structures are applied during pre-tactical and tactical phases

• ASM Level 2 deals with the pre-tactical reservation of the airspace structures. The following services support the ASM level 2:
- o Airspace Structure Service - Management of the AUP/UUP by the local ASM support systems requires that the same airspace data is used by both NM and the ASM support systems. The airspace data is available via NM B2B Airspace Structure Service, which allows to obtain in AIXM 5.1 all the airspace data needed by the local ASM support systems for the management of the AUP (AIRAC data and the live updates)
- o Airspace Availability Service - part of the NM B2B Services, allows the local ASM support systems to provide the AUP and its dynamic updates (UUP) to NM in a timely manner; it also allows NM to share the local AUPs/UUPs with all stakeholders involved in the ASM Level 2. It also allows also the publication of the consolidated European AUP/UUP (EAUP/EUUP) to all stakeholders, AUs, for use in the flight planning systems
- o Airspace Reservation (ARES) information: this service allows the exchange of information regarding ARES between local ASM support systems, in particular to support cross-border operations

• ASM Level 3 deals with the tactical activation and deactivation of the airspace structures. The following services support the ASM level 3:
- o Notification of the activation of an Airspace Reservation/Restriction (ARES)
- o Notification of the de-activation of an Airspace Reservation/Restriction (ARES)
- o Pre-notification of the activation of an Airspace Reservation/Restriction (ARES)
- o Notification of the release of an Airspace Reservation/Restriction (ARES)
- o Query Airspace Reservation/Restriction (ARES) information

System requirements

• Local ASM support systems shall exchange ARES information with relevant civil and military stakeholders at local and FAB level via SWIM Services
• Local ASM support systems shall provide the AUP/UUP information to NM via the NM B2B Airspace Availability Service
• Local ASM support systems shall consume the airspace information required for interoperability with NM via the NM B2B Airspace Structure Service
• The AU systems shall use the EAUP/EUUP published by NM via the NM B2B Airspace Availability Service
• The NM system shall make the NM B2B Airspace Availability Service SWIM compliant
• The NM system shall make the NM B2B Airspace Structure Service SWIM compliant
• ATC systems shall consume the information related to real-time activation and deactivation of ARES provided by the local ASM support systems

The current implementation objective is addressing the Airspace structure service.

NOTE: For a full description of the services as well as of the associated system requirements, see the AF5 – SWIM Chapter in the SESAR Deployment Programme edition 2022, Approved by the European Commission.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (All EU SES States)	All EU SES States
Applicability Area 2	Israel

Timescales:	From:	By:	Applicable to:
Initial Operational Capability	01/01/2021		Applicability Area 1 + Applicability Area 2
Full Operational Capability / Target Date		31/12/2025	Applicability Area 1 + Applicability Area 2

References

European ATM Master Plan

OI step -	[IS-0901-A]-SWIM for sharing G/G data, traffic flow management information and aeronautical information								
	Enablers -	AAMS-06b AOM19.5	ATC-STD-01	ER APP ATC 160	MIL-0501	MIL-0502	REG-0013	REG-0014	REG-0519
		STD-007	STD-008	STD-033	SWIM-APS-01a	SWIM-APS-02a	SWIM-APS-03a	SWIM-APS-04a	SWIM-APS-05a
		SWIM-APS-06a	SWIM-APS-07a	SWIM-GOV-05a	SWIM-INFR-01a	SWIM-INFR-05a	SWIM-NET-01a	SWIM-STD-04	SWIM-SUPT-01a

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) 2021/116 on the establishment of the Common Project One

Essential Operational Changes

ATM Interconnected Network

SESAR Solution

#46 - SWIM Yellow Profile

ICAO GANP - ASBUs

- none -	

Deployment Programme

5.3.1	Aeronautical Information Exchange

European Plan for Aviation Safety

- none -	

Operating Environments

Airport
En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
INF10.3-ASP01	Adapt local system to use NM airspace structure	01/01/2021	31/12/2025
INF10.3-ASP02	Use NM airspace structure information in operation	01/01/2021	31/12/2025
INF10.3-NM01	Provide NM airspace structure in support of local ASM systems	01/01/2021	31/12/2025

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	-

Environment:	-
Security:	-

Detailed SLoA Descriptions

INF10.3-ASP01	**Adapt local system to use NM airspace structure**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	The local ASM support system consumes airspace information needed for interoperability with NM via the NM B2B Airspace Structure Service in compliance with the "EUROCONTROL Specification for Airspace Management (ASM) Support System requirements supporting the ASM processes at local and FAB level" This SLoA supports the SLoAs AOM19.5-ASP01 "Deploy automated ASM support systems", AOM19.5-ASP05 "Implement interoperability of ASM support systems with NM system" and AOM19.5-ASP10 "Adapt ASM system to manage airspace data information aligned with centralised airspace data provided by NM system".		
	Note :This SLoA needs to be synchronised between civil and military ANSPs and NM.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The local ASM support system consumes the airspace structure provided by NM in the creation and management of the AUP/UUP.		
INF10.3-ASP02	**Use NM airspace structure information in operation**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	Final validation and preparation for operation		
	Note :This SLoA needs to be synchronised between civil and military ANSPs and NM.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The local ASM support system uses in operation the airspace structure provided by NM in the creation and management of the AUP/UUP		
INF10.3-NM01	**Provide NM airspace structure in support of local ASM systems**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**NM**		
Description & purpose:	The NM system provides airspace structure information needed by the local ASM support systems for the AUP process; that information is provided via the NM B2B Airspace Structure Service, which is upgraded to be SWIM compliant This SLoA supports the SLoAs AOM19.5-NM04 "Provide a centralised airspace data information to support ASM process".		
	Note :This SLoA needs to be synchronised between civil and military ANSPs and NM.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The NM B2B Airspace Structure Service is SWIM compliant and available in the SWIM Registry as a SWIM compliant service		

Subject matter and scope

SWIM comprises standards, infrastructure and governance enabling the management of information and its exchange between operational stakeholders via interoperable services.

This implementation objective is addressing one of the services in support of Airspace Management and Advanced Flexible Use of Airspace

• ASM Level 1 is the strategic level of FUA, with the involvement of relevant civil and military stakeholders. ASM Level 1 establishes airspace structures and defines their conditions of use, it includes exchange of long-term airspace planning e.g. major exercises and events. The management of airspace structures are applied during pre-tactical and tactical phases

• ASM Level 2 deals with the pre-tactical reservation of the airspace structures. The following services support the ASM level 2:
- o Airspace Structure Service - Management of the AUP/UUP by the local ASM support systems requires that the same airspace data is used by both NM and the ASM support systems. The airspace data is available via NM B2B Airspace Structure Service, which allows to obtain in AIXM 5.1 all the airspace data needed by the local ASM support systems for the management of the AUP (AIRAC data and the live updates)
- o Airspace Availability Service - part of the NM B2B Services, allows the local ASM support systems to provide the AUP and its dynamic updates (UUP) to NM in a timely manner; it also allows NM to share the local AUPs/UUPs with all stakeholders involved in the ASM Level 2. It also allows also the publication of the consolidated European AUP/UUP (EAUP/EUUP) to all stakeholders, AUs, for use in the flight planning systems
- o Airspace Reservation (ARES) information: this service allows the exchange of information regarding ARES between local ASM support systems, in particular to support cross-border operations

• ASM Level 3 deals with the tactical activation and deactivation of the airspace structures. The following services support the ASM level 3:
- o Notification of the activation of an Airspace Reservation/Restriction (ARES)
- o Notification of the de-activation of an Airspace Reservation/Restriction (ARES)
- o Pre-notification of the activation of an Airspace Reservation/Restriction (ARES)
- o Notification of the release of an Airspace Reservation/Restriction (ARES)
- o Query Airspace Reservation/Restriction (ARES) information

System requirements

• Local ASM support systems shall exchange ARES information with relevant civil and military stakeholders at local and FAB level via SWIM Services
• Local ASM support systems shall provide the AUP/UUP information to NM via the NM B2B Airspace Availability Service
• Local ASM support systems shall consume the airspace information required for interoperability with NM via the NM B2B Airspace Structure Service
• The AU systems shall use the EAUP/EUUP published by NM via the NM B2B Airspace Availability Service
• The NM system shall make the NM B2B Airspace Availability Service SWIM compliant
• The NM system shall make the NM B2B Airspace Structure Service SWIM compliant
• ATC systems shall consume the information related to real-time activation and deactivation of ARES provided by the local ASM support systems

The current implementation objective is addressing the Airspace Availability service.

NOTE: For a full description of the services as well as of the associated system requirements, see the AF5 – SWIM Chapter in the SESAR Deployment Programme edition 2022, Approved by the European Commission.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (All EU SES States)	All EU SES States
Applicability Area 2	Israel

INF10.4	Aeronautical Information Exchange - Airspace Availability Service

Timescales:	From:	By:	Applicable to:
Initial Operational Capability	01/01/2021		Applicability Area 1 + Applicability Area 2
Full Operational Capability / Target Date		31/12/2025	Applicability Area 1 + Applicability Area 2

References

European ATM Master Plan

OI step -	[IS-0901-A]-SWIM for sharing G/G data, traffic flow management information and aeronautical information								
	Enablers -	AAMS-06b AOM19.5	ATC-STD-01	ER APP ATC 160	MIL-0501	MIL-0502	REG-0013	REG-0014	REG-0519
		STD-007	STD-008	STD-033	SWIM-APS-01a	SWIM-APS-02a	SWIM-APS-03a	SWIM-APS-04a	SWIM-APS-05a
		SWIM-APS-06a	SWIM-APS-07a	SWIM-GOV-05a	SWIM-INFR-01a	SWIM-INFR-05a	SWIM-NET-01a	SWIM-STD-04	SWIM-SUPT-01a

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) 2021/116 on the establishment of the Common Project One

Essential Operational Changes

ATM Interconnected Network

SESAR Solution

#46 - SWIM Yellow Profile

ICAO GANP - ASBUs

- none -	

Deployment Programme

5.3.1	Aeronautical Information Exchange

European Plan for Aviation Safety

- none -	

Operating Environments

Airport
En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
INF10.4-ASP01	Adapt/ Implement ASM system to Provide the AUP/UUP to NM	01/01/2021	31/12/2025
INF10.4-USE01	Consume the pan-European airspace availability information	01/01/2021	31/12/2025
INF10.4-USE02	Operational use	01/01/2021	31/12/2025
INF10.4-NM01	Provide the AUP/UUP management services	01/01/2021	31/12/2025
INF10.4-NM02	Provide pan-European airspace availability information	01/01/2021	31/12/2025

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	-

INF10.4	Aeronautical Information Exchange - Airspace Availability Service

Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

INF10.4-ASP01	**Adapt/ Implement ASM system to Provide the AUP/UUP to NM**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	The local ASM support system provides the AUP/UUP to NM via the NM B2B Airspace Availability Services This SLoA supports the SLoA,AOM19.5-ASP05 “Implement interoperability of ASM support systems with NM system”.		
	Note :Note that ANSPs may decide to use the NM system ASM capabilities (CIAM) whenever deemed sufficient for the management of the AUP/UUP. This SLoA only applies for those ANSPs that have their own ASM support system. ANSPs using CIAM should report this SLoA as “Not Applicable”. This SLoA needs to be synchronised between civil and military ANSPs and NM.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The local ASM tool provides the AUP/UUP to NM		
INF10.4-USE01	**Consume the pan-European airspace availability information**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**Airspace Users**		
Description & purpose:	The AU’s flight planning system consumes and uses the European Airspace Use Plan (EAUP) and its updates (EUUP) published by the NM via the NM B2B Airspace Availability Service This SLoA supports the SLoA AOM19.5-USE01 “Adapt airspace users’ systems for processing EAUP/EUUP information”		
	Note :This SLoA needs to be synchronised between AUs and NM.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The AUs’ system consumes and processes the EAUP/EUUP		
INF10.4-USE02	**Operational use**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**Airspace Users**		
Description & purpose:	The system is used to support daily operations once the systems have been implemented, the procedures are in place, the capability assessment has been delivered, and the training has been completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Information Exchanges are used for daily operations		
INF10.4-NM01	**Provide the AUP/UUP management services**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**NM**		
Description & purpose:	The NM system provides services for the exchange of AUP/UUP information with the local ASM support systems; those services are part of the NM B2B Airspace Availability Service, which is upgraded to be SWIM compliant. This SLoA supports the SLoA AOM19.5-NM01 “Adapt NM systems to support a full rolling ASM/ATFCM process”.		
	Note :This SLoA needs to be synchronised between civil and military ANSPs and NM.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The NM B2B Airspace Availability service is SWIM compliant and available in the SWIM Registry as an operational SWIM compliant service.		
INF10.4-NM02	**Provide pan-European airspace availability information**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:			
Description & purpose:			

INF10.4	Aeronautical Information Exchange - Airspace Availability Service

Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme
Finalisation criteria:	1 - The NM B2B Airspace Availability Service is SWIM compliant and available in the SWIM Registry as an operational SWIM compliant service

Subject matter and scope

SWIM comprises standards, infrastructure and governance enabling the management of information and its exchange between operational stakeholders via interoperable services.

This implementation objective is addressing one of the services in support of Airspace Management and Advanced Flexible Use of Airspace

• ASM Level 1 is the strategic level of FUA, with the involvement of relevant civil and military stakeholders. ASM Level 1 establishes airspace structures and defines their conditions of use, it includes exchange of long-term airspace planning e.g. major exercises and events. The management of airspace structures are applied during pre-tactical and tactical phases

• ASM Level 2 deals with the pre-tactical reservation of the airspace structures. The following services support the ASM level 2:
- o Airspace Structure Service - Management of the AUP/UUP by the local ASM support systems requires that the same airspace data is used by both NM and the ASM support systems. The airspace data is available via NM B2B Airspace Structure Service, which allows to obtain in AIXM 5.1 all the airspace data needed by the local ASM support systems for the management of the AUP (AIRAC data and the live updates)
- o Airspace Availability Service - part of the NM B2B Services, allows the local ASM support systems to provide the AUP and its dynamic updates (UUP) to NM in a timely manner; it also allows NM to share the local AUPs/UUPs with all stakeholders involved in the ASM Level 2. It also allows also the publication of the consolidated European AUP/UUP (EAUP/EUUP) to all stakeholders, AUs, for use in the flight planning systems
- o Airspace Reservation (ARES) information: this service allows the exchange of information regarding ARES between local ASM support systems, in particular to support cross-border operations

• ASM Level 3 deals with the tactical activation and deactivation of the airspace structures. The following services support the ASM level 3:
- o Notification of the activation of an Airspace Reservation/Restriction (ARES)
- o Notification of the de-activation of an Airspace Reservation/Restriction (ARES)
- o Pre-notification of the activation of an Airspace Reservation/Restriction (ARES)
- o Notification of the release of an Airspace Reservation/Restriction (ARES)
- o Query Airspace Reservation/Restriction (ARES) information

System requirements

• Local ASM support systems shall exchange ARES information with relevant civil and military stakeholders at local and FAB level via SWIM Services
• Local ASM support systems shall provide the AUP/UUP information to NM via the NM B2B Airspace Availability Service
• Local ASM support systems shall consume the airspace information required for interoperability with NM via the NM B2B Airspace Structure Service
• The AU systems shall use the EAUP/EUUP published by NM via the NM B2B Airspace Availability Service
• The NM system shall make the NM B2B Airspace Availability Service SWIM compliant
• The NM system shall make the NM B2B Airspace Structure Service SWIM compliant
• ATC systems shall consume the information related to real-time activation and deactivation of ARES provided by the local ASM support systems

The current implementation objective is addressing the Airspace Reservation (ARES) service.

NOTE: For a full description of the services as well as of the associated system requirements, see the AF5 – SWIM Chapter in the SESAR Deployment Programme edition 2022, Approved by the European Commission.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (All EU SES States)	All EU SES States
Applicability Area 2	United Kingdom

INF10.5	Aeronautical Information Exchange - Airspace Reservation (ARES)

Timescales:	From:	By:	Applicable to:
Initial Operational Capability	01/01/2021		Applicability Area 1 + Applicability Area 2
Full Operational Capability / Target Date		31/12/2025	Applicability Area 1 + Applicability Area 2

References

European ATM Master Plan

OI step -	[IS-0901-A]-SWIM for sharing G/G data, traffic flow management information and aeronautical information								
	Enablers -	AAMS-06b AOM19.5	ATC-STD-01	ER APP ATC 160	MIL-0501	MIL-0502	REG-0013	REG-0014	REG-0519
		STD-007	STD-008	STD-033	SWIM-APS-01a	SWIM-APS-02a	SWIM-APS-03a	SWIM-APS-04a	SWIM-APS-05a
		SWIM-APS-06a	SWIM-APS-07a	SWIM-GOV-05a	SWIM-INFR-01a	SWIM-INFR-05a	SWIM-NET-01a	SWIM-STD-04	SWIM-SUPT-01a

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) 2021/116 on the establishment of the Common Project One

Essential Operational Changes

ATM Interconnected Network

SESAR Solution

#46 - SWIM Yellow Profile

ICAO GANP - ASBUs

- none -	

Deployment Programme

5.3.1	Aeronautical Information Exchange

European Plan for Aviation Safety

- none -	

Operating Environments

Airport
En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
INF10.5-ASP01	Adapt/ Implement ASM system to Provide ARES information to local civil/military stakeholders	01/01/2021	31/12/2025
INF10.5-ASP02	Publish ARES service in the Registry	01/01/2021	31/12/2025
INF10.5-ASP03	Consume ARES information	01/01/2021	31/12/2025
INF10.5-ASP04	Operational use	01/01/2021	31/12/2025

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	-

INF10.5	Aeronautical Information Exchange - Airspace Reservation (ARES)

Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

		From:	By:
INF10.5-ASP01	**Adapt/ Implement ASM system to Provide ARES information to local civil/military stakeholders**	**Applicability Area 1:** 01/01/2021	**Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	The local ASM support system provides SWIM services for the exchange of ARES information at local and FAB level, with civil and military stakeholders, as required, in support of ASM level 2 and level 3 processes and procedures and in line with the "EUROCONTROL Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level Part II – ASM to ASM system interface requirements" This SLoA supports the SLoAs AOM19.5-ASP01 "Deploy automated ASM support systems", AOM19.5-ASP06 "Implement interoperability between ASM support systems to facilitate cross border operations" and AOM19.5-ASP09 "Adapt ASM and ATC systems for automatic ASM data exchanges".		
	Note :This SLoA needs to be synchronised between civil and military ANSPs and NM.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - SWIM compliant services for the exchange of ARES information are provided by the ASM support system.		
		From:	By:
INF10.5-ASP02	**Publish ARES service in the Registry**	**Applicability Area 1:** 01/01/2021	**Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	A description of ARES information services is made available in the Registry.		
	Note :This SLoA needs to be synchronised between civil and military ANSPs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - ARES information service is available in the SWIM Registry as an operational SWIM compliant service.		
		From:	By:
INF10.5-ASP03	**Consume ARES information**	**Applicability Area 1:** 01/01/2021	**Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	The local ATM system, when relevant, consumes the ARES information made available via SWIM services by ASM support systems; in particular the ATC systems consume the information concerning the real-time activation and deactivation of ARES. This SLoA supports the SLoAs AOM19.5-ASP08 "Implement procedures related to ASM level 3 (tactical) information exchange" and AOM19.5-ASP09 "Adapt ASM and ATC systems for automatic ASM data exchanges"		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The ATM system consumes ARES information after technical capabilities are validated		
		From:	By:
INF10.5-ASP04	**Operational use**	**Applicability Area 1:** 01/01/2021	**Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	The system is used to support daily operations once the systems have been implemented, the procedures are in place, the capability assessment has been delivered, and the training has been completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Information Exchanges are used for daily operations		

CP1			Active							ECAC+
INF10.6			**Aeronautical Information Exchange – Digital NOTAM service**							
REG	**ASP**	**MIL**	**APO**	**USE**	**INT**	**IND**	**NM**	**MET**	**AIS**	**USP**

Subject matter and scope

SWIM comprises standards, infrastructure and governance enabling the management of information and its exchange between operational stakeholders via interoperable services.

This implementation objective is addressing the Digital NOTAM Service which provides event (Digital NOTAM) information as a data service. The service enables dynamic data sharing of aeronautical information updates and propose them for Digital NOTAM processing. Digital NOTAM service output is a small data set that contains digitally coded data about changes related to aeronautical information, which are temporary nature or provided on short notice. Digital NOTAM data can be formatted into textual or graphical formats for presentation to end-user. The event information can be shared in a short loop when Digital NOTAM is not necessary but deemed relevant for users accessing SWIM.

System requirements

The Digital NOTAM information exchange shall be implemented by:
• AISPs that are the intended provider of the service
• Airports that are the originator of the event data
• ANSPs (pre-flight bulletin) that are the intended consumers of the service and the information it provides

The provider of the Digital NOTAM Service ensures systems implementing the service:
• Shall enable the sharing of various event information
• Shall conform to EUROCONTROL Digital NOTAM specification
• Shall output event information encoded in the applicable version of AIXM.

NOTE: For a full description of the services as well as of the associated system requirements, see the AF5 – SWIM Chapter in the SESAR Deployment Programme edition 2022, Approved by the European Commission.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (All EU SES States)	All EU SES States		
Applicability Area 2	Georgia, Israel, Moldova, Montenegro, Serbia, Turkey, United Kingdom		
Timescales:	**From:**	**By:**	**Applicable to:**
Initial Operational Capability	01/01/2021		Applicability Area 1 + Applicability Area 2
Full Operational Capability / Target Date		31/12/2025	Applicability Area 1 + Applicability Area 2

References

European ATM Master Plan

OI step -	[IS-0205]-Digital Integrated Briefing for pre-flight phase								
	Enablers -	AIMS-06	AIMS-07a	AIMS-19a	METEO-04b	METEO-05b	REG-0301	SWIM-APS-01a	SWIM-APS-02a
		SWIM-INFR-05a	SWIM-NET-01a	SWIM-STD-01					
OI step -	[IS-0901-A]-SWIM for sharing G/G data, traffic flow management information and aeronautical information								
	Enablers -	AAMS-06b AOM19.5	ATC-STD-01	ER APP ATC 160	MIL-0501	MIL-0502	REG-0013	REG-0014	REG-0519
		STD-007	STD-008	STD-033	SWIM-APS-01a	SWIM-APS-02a	SWIM-APS-03a	SWIM-APS-04a	SWIM-APS-05a
		SWIM-APS-06a	SWIM-APS-07a	SWIM-GOV-05a	SWIM-INFR-01a	SWIM-INFR-05a	SWIM-NET-01a	SWIM-STD-04	SWIM-SUPT-01a

Legend:	WXYZ-001		WXYZ-002	Covered by SLoA(s) in another objective		

INF10.6	Aeronautical Information Exchange – Digital NOTAM service

		Covered by SLoA(s) in this objective	zzz	Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) 2021/116 on the establishment of the Common Project One

Essential Operational Changes

ATM Interconnected Network

SESAR Solution

#34 - Digital Integrated Briefing, #46 - SWIM Yellow Profile

ICAO GANP - ASBUs

- none -	

Deployment Programme

5.3.1	Aeronautical Information Exchange

European Plan for Aviation Safety

- none -	

Operating Environments

Airport
En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
INF10.6-ASP01	Consume Digital NOTAM Service	01/01/2021	31/12/2025
INF10.6-ASP02	Operational use	01/01/2021	31/12/2025
INF10.6-AIS01	Provide Digital NOTAM Service	01/01/2021	31/12/2025

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

INF10.6-ASP01	**Consume Digital NOTAM Service**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	The system consumes and uses the information provided by the Digital NOTAM Service. Link to SDP AF3 only if ARES information is provided by NOTAM		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The system consumes the Digital NOTAM Event Service		

INF10.6	Aeronautical Information Exchange – Digital NOTAM service

INF10.6-ASP02	**Operational use**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	The system is used to support daily operations once the systems have been implemented, the procedures are in place, the capability assessment has been delivered, and the training has been completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Information Exchanges are used for daily operations.		
INF10.6-AIS01	**Provide Digital NOTAM Service**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**AIS Providers**		
Description & purpose:	The AISP implements a SWIM Service that enables the provision of Digital NOTAM event information to other stakeholders.		
	Note :This SLoA needs to be synchronised between civil and military ANSPs, AISPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The Digital NOTAM Event Service is SWIM compliant and available in the SWIM Registry as an operational SWIM compliant service.		

CP1		Active								ECAC+
INF10.7		Aeronautical Information Exchange - Aerodrome mapping service								
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

SWIM comprises standards, infrastructure and governance enabling the management of information and its exchange between operational stakeholders via interoperable services.

This implementation objective is addressing the Aerodrome Mapping Service which provides on-request airport layout features and maps as a data service. The service aims to deliver Aerodrome digital maps to operational stakeholders. The service supports information filtering with spatial, temporal and logical operators. Digital Aerodrome Map can be used to present actual/real-time information about closure of runway, taxiway, work in progress on aerodrome movement area, temporary erected obstacles.

Airspace users are not mandated to implement this, but it is recommended that Airspace Users system consume and use the information provided by the Airport Mapping Information Service provided by AISP in daily operations.

System requirements

The Aerodrome Mapping information exchange shall be implemented by:
• Airports that are the primary data provider supporting the Aerodrome mapping service. AISPs are the primary provider of the service
• AUs that are the recommended primary consumers of the service and the information it provides

The provider of the Aerodrome Mapping Service ensures that systems implementing the service:
• May allow selecting aerodrome features and maps as GIS layers.
• May allow information filtering with spatial, temporal and logical operators.
• May output data in formats based on Open Geospatial Consortium standards (e.g. simple GML features, SHAPE files, GeoJSON)
• May be based on the AMXM to facilitate GIS integration. Using AMXM will satisfy the related EUROCAE WG-44 Industry standards in terms of data formatting, as referenced in the SDP Supporting Material.

NOTE: For a full description of the services as well as of the associated system requirements, see the AF5 – SWIM Chapter in the SESAR Deployment Programme edition 2022, Approved by the European Commission.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (All SES EU States)	All EU SES States
Applicability Area 2	Israel, Moldova, Montenegro, Morocco, Serbia, United Kingdom

Timescales:	**From:**	**By:**	**Applicable to:**
Initial Operational Capability	01/01/2021		Applicability Area 1 + Applicability Area 2
Full Operational Capability / Target Date		31/12/2025	Applicability Area 1 + Applicability Area 2

References

European ATM Master Plan

OI step -	[IS-0205]-Digital Integrated Briefing for pre-flight phase								
	Enablers -	AIMS-06	AIMS-07a	AIMS-19a	METEO-04b	METEO-05b	REG-0301	SWIM-APS-01a	SWIM-APS-02a
		SWIM-INFR-05a	SWIM-NET-01a	SWIM-STD-01					
OI step -	[IS-0901-A]-SWIM for sharing G/G data, traffic flow management information and aeronautical information								
	Enablers -	AAMS-06b AOM19.5	ATC-STD-01	ER APP ATC 160	MIL-0501	MIL-0502	REG-0013	REG-0014	REG-0519
		STD-007	STD-008	STD-033	SWIM-APS-01a	SWIM-APS-02a	SWIM-APS-03a	SWIM-APS-04a	SWIM-APS-05a
		SWIM-APS-06a	SWIM-APS-07a	SWIM-GOV-05a	SWIM-INFR-01a	SWIM-INFR-05a	SWIM-NET-01a	SWIM-STD-04	SWIM-SUPT-01a

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) 2021/116 on the establishment of the Common Project One

Essential Operational Changes

ATM Interconnected Network

SESAR Solution

#34 - Digital Integrated Briefing, #46 - SWIM Yellow Profile

ICAO GANP - ASBUs

- none -	

Deployment Programme

5.3.1	Aeronautical Information Exchange

European Plan for Aviation Safety

- none -	

Operating Environments

Airport

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
INF10.7-AIS01	Provide aerodrome Mapping information service	01/01/2021	31/12/2025

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

INF10.7-AIS01	**Provide aerodrome Mapping information service**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**AIS Providers**		
Description & purpose:	The AISP implements a SWIM Service that enables the provision of Aerodrome Mapping information to other stakeholders.		
	Note :Airport operators providing aeronautical information services qualify as AISP and are covered by the SLoA. This SLoA needs to be synchronised between civil and military ANSPs, AISPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The Aerodrome Mapping Information Service is SWIM compliant and available in the SWIM Registry as an operational SWIM compliant service		

CP1		Active								ECAC+
INF10.8		Aeronautical Information Exchange - Aeronautical Information Features service								
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

SWIM comprises standards, infrastructure and governance enabling the management of information and its exchange between operational stakeholders via interoperable services.

This implementation objective is addressing the Aeronautical information feature Service which provides on-request aeronautical information features as a data service. It allows to query and retrieve aeronautical data based on optional filters that may include feature type, feature name and spatial, temporal and logical operators.

Airspace users are not mandated by CP1 in AF5 but are recommended to implement an interface that consumes the information provided by the service and to use the information in daily operations.

System Requirements

This service supports consumption of published AIP and AIP SUP data.
The aeronautical information feature exchange shall be implemented by:
• AISPs that are the primary provider of the service
• Airports when aerodrome information is provided by an Airport
• ANSPs that are the primary consumers of the service and the information it provides

The provider of the aeronautical information feature service ensures systems implementing the service:
• Shall allow the retrieval of aeronautical information features.
• Shall enable filtering by feature type and name.
• Shall allow advanced filtering based on spatial, temporal and logical operators.
• Shall provide the output expressed in the applicable version of AIXM.

NOTE: For a full description of the services as well as of the associated system requirements, see the AF5 – SWIM Chapter in the SESAR Deployment Programme edition 2022, Approved by the European Commission.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (All EU SES States)	All EU SES States		
Applicability Area 2	Georgia, Israel, Morocco, United Kingdom		
Timescales:	**From:**	**By:**	**Applicable to:**
Initial Operational Capability	01/01/2021		Applicability Area 1 + Applicability Area 2
Full Operational Capability / Target Date		31/12/2025	Applicability Area 1 + Applicability Area 2

References

European ATM Master Plan

OI step -	[IS-0205]-Digital Integrated Briefing for pre-flight phase								
	Enablers -	AIMS-06	AIMS-07a	AIMS-19a	METEO-04b	METEO-05b	REG-0301	SWIM-APS-01a	SWIM-APS-02a
		SWIM-INFR-05a	SWIM-NET-01a	SWIM-STD-01					
OI step -	[IS-0901-A]-SWIM for sharing G/G data, traffic flow management information and aeronautical information								
	Enablers -	AAMS-06b AOM19.5	ATC-STD-01	ER APP ATC 160	MIL-0501	MIL-0502	REG-0013	REG-0014	REG-0519
		STD-007	STD-008	STD-033	SWIM-APS-01a	SWIM-APS-02a	SWIM-APS-03a	SWIM-APS-04a	SWIM-APS-05a
		SWIM-APS-06a	SWIM-APS-07a	SWIM-GOV-05a	SWIM-INFR-01a	SWIM-INFR-05a	SWIM-NET-01a	SWIM-STD-04	SWIM-SUPT-01a

INF10.8	Aeronautical Information Exchange - Aeronautical Information Features service

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) 2021/116 on the establishment of the Common Project One

Essential Operational Changes

ATM Interconnected Network

SESAR Solution

#34 - Digital Integrated Briefing, #46 - SWIM Yellow Profile

ICAO GANP - ASBUs

- none -	

Deployment Programme

5.3.1	Aeronautical Information Exchange

European Plan for Aviation Safety

- none -	

Operating Environments

Airport
En-Route
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
INF10.8-ASP01	Consume Aeronautical Information Feature service	01/01/2021	31/12/2025
INF10.8-ASP02	Operational use	01/01/2021	31/12/2025
INF10.8-AIS01	Provide aeronautical information features service	01/01/2021	31/12/2025

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

INF10.8-ASP01	**Consume Aeronautical Information Feature service**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:			
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The system consumes the Aeronautical Information Feature Service		
		From:	By:

INF10.8	Aeronautical Information Exchange - Aeronautical Information Features service

INF10.8-ASP02	**Operational use**	**Applicability Area 1:** 01/01/2021	**Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	Integrate the information obtained via the service into an application that makes use of it.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The Operational system uses the Aeronautical Information Feature Service.		
INF10.8-AIS01	**Provide aeronautical information features service**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**AIS Providers**		
Description & purpose:	The AISP implements a SWIM Service that enables the provision of aeronautical information features to other stakeholders.		
	Note :This SLoA needs to be synchronised between civil and military ANSPs, AISPs and AOs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The Aeronautical Information Feature Service is SWIM compliant and available in the SWIM Registry as a SWIM compliant service.		

CP1	Active								ECAC+	
INF10.9	Meteorological Information Exchange - Volcanic Ash Mass Concentration information service									
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

The ability to establish a collaborative environment within ATM and to move to Trajectory Based Operations depends on the sharing, between all operational stakeholders, of a similar picture of an environment in which flights operate. It requires a wide range of meteorological information to be shared and made available simultaneously to all ATM actors with minimum delay.

This implementation objective is addressing the Volcanic Ash Mass Concentration Service. All volcanic ash advisory information and the supplementary ash concentration information shall be available as a service(s) in compliance with the EUROCONTROL SWIM specifications. The service shall be implemented focusing on provision of volcanic ash concentration information. However, other related information concerning an operationally significant volcanic ash event, will also be considered when implemented as a SWIM service. Volcanic ash SWIM services will be provided by the designated VAAC(s) and available to be accessed by all relevant stakeholders in Europe, including military. Ideally, all stakeholders that use current VA advisory and VA concentration products, will implement the same using the new SWIM service. Volcanic ash service must support exchange of volcanic ash information in IWXXM format, when applicable.

Airspace Users are not mandated, but it is recommended that Airspace Users will be able to access and consume the volcanic ash SWIM information services published by the VAACs. This may require cooperation from any entities that provide flight planning and monitoring functions and that the Airspace Users system uses the volcanic ash information Service.

System requirements

The service(s) will allow for the processing and potential visualisation of safety critical information related to real-time volcanic activity within European airspace and forecasts of anticipated movement and concentration of ash in the atmosphere that is relevant to aviation. VAACs shall implement service(s) supporting Volcanic Ash Mass Concentration information exchange in case of volcanic eruption and supporting activities provided in EUR/NAT VACP.

NOTE: For a full description of the services as well as of the associated system requirements, see the AF5 – SWIM Chapter in the SESAR Deployment Programme edition 2022, Approved by the European Commission.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (All EU SES States)	All EU SES States		
Applicability Area 2	Georgia, Israel, United Kingdom		
Timescales:	**From:**	**By:**	**Applicable to:**
Initial Operational Capability	01/01/2021		Applicability Area 1 + Applicability Area 2
Full Operational Capability / Target Date		31/12/2025	Applicability Area 1 + Applicability Area 2

References

European ATM Master Plan

OI step -	[IS-0205]-Digital Integrated Briefing for pre-flight phase								
	Enablers -	AIMS-06	AIMS-07a	AIMS-19a	METEO-04b	METEO-05b	REG-0301	SWIM-APS-01a	SWIM-APS-02a
		SWIM-INFR-05a	SWIM-NET-01a	SWIM-STD-01					
OI step -	[IS-0901-A]-SWIM for sharing G/G data, traffic flow management information and aeronautical information								
	Enablers -	AAMS-06b AOM19.5	ATC-STD-01	ER APP ATC 160	MIL-0501	MIL-0502	REG-0013	REG-0014	REG-0519
		STD-007	STD-008	STD-033	SWIM-APS-01a	SWIM-APS-02a	SWIM-APS-03a	SWIM-APS-04a	SWIM-APS-05a
		SWIM-APS-06a	SWIM-APS-07a	SWIM-GOV-05a	SWIM-INFR-01a	SWIM-INFR-05a	SWIM-NET-01a	SWIM-STD-04	SWIM-SUPT-01a
OI step -	[MET-0101]-Enhanced MET observations, nowcasts and forecasts provided by ATM-MET systems for planning and near term services								

	Enablers -	METEO-03	METEO-04b	METEO-05b	METEO-06b	METEO-08b			

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) 2021/116 on the establishment of the Common Project One

Essential Operational Changes

ATM Interconnected Network

SESAR Solution

#34 - Digital Integrated Briefing, #35 - MET Information Exchange, #46 - SWIM Yellow Profile

ICAO GANP - ASBUs

- none -	

Deployment Programme

5.4.1	Meteorological Information Exchange

European Plan for Aviation Safety

- none -	

Operating Environments

Airport
En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
INF10.9-ASP01	Consume Volcanic Ash Mass concentration service(s)	01/01/2021	31/12/2025
INF10.9-ASP02	Operational use	01/01/2021	31/12/2025
INF10.9-MET01	Provide Volcanic Ash Mass service(s)	01/01/2021	31/12/2025
INF10.9-MET02	Consume Volcanic Ash Mass concentration service(s)	01/01/2021	31/12/2025
INF10.9-MET03	Operational use	01/01/2021	31/12/2025
INF10.9-NM01	Consume Volcanic Ash Mass concentration service(s)	01/01/2021	31/12/2025
INF10.9-NM02	Operational use	01/01/2021	31/12/2025

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

		From:	By:
INF10.9-ASP01	**Consume Volcanic Ash Mass concentration service(s)**	**Applicability Area 1:** 01/01/2021	**Applicability Area 1:** 31/12/2025

Action by:	**ANS Providers**		
Description & purpose:	All ANSPs that require volcanic ash information, will be able to access and consume the volcanic ash SWIM information services published by the VAACs.		
	Note :Note: In the case of volcanic ash information which is not specified in chapter 4 of Annex V to (EU) 2017/373, i.e. supplementary volcanic ash concentration, it may be produced by an entity other than the VAACs, so long as the consumer has a documented safety case for its use.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The system consumes the volcanic ash information Service		
INF10.9-ASP02	**Operational use**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	The system is used to support daily operations once the systems have been implemented, the procedures are in place, the capability assessment has been delivered, and the training has been completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Information Exchanges are used for daily operations		
INF10.9-MET01	**Provide Volcanic Ash Mass service(s)**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**MET Providers**		
Description & purpose:	The designated European VAACs implement SWIM Services for volcanic ash information commensurate with the products listed in chapter 4 of Annex V to (EU) 2017/373, and volcanic ash concentration information service(s). Additional or supplementary volcanic ash SWIM information services may also be considered in this milestone. The services will be available for operational use in the event of a volcanic event within the geographical area of responsibility.		
	Note :This SLoA needs to be synchronised between civil and military ANSPs, NM, MET and AUs.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The Volcanic Ash Service is SWIM compliant and available in the SWIM Registry.		
INF10.9-MET02	**Consume Volcanic Ash Mass concentration service(s)**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**MET Providers**		
Description & purpose:	All MET service providers which require volcanic ash information, including those listed in section 3.5(c) of Annex V to (EU) 2017/373) i.e. MWOs and WAFC, will be able to access and consume the volcanic ash SWIM information services published by the VAACs, including ash concentration service(s).		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The system consumes the volcanic ash information Service		
INF10.9-MET03	**Operational use**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**MET Providers**		
Description & purpose:	The system is used to support daily operations once the systems have been implemented, the procedures are in place, the capability assessment has been delivered, and the training has been completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Information Exchanges are used for daily operations		
INF10.9-NM01	**Consume Volcanic Ash Mass concentration service(s)**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**NM**		
Description & purpose:	The NM will be able to access and consume the volcanic ash SWIM information services published by the VAACs.		
	Note :Note: In the case of volcanic ash information which is not specified in chapter 4 of Annex V to (EU) 2017/373, i.e. supplementary volcanic ash concentration, it may be produced by an entity other than the VAACs, so long as the consumer has a documented safety case for its use.		

Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The system consumes the volcanic ash information Service		
INF10.9-NM02	**Operational use**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**NM**		
Description & purpose:	The system is used to support daily operations once the systems have been implemented, the procedures are in place, the capability assessment has been delivered, and the training has been completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Information Exchanges are used for daily operations		

CP1			Active							EU
INF10.10			**Meteorological Information Exchange - Aerodrome Meteorological information Service**							
REG	**ASP**	**MIL**	**APO**	**USE**	**INT**	**IND**	**NM**	**MET**	**AIS**	**USP**

Subject matter and scope

The ability to establish a collaborative environment within ATM and to move to Trajectory Based Operations depends on the sharing, between all operational stakeholders, of a similar picture of an environment in which flights operate. It requires a wide range of meteorological information to be shared and made available simultaneously to all ATM actors with minimum delay.

This implementation objective is addressing the Aerodrome Meteorological information Service. The certified MET service provider for the aerodrome will be those which are selected by the relevant competent authority. There may be more than one selected MET service provider for an aerodrome. As a minimum, the aerodrome MET service provider will execute the tasks related to the aerodrome meteorological office, as defined in chapter 2 of Annex 5 to (EU) 2017/373).

The aerodrome MET service provider(s) will liaise closely with the operational stakeholders at the aerodrome to determine and help define the local needs and requirements for MET information support, specific to that aerodrome. This may (for example) focus on unique weather constraints such as fog, snow, convection etc, or on particular operational constraints such as aerodrome capacity, winter procedures, noise abatement procedures, etc., and their dependency on weather. Services could include only MET information e.g. to be used as input into another system or decision process, or visualisation of information critical to aerodrome operations. Ideally, services will integrate MET information with other types of aerodrome information, as driven by local requirements.

NOTE: For a full description of the services as well as of the associated system requirements, see the AF5 – SWIM Chapter in the SESAR Deployment Programme edition 2022, Approved by the European Commission.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (All EU SES States)	All EU SES States		
Applicability Area 2	Azerbaijan, Georgia, Israel, United Kingdom		
Timescales:	**From:**	**By:**	**Applicable to:**
Initial Operational Capability	01/01/2021		Applicability Area 1 + Applicability Area 2
Full Operational Capability / Target Date		31/12/2025	Applicability Area 1 + Applicability Area 2

References

European ATM Master Plan

OI step -	[IS-0205]-Digital Integrated Briefing for pre-flight phase								
	Enablers -	AIMS-06	AIMS-07a	AIMS-19a	METEO-04b	METEO-05b	REG-0301	SWIM-APS-01a	SWIM-APS-02a
		SWIM-INFR-05a	SWIM-NET-01a	SWIM-STD-01					
OI step -	[IS-0901-A]-SWIM for sharing G/G data, traffic flow management information and aeronautical information								
	Enablers -	AAMS-06b AOM19.5	ATC-STD-01	ER APP ATC 160	MIL-0501	MIL-0502	REG-0013	REG-0014	REG-0519
		STD-007	STD-008	STD-033	SWIM-APS-01a	SWIM-APS-02a	SWIM-APS-03a	SWIM-APS-04a	SWIM-APS-05a
		SWIM-APS-06a	SWIM-APS-07a	SWIM-GOV-05a	SWIM-INFR-01a	SWIM-INFR-05a	SWIM-NET-01a	SWIM-STD-04	SWIM-SUPT-01a
OI step -	[MET-0101]-Enhanced MET observations, nowcasts and forecasts provided by ATM-MET systems for planning and near term services								
	Enablers -	METEO-03	METEO-04b	METEO-05b	METEO-06b	METEO-08b			

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

INF10.10	Meteorological Information Exchange - Aerodrome Meteorological information Service

Regulation (EU) 2021/116 on the establishment of the Common Project One

Essential Operational Changes

ATM Interconnected Network

SESAR Solution

#34 - Digital Integrated Briefing, #35 - MET Information Exchange, #46 - SWIM Yellow Profile

ICAO GANP - ASBUs

- none -	

Deployment Programme

5.4.1	Meteorological Information Exchange

European Plan for Aviation Safety

- none -	

Operating Environments

Airport
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
INF10.10-ASP01	Determine and help define requirements for new aerodrome MET information services	01/01/2021	31/12/2025
INF10.10-ASP02	Consume aerodrome MET information services	01/01/2021	31/12/2025
INF10.10-ASP03	Operational use	01/01/2021	31/12/2025
INF10.10-APO01	Determine and help define requirements for new aerodrome MET information services	01/01/2021	31/12/2025
INF10.10-APO02	Consume aerodrome MET information services	01/01/2021	31/12/2025
INF10.10-APO03	Operational use	01/01/2021	31/12/2025
INF10.10-MET01	Determine and help define requirements for new aerodrome MET information services	01/01/2021	31/12/2025
INF10.10-MET02	Provide aerodrome MET information services	01/01/2021	31/12/2025
INF10.10-MET03	Provide enhanced Aerodrome MET information services	01/01/2021	31/12/2025
INF10.10-NM01	Consume aerodrome MET information services	01/01/2021	31/12/2025
INF10.10-NM02	Operational use	01/01/2021	31/12/2025

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

INF10.10-ASP01	**Determine and help define requirements for new aerodrome MET information services**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	The ANSPs at an airport will collaborate with other airport users and the MET provider(s) to jointly define requirements for new advanced MET service(s) to better support operations specific to that airport. As a minimum, this shall be done at the airports listed in CP1 Annex section 1.2		

INF10.10	Meteorological Information Exchange - Aerodrome Meteorological information Service

Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The agreed requirements are documented.		
INF10.10-ASP02	**Consume aerodrome MET information services**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	All ANSPs that require aerodrome-MET information will be able to access and consume the aerodrome MET SWIM information services published by the certified MET provider(s) at that airport. This may also include enhanced information services that are agreed locally.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The system uses the aerodrome MET information Service(s).		
INF10.10-ASP03	**Operational use**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	The system is used to support daily operations once the systems have been implemented, the procedures are in place, the capability assessment has been delivered, and the training has been completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Information Exchanges are used for daily operations.		
INF10.10-APO01	**Determine and help define requirements for new aerodrome MET information services**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**Airport Operators**		
Description & purpose:	The Airport will collaborate with airport users/stakeholders and the MET provider(s) to jointly define requirements for new advanced MET service(s) to better support operations specific to that airport. As a minimum, this shall be done at the airports listed in CP1 Annex section 1.2		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The agreed requirements are documented.		
INF10.10-APO02	**Consume aerodrome MET information services**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**Airport Operators**		
Description & purpose:	All Airports will be able to access and consume the aerodrome MET SWIM information services published by the certified MET provider(s) at that airport. This may include enhanced information services that are agreed locally.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The system(s) uses the aerodrome MET information Service(s)		
INF10.10-APO03	**Operational use**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**Airport Operators**		
Description & purpose:	The system is used to support daily operations once the systems have been implemented, the procedures are in place, the capability assessment has been delivered, and the training has been completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Information Exchanges are used for daily operations.		
INF10.10-MET01	**Determine and help define requirements for new aerodrome MET information services**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**MET Providers**		
Description & purpose:	The aeronautical meteorological stations (or other certified MET provider at the airport) will collaborate with airport users to jointly define requirements for new advanced MET service(s) to better support operations specific to that airport.		

INF10.10	Meteorological Information Exchange - Aerodrome Meteorological information Service

Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The agreed requirements are documented.		
INF10.10-MET02	**Provide aerodrome MET information services**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**MET Providers**		
Description & purpose:	All aeronautical meteorological stations (or other certified MET provider at the airport) will have their information published and accessible as a SWIM service (either directly or indirectly).		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The Aerodrome MET information service(s) is SWIM compliant and available in the SWIM Registry.		
INF10.10-MET03	**Provide enhanced Aerodrome MET information services**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**MET Providers**		
Description & purpose:	Fulfilling the agreed local requirements for advanced MET information support services concluded in INF10.10-MET01, these additional or supplementary aerodrome meteorological information services will be published and accessible as a SWIM service		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The enhanced aerodrome MET information Service(s) is SWIM compliant and available in the SWIM Registry.		
INF10.10-NM01	**Consume aerodrome MET information services**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**NM**		
Description & purpose:	The NM will be able to access and consume the aerodrome MET SWIM information services published by the certified MET provider(s) at those airports. This may include enhanced information services that are agreed locally.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The system consumes the aerodrome MET information Service(s).		
INF10.10-NM02	**Operational use**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**NM**		
Description & purpose:	The system is used to support daily operations once the systems have been implemented, the procedures are in place, the capability assessment has been delivered, and the training has been completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Information Exchanges are used for daily operations.		

CP1	Active	EU
INF10.11	Meteorological Information Exchange - En-Route and Approach Meteorological information service	

REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

The ability to establish a collaborative environment within ATM and to move to Trajectory Based Operations depends on the sharing, between all operational stakeholders, of a similar picture of an environment in which flights operate. It requires a wide range of meteorological information to be shared and made available simultaneously to all ATM actors with minimum delay.
This implementation objective is addressing the En-Route and Approach Meteorological information Service. The certified MET service provider for the En-route and approach ATC units will be those which are selected by the relevant competent authority and/or regional air navigation agreement. There may be more than one selected certified MET service provider. The certified MET service provider will be the aerodrome meteorological office, the MWO or WAFC, as defined in Annex V to (EU) 2017/373). The MET service provider(s) will liaise closely with the operational stakeholders in the approach and En-route domains, to determine and help define the needs and requirements for MET information support, specific to that area. This may (for example) focus on unique weather constraints such as fog, snow, convection, etc, or on particular operational constraints such as runway throughput, winter procedures, noise abatement procedures, free routing, etc. and their dependency on weather.

NOTE: For a full description of the services as well as of the associated system requirements, see the AF5 – SWIM Chapter in the SESAR Deployment Programme edition 2022, Approved by the European Commission.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (All EU SES States)	All EU SES States		
Applicability Area 2	Georgia, Israel, United Kingdom		
Timescales:	**From:**	**By:**	**Applicable to:**
Initial Operational Capability	01/01/2021		Applicability Area 1 + Applicability Area 2
Full Operational Capability / Target Date		31/12/2025	Applicability Area 1 + Applicability Area 2

References

European ATM Master Plan

OI step -	[IS-0205]-Digital Integrated Briefing for pre-flight phase								
	Enablers -	AIMS-06	AIMS-07a	AIMS-19a	METEO-04b	METEO-05b	REG-0301	SWIM-APS-01a	SWIM-APS-02a
		SWIM-INFR-05a	SWIM-NET-01a	SWIM-STD-01					
OI step -	[IS-0901-A]-SWIM for sharing G/G data, traffic flow management information and aeronautical information								
	Enablers -	AAMS-06b AOM19.5	ATC-STD-01	ER APP ATC 160	MIL-0501	MIL-0502	REG-0013	REG-0014	REG-0519
		STD-007	STD-008	STD-033	SWIM-APS-01a	SWIM-APS-02a	SWIM-APS-03a	SWIM-APS-04a	SWIM-APS-05a
		SWIM-APS-06a	SWIM-APS-07a	SWIM-GOV-05a	SWIM-INFR-01a	SWIM-INFR-05a	SWIM-NET-01a	SWIM-STD-04	SWIM-SUPT-01a
OI step -	[MET-0101]-Enhanced MET observations, nowcasts and forecasts provided by ATM-MET systems for planning and near term services								
	Enablers -	METEO-03	METEO-04b	METEO-05b	METEO-06b	METEO-08b			

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) 2021/116 on the establishment of the Common Project One

Essential Operational Changes

INF10.11	Meteorological Information Exchange - En-Route and Approach Meteorological information service

ATM Interconnected Network

SESAR Solution

#34 - Digital Integrated Briefing, #35 - MET Information Exchange, #46 - SWIM Yellow Profile

ICAO GANP - ASBUs

- none -	

Deployment Programme

5.4.1	Meteorological Information Exchange

European Plan for Aviation Safety

- none -	

Operating Environments

En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
INF10.11-ASP01	Determine and help define requirements for new En-Route and/or approach MET information services	01/01/2021	31/12/2025
INF10.11-ASP02	Consume En-Route and approach MET information services	01/01/2021	31/12/2025
INF10.11-ASP03	Operational use	01/01/2021	31/12/2025
INF10.11-MET01	Determine and help define requirements for new En-Route and/or approach MET information services	01/01/2021	31/12/2025
INF10.11-MET02	Provide En-Route and Approach MET information services	01/01/2021	31/12/2025
INF10.11-MET03	Provide enhanced En-Route and approach MET information services	01/01/2021	31/12/2025
INF10.11-NM01	Determine and help define requirements for new En-Route and/or approach MET information services	01/01/2021	31/12/2025
INF10.11-NM02	Consume En-Route and approach MET information services	01/01/2021	31/12/2025
INF10.11-NM03	Operational use	01/01/2021	31/12/2025

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

INF10.11-ASP01	**Determine and help define requirements for new En-Route and/or approach MET information services**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	The ANSPs operating in the En-Route and approach domains will collaborate with each other, AUs and the MET provider(s) to jointly define requirements for new advanced MET service(s) to better support operations specific to that airspace.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The agreed requirements are documented.		

INF10.11	Meteorological Information Exchange - En-Route and Approach Meteorological information service

INF10.11-ASP02	**Consume En-Route and approach MET information services**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	All ANSPs that require En-Route and approach MET information will be able to access and consume these MET SWIM information services published by the certified MET provider(s). This may also include enhanced information services that are agreed locally under INF10.11-ASP01.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The system(s) consumes the En-Route and approach MET information Service(s).		
INF10.11-ASP03	**Operational use**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	The system is used to support daily operations once the systems have been implemented, the procedures are in place, the capability assessment has been delivered, and the training has been completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Information Exchanges are used for daily operations.		
INF10.11-MET01	**Determine and help define requirements for new En-Route and/or approach MET information services**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**MET Providers**		
Description & purpose:	The MWO's and WAFC (or other certified MET provider in the En-Route and approach domains) will collaborate with applicable ANSP users to jointly define requirements for new advanced MET service(s) to better support operations specific to that airspace.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The agreed requirements are documented.		
INF10.11-MET02	**Provide En-Route and Approach MET information services**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**MET Providers**		
Description & purpose:	All MWO's and WAFC (or other certified MET provider in the En-Route or approach domain) will have their information published and accessible as a SWIM service (either directly or indirectly).		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The En-Route and approach MET information Service is SWIM compliant and available in the SWIM Registry		
INF10.11-MET03	**Provide enhanced En-Route and approach MET information services**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**MET Providers**		
Description & purpose:	Fulfilling the agreed requirements for advanced MET information support services concluded in INF10.11-MET01, these additional or supplementary En-Route or approach meteorological information services will be published and accessible as a SWIM service.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The En-Route and approach MET information Service is SWIM compliant and available in the SWIM Registry.		
INF10.11-NM01	**Determine and help define requirements for new En-Route and/or approach MET information services**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**NM**		
Description & purpose:	It is recommended that NM engage in any collaboration between the En-Route and approach users/stakeholders and the MET provider(s) and contribute to the definition of requirements for new advanced MET service(s) to better support operations specific to that airspace.		

INF10.11	Meteorological Information Exchange - En-Route and Approach Meteorological information service

Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The agreed requirements are documented		
INF10.11-NM02	**Consume En-Route and approach MET information services**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**NM**		
Description & purpose:	The NM will be able to access and consume the En-Route and approach MET SWIM information services published by the certified MET provider(s) in these domains. This may include enhanced information services that are agreed locally.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The system(s) consumes the En-Route and approach MET information Service(s).		
INF10.11-NM03	**Operational use**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**NM**		
Description & purpose:	The system is used to support daily operations once the systems have been implemented, the procedures are in place, the capability assessment has been delivered, and the training has been completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Information Exchanges are used for daily operations.		

CP1			Active							EU
INF10.12			**Meteorological Information Exchange - Network Meteorological Information**							
REG	**ASP**	**MIL**	**APO**	**USE**	**INT**	**IND**	**NM**	**MET**	**AIS**	**USP**

Subject matter and scope

The ability to establish a collaborative environment within ATM and to move to Trajectory Based Operations depends on the sharing, between all operational stakeholders, of a similar picture of an environment in which flights operate. It requires a wide range of meteorological information to be shared and made available simultaneously to all ATM actors with minimum delay.
This implementation objective is addressing the Network Manager Meteorological Information Service, the needs and requirements for MET information support. This may (for example) focus on impactful weather events which affect En-Route flight phases and cross-border or affect the ability of critical/busiest aerodromes to maintain flow rates. The NM will liaise also with other ATM stakeholders and synchronise their implementation plans.

NOTE: For a full description of the services as well as of the associated system requirements, see the AF5 – SWIM Chapter in the SESAR Deployment Programme edition 2022, Approved by the European Commission.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (All EU SES States)	All EU SES States		
Applicability Area 2	Georgia, United Kingdom		
Timescales:	**From:**	**By:**	**Applicable to:**
Initial Operational Capability	01/01/2021		Applicability Area 1 + Applicability Area 2
Full Operational Capability / Target Date		31/12/2025	Applicability Area 1 + Applicability Area 2

References

European ATM Master Plan

OI step -	[IS-0205]-Digital Integrated Briefing for pre-flight phase								
	Enablers -	AIMS-06	AIMS-07a	AIMS-19a	METEO-04b	METEO-05b	REG-0301	SWIM-APS-01a	SWIM-APS-02a
		SWIM-INFR-05a	SWIM-NET-01a	SWIM-STD-01					
OI step -	[IS-0901-A]-SWIM for sharing G/G data, traffic flow management information and aeronautical information								
	Enablers -	AAMS-06b AOM19.5	ATC-STD-01	ER APP ATC 160	MIL-0501	MIL-0502	REG-0013	REG-0014	REG-0519
		STD-007	STD-008	STD-033	SWIM-APS-01a	SWIM-APS-02a	SWIM-APS-03a	SWIM-APS-04a	SWIM-APS-05a
		SWIM-APS-06a	SWIM-APS-07a	SWIM-GOV-05a	SWIM-INFR-01a	SWIM-INFR-05a	SWIM-NET-01a	SWIM-STD-04	SWIM-SUPT-01a
OI step -	[MET-0101]-Enhanced MET observations, nowcasts and forecasts provided by ATM-MET systems for planning and near term services								
	Enablers -	METEO-03	METEO-04b	METEO-05b	METEO-06b	METEO-08b			

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) 2021/116 on the establishment of the Common Project One

Essential Operational Changes

ATM Interconnected Network

SESAR Solution

#34 - Digital Integrated Briefing, #35 - MET Information Exchange, #46 - SWIM Yellow Profile

INF10.12	Meteorological Information Exchange - Network Meteorological Information

ICAO GANP - ASBUs

- none -	

Deployment Programme

5.4.1	Meteorological Information Exchange

European Plan for Aviation Safety

- none -	

Operating Environments

Airport
En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
INF10.12-ASP01	Determine and help define requirements for new network MET information services	01/01/2021	31/12/2025
INF10.12-ASP02	Consume network MET information services	01/01/2021	31/12/2025
INF10.12-ASP03	Operational use	01/01/2021	31/12/2025
INF10.12-MET01	Determine and help define requirements for new network MET information services	01/01/2021	31/12/2025
INF10.12-MET02	Provide Network MET information services	01/01/2021	31/12/2025
INF10.12-MET03	Provide enhanced network MET information services	01/01/2021	31/12/2025
INF10.12-NM01	Determine and help define requirements for new network MET information services	01/01/2021	31/12/2025
INF10.12-NM02	Consume network MET information services	01/01/2021	31/12/2025
INF10.12-NM03	Operational use	01/01/2021	31/12/2025

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

		From:	By:
INF10.12-ASP01	**Determine and help define requirements for new network MET information services**	**Applicability Area 1:** 01/01/2021	**Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	The ANSPs operating in the ATFM and network domains will collaborate with NM, AUs and the MET provider(s) to jointly define requirements for new advanced MET service(s) to better support operations specific to the NM		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The agreed requirements are documented.		
		From:	By:
INF10.12-ASP02	**Consume network MET information services**	**Applicability Area 1:** 01/01/2021	**Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		

INF10.12	Meteorological Information Exchange - Network Meteorological Information

Description & purpose:	All ANSPs that require network MET information will be able to access and consume these MET SWIM information services published by the MET provider(s). This may also include enhanced information services that are agreed under INF10.12-ASP01.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The system(s) consumes the network manager MET information Service(s).		
INF10.12-ASP03	**Operational use**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	The system is used to support daily operations once the systems have been implemented, the procedures are in place, the capability assessment has been delivered, and the training has been completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Information Exchanges are used for daily operations.		
INF10.12-MET01	**Determine and help define requirements for new network MET information services**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**MET Providers**		
Description & purpose:	MET provider(s) will collaborate with NM to jointly define requirements for new advanced MET service(s) to better support operations specific to safe and efficient NM operations.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The agreed requirements are documented.		
INF10.12-MET02	**Provide Network MET information services**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**MET Providers**		
Description & purpose:	All certified MET providers (including those operating in the airport, and En-Route domains) will have their information published and accessible as SWIM services (either directly or indirectly).		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The network MET information Service is SWIM compliant and available in the SWIM Registry.		
INF10.12-MET03	**Provide enhanced network MET information services**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**MET Providers**		
Description & purpose:	Fulfilling the agreed requirements for advanced MET information support services concluded in INF10.12-MET01, these additional or supplementary network meteorological information services will be published and accessible as SWIM service(s).		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The enhanced network MET information Service is SWIM compliant and available in the SWIM Registry.		
INF10.12-NM01	**Determine and help define requirements for new network MET information services**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**NM**		
Description & purpose:	The NM will collaborate with ANSP stakeholders, AUs and the MET provider(s) to jointly define requirements for new advanced MET service(s) to better support operations specific to NM.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The agreed requirements are documented by NM		
INF10.12-NM02	**Consume network MET information services**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**NM**		

INF10.12	Meteorological Information Exchange - Network Meteorological Information

Description & purpose:	The NM will be able to access and consume the network MET SWIM information services published by the certified MET provider(s) in this domain. This may include enhanced information services that are agreed in INF10.12-NM01.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - NM will be able to access and consume MET SWIM information services in the airport, approach, network and En-Route domains as required operationally. The system(s) consumes the NM Meteorological Information Service.		
INF10.12-NM03	**Operational use**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**NM**		
Description & purpose:	The system is used to support daily operations once the systems have been implemented, the procedures are in place, the capability assessment has been delivered, and the training has been completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Information Exchanges are used for daily operations.		

CP1		Active							EU	
INF10.13		**Cooperative Network Information Exchange - ATFCM Tactical Updates Service (Airport Capacity and Enroute)**								
REG	**ASP**	**MIL**	**APO**	**USE**	**INT**	**IND**	**NM**	**MET**	**AIS**	**USP**

Subject matter and scope

The Cooperative Network Information will be exchanged between the systems of the operational stakeholders and the Network Manager by means of cooperative network information SWIM services, using the Yellow SWIM TI Profile, for Air Traffic Flow and Capacity Management (ATFCM) purposes.

Operational stakeholders use the NM B2B Services, which support the exchange of the following cooperative network information:

•Maximum airport capacity based on current and near-term weather conditions
This information exchange is supported by the ATFCM Tactical Updates Service, which allows to update dynamically the airport capacity values and the runway configuration.

•Network and en-route approach operation plans
This information exchange is supported by the ATFCM Tactical Updates Service, part of the NM B2B Services, which allows to update dynamically the sector configuration plans, the capacity values, the monitoring values (OTMV), the traffic volume activations and the runway configurations.

System requirements:

The Network Manager shall support all operational stakeholders in exchanging data electronically for cooperative network management activities, by providing the necessary SWIM services.

The access to NOP via the NM HMIs is covered by Objectives FCM11.1 and FCM11.2. This objective covers only the information exchanges between the stakeholders' local systems and the NM system. The Network Manager system and operational stakeholder systems shall be upgraded to support the exchange of information in compliance with the EUROCONTROL SWIM Specifications, either through the Public Internet and/or NewPENS. The choice of communication service depends on a business criticality assessment from where minimum performance requirements are identified.

ANSP systems shall be upgraded to use the NM B2B Services in order to provide to NM the ATFCM tactical and pre-tactical updates: sector configuration activation, capacity values, runway configuration activation, traffic volume activation (when applicable), OTMVs (when used) and hotspots (when used).

NOTE: For a full description of the services as well as of the associated system requirements, see the AF5 – SWIM Chapter in the SESAR Deployment Programme edition 2022, Approved by the European Commission.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (All EU SES States)	All EU SES States		
Applicability Area 2	Israel, United Kingdom		
Timescales:	**From:**	**By:**	**Applicable to:**
Initial Operational Capability	01/01/2021		Applicability Area 1 + Applicability Area 2
Full Operational Capability / Target Date		31/12/2025	Applicability Area 1 + Applicability Area 2

References

European ATM Master Plan

OI step -	[IS-0901-A]-SWIM for sharing G/G data, traffic flow management information and aeronautical information								
	Enablers -	AAMS-06b AOM19.5	ATC-STD-01	ER APP ATC 160	MIL-0501	MIL-0502	REG-0013	REG-0014	REG-0519
		STD-007	STD-008	STD-033	SWIM-APS-01a	SWIM-APS-02a	SWIM-APS-03a	SWIM-APS-04a	SWIM-APS-05a

INF10.13	Cooperative Network Information Exchange - ATFCM Tactical Updates Service (Airport Capacity and Enroute)

		SWIM-APS-06a	SWIM-APS-07a	SWIM-GOV-05a	SWIM-INFR-01a	SWIM-INFR-05a	SWIM-NET-01a	SWIM-STD-04	SWIM-SUPT-01a

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) 2021/116 on the establishment of the Common Project One

Essential Operational Changes

ATM Interconnected Network

SESAR Solution

#46 - SWIM Yellow Profile

ICAO GANP - ASBUs

- none -	

Deployment Programme

5.5.1	Cooperative Network Information Exchange

European Plan for Aviation Safety

- none -	

Operating Environments

Airport
En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
INF10.13-ASP01	Provide ATFCM Tactical and pre-tactical updates to NM	01/01/2021	31/12/2025
INF10.13-ASP02	Operational use	01/01/2021	31/12/2025
INF10.13-NM01	Upgrade NM systems for SWIM compliance	01/01/2021	31/12/2025

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

		From:	By:
INF10.13-ASP01	**Provide ATFCM Tactical and pre-tactical updates to NM**	**Applicability Area 1:** 01/01/2021	**Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		

INF10.13	Cooperative Network Information Exchange - ATFCM Tactical Updates Service (Airport Capacity and Enroute)

Description & purpose:	Provide to NM the ATFCM tactical and pre-tactical updates for the aerodrome capacity values, the sector configuration plans, the Enroute capacity values, the monitoring values (OTMV), the traffic volume activations and the runway configuration activation. This SLoA supports the SLoA FCM10-ASP01 (Use of NM technical platform and NM B2B service).		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The ANSP system provides the ATFCM tactical and pre-tactical updates to NM via the NM B2B Services.		
INF10.13-ASP02	**Operational use**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	The system is used to support daily operations once the systems have been implemented, the procedures are in place, the capability assessment has been delivered, and the training has been completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Information Exchanges are used for daily operations.		
INF10.13-NM01	**Upgrade NM systems for SWIM compliance**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**NM**		
Description & purpose:	The NM system is upgraded in order to make the NM B2B Services SWIM compliant. This SLoA supports the SLoA FCM10-NM02 (Develop Network Manager B2B services).		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The NM B2B Services are SWIM compliant and available in the SWIM Registry as an operational SWIM compliant service.		

CP1		Active							EU	
INF10.14		**Cooperative Network Information Exchange – Flight Management Service (Slots and NOP/AOP integration)**								
REG	**ASP**	**MIL**	**APO**	**USE**	**INT**	**IND**	**NM**	**MET**	**AIS**	**USP**

Subject matter and scope

The Cooperative Network Information will be exchanged between the systems of the operational stakeholders and the Network Manager by means of cooperative network information SWIM services, using the Yellow SWIM TI Profile, for Air Traffic Flow and Capacity Management (ATFCM) purposes.

Operational stakeholders use the NM B2B Services, which support the exchange of the following cooperative network information:

•Slots
This information exchange is supported by the Flight Management Service, which publishes flight information, including the ATFCM slots for flights subject to regulations.

•Synchronisation of network operations plan (NOP) and all airport operations plans (AOP)
This information exchange is supported by the Flight Management Service, which publishes flight information (Flight update messages) and allows the provision to NM of the Predicted Departure Planning Information (P-DPI) and Arrival Planning Information. This service also supports the provision of the Departure Planning Information (DPI).

Airspace Users are not mandated to but recommended to upgrade Airspace Users systems to use the NM B2B Services in order to consume the flight updates on own flights.

System requirements:

The Network Manager shall support all operational stakeholders in exchanging data electronically for cooperative network management activities, by providing the necessary SWIM services.

The access to NOP via the NM HMIs is covered by Objectives FCM11.1 and FCM11.2. This objective covers only the information exchanges between the stakeholders' local systems and the NM system. The Network Manager system and operational stakeholder systems shall be upgraded to support the exchange of information in compliance with the EUROCONTROL SWIM Specifications, either through the Public Internet and/or NewPENS. The choice of communication service depends on a business criticality assessment from where minimum performance requirements are identified.

ANSP systems shall be upgraded to use the NM B2B Services in order to:
•Consume the flight update information (FUM)
•If applicable, provide the Predicted and the normal Departure Planning Information (DPI) to NM
•If applicable, provide the Arrival Planning Information to NM

Airport systems shall be upgraded to use the NM B2B Services in order to:
•Consume the flight update information (FUM)
•Provide the Predicted and normal Departure Planning Information (DPI) to NM
•Provide the Arrival Planning Information to NM

NOTE: For a full description of the services as well as of the associated system requirements, see the AF5 – SWIM Chapter in the SESAR Deployment Programme edition 2022, Approved by the European Commission.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities

Applicability Area(s) & Timescale(s)

Applicability Area 1 (All EU SES States)	All EU SES States		
Applicability Area 2	Israel		
Timescales:	**From:**	**By:**	**Applicable to:**
Initial Operational Capability	01/01/2021		Applicability Area 1 + Applicability Area 2
Full Operational Capability / Target Date		31/12/2025	Applicability Area 1 + Applicability Area 2

INF10.14	Cooperative Network Information Exchange – Flight Management Service (Slots and NOP/AOP integration)

References

European ATM Master Plan

OI step -	[IS-0901-A]-SWIM for sharing G/G data, traffic flow management information and aeronautical information								
	Enablers -	AAMS-06b AOM19.5	ATC-STD-01	ER APP ATC 160	MIL-0501	MIL-0502	REG-0013	REG-0014	REG-0519
		STD-007	STD-008	STD-033	SWIM-APS-01a	SWIM-APS-02a	SWIM-APS-03a	SWIM-APS-04a	SWIM-APS-05a
		SWIM-APS-06a	SWIM-APS-07a	SWIM-GOV-05a	SWIM-INFR-01a	SWIM-INFR-05a	SWIM-NET-01a	SWIM-STD-04	SWIM-SUPT-01a

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) 2021/116 on the establishment of the Common Project One

Essential Operational Changes

ATM Interconnected Network

SESAR Solution

#46 - SWIM Yellow Profile

ICAO GANP - ASBUs

- none -	

Deployment Programme

5.5.1	Cooperative Network Information Exchange

European Plan for Aviation Safety

- none -	

Operating Environments

Airport
En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
INF10.14-ASP01	Consume NM flight update information	01/01/2021	31/12/2025
INF10.14-ASP02	Operational use	01/01/2021	31/12/2025
INF10.14-APO01	Provide the Predicted Departure Planning Information to NM	01/01/2021	31/12/2025
INF10.14-APO02	Provide the Arrival Planning Information to NM	01/01/2021	31/12/2025
INF10.14-APO03	Consume NM flight update information	01/01/2021	31/12/2025
INF10.14-APO04	Operational use	01/01/2021	31/12/2025
INF10.14-USE01	Consume NM flight update information	01/01/2021	31/12/2025
INF10.14-NM01	Upgrade NM systems for SWIM compliance	01/01/2021	31/12/2025

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	-

INF10.14	Cooperative Network Information Exchange – Flight Management Service (Slots and NOP/AOP integration)

Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

		From:	By:
INF10.14-ASP01	**Consume NM flight update information**	**Applicability Area 1:** 01/01/2021	**Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	The ANSP system is upgraded to consume the flight updates relative to the flights in their AOR/AOI (including the ATFM slot), which are published by NM via the NM B2B Services. There is a link to objective FCM10 (Interactive rolling NOP).		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The ANSP consumes flight update information.		
		From:	By:
INF10.14-ASP02	**Operational use**	**Applicability Area 1:** 01/01/2021	**Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	The system is used to support daily operations once the systems have been implemented, the procedures are in place, capability assessment has been delivered, and the training has been completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Information Exchanges are used for daily operations.		
		From:	By:
INF10.14-APO01	**Provide the Predicted Departure Planning Information to NM**	**Applicability Area 1:** 01/01/2021	**Applicability Area 1:** 31/12/2025
Action by:	**Airport Operators**		
Description & purpose:	Systems in the airport are upgraded to send both the Predicted and the normal Departure Planning Information (P-DPI and DPI) to NM via the NM B2B Services. This SLoA supports the SLoA FCM11.1-APO02 (Implement Network Manager B2B services).		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The P-DPI and DPI is sent to NM via the NM B2B Services.		
		From:	By:
INF10.14-APO02	**Provide the Arrival Planning Information to NM**	**Applicability Area 1:** 01/01/2021	**Applicability Area 1:** 31/12/2025
Action by:	**Airport Operators**		
Description & purpose:	Systems in the airport are upgraded to send the Arrival Planning Information (API) to NM via the NM B2B Services. This SLoA supports the SLoA FCM11.1-APO02 (Implement Network Manager B2B services).		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The API is sent to NM via the NM B2B Services.		
		From:	By:
INF10.14-APO03	**Consume NM flight update information**	**Applicability Area 1:** 01/01/2021	**Applicability Area 1:** 31/12/2025
Action by:	**Airport Operators**		
Description & purpose:	Systems in the airport are upgraded to consume the flight update information made available via the NM B2B Services. This SLoA supports the SLoA FCM11.1-APO02 (Implement Network Manager B2B services).		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Systems in the airport consume the NM flight update information published via the NM B2B Services.		
		From:	By:
INF10.14-APO04	**Operational use**	**Applicability Area 1:** 01/01/2021	**Applicability Area 1:** 31/12/2025

INF10.14	Cooperative Network Information Exchange – Flight Management Service (Slots and NOP/AOP integration)

Action by:	**Airport Operators**		
Description & purpose:	The system is used to support daily operations once the systems have been implemented, the procedures are in place, capability assessment has been delivered, and the training has been completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Information Exchanges are used for daily operations.		
INF10.14-USE01	**Consume NM flight update information**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**Airspace Users**		
Description & purpose:	The Airspace User flight planning system is upgraded to consume the flight updates relative to their flights (including the ATFM slot), which are published by NM via the NM B2B Services. There is a link to objective FCM10 (Interactive rolling NOP).		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The Airspace User system consumes the updates of their flights.		
INF10.14-NM01	**Upgrade NM systems for SWIM compliance**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**NM**		
Description & purpose:	The NM system is upgraded in order to make the NM B2B Services SWIM compliant. This SLoA supports the SLoA FCM11.1-NM03 (Develop Network Manager B2B services) and FCM06.1-NM02 (Provide flight update information).		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The NM B2B Services are SWIM compliant and available in the SWIM Registry as an operational SWIM compliant service.		

CP1	Active								EU	
INF10.15	Cooperative Network Information Exchange – Measures Service (Traffic Regulation)									
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

The Cooperative Network Information will be exchanged between the systems of the operational stakeholders and the Network Manager by means of cooperative network information SWIM services, using the Yellow SWIM TI Profile, for Air Traffic Flow and Capacity Management (ATFCM) purposes.

Operational stakeholders use the NM B2B Services, which support the exchange of the following cooperative network information:

•Traffic regulations
This information exchange is supported by the Measures Service, which allows to manage regulation proposals and to publish ATFCM measures updates.

•Short term ATFCM measures (STAM)
This information exchange is supported by the Measures Service, which allows making proposals of cherry-pick regulations in support of STAM.

System requirements:

The Network Manager shall support all operational stakeholders in exchanging data electronically for cooperative network management activities, by providing the necessary SWIM services.

The access to NOP via the NM HMIs is covered by Objectives FCM11.1 and FCM11.2. This objective covers only the information exchanges between the stakeholders' local systems and the NM system. The Network Manager system and operational stakeholder systems shall be upgraded to support the exchange of information in compliance with the EUROCONTROL SWIM Specifications, either through the Public Internet and/or NewPENS. The choice of communication service depends on a business criticality assessment from where minimum performance requirements are identified.

ANSP systems shall be upgraded to use the NM B2B Services in order to:
•Propose regulations to NM;
•Collaborate on the definition and application of STAM.

AU systems shall be upgraded to use the NM B2B Services in order to:
•Collaborate on the application of STAM, when relevant.

NOTE: For a full description of the services as well as of the associated system requirements, see the AF5 – SWIM Chapter in the SESAR Deployment Programme edition 2022, Approved by the European Commission.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (All EU SES States)	All EU SES States		
Applicability Area 2	United Kingdom		
Timescales:	**From:**	**By:**	**Applicable to:**
Initial Operational Capability	01/01/2021		Applicability Area 1 + Applicability Area 2
Full Operational Capability / Target Date		31/12/2025	Applicability Area 1 + Applicability Area 2

References

European ATM Master Plan

OI step -	[IS-0901-A]-SWIM for sharing G/G data, traffic flow management information and aeronautical information								
	Enablers -	AAMS-06b AOM19.5	ATC-STD-01	ER APP ATC 160	MIL-0501	MIL-0502	REG-0013	REG-0014	REG-0519

INF10.15	Cooperative Network Information Exchange – Measures Service (Traffic Regulation)

		STD-007	STD-008	STD-033	SWIM-APS-01a	SWIM-APS-02a	SWIM-APS-03a	SWIM-APS-04a	SWIM-APS-05a
		SWIM-APS-06a	SWIM-APS-07a	SWIM-GOV-05a	SWIM-INFR-01a	SWIM-INFR-05a	SWIM-NET-01a	SWIM-STD-04	SWIM-SUPT-01a

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) 2021/116 on the establishment of the Common Project One

Essential Operational Changes

ATM Interconnected Network

SESAR Solution

#46 - SWIM Yellow Profile

ICAO GANP - ASBUs

- none -	

Deployment Programme

5.5.1	Cooperative Network Information Exchange

European Plan for Aviation Safety

- none -	

Operating Environments

Airport
En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
INF10.15-ASP01	Provide traffic regulation proposals to NM	01/01/2021	31/12/2025
INF10.15-ASP02	Operational use	01/01/2021	31/12/2025
INF10.15-USE01	Consume NM measures updates	01/01/2021	31/12/2025
INF10.15-USE02	Operational use	01/01/2021	31/12/2025
INF10.15-NM01	Upgrade NM systems for SWIM compliance	01/01/2021	31/12/2025

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

		From:	By:
INF10.15-ASP01	**Provide traffic regulation proposals to NM**	**Applicability Area 1:** 01/01/2021	**Applicability Area 1:** 31/12/2025

INF10.15	Cooperative Network Information Exchange – Measures Service (Traffic Regulation)

Action by:	**ANS Providers**		
Description & purpose:	The ANSP system is upgraded to use the NM B2B Services in order to provide NM with traffic regulation proposals. This SLoA supports the SLoA FCM04.2-ASP02 (Upgrade and use the local systems).		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The ANSP system provides the regulation proposals to NM via the NM B2B Services.		
INF10.15-ASP02	**Operational use**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	The system is used to support daily operations once the systems have been implemented, the procedures are in place, the capability assessment has been delivered, and the training has been completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Information Exchanges is used for daily operations.		
INF10.15-USE01	**Consume NM measures updates**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**Airspace Users**		
Description & purpose:	The Airspace User flight planning system is upgraded to consume the measures updates, published by NM via the NM B2B Services, which may affect their flights. There is a link to objective AOM21.2.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The Airspace User system consumes the measures updates.		
INF10.15-USE02	**Operational use**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**Airspace Users**		
Description & purpose:	The system is used to support daily operations once the systems have been implemented, the procedures are in place, the capability assessment has been delivered, and the training has been completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Information Exchanges are used for daily operations.		
INF10.15-NM01	**Upgrade NM systems for SWIM compliance**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**NM**		
Description & purpose:	The NM system is upgraded in order to make the NM B2B Services SWIM compliant. This SLoA supports the SLoA FCM04.2-NM02 (Provide interface between NM and local tool).		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The NM B2B Services are SWIM compliant and available in the SWIM Registry as an operational SWIM compliant service.		

CP1	Active								EU	
INF10.16	**Cooperative Network Information Exchange - Short Term ATFCM Measures services (MCDM, eHelpdesk, STAM measures)**									
REG	**ASP**	**MIL**	**APO**	**USE**	**INT**	**IND**	**NM**	**MET**	**AIS**	**USP**

Subject matter and scope

The Cooperative Network Information will be exchanged between the systems of the operational stakeholders and the Network Manager by means of cooperative network information SWIM services, using the Yellow SWIM TI Profile, for Air Traffic Flow and Capacity Management (ATFCM) purposes.

Operational stakeholders use the NM B2B Services, which support the exchange of the following cooperative network information:

•Short term ATFCM measures (STAM)
This information exchange is supported by the following three NM B2B Services:
o The Measure Collaborative Decision Making (MCDM) Service, which supports the collaborative decision making for the implementation of a measure or individual flight actions
o The eHelpdesk Service, for requesting NMOC to apply actions to individual flights
o The Measures Service, which allows making proposals of cherry-pick regulations in support of STAM.

System requirements:

The Network Manager shall support all operational stakeholders in exchanging data electronically for cooperative network management activities, by providing the necessary SWIM services.

The access to NOP via the NM HMIs is covered by Objectives FCM11.1 and FCM11.2. This objective covers only the information exchanges between the stakeholders' local systems and the NM system. The Network Manager system and operational stakeholder systems shall be upgraded to support the exchange of information in compliance with the EUROCONTROL SWIM Specifications, either through the Public Internet and/or NewPENS. The choice of communication service depends on a business criticality assessment from where minimum performance requirements are identified.

ANSP systems shall be upgraded to use the NM B2B Services in order to:
•Collaborate on the definition and application of STAM
AU systems shall be upgraded to use the NM B2B Services in order to:
•Collaborate on the application of STAM, when relevant

NOTE: For a full description of the services as well as of the associated system requirements, see the AF5 – SWIM Chapter in the SESAR Deployment Programme edition 2022, Approved by the European Commission.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (All EU SES States)	All EU SES States		
Applicability Area 2	United Kingdom		
Timescales:	**From:**	**By:**	**Applicable to:**
Initial Operational Capability	01/01/2021		Applicability Area 1 + Applicability Area 2
Full Operational Capability / Target Date		31/12/2025	Applicability Area 1 + Applicability Area 2

References

European ATM Master Plan

OI step -	[IS-0901-A]-SWIM for sharing G/G data, traffic flow management information and aeronautical information								
	Enablers -	AAMS-06b AOM19.5	ATC-STD-01	ER APP ATC 160	MIL-0501	MIL-0502	REG-0013	REG-0014	REG-0519
		STD-007	STD-008	STD-033	SWIM-APS-01a	SWIM-APS-02a	SWIM-APS-03a	SWIM-APS-04a	SWIM-APS-05a
		SWIM-APS-06a	SWIM-APS-07a	SWIM-GOV-05a	SWIM-INFR-01a	SWIM-INFR-05a	SWIM-NET-01a	SWIM-STD-04	SWIM-SUPT-01a

INF10.16	Cooperative Network Information Exchange - Short Term ATFCM Measures services (MCDM, eHelpdesk, STAM measures)

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) 2021/116 on the establishment of the Common Project One

Essential Operational Changes

ATM Interconnected Network

SESAR Solution

#46 - SWIM Yellow Profile

ICAO GANP - ASBUs

- none -	

Deployment Programme

5.5.1	Cooperative Network Information Exchange

European Plan for Aviation Safety

- none -	

Operating Environments

Airport
En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
INF10.16-ASP01	Collaborate on the definition and application of STAM	01/01/2021	31/12/2025
INF10.16-ASP02	Operational use	01/01/2021	31/12/2025
INF10.16-USE01	Collaborate on the application of STAM	01/01/2021	31/12/2025
INF10.16-USE02	Operational use	01/01/2021	31/12/2025
INF10.16-NM01	Upgrade NM systems for SWIM compliance	01/01/2021	31/12/2025

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

INF10.16-ASP01	**Collaborate on the definition and application of STAM**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		

INF10.16	Cooperative Network Information Exchange - Short Term ATFCM Measures services (MCDM, eHelpdesk, STAM measures)

Description & purpose:	The ANSP system is upgraded to use the NM B2B Services (as a consumer) in order to collaborate with NM on the definition and application of STAM measures. This SLoA supports the SLoA FCM04.2-ASP02 (Upgrade and use the local systems).		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The ANSP system provides the STAM measures to NM via the NM B2B Services.		
INF10.16-ASP02	**Operational use**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	The system is used to support daily operations once the systems have been implemented, the procedures are in place, the capability assessment has been delivered, and the training has been completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Information Exchanges are used for daily operations.		
INF10.16-USE01	**Collaborate on the application of STAM**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**Airspace Users**		
Description & purpose:	The AU system is upgraded to use the NM B2B Services in order to collaborate with NM on the application of STAM measures. There is a link with STAM in objective FCM04.2.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The AU system consumes the NM B2B Services to participate in the CDM for STAM measures on its flights.		
INF10.16-USE02	**Operational use**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**Airspace Users**		
Description & purpose:	The system is used to support daily operations once the systems have been implemented, the procedures are in place, the capability assessment has been delivered, and the training has been completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Information Exchanges are used for daily operations.		
INF10.16-NM01	**Upgrade NM systems for SWIM compliance**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**NM**		
Description & purpose:	The NM system is upgraded in order to make the NM B2B Services SWIM compliant. This SLoA supports the SLoA FCM04.2-NM02 (Provide interface between NM and local tool).		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The NM B2B Services are SWIM compliant and available in the SWIM Registry as an operational SWIM compliant service.		

CP1	Active	EU
INF10.17	Cooperative Network Information Exchange – Counts service (ATFCM Congestion Points)	

REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

The Cooperative Network Information will be exchanged between the systems of the operational stakeholders and the Network Manager by means of cooperative network information SWIM services, using the Yellow SWIM TI Profile, for Air Traffic Flow and Capacity Management (ATFCM) purposes.

Operational stakeholders use the NM B2B Services, which support the exchange of the following cooperative network information:

•ATFCM congestion points
This information exchange is currently supported by the Counts Service, which provides data supporting the assessment of the ATFCM congestions and hotspot detection.

System requirements:

The Network Manager shall support all operational stakeholders in exchanging data electronically for cooperative network management activities, by providing the necessary SWIM services.

The access to NOP via the NM HMIs is covered by Objectives FCM11.1 and FCM11.2. This objective covers only the information exchanges between the stakeholders' local systems and the NM system. The Network Manager system and operational stakeholder systems shall be upgraded to support the exchange of information in compliance with the EUROCONTROL SWIM Specifications, either through the Public Internet and/or NewPENS. The choice of communication service depends on a business criticality assessment from where minimum performance requirements are identified.

NOTE: For a full description of the services as well as of the associated system requirements, see the AF5 – SWIM Chapter in the SESAR Deployment Programme edition 2022, Approved by the European Commission.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (All EU SES States)	All EU SES States
Applicability Area 2	United Kingdom

Timescales:	**From:**	**By:**	**Applicable to:**
Initial Operational Capability	01/01/2021		Applicability Area 1
Full Operational Capability / Target Date		31/12/2025	Applicability Area 1

References

European ATM Master Plan

OI step -	[IS-0901-A]-SWIM for sharing G/G data, traffic flow management information and aeronautical information								
	Enablers -	AAMS-06b AOM19.5	ATC-STD-01	ER APP ATC 160	MIL-0501	MIL-0502	REG-0013	REG-0014	REG-0519
		STD-007	STD-008	STD-033	SWIM-APS-01a	SWIM-APS-02a	SWIM-APS-03a	SWIM-APS-04a	SWIM-APS-05a
		SWIM-APS-06a	SWIM-APS-07a	SWIM-GOV-05a	SWIM-INFR-01a	SWIM-INFR-05a	SWIM-NET-01a	SWIM-STD-04	SWIM-SUPT-01a

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) 2021/116 on the establishment of the Common Project One

INF10.17	Cooperative Network Information Exchange – Counts service (ATFCM Congestion Points)

Essential Operational Changes

ATM Interconnected Network

SESAR Solution

#46 - SWIM Yellow Profile

ICAO GANP - ASBUs

- none -	

Deployment Programme

5.5.1	Cooperative Network Information Exchange

European Plan for Aviation Safety

- none -	

Operating Environments

Airport
En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
INF10.17-ASP01	Consume Counts service	01/01/2021	31/12/2025
INF10.17-ASP02	Operational use	01/01/2021	31/12/2025
INF10.17-NM01	Upgrade NM systems for SWIM compliance	01/01/2021	31/12/2025

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

INF10.17-ASP01	**Consume Counts service**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	ANSP system is upgraded to compute the ATFCM congestion points based on the information received via the NM B2B Counts service.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The ANSP system consumes the counts service to detect the ATFCM congestion points via the NM B2B Services		
INF10.17-ASP02	**Operational use**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	The system is used to support daily operations once the systems have been implemented, the procedures are in place, the capability assessment has been delivered, and the training has been completed.		

INF10.17	Cooperative Network Information Exchange – Counts service (ATFCM Congestion Points)

Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - Information Exchanges used for daily operations.		
INF10.17-NM01	**Upgrade NM systems for SWIM compliance**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**NM**		
Description & purpose:	The NM system is upgraded in order to make the NM B2B Services SWIM compliant. This SLoA supports the SLoA FCM10-NM02 (Develop Network Manager B2B services).		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The NM B2B Services are SWIM compliant and available in the SWIM Registry as an operational SWIM compliant service.		

CP1				Active						EU
INF10.18		**Flight Information Exchange (Yellow Profile) - Filing Service**								
REG	**ASP**	**MIL**	**APO**	**USE**	**INT**	**IND**	**NM**	**MET**	**AIS**	**USP**

Subject matter and scope

Flight Information Exchange addresses the implementation of the FF-ICE/R1 services over SWIM that are required to exchange pre-departure flight information. Service implementations shall be compliant with the applicable version of the FIXM standard.
It is important to highlight that there will be a transition period (expected to be quite long) with mixed modes of operations. Given the global reach of the concerned stakeholder groups (mainly in relation to AUs) and the lack of implementation mandates on some of them (stakeholders for which the transition is voluntary, business-case dependant), there will be a combination of FF-ICE capable and FF-ICE-non-capable stakeholders. During the transition period, stakeholders implementing FF-ICE/R1 may need to continue to support the current ICAO FPL 2012 format via the traditional communication means.
Adoption of FF-ICE/R1 organisational provisions by concerned stakeholders is pre-requisite for actual deployment and use of FF-ICE/R1 services over SWIM.

Filing Service implements:
•FF-ICE flight plan (eFPL, including updates and cancellations) submission to the Network Manager that includes information such as 4D trajectory information, flight specific performance data and the Global Unique Flight Identifier (GUFI).
•Feedback provision (validation and flight status) to eFPL originators.

NOTE: For a full description of the services as well as of the associated system requirements, see the AF5 – SWIM Chapter in the SESAR Deployment Programme edition 2022, Approved by the European Commission.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (All EU SES States)	All EU SES States		
Timescales:	**From:**	**By:**	**Applicable to:**
Initial Operational Capability	01/01/2021		Applicability Area 1
Full Operational Capability / Target Date		31/12/2025	Applicability Area 1

References

European ATM Master Plan

OI step -	[AUO-0207]-Preliminary flight planning								
	Enablers -	AOC-ATM-25	NIMS-57	SWIM-APS-19	SWIM-APS-20	SWIM-APS-21	SWIM-APS-22		

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) 2021/116 on the establishment of the Common Project One

Essential Operational Changes

ATM Interconnected Network

SESAR Solution

#46 - SWIM Yellow Profile

ICAO GANP - ASBUs

FICE-B2/2	Filing Service

Deployment Programme

INF10.18	Flight Information Exchange (Yellow Profile) - Filing Service

5.6.1	Flight Information Exchange

European Plan for Aviation Safety

- none -	

Operating Environments

Airport
En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
INF10.18-USE01	Consume the NM FF-ICE/R1 Filing Service	01/01/2021	31/12/2025
INF10.18-USE02	Operational use	01/01/2021	31/12/2025
INF10.18-NM01	Develop FF-ICE/R1 Filing Service	01/01/2021	31/12/2025
INF10.18-NM02	Provide the FF-ICE/R1 Filing Service	01/01/2021	31/12/2025

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

INF10.18-USE01	**Consume the NM FF-ICE/R1 Filing Service**	From: 01/01/2021	By: 31/12/2025
Action by:	**Airspace Users**		
Description & purpose:	The AU system is upgraded to be able to use the NM FF-ICE/R1 Filing Service for the submission of eFPLs and any updates to NM.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The AU system consumes the NM FF-ICE/R1 Filing Service.		
INF10.18-USE02	**Operational use**	From: 01/01/2021	By: 31/12/2025
Action by:	**Airspace Users**		
Description & purpose:	The system is used to support daily operations once the systems have been implemented, the procedures are in place, the capability assessment has been delivered, and the training has been completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The AU system uses the NM FF-ICE/R1 Filing Service.		
INF10.18-NM01	**Develop FF-ICE/R1 Filing Service**	From: 01/01/2021	By: 31/12/2025
Action by:	**NM**		
Description & purpose:	The NM system is upgraded to support the FF-ICE/R1 Filing Service; this service is part of the NM B2B Services.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The FF-ICE/R1 Filing Service is developed.		
INF10.18-NM02	**Provide the FF-ICE/R1 Filing Service**	From: 01/01/2021	By: 31/12/2025
Action by:	**NM**		

INF10.18	Flight Information Exchange (Yellow Profile) - Filing Service

Description & purpose:	• Validations and live trials of the FF-ICE/R1 Filing Service • SWIM compliance activities • Deployment in operations • This milestone supports the Family 4.3.1 NM-DM4 – Upgrade NM System related to FF-ICE Release 1
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme
Finalisation criteria:	1 - The FF-ICE/R1 Filing Service is SWIM compliant and available in the SWIM Registry as an operational SWIM compliant service

CP1	Active	EU
INF10.19	Flight Information Exchange (Yellow Profile) - Flight Data Request Service	

REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

Flight Information Exchange addresses the implementation of the FF-ICE/R1 services over SWIM that are required to exchange pre-departure flight information. Service implementations shall be compliant with the applicable version of the FIXM standard.
It is important to highlight that there will be a transition period (expected to be quite long) with mixed modes of operations. Given the global reach of the concerned stakeholder groups (mainly in relation to AUs) and the lack of implementation mandates on some of them (stakeholders for which the transition is voluntary, business-case dependant), there will be a combination of FF-ICE capable and FF-ICE-non-capable stakeholders. During the transition period, stakeholders implementing FF-ICE/R1 may need to continue to support the current ICAO FPL 2012 format via the traditional communication means.
Adoption of FF-ICE/R1 organisational provisions by concerned stakeholders is pre-requisite for actual deployment and use of FF-ICE/R1 services over SWIM.

Flight Data Request Service allows FF-ICE-enabled stakeholders to retrieve data about a flight such as the whole eFPL, search and rescue data or the filing status.

NOTE: For a full description of the services as well as of the associated system requirements, see the AF5 – SWIM Chapter in the SESAR Deployment Programme edition 2022, Approved by the European Commission.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (All EU SES States)	All EU SES States
Applicability Area 2	United Kingdom

Timescales:	**From:**	**By:**	**Applicable to:**
Initial Operational Capability	01/01/2021		Applicability Area 1 + Applicability Area 2
Full Operational Capability / Target Date		31/12/2025	Applicability Area 1 + Applicability Area 2

References

European ATM Master Plan

OI step -	[AUO-0207]-Preliminary flight planning								
	Enablers -	AOC-ATM-25	NIMS-57	SWIM-APS-19	SWIM-APS-20	SWIM-APS-21	SWIM-APS-22		

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) 2021/116 on the establishment of the Common Project One

Essential Operational Changes

ATM Interconnected Network

SESAR Solution

#46 - SWIM Yellow Profile

ICAO GANP - ASBUs

FICE-B2/4	Flight Data Request Service

Deployment Programme

INF10.19	Flight Information Exchange (Yellow Profile) - Flight Data Request Service

5.6.1	Flight Information Exchange

European Plan for Aviation Safety

- none -	

Operating Environments

Airport
En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
INF10.19-ASP01	Consume the NM FF-ICE/R1 Flight Data Request Service	01/01/2021	31/12/2025
INF10.19-ASP02	Operational use	01/01/2021	31/12/2025
INF10.19-NM01	Develop FF-ICE/R1 Flight Data Request Service	01/01/2021	31/12/2025
INF10.19-NM02	Provide the FF-ICE/R1 Flight Data Request Service	01/01/2021	31/12/2025

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

INF10.19-ASP01	**Consume the NM FF-ICE/R1 Flight Data Request Service**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	The ANSP systems are upgraded to be able to consume the NM FF-ICE/R1 Flight Data Service when requiring access to the information of a particular eFPL.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The ANSP systems consume the NM FF-ICE/R1 Flight Data Request Service.		
INF10.19-ASP02	**Operational use**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	The system is used to support daily operations once the systems have been implemented, the procedures are in place, the capability assessment has been delivered, and the training has been completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The ANSP systems use the NM FF-ICE/R1 Flight Data Request Service in daily operation.		
INF10.19-NM01	**Develop FF-ICE/R1 Flight Data Request Service**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**NM**		
Description & purpose:	The NM system is upgraded to support the FF-ICE/R1 Flight Data Request Service; this service is part of the NM B2B Services.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		

INF10.19	Flight Information Exchange (Yellow Profile) - Flight Data Request Service

Finalisation criteria:	1 - The FF-ICE/R1 Flight Data Request Service is technically available.		
INF10.19-NM02	**Provide the FF-ICE/R1 Flight Data Request Service**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**NM**		
Description & purpose:	• Validations and live trials • SWIM compliance activities • Deployment in operations		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The FF-ICE/R1 Flight Data Request Service is SWIM compliant and available in the SWIM Registry as an operational SWIM compliant service.		

CP1	Active	EU
INF10.20	Flight Information Exchange (Yellow Profile) - Notification Service	

REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

Flight Information Exchange addresses the implementation of the FF-ICE/R1 services over SWIM that are required to exchange pre-departure flight information. Service implementations shall be compliant with the applicable version of the FIXM standard. Flight information exchanges are performed in conformance with the EUROCONTROL SWIM specifications.
It is important to highlight that there will be a transition period (expected to be quite long) with mixed modes of operations. Given the global reach of the concerned stakeholder groups (mainly in relation to AUs) and the lack of implementation mandates on some of them (stakeholders for which the transition is voluntary, business-case dependant), there will be a combination of FF-ICE capable and FF-ICE-non-capable stakeholders. During the transition period, stakeholders implementing FF-ICE/R1 may need to continue to support the current ICAO FPL 2012 format via the traditional communication means.
Adoption of FF-ICE/R1 organisational provisions by concerned stakeholders is pre-requisite for actual deployment and use of FF-ICE/R1 services over SWIM.

Notification service implements the capability to notify FF-ICE-enabled stakeholders about flight departure and arrival events (replacement of DEP and ARR).

NOTE: For a full description of the services as well as of the associated system requirements, see the AF5 – SWIM Chapter in the SESAR Deployment Programme edition 2022, Approved by the European Commission.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (All EU SES States)	All EU SES States
Applicability Area 2	United Kingdom

Timescales:	**From:**	**By:**	**Applicable to:**
Initial Operational Capability	01/01/2021		Applicability Area 1 + Applicability Area 2
Full Operational Capability / Target Date		31/12/2025	Applicability Area 1 + Applicability Area 2

References

European ATM Master Plan

OI step -	[AUO-0207]-Preliminary flight planning								
	Enablers -	AOC-ATM-25	NIMS-57	SWIM-APS-19	SWIM-APS-20	SWIM-APS-21	SWIM-APS-22		

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) 2021/116 on the establishment of the Common Project One

Essential Operational Changes

ATM Interconnected Network

SESAR Solution

#46 - SWIM Yellow Profile

ICAO GANP - ASBUs

FICE-B2/5	Notification Service

INF10.20	Flight Information Exchange (Yellow Profile) - Notification Service

Deployment Programme

5.6.1	Flight Information Exchange

European Plan for Aviation Safety

- none -	

Operating Environments

Airport
En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
INF10.20-ASP01	Consume the NM FF-ICE/R1 Notification Service	01/01/2021	31/12/2025
INF10.20-ASP02	Operational use	01/01/2021	31/12/2025
INF10.20-NM01	Develop FF-ICE/R1 Notification Service	01/01/2021	31/12/2025
INF10.20-NM02	Provide the FF-ICE/R1 Notification Service	01/01/2021	31/12/2025

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

		From:	By:
INF10.20-ASP01	**Consume the NM FF-ICE/R1 Notification Service**	**Applicability Area 1:** 01/01/2021	**Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	The ANSP systems are upgraded to be able to send the departure and arrival information about eFPLs through the NM FF-ICE/R1 Notification Service.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The ANSP systems consume the NM FF-ICE/R1 Notification Service		
INF10.20-ASP02	**Operational use**	**Applicability Area 1:** 01/01/2021	**Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	The system is used to support daily operations once the systems have been implemented, the procedures are in place, the capability assessment has been delivered, and the training has been completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The ANSP systems use the NM FF-ICE/R1 Notification Service in daily operation		
INF10.20-NM01	**Develop FF-ICE/R1 Notification Service**	**Applicability Area 1:** 01/01/2021	**Applicability Area 1:** 31/12/2025
Action by:	**NM**		
Description & purpose:	The NM system is upgraded to support the FF-ICE/R1 Notification Service in order to be able to receive information about departure and arrival of flights; this service is part of the NM B2B Services.		

INF10.20	Flight Information Exchange (Yellow Profile) - Notification Service

Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The FF-ICE/R1 Notification Service is technically available.		
INF10.20-NM02	**Provide the FF-ICE/R1 Notification Service**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**NM**		
Description & purpose:	• Validations and live trials • SWIM compliance activities • Deployment in operations		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The FF-ICE/R1 Notification Service is SWIM compliant and available in the SWIM Registry as an operational SWIM compliant service.		

CP1	Active	EU
INF10.21	Flight Information Exchange (Yellow Profile) - Data Publication Service	

REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

Flight Information Exchange addresses the implementation of the FF-ICE/R1 services over SWIM that are required to exchange pre-departure flight information. Service implementations shall be compliant with the applicable version of the FIXM standard. Flight information exchanges are performed in conformance with the EUROCONTROL SWIM specifications.

It is important to highlight that there will be a transition period (expected to be quite long) with mixed modes of operations. Given the global reach of the concerned stakeholder groups (mainly in relation to AUs) and the lack of implementation mandates on some of them (stakeholders for which the transition is voluntary, business-case dependant), there will be a combination of FF-ICE capable and FF-ICE-non-capable stakeholders. During the transition period, stakeholders implementing FF-ICE/R1 may need to continue to support the current ICAO FPL 2012 format via the traditional communication means.
Adoption of FF-ICE/R1 organizational provisions by concerned stakeholders is prerequisite for actual deployment and use of FF-ICE/R1 services over SWIM.

Publication service allows the Network Manager to publish and distribute eFPLs to the concerned FF-ICE-enabled stakeholders.

NOTE: For a full description of the services as well as of the associated system requirements, see the AF5 – SWIM Chapter in the SESAR Deployment Programme edition 2022, Approved by the European Commission.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (All EU SES States)	All EU SES States
Applicability Area 2	United Kingdom

Timescales:	**From:**	**By:**	**Applicable to:**
Initial Operational Capability	01/01/2021		Applicability Area 1 + Applicability Area 2
Full Operational Capability / Target Date		31/12/2025	Applicability Area 1 + Applicability Area 2

References

European ATM Master Plan

OI step -	[AUO-0207]-Preliminary flight planning								
	Enablers -	AOC-ATM-25	NIMS-57	SWIM-APS-19	SWIM-APS-20	SWIM-APS-21	SWIM-APS-22		

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) 2021/116 on the establishment of the Common Project One

Essential Operational Changes

ATM Interconnected Network

SESAR Solution

#46 - SWIM Yellow Profile

ICAO GANP - ASBUs

FICE-B2/6	Publication Service

Deployment Programme

INF10.21	Flight Information Exchange (Yellow Profile) - Data Publication Service

5.6.1	Flight Information Exchange

European Plan for Aviation Safety

- none -	

Operating Environments

Airport
En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
INF10.21-ASP01	Consume the NM FF-ICE/R1 Data Publication Service	01/01/2021	31/12/2025
INF10.21-ASP02	Operational use	01/01/2021	31/12/2025
INF10.21-NM01	Develop FF-ICE/R1 Data Publication Service	01/01/2021	31/12/2025
INF10.21-NM02	Provide the FF-ICE/R1 Data Publication Service	01/01/2021	31/12/2025

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

INF10.21-ASP01	**Consume the NM FF-ICE/R1 Data Publication Service**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	The ANSP systems are upgraded to be capable of receiving and processing eFPLs distributed by the NM FF-ICE/R1 Publication Service, in addition to ICAO 2012 FPLs. This milestone supports the Family 4.3.1 ANSP DM3.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The ANSP systems are able to consume and process the eFPL information provided by NM FF-ICE/R1 Publication Service.		
INF10.21-ASP02	**Operational use**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	The system is used to support daily operations once the systems have been implemented, the procedures are in place, capability assessment has been delivered, and the training has been completed.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The ANSP systems are able to use the eFPL information provided by NM FF-ICE/R1 Publication Service in daily operations.		
INF10.21-NM01	**Develop FF-ICE/R1 Data Publication Service**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**NM**		

INF10.21	Flight Information Exchange (Yellow Profile) - Data Publication Service

Description & purpose:	The NM system is upgraded to support the FF-ICE/R1 Publication Service for the distribution and publication of eFPLs to the concerned stakeholders; this service is part of the NM B2B Publish/Subscribe Services.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The FF-ICE/R1 Publication Service is technically available.		
INF10.21-NM02	**Provide the FF-ICE/R1 Data Publication Service**	From: **Applicability Area 1:** 01/01/2021	By: **Applicability Area 1:** 31/12/2025
Action by:	**NM**		
Description & purpose:	• Validations and live trials • SWIM compliance activities • Deployment in operations		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The FF-ICE/R1 Publication Service is SWIM compliant and available in the SWIM Registry as an operational SWIM compliant service.		

CP1				Active						EU
INF10.22				**Flight Information Exchange (Yellow Profile) - Trial Service**						
REG	**ASP**	**MIL**	**APO**	**USE**	**INT**	**IND**	**NM**	**MET**	**AIS**	**USP**

Subject matter and scope

Flight Information Exchange addresses the implementation of the FF-ICE/R1 services over SWIM that are required to exchange pre-departure flight information. Service implementations shall be compliant with the applicable version of the FIXM standard. Flight information exchanges are performed in conformance with the EUROCONTROL SWIM specifications.

It is important to highlight that there will be a transition period (expected to be quite long) with mixed modes of operations. Given the global reach of the concerned stakeholder groups (mainly in relation to AUs) and the lack of implementation mandates on some of them (stakeholders for which the transition is voluntary, business-case dependant), there will be a combination of FF-ICE capable and FF-ICE-non-capable stakeholders. During the transition period, stakeholders implementing FF-ICE/R1 may need to continue to support the current ICAO FPL 2012 format via the traditional communication means.
Adoption of FF-ICE/R1 organizational provisions by concerned stakeholders is a prerequisite for actual deployment and use of FF-ICE/R1 services over SWIM.

Trial service allows FF-ICE-enabled AUs (eAUs) to request to the Network Manager feedback on a trial in a “what-if” operational evaluation context. The service enables eAUs to explore the impacts of any intended change to a filed eFPL and determine the feasibility/validity of a flight plan before committing to it.
Airspace users are not mandated but recommended to upgrade Airspace Users system to be able to use the NM FF-ICE/R1 Trial Service.

NOTE: For a full description of the services as well as of the associated system requirements, see the AF5 – SWIM Chapter in the SESAR Deployment Programme edition 2022, Approved by the European Commission.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (All EU SES States)	All EU SES States		
Timescales:	**From:**	**By:**	**Applicable to:**
Initial Operational Capability	01/01/2021		Applicability Area 1
Full Operational Capability / Target Date		31/12/2025	Applicability Area 1

References

European ATM Master Plan

OI step -	[AUO-0219]-Use of Enriched DCB Information and Enhanced What-Ifs to Improve AU Flight Planning								
	Enablers -	AOC-ATM-24	HUM-019						

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) 2021/116 on the establishment of the Common Project One

Essential Operational Changes

ATM Interconnected Network

SESAR Solution

#46 - SWIM Yellow Profile

ICAO GANP - ASBUs

INF10.22	Flight Information Exchange (Yellow Profile) - Trial Service

FICE-B2/3	Trial Service

Deployment Programme

5.6.1	Flight Information Exchange

European Plan for Aviation Safety

- none -	

Operating Environments

Airport
En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
INF10.22-NM01	Develop FF-ICE/R1 Trial Service	01/01/2021	31/12/2025
INF10.22-NM02	Provide the FF-ICE/R1 Trial Service	01/01/2021	31/12/2025

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

INF10.22-NM01	**Develop FF-ICE/R1 Trial Service**	From: 01/01/2021	By: 31/12/2025
Action by:	**NM**		
Description & purpose:	The NM system is upgraded to support the FF-ICE/R1 Trial Service this service is part of the NM B2B Services.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The FF-ICE/R1 Trial Service is technically available.		
INF10.22-NM02	**Provide the FF-ICE/R1 Trial Service**	From: 01/01/2021	By: 31/12/2025
Action by:	**NM**		
Description & purpose:	• Validations and live trials • SWIM compliance activities • Deployment in operations This SLoA supports the Family 4.3.1 NM-DM4 - Upgrade the NM systems related to FF-ICE Release 1		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The FF-ICE/R1 Trial Service is SWIM compliant and available in the SWIM Registry as an operational SWIM compliant service.		

Subject matter and scope

Flight Information Exchange addresses the implementation of the FF-ICE/R1 services over SWIM that are required to exchange pre-departure flight information. Service implementations shall be compliant with the applicable version of the FIXM standard.
It is important to highlight that there will be a transition period (expected to be quite long) with mixed modes of operations. Given the global reach of the concerned stakeholder groups (mainly in relation to AUs) and the lack of implementation mandates on some of them (stakeholders for which the transition is voluntary, business-case dependant), there will be a combination of FF-ICE capable and FF-ICE-non-capable stakeholders. During the transition period, stakeholders implementing FF-ICE/R1 may need to continue to support the current ICAO FPL 2012 format via the traditional communication means.
Adoption of FF-ICE/R1 organizational provisions by concerned stakeholders is prerequisite for actual deployment and use of FF-ICE/R1 services over SWIM.

Extended AMAN SWIM Service implements:
•Provision of SWIM service with AMAN data to associated En-Route sectors (eg.: as described in EUROCAE ED254 Arrival Sequence Service Performance Standard)
•Consumption of the extended AMAN data from the AMAN system

NOTE: For a full description of the services as well as of the associated system requirements, see the AF5 – SWIM Chapter in the SESAR Deployment Programme edition 2022, Approved by the European Commission.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1	All EU SES States
Applicability Area 2	United Kingdom

Timescales:	**From:**	**By:**	**Applicable to:**
Initial Operational Capability	01/01/2021		Applicability Area 1 + Applicability Area 2
Full Operational Capability / Target Date		31/12/2025	Applicability Area 1 + Applicability Area 2

References

European ATM Master Plan

OI step -	[AUO-0207]-Preliminary flight planning								
	Enablers -	AOC-ATM-25	NIMS-57	SWIM-APS-19	SWIM-APS-20	SWIM-APS-21	SWIM-APS-22		

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) 2021/116 on the establishment of the Common Project One

Essential Operational Changes

ATM Interconnected Network

SESAR Solution

#46 - SWIM Yellow Profile

ICAO GANP - ASBUs

DAIM-B2/1	Dissemination of aeronautical information in a SWIM environment
SWIM-B3/1	Air/Ground SWIM for safety critical information

Deployment Programme

INF10.23	Flight Information Exchange (Yellow Profile) - Extended AMAN SWIM Service

5.6.1	Flight Information Exchange

European Plan for Aviation Safety

- none -	

Operating Environments

Airport
En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
INF10.23-ASP01	Provide the extended AMAN data	01/01/2021	31/12/2025
INF10.23-ASP02	Consume the extended AMAN data	01/01/2021	31/12/2025
INF10.23-ASP03	Operational use	01/01/2021	31/12/2025

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

		From:	By:
INF10.23-ASP01	**Provide the extended AMAN data**	**Applicability Area 1:** 01/01/2021	**Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	Upgrade of AMAN system to provide extended AMAN data exchanges via a SWIM service to associated En-Route sectors to coordinate the actions to be taken by the cooperative ATSUs to get the best and most efficient arriving flight sequence. This milestone supports the Family 1.1.1 ANSP-DM1: Upgrade ATC systems to support extended AMAN.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The AMAN system provides the extended AMAN data exchanges via a SWIM service.		
INF10.23-ASP02	**Consume the extended AMAN data**	**Applicability Area 1:** 01/01/2021	**Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	Upgrade of ATC system to consume the extended AMAN data exchanges from the AMAN system. This milestone supports the Family 1.1.1 ANSP-DM1: Upgrade ATC systems to support extended AMAN.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme		
Finalisation criteria:	1 - The ATC system consumes the extended AMAN data exchanges via a SWIM service.		
INF10.23-ASP03	**Operational use**	**Applicability Area 1:** 01/01/2021	**Applicability Area 1:** 31/12/2025
Action by:	**ANS Providers**		
Description & purpose:	The system is used to support daily operations once the systems have been implemented, the procedures are in place, the capability assessment has been delivered, and the training has been completed.		

INF10.23	Flight Information Exchange (Yellow Profile) - Extended AMAN SWIM Service

Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme
Finalisation criteria:	1 - The ATC system uses the extended AMAN data exchanged via a SWIM service in daily operations.

Subject matter and scope

The Enhanced Ground Weather Management System (GWMS) is an evolution of the GWMS developed for the first time in SESAR 1. The Enhanced GWMS is compliant to specifications of the 4DWxCube instance in Aerodrome ATM MET CC. MET for Total Airport Management, which comprises the bulk of local MET information, is developed and integrated into GWMS as a SWIM service (METForTAM). This validates its general capability for the provision of both existing standard and future MET SWIM services dedicated to particular operational environments like Wake Turbulence Separations.

The provision of METForTAM by GWMS has been designed and validated to be SWIM Technical Infrastructure Yellow Profile compliant using AMQP1.0 messaging. This information service may be used to provide enhanced local MET information (e.g. METEO forecasts and observations) to a specific airport (airport operational centre, APOC).

The new capability Glide Wind Profile has also been developed to provide glide wind data into the GWMS using sources like Radar and Lidar sensors. The purpose of these observations is to enhance separation procedures based on the collected glide slope wind data.

These developed capabilities and information services aim to provide enhanced MET data capabilities, in order to improve the accuracy and timely delivery of certain Meteorological conditions at an airport. Specifically, supporting the airport operator and other local stakeholders and, in turn, airspace users to improve their situation awareness and decision making.

NOTE 1: SESAR recommends development of additional SWIM services centred around local MET capabilities and requirements, in addition to a long-term validation exercise to test handling several services at more than one airport to demonstrate the full capabilities of 4DWxCube. This would serve to demonstrate the benefits compared with currently available meteorological information and data provision.

NOTE 2: It should be noted that the implementation of new MET information services, including high resolution wind profiling, are not mandatory for deployment at all airports, but should be considered if there is an operational need for such enhancements.

Applicability Area(s) & Timescale(s)

Applicability Area (Not yet defined)			
Timescales:	**From:**	**By:**	**Applicable to:**
IOC used for Analytics functioning only - not for implementation planning	01/07/2022		
FOC used for Analytics functioning only - not for implementation planning		31/12/2030	

References

European ATM Master Plan

OI step -	[POI-0044-MET]-MET Service provision for TAM								
	Enablers -	METEO-08c	METEO-11a	METEO-11b	METEO-12a	METEO-13	METEO-17	METEO-18	METEO-19
		METEO-21	METEO-23	SVC-037	SWIM-APS-06b				

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

None

Essential Operational Changes

Digital AIM and MET Services

SESAR Solution

PJ.18-04b-01 - Enhanced Ground Weather Management System (GWMS) as local 4DWxCube

ICAO GANP - ASBUs

- none -	

Deployment Programme

- none -	

European Plan for Aviation Safety

- none -	

Operating Environments

Airport

Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
INF11.1-APO01	Consume METForTAM Service		
INF11.1-MET01	Upgrade systems to provide METForTAM Service		
INF11.1-MET02	Upgrade systems to provide METForTAM Service		
INF11.1-MET03	Provide METForTAM Service		

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Enhanced safety.
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	Increased cost efficiency.
Environment:	-
Security:	Enhanced security.

Detailed SLoA Descriptions

INF11.1-APO01	**Consume METForTAM Service**	From: -	By: -
Action by:	**Airport Operators**		
Description & purpose:	Where there is a determined operational need for enhanced MET provision at an airport, and METForTAM id deemed an appropriate solution, Airport Operators would in parallel need to upgrade their systems to be able to consume the METForTAM service.		
Supporting material(s):	SJU - SESAR Solution PJ.18-04b-01: Data pack for GWMS Url : https://sesarju.eu/sesar-solutions/ground-weather-management-system-gwms		
ATM Master Plan relationship:	[SVC-037]-METForTAM Service		
Finalisation criteria:	1 - METForTAM Service is consumed via SWIM.		
INF11.1-MET01	**Upgrade systems to provide METForTAM Service**	From: -	By: -
Action by:	**Airport MET Providers**		
Description & purpose:	Where there is a determined operational need for enhanced weather observations at an airport, the airport together with their MET Service Provider may consider the following types of new equipment : • An integrated system of 3D scanning Doppler X-Band radar and long range Doppler lidar to monitor the wind situation around the airport in rainy and dry weather. • A ground based Doppler Weather Radar installed at the Airport for ATM dedicated purpose for wind monitoring in wet conditions and precipitation monitoring. • Ground based Scanning Doppler Lidar installed at the Airport for ATM dedicated purpose for wind monitoring in dry conditions. • Passive Microwave Receiver used for deriving vertical temperature information.		
Supporting material(s):	SJU - SESAR Solution PJ.18-04b-01: Data pack for GWMS Url : https://sesarju.eu/sesar-solutions/ground-weather-management-system-gwms		

INF11.1	Enhanced Ground Weather Management System (GWMS) as local 4DWxCube

ATM Master Plan relationship:	[METEO-08c]-Integrated system of 3D scanning Doppler X-Band radar and long range Doppler lidar for all-weather wind monitoring [METEO-11a]-Precipitation and Wind monitoring in wet conditions using data from Doppler Weather Radar [METEO-11b]-Wind monitoring in dry conditions using data from Scanning Doppler Lidar [METEO-12a]-Compile data for METForTAM service		
Finalisation criteria:	1 - Systems are upgraded		
INF11.1-MET02	**Upgrade systems to provide METForTAM Service**	From: -	By: -
Action by:	**Airport MET Providers**		
Description & purpose:	Where there is a determined operational need for enhanced systems at an airport, to process and exchange MET information, the airport together with their MET Service provider may consider the following measures to ensure that systems are able to process the MET data and in particular: • Reception of basic MET parameters (e.g. temperature, humidity) and translation into aviation relevant topics. • Deriving products related to precipitation and precipitation probability, e.g. rain cells identification and tracking and estimation of rain amount including also output of NWP models. • Analysis of temperature profiles for the detection of inversions. Based on the output of one or several NWP model runs for the same forecast period, forecasts and/or probabilities can be given for parameters included in the model and requested for ATM operations.		
Supporting material(s):	SJU - SESAR Solution PJ.18-04b-01: Data pack for GWMS Url : https://sesarju.eu/sesar-solutions/ground-weather-management-system-gwms		
ATM Master Plan relationship:	[METEO-13]-C06 Local MET Information [METEO-17]-Standard MET Parameter processing [METEO-18]-Microwave Radiometer [METEO-19]-Precipitation processing [METEO-21]-Temperature Inversion Detection [METEO-23]-(Ensemble) Forecast based on NWP model output		
Finalisation criteria:	1 - MET information is processed based on local requirements and needs.		
INF11.1-MET03	**Provide METForTAM Service**	From: -	By: -
Action by:	**Airport MET Providers**		
Description & purpose:	Where there is a determined operational need for enhanced MET provision at an airport, the deployment of METForTAM Service for the exchange between Aerodrome ATM-MET and the Airport via SWIM Yellow Profile could be considered.		
Supporting material(s):	SJU - SESAR Solution PJ.18-04b-01: Data pack for GWMS Url : https://sesarju.eu/sesar-solutions/ground-weather-management-system-gwms		
ATM Master Plan relationship:	[SVC-037]-METForTAM Service [SWIM-APS-06b]-Provision of SWIM enabled G/G and initial Ground to Air Meteorological Information services		
Finalisation criteria:	1 - METForTAM Service is available via SWIM Yellow Profile.		

SESAR	Initial	LOC
INF11.2	Cb-global capability and service	

REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

Cb-global capability uses data on cumulonimbus (Cb) clouds from geostationary satellites to detect, track, and nowcast thunderstorms in order to provide pilots an overview of the current weather hazard situation beyond the limited view of the on-board radar. It is relevant for the upper airspace en-route and enables a pilot to strategically plan a safe and smart flight route around the thunderstorms well ahead in time instead of flying tactical manoeuvres and searching for gaps between the thunder cells.

These Cb-global data are provided through the Cb-global service to be used in the cockpit. Hence, the service provides MET hazards information to the flight management operation of a civil airspace user operation centre allowing to improve flight planning.

Cb-global capability is a mature technology, developed during previous European research. SESAR expands this and addresses the delivery of Cb-global data through SWIM technical infrastructure. The data does not require real-time delivery so the service can be supported by SWIM technical infrastructure yellow profile.

The use of Cb-global as an additional strategic planning tool brings operational benefit. This benefit increases if the Cb-global information is used both in the air and on the ground for a common information sharing and common decision making.

It should be noted that other solutions were developed by MET Service Providers in SESAR1 and are already included in the SWIM Registry, which provide harmonised and consolidated observations and forecasts of enroute weather hazards for aviation.

Applicability Area(s) & Timescale(s)

Applicability Area (Note yet defined)			
Timescales:	**From:**	**By:**	**Applicable to:**
IOC used for Analytics functioning only - not for implementation planning	01/07/2022		
FOC used for Analytics functioning only - not for implementation planning		31/12/2030	

References

European ATM Master Plan

OI step -	[POI-0048-MET]-MET Service provision for Convection Cell Information								
	Enablers -	METEO-12c	METEO-14	METEO-22	SVC-047	SVC-048	SWIM-APS-06b		

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

None

Essential Operational Changes

Digital AIM and MET Services

SESAR Solution

PJ.18-04b-02 - Cb Global capability and service

ICAO GANP - ASBUs

- none -	

Deployment Programme

- none -	

INF11.2	Cb-global capability and service

European Plan for Aviation Safety

- none -	

Operating Environments

Airport
En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
INF11.2-USE01	Consume Cb-Global Service		
INF11.2-MET01	Upgrade systems to provide Cb-Global Capability		
INF11.2-MET02	Upgrade systems to provide Cb-Global Service		
INF11.2-MET03	Provide Cb-Global Service		

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Enhanced safety.
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	Increased cost efficiency. Potential fuel savings.
Environment:	-
Security:	Enhanced security.

Detailed SLoA Descriptions

INF11.2-USE01	**Consume Cb-Global Service**	From: -	By: -
Action by:	**MET Providers**		
Description & purpose:	Airspace Users may choose to upgrade their systems to be able to consume the Cb-global service via SWIM, noting that other solutions for identifying enroute weather hazards are also available on the SWIM Registry.		
Supporting material(s):	SJU - SESAR Solution PJ.18-04b-02: Data pack for Cb-global capability and service Url : https://sesarju.eu/sesar-solutions/improved-met-information-services		
ATM Master Plan relationship:	[SVC-047]-MET Hazard Enroute Observation Service [SVC-048]-MET Hazard Enroute Forecast Service [SWIM-APS-06b]-Provision of SWIM enabled G/G and initial Ground to Air Meteorological Information services		
Finalisation criteria:	1 - Systems are upgraded to consume Cb-global service via SWIM.		
INF11.2-MET01	**Upgrade systems to provide Cb-Global Capability**	From: -	By: -
Action by:	**MET Providers**		
Description & purpose:	A MET Services Provider may choose to upgrade their systems to be able to compile data for a METHazardEnrouteObservation and METHazardEnrouteForecast services. This entails to further enhance all functionalities of the 4DWxCube and MET-GATE FB including satellite data to provide thunderstorm cell detection and tracking including forecasts. Systems need to be able to take the satellite data and products and prepare the METHazardEnrouteObservation and Forecast service payload. According to operational needs or filtering requirements from subscription process, the services will be adjusted and transferred via YP to the customer.		
Supporting material(s):	SJU - SESAR Solution PJ.18-04b-02: Data pack for Cb-global capability and service Url : https://sesarju.eu/sesar-solutions/improved-met-information-services		
ATM Master Plan relationship:	[METEO-12c]-Compile data for METHazardEnrouteObservation and METHazardEnrouteForecast services		
Finalisation criteria:	1 - Systems are upgraded.		
INF11.2-MET02	**Upgrade systems to provide Cb-Global Service**	From: -	By: -
Action by:	**MET Providers**		

INF11.2	Cb-global capability and service

Description & purpose:	A MET Service Provider may choose to upgrade their systems to be able to: • Collect and consolidate information about convection phenomena with focus on thunderstorm objects. • Abstract and process input data like radar, satellite and lightning data to derive convection cells. for the purpose of providing the Cb-Global Capability.		
Supporting material(s):	SJU - SESAR Solution PJ.18-04b-02: Data pack for Cb-global capability and service Url : https://sesarju.eu/sesar-solutions/improved-met-information-services		
ATM Master Plan relationship:	[METEO-14]-C07 Cb (thunderstorm) nowcasting [METEO-22]-Processing of Convection Cell detection		
Finalisation criteria:	1 - Systems are upgraded.		
INF11.2-MET03	**Provide Cb-Global Service**	From: -	By: -
Action by:	**MET Providers**		
Description & purpose:	A MET Service Provider may choose to provide Cb-Global Service via SWIM Yellow Profile and in particular: • A MET Hazard Enroute Observation Service, handling actual significant weather phenomena for immediate assessment by consumers • A MET Hazard Enroute Forecast Service, handling Nowcast (D -2hours, 3D, Probability factor) and Forecast (d-2 hours to 7days, 3D, Probability factor) of significant weather phenomena for assessment by consumers.		
Supporting material(s):	SJU - SESAR Solution PJ.18-04b-02: Data pack for Cb-global capability and service Url : https://sesarju.eu/sesar-solutions/improved-met-information-services		
ATM Master Plan relationship:	[SVC-047]-MET Hazard Enroute Observation Service [SVC-048]-MET Hazard Enroute Forecast Service [SWIM-APS-06b]-Provision of SWIM enabled G/G and initial Ground to Air Meteorological Information services		
Finalisation criteria:	1 - Cb-Global Service ia available via SWIM Yellow Profile.		

SES	Active								EU+	
ITY-ACID	Aircraft Identification									
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

This SES-related implementation objective is derived from Implementing Regulation (EU) No 1206/2011 of 22 November 2011 (amended by Regulation 2020/587), laying down requirements on aircraft identification for surveillance for the single European sky. The main objective of the Regulation is to ensure the unambiguous and continuous identification of individual aircraft operating as general air traffic under instrument flight rules throughout the airspace of the single European sky (the ACID IR) through a phased approach.

The scope of this Implementation Objective is limited to the milestone of 2 January 2020 as identified in the Regulation. By this date, the Regulation requires that air navigation service providers deploy the capability to use the downlinked aircraft identification feature as well as the associated procedures so as to ensure the unambiguous and continuous identification of all individual aircraft operating IFR/GAT flights, by using this feature. It also addresses the possible exemptions associated to this date, under specific conditions.

Implementing Regulation (EU) No 1206/2011 requires that air navigation service providers, in all Member States, have the capability to establish individual aircraft identification using the downlinked aircraft identification feature, for all IFR/GAT flights. This will be achieved with the deployment of the appropriate elements of the surveillance chain as identified in the Implementing Regulation, so as to ensure this capability. Practically this capability can be ensured by deploying Mode S surveillance, or ADS-B or WAM, taking into account the local operating environments, constraints and needs as well as the airspace user's capabilities. The possibility of delayed compliance, under very specific conditions (approach area where air traffic services are provided by military units or under military supervision) is envisaged for no later than 2 January 2025.

For completeness of information, Implementing Regulation (EU) No 1206/2011 of 22 November 2011 includes a first milestone, applicable from 9 February 2012, requiring the use the downlinked aircraft identification feature, or the deployment of improved and harmonised capabilities for the automatic assignment of SSR codes (e.g. directional assignments of SSR codes, multiple simultaneous assignments to flights operated in conflict-free directions, etc). As the first milestone has been already implemented, it is outside the scope of the Master Plan Level 3 - Implementation Plan as an implementation planning tool.

It should be noted that the technical capability of the airborne constituents (the carriage of transponders capable to downlink of the aircraft identification) is addressed by Regulation (EU) No 1207/2011 of 22 November 2011 (as amended) laying down requirements for the performance and the interoperability of surveillance for the single European sky (as amended) being covered by Implementation Objective ITY-SPI. However, as the ACID-IR identifies specific procedures to be used by the operators, notably with regard the setting of the downlinked aircraft identification on-board, the ITY-ACID Implementation Objective defines a specific Stakeholder Line of Action with regard the appropriate training to be provided by the Operators to the personnel operating and maintaining surveillance equipment, in relationship with the use of the aircraft identification feature.

This SES-related implementation objective does not replace the EC legislation. It aims at facilitating the monitoring and reporting of the implementation of the requirements on aircraft identification for surveillance in European ATM in line with the EC regulations.

NOTE: This SES-related implementation objective does not replace the EU legislation. It aims at facilitating the monitoring and reporting of the implementation of aircraft identification in European ATM in line with the EU regulations and through the SES implementation monitoring and reporting mechanism.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area	All ECAC States. Plus: Israel		
Timescales:	**From:**	**By:**	**Applicable to:**
Entry into force of the Regulation	13/12/2011		Applicability Area
System capability		02/01/2020	Applicability Area

References

European ATM Master Plan

OI step -	- No OI Link -								
	Enablers -	GSURV-0101							

Legend:	WXYZ-001		WXYZ-002	Covered by SLoA(s) in another objective		

ITY-ACID	Aircraft Identification

		Covered by SLoA(s) in this objective	zzz	Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) No 1206/2011 of 22 November 2011 laying down requirements on aircraft identification for surveillance for the single European sky and Regulation (EU) No 1207/2011 of 22 November 2011 laying down requirements for the performance and the interoperability of surveillance for the single European sky, both as amended by Commission Implementing Regulation (EU) 2020/587 of 29 April 2020

Essential Operational Changes

CNS Infrastructure and Services

SESAR Solution

- none -

ICAO GANP - ASBUs

- none -

Deployment Programme

- none -

European Plan for Aviation Safety

- none -

Operating Environments

Airport
En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
ITY-ACID-ASP01	Ensure the capability of the cooperative surveillance chain, to use the downlinked aircraft identification	13/12/2011	02/01/2020
ITY-ACID-ASP02	Organise personnel training and awareness	13/12/2011	02/01/2020
ITY-ACID-ASP03	Develop, and deliver as necessary, a safety assessment of the changes imposed by the implementation of the capability allowing the establishment of the individual aircraft identification using the downlinked aircraft identification feature		13/12/2011 02/01/2020
ITY-ACID-USE01	Organise personnel training and awareness	13/01/2011	02/01/2020

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Enhanced safety levels by ensuring that unambiguous individual aircraft identification is achieved, maintained and shared accurately throughout EATMN airspace.
Capacity:	Avoidance of delays and of reduction in network capacity due to shortage of SSR transponder codes or by increased controller workload caused by code changes.
Operational Efficiency:	The use of downlinked aircraft identification represents the most efficient long term solution as primary mean of identification, as shown in the impact assessment of Regulation (EU) No 1206/2011.
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

ITY-ACID-ASP01	**Ensure the capability of the cooperative surveillance chain, to use the downlinked aircraft identification**	From: 13/12/2011	By: 02/01/2020
Action by:	**ANS Providers**		

ITY-ACID	Aircraft Identification

Description & purpose:	Ensure that the cooperative surveillance chain has the necessary capability to allow the establishment of the individual aircraft identification using the downlinked aircraft identification feature in compliance with Article 4.2 and ensure the operational use of this capability as prescribed in Article 4.3 (including Annex II) of Regulation (EU) No 1206/2011. The deployment and the use of this capability will have an impact on the surveillance systems as well as on flight data processing systems, surveillance data processing systems, human machine interface systems and ground-to-ground communication systems used for the distribution of surveillance data. With regard to the specific surveillance technologies the ANSPs could use to support this requirement they have the choice between Mode S surveillance, ADS-B or WAM, taking into account the local operating environments, constraints and needs as well as the capabilities of the airspace users.		
Derogations:	For the specific case of approach areas where air traffic services are provided by military units or under military supervision and when procurement constraints prevent compliance with Article 4(2) of the Regulation, Member States shall communicate to the Commission by 31 December 2017 at the latest, the date of compliance with downlinked aircraft identification that shall not be later than 2 January 2025, as prescribed in Article 11 'Exemptions' of Regulation (EU) No 1206/2011. Following consultation with the Network Manager, and not later than 31 December 2018, the Commission may review the exemptions that could have a significant impact on the EATMN.		
Supporting material(s):	EUROCONTROL - Mode S Elementary Surveillance (ELS) Operations Manual Url : https://www.eurocontrol.int/publication/mode-s-elementary-surveillance-els-operations-manual EUROCONTROL - Wide Area Multilateration (WAM) Guidance Material Url : https://www.eurocontrol.int/publication/wide-area-multilateration-guidelines-achieving-operational-approval-wam-system		
Finalisation criteria:	1 - All the appropriate systems have been upgraded 2 - The technical file (TF) with evidences of compliance and the EC declaration of verification of systems (DoV) has been delivered to the competent National Supervisory Authority (NSA) 3 - The upgraded systems have been put into service, allowing the establishment of the individual aircraft identification using the downlinked aircraft identification.		
ITY-ACID-ASP02	**Organise personnel training and awareness**	From: 13/12/2011	By: 02/01/2020
Action by:	**ANS Providers**		
Description & purpose:	Ensure that: - personnel are made duly aware of the requirements of the Regulation and adequately trained as prescribed in Art 8.(1)] - operations manuals, working methods and operating procedures comply with Article 8(2) of Regulation (EU) No 1206/2011.		
	Note :The completion dates should take into account the possible derogations identified in SLoA ITY-ACID-ASP01 (ref, Article 11 'Exemptions' of Regulation (EU) No 1206/2011).		
Supporting material(s):	EUROCONTROL - Mode S Elementary Surveillance (ELS) Operations Manual Url : https://www.eurocontrol.int/publication/mode-s-elementary-surveillance-els-operations-manual EUROCONTROL - Wide Area Multilateration (WAM) Guidance Material Url : https://www.eurocontrol.int/publication/wide-area-multilateration-guidelines-achieving-operational-approval-wam-system		
Finalisation criteria:	1 - The training plans have been updated and a training package has been developed. 2 - All concerned personnel have been trained.		
ITY-ACID-ASP03	**Develop, and deliver as necessary, a safety assessment of the changes imposed by the implementation of the capability allowing the establishment of the individual aircraft identification using the downlinked aircraft identification feature**	From: -	By: 13/12/2011 02/01/2020
Action by:	**ANS Providers**		
Description & purpose:	Notify the Regulator/NSA/Competent Authority of planned safety related changes and develop safety assessment of these changes, imposed by implementation of the capability allowing the establishment of the individual aircraft identification using the downlinked aircraft identification feature. The tasks to be performed are as follows: - notify the Regulator/NSA/Competent Authority of the planned safety related changes. - conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks - develop a safety argument - deliver the safety argument to the Regulator/NSA/Competent Authority, if the severity class of identified risks is 1 or 2 or if the implementation of the changes requires the introduction of new aviation standards. The assessment should consider transition planning leading to the introduction of the capability as well as fall-back mitigation.		
	Note :1 - Any other validated/recognised method for the safety assessment, is acceptable, if agreed with the Regulator/NSA/Competent Authority. 2 - The completion dates should take into account the possible derogations identified in SLoA ITY-ACID-ASP01 (ref, Article 11 'Exemptions' of Regulation (EU) No 1206/2011.		

ITY-ACID	Aircraft Identification

Supporting material(s):	EC - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 - (OJ L 62, 8.03.2017, p. 1) - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011 03/2017 Url : https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R0373&from=EN EUROCONTROL - EAM 4 - ESARR 4 - Risk Assessment and Mitigation in ATM - Edition 1.0 / 04/2001 Url : https://www.eurocontrol.int/publication/esarr-4-risk-assessment-and-mitigation-atm EUROCONTROL - Air Navigation Systems Safety Assessment Methodology (SAM) - Version 2.1 / 11/2006 Url : https://www.eurocontrol.int/tool/safety-assessment-methodology		
Finalisation criteria:	1 - Safety argument addressing the implementation of the capability allowing the establishment of the individual aircraft identification using the downlinked aircraft identification feature, has been developed. 2 - Safety argument addressing the implementation of the capability allowing the establishment of the individual aircraft identification using the downlinked aircraft identification feature, has been delivered to the Regulator/NSA/Competent Authority, as appropriate, depending on the severity of the identified risks or the introduction of new aviation standards.		
ITY-ACID-USE01	**Organise personnel training and awareness**	From: 13/01/2011	By: 02/01/2020
Action by:	**Airspace Users**		
Description & purpose:	Operators shall ensure that the personnel operating and maintaining surveillance equipment are made duly aware of Regulation (EU) No 1206/2011, that they are adequately trained to use this equipment, that instructions are available in the cockpit and that the correct processes are applied in operations, so as to ensure compliance with the provisions of Article 9 'Additional requirements for operators' of Regulation (EU) No 1206/2011.		
	Note :This SLoA is specific to the provision and use of the downlinked aircraft identification feature and complements the User SLoAs identified in the ITY-SPI ESSIP objective.		
Finalisation criteria:	1 - Training manuals have been updated, as required and that instructions are available in the cockpit. 2 - All personnel operating surveillance equipment have been trained and the correct processes are applied in operations.		

SES	Active									ECAC+
ITY-AGDL	Initial ATC Air-Ground Data Link Services									
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

This SES-related implementation objective is derived from Regulation (EU) No 2015/310 of 26 February 2015, amending Regulation (EC) No 29/2009 of 16 January 2009 and repealing Regulation (EU) No 441/2014, laying down requirements on data link services for the single European sky.

Regulation (EC) No 29/2009 applies to air-ground data communications systems, their constituents and associated procedures and to flight data processing systems serving air traffic control units providing services to general air traffic, their constituents and associated procedures [Ref. Article 1(2)].

Regulation (EC) No 29/2009 requires the interoperable implementation of the first set of en-route non-time critical air-ground data link services DLIC, ACL, ACM and AMC [Ref. Annex II].

This regulation applies to all flights operating as general air traffic in accordance with instrument flight rules above FL 285, within the defined airspace areas [Ref. Article 1.1 of Regulation (EU) 2015/310].

The terms used in this objective are defined in Article 2 of Regulation (EC) No 549/2004 and in Article 2 of Regulation (EC) No 29/2009.

In 2016, what is known as the ELSA Consortium Study was finalised. The Study addresses the recommendations made by EASA in their report from 2014 on the technical issues in the implementation of Data Link Services (DLS). Also in 2016, the SESAR Deployment Manager has been mandated by the EC to act as DLS Implementation Project Manager and on this basis the SDM has developed a DLS Recovery Plan.

NOTE: The implementation objective is aligned with Regulation (EU) No 2015/310, amending Regulation (EC) No 29/2009 and repealing Regulation (EU) No 441/2014.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1	All EU SES States except: Luxembourg
Applicability Area 2	Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Montenegro, Morocco, North Macedonia, Serbia, Turkey, United Kingdom

Timescales:	**From:**	**By:**	**Applicable to:**
Entry into force	06/02/2009		Applicability Area 1
ATS unit operational capability		05/02/2018	Applicability Area 1 + Applicability Area 2
Aircraft capability		05/02/2020	Applicability Area 1 + Applicability Area 2

References

European ATM Master Plan

OI step -	[AUO-0301]-Voice Controller-Pilot Communications (En-Route) Complemented by Data Link								
	Enablers -	A/C-31	ER ATC 154a	ER ATC 154b	PRO-044b	PRO-228a			
OI step -	- No OI Link -								
	Enablers -	CTE-C02b							

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) 2015/310 amending Regulation (EC) No 29/2009 and repealing Implementing Regulation (EU) No 441/2014, laying down requirements on data link services for the single European sky

Essential Operational Changes

CNS Infrastructure and Services

ITY-AGDL	Initial ATC Air-Ground Data Link Services

SESAR Solution

- none -

ICAO GANP - ASBUs

COMI-B0/4	VHF Data Link (VDL) Mode 2 Basic
COMI-B1/2	VHF Data Link (VDL) Mode 2 Multi-Frequency

Deployment Programme

- none -	

European Plan for Aviation Safety

RMT.0524	Data link services

Operating Environments

En-Route
Network

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
ITY-AGDL-REG01	Ensure that safety is assessed before any change to the existing system	**DELETED**	
ITY-AGDL-REG02	Ensure the processing and the distribution of the information on the data link capability by the IFPS	**DELETED**	
ITY-AGDL-REG03	Ensure the publication of relevant information in the national aeronautical information publication		05/02/2018
ITY-AGDL-REG04	Ensure ATN/VDL-2 availability, security policy and address management procedures		05/02/2018
ITY-AGDL-REG05	Approve the operational use of air-ground data link services	**DELETED**	
ITY-AGDL-REG06	Notify potential exemption cases to the European Commission	**FINALISED**	
ITY-AGDL-ASP01	Ensure the conformity of communications, flight data and initial flight plan processing systems and associated procedures		05/02/2018
ITY-AGDL-ASP02	Organise personnel awareness and training		05/02/2018
ITY-AGDL-ASP03	Ensure ground communication systems comply with air-ground communication requirements		05/02/2018
ITY-AGDL-ASP04	Deploy communication infrastructure to handle air-ground data link services		05/02/2018
ITY-AGDL-ASP05	Implement Logon Forward process		05/02/2018
ITY-AGDL-ASP06	Implement Next Authority Notified process		05/02/2018
ITY-AGDL-MIL01	Equip transport-type State aircraft		01/01/2019
ITY-AGDL-USE01	Equip aircraft with data link equipment supporting the identified services		05/02/2020
ITY-AGDL-USE02	Specify relevant operational procedures		05/02/2020
ITY-AGDL-USE03	Arrange air-ground ATS data link service provision		05/02/2020
ITY-AGDL-USE04	Organise personnel awareness and training		05/02/2020
ITY-AGDL-IND01	Provide avionics and ground systems for data link services	**DELETED**	

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Through the delivery of standard and unambiguous messages (significant error and fatigue reduction), provision of a communications backup and the possibility of immediate message retrieval.
Capacity:	Through both reduction of voice congestion and increase in controller and sector productivity. Capacity gain is expected from 3.4 % (if 25% of flights is equipped) up to 11% (if 75% of flights is equipped). This will lead to reduction of delays.
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

ITY-AGDL-REG03	**Ensure the publication of relevant information in the national aeronautical information publication**	From: -	By: 05/02/2018
Action by:	**State Authorities**		
Description & purpose:	Ensure that relevant information on the use of data link services is published in the national aeronautical information publications [Regulation (EC) No 29/2009, Article 13(8)].		
Finalisation criteria:	1 - National aeronautical information publications have been updated appropriately.		
ITY-AGDL-REG04	**Ensure ATN/VDL-2 availability, security policy and address management procedures**	From: -	By: 05/02/2018
Action by:	**State Authorities**		
Description & purpose:	Member States which have designated ATS providers in the applicable airspace shall: - Ensure that air-ground communications services satisfying requirements for ATN and VDL-2 are available to operators for aircraft flying within that airspace under their responsibility for CM and CPDLC data exchanges, with due regard to possible coverage limitations inherent in the communication technology used [Regulation (EC) No 29/2009, Article 7(1)]; - Ensure that air navigation service providers and other entities providing communication services implement an appropriate security policy for data exchanges of the DLIC, ACM, ACL and AMC services, notably by applying common security rules to protect distributed physical resources supporting those data exchanges [Regulation (EC) No 29/2009, Article 7(2)]; - Ensure that harmonised procedures apply for the management of addressing information in order to unambiguously identify air and ground communications systems supporting data exchanges of the CM and CPDLC air/ground applications [Regulation (EC) No 29/2009, Article 7(3)].		
Finalisation criteria:	1 - Availability of ATN/VDL-2 service has been published in national aeronautical information publication. 2 - Security policy is available. 3 - Harmonised addressing procedures are available.		
ITY-AGDL-ASP01	**Ensure the conformity of communications, flight data and initial flight plan processing systems and associated procedures**	From: -	By: 05/02/2018
Action by:	**ANS Providers**		
Description & purpose:	Ensure that air-ground communications systems, flight data processing systems and human-machine interface systems serving ATS units providing service to general air traffic within the applicable airspace areas comply with the following articles of Regulation (EC) No 29/2009: - Article 1(3) on the operational coverage; - Article 3(1) on the capability to provide and operate the DLIC, ACM, ACL and AMC data link services; - Article 4 on procedures for CPDLC establishment, operation and termination, and for the filing of flight plans regarding information pertaining to data link capability; - Article 5(1) on ground systems support of CM and CPDLC; - Article 5(2) on seamless provision, message set and integrity requirements of end-to-end communications for data exchanges of the CM and CPDLC air-ground applications; - Article 5(3) on service level agreement for communication services for CM and CPDLC data exchanges that may be provided by other organisations (i.e. CSPs); - Article 5(4) on ensuring that data exchanges can be established with all compliant aircraft flying in the airspace under their responsibility; - Article 5(5) on automated notification, coordination and transfer of flights between ATC units (Note that this requires implementation of LOF/NAN processes in accordance with Regulation (EC) No 1032/2006 - as complemented by Regulation (EC) No 30/2009 - refer to SES-related implementation objective ITY-COTR); - Article 5(6) on performance monitoring; - Article 9 on the application of air-ground communications in ground communication systems and their constituents for CM and CPDLC data exchanges, allowing either ATN/VDL-2 or an alternative communication technology; - Article 13(1) and (2) on the ground-based recording of data link communications.		
Supporting material(s):	EUROCAE - ED-111 - Functional specifications for CNS/ATM Recording - Including Amendment N°1 - 30 July 2003 07/2002 Url : https://eshop.eurocae.net/eurocae-documents-and-reports EUROCONTROL - SPEC-116 - EUROCONTROL Specification on Data Link Services - Edition 2.1 / 01/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-data-link-services ICAO - Annex 10, Volume III, Part 1 - Aeronautical Telecommunications, Volume III Communication Systems, Part 1 Digital Data Communication Systems - Edition 2.0 Url : http://store1.icao.int/		
ATM Master Plan relationship:	[ER ATC 154b]-Enhance En-route ATC sub-systems (internal processing, FDP and Controller Workstation) to enable CPDLC dialog with Pilot [PRO-044b]-ATC Procedures involving protocol for utilization of DataLink communications, message composition, receipt acknowledgement		
Finalisation criteria:	1 - Air-ground ANSP communications systems enable data link communication between controllers and operators of equipped aircraft. 2 - Flight data and initial flight plan processing systems are able to handle the information about the data link capability of flights. 3 - Associated procedures are applied in operation.		
ITY-AGDL-ASP02	**Organise personnel awareness and training**	From: -	By: 05/02/2018
Action by:	**ANS Providers**		

ITY-AGDL	Initial ATC Air-Ground Data Link Services

Description & purpose:	Develop and maintain operations manuals containing the necessary instructions and information to enable all personnel concerned to apply Regulation (EC) No 29/2009. Ensure that these manuals are accessible and kept up to date and that their update and distribution are subject to appropriate quality and documentation configuration management. Ensure that the working methods and operating procedures comply with Regulation (EC) No 29/2009. Ensure that all personnel concerned are made duly aware of the relevant provisions in Regulation (EC) No 29/2009. Ensure that all personnel concerned are adequately trained for their job functions. Note: In accordance with Regulation (EC) No 29/2009, Articles 13(3) and 13(5)		
Finalisation criteria:	1 - Air Navigation Service Providers have produced the operations manuals and the training programmes.		
ITY-AGDL-ASP03	**Ensure ground communication systems comply with air-ground communication requirements**	From: -	By: 05/02/2018
Action by:	**ANS Providers**		
Description & purpose:	Entities providing communication services shall ensure that the ground communication systems and their constituents apply air-ground communications for CM and CPDLC data exchanges in compliance with Article 9 of Regulation (EC) No 29/2009, allowing either ATN/VDL-2 or an alternative communication technology.		
ATM Master Plan relationship:	[ER ATC 154a]-Basic air-ground datalink communications service derived from the CM and CPDLC applications		
Finalisation criteria:	1 - CSP has deployed and made available ground communication systems which allow ATN/VDL-2 or alternative communication technology.		
ITY-AGDL-ASP04	**Deploy communication infrastructure to handle air-ground data link services**	From: -	By: 05/02/2018
Action by:	**ANS Providers**		
Description & purpose:	Ensure that the entities providing communication services for data exchanges of the air-ground applications deploy the appropriate telecommunication infrastructure (e.g. based on ATN/VDL-Mode 2).		
Supporting material(s):	ARINC - 631-6 - VHF Digital Link (VDL) Mode 2 Implementation Provisions Standards - ARINC 600 Series / 11/2010 ARINC - 631-5 - VHF Digital Link (VDL) Mode 2 Implementation Provisions - ARINC 600 Series / 12/2008 EUROCONTROL - SPEC-116 - EUROCONTROL Specification on Data Link Services - Edition 2.1 / 01/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-data-link-services		
ATM Master Plan relationship:	[CTE-C02b]-A/G Datalink over ATN/OSI - Single frequency		
Finalisation criteria:	1 - Appropriate telecommunication infrastructure has been deployed in the specific locations selected by the State, and is ready to handle the selected air-ground data link services.		
ITY-AGDL-ASP05	**Implement Logon Forward process**	From: -	By: 05/02/2018
Action by:	**ANS Providers**		
Description & purpose:	Implement a process for the transmission of logon parameters of flight data between ATC units as specified in the Annex to Regulation (EC) No 30/2009 amending Regulation (EC) No 1032/2006. The Logon Forward process is transmitted to provide the ATN or FANS/1A logon parameters to the receiving data-link equipped unit, to allow the unit to use the data link applications (CM, CPDLC, ADS, FIS). This process shall comply with the interoperability and performance requirements specified in Art. 3 of Regulation (EC) No 1032/2006.		
	Note :This SLoA corresponds to ITY-COTR-ASP08 from ESSIP Plan Edition 2015.		
Specific applicability:	Related to Commission Regulation 29/2009 laying down requirements on datalink services for the Single European Sky.		
Derogations:	It shall not apply to flight data processing systems for which the flight data are synchronised by means of a common system.		
Supporting material(s):	EUROCONTROL - SPEC-107 - EUROCONTROL Specification for ATS Data Exchange Presentation (ADEXP) - Edition 3.3 / 07/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-ats-data-exchange-presentation-adexp EUROCONTROL - SPEC-106 - EUROCONTROL Specification for On-Line Data Interchange (OLDI) - Edition 5.0 / 07/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-line-data-interchange-oldi EUROCONTROL - GUID-176 - EUROCONTROL Guidelines for On-Line Data Interchange (OLDI) - Edition 1.1 / 07/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-line-data-interchange-oldi		
ATM Master Plan relationship:	[ER ATC 154b]-Enhance En-route ATC sub-systems (internal processing, FDP and Controller Workstation) to enable CPDLC dialog with Pilot		
Finalisation criteria:	1 - The Logon Forward process has been implemented, documented and is in operational use.		
ITY-AGDL-ASP06	**Implement Next Authority Notified process**	From: -	By: 05/02/2018
Action by:	**ANS Providers**		

ITY-AGDL	Initial ATC Air-Ground Data Link Services

Description & purpose:	Implement a process for the transmission of information of flight data between ATC units as specified in the Annex to Regulation (EC) No 30/2009 amending Regulation (EC) No 1032/2006. Information subject to the next authority notified process shall provide as a minimum: aircraft identification, departure aerodrome, destination aerodrome. This process shall comply with the interoperability and performance requirements specified in Art. 3 of Regulation (EC) No 1032/2006.		
	Note :This SLoA corresponds to ITY-COTR-ASP09 from ESSIP Plan Edition 2015.		
Specific applicability:	Related to Commission Regulation 29/2009 laying down requirements on datalink services for the Single European Sky.		
Derogations:	It shall not apply to flight data processing systems for which the flight data are synchronised by means of a common system.		
Supporting material(s):	EUROCONTROL - SPEC-107 - EUROCONTROL Specification for ATS Data Exchange Presentation (ADEXP) - Edition 3.3 / 07/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-ats-data-exchange-presentation-adexp EUROCONTROL - SPEC-106 - EUROCONTROL Specification for On-Line Data Interchange (OLDI) - Edition 5.0 / 07/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-line-data-interchange-oldi EUROCONTROL - GUID-176 - EUROCONTROL Guidelines for On-Line Data Interchange (OLDI) - Edition 1.1 / 07/2020 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-line-data-interchange-oldi		
ATM Master Plan relationship:	[ER ATC 154b]-Enhance En-route ATC sub-systems (internal processing, FDP and Controller Workstation) to enable CPDLC dialog with Pilot		
Finalisation criteria:	1 - The Next Authority Notified process has been implemented, documented and is in operational use with all partners within the applicability area.		
ITY-AGDL-MIL01	**Equip transport-type State aircraft**	From:	By:
		-	01/01/2019
Action by:	**Military Authorities**		
Description & purpose:	States which decide to equip new transport type State aircraft entering into service from 1 January 2019 with data link capability relying upon standards which are not specific to military operational requirements, shall ensure that those aircraft comply with the following articles of Regulation (EC) No 29/2009: - Article 3(5), amended by Article 1.2.4 of COMMISSION IMPLEMENTING REGULATION (EU) 2015/310, on the capability to operate the data link services DLIC, ACM, ACL and AMC; - Article 8(1) on communications systems support of CM and CPDLC; - Article 8(2) on seamless provision, message set and integrity requirements of end-to-end communications for data exchanges of the CM and CPDLC air-ground applications; - Article 8(3) on requirements for air-ground communication systems and their constituents to apply air-ground communications for data exchanges of the CM and CPDLC applications, allowing either ATN/VDL-2 or an alternative communication technology.		
Supporting material(s):	EUROCONTROL - SPEC-116 - EUROCONTROL Specification on Data Link Services - Edition 2.1 / 01/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-data-link-services		
Finalisation criteria:	1 - Transport-type aircraft have been equipped with data link capabilities.		
ITY-AGDL-USE01	**Equip aircraft with data link equipment supporting the identified services**	From:	By:
		-	05/02/2020
Action by:	**Airspace Users**		
Description & purpose:	Operators shall ensure that: - Their aircraft operating IFR/GAT flights within the applicable airspace above FL285 have the capability to operate the DLIC, ACM, ACL and AMC services [Article 1.(2).2 of COMMISSION IMPLEMENTING REGULATION 2015/310] - Aircraft air-ground communication systems and their constituents support the CM and CPDLC air-ground applications [Regulation (EC) No 29/2009, Article 6(1)]; - Aircraft air-ground communication systems and their constituents apply end-to-end communications for data exchanges of the CM and CPDLC air-ground applications in compliance with Regulation (EC) No 29/2009, Article 6(2); - Aircraft air-ground communication systems and their constituents apply air-ground communications for data exchanges of the CM and CPDLC air-ground applications in compliance with Regulation (EC) No 29/2009, Article 6(3), allowing either ATN/VDL-2 or an alternative communication technology.		
Derogations:	Not applicable to: - Aircraft with an individual certificate of airworthiness first issued before 01.01.14 and fitted with FANS-1/A data link equipment certified against the requirements of EUROCAE ED-100 or ED-100A [Article 1.(2).3.a of COMMISSION IMPLEMENTING REGULATION 2015/310]; - Aircraft with an individual certificate of airworthiness first issued before 31.12.2003 which will cease operation in the applicable airspace by 31.12.2022 [Article 1.(2).3.b of COMMISSION IMPLEMENTING REGULATION 2015/310]; - State aircraft [Article 1.(2).3.c of COMMISSION IMPLEMENTING REGULATION 2015/310]; - Aircraft being flown for testing, delivery or for maintenance purpose or with data link constituents temporarily inoperative under conditions specified in the applicable minimum equipment list [Article 1.(2).3.d of COMMISSION IMPLEMENTING REGULATION 2015/310]; - Specific aircraft types for which exemptions are justified and granted according to the procedure in Article 5(3) of Regulation (EC) No 549/2004 [Article 14].		

ITY-AGDL	Initial ATC Air-Ground Data Link Services

Supporting material(s):	EUROCONTROL - SPEC-116 - EUROCONTROL Specification on Data Link Services - Edition 2.1 / 01/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-data-link-services		
ATM Master Plan relationship:	[A/C-31]-Data link exchange compliant with Link 2000+		
Finalisation criteria:	1 - Airworthiness certificate with evidence of compliance with the certification specification has been granted by EASA.		
ITY-AGDL-USE02	**Specify relevant operational procedures**	From: -	By: 05/02/2020
Action by:	**Airspace Users**		
Description & purpose:	Specify and apply common standardised procedures consistent with relevant ICAO provisions for CPDLC establishment, operation and termination, and for the filing of flight plans regarding information pertaining to data link capability, in compliance with Regulation (EC) No 29/2009, Article 4.		
Supporting material(s):	EUROCONTROL - SPEC-116 - EUROCONTROL Specification on Data Link Services - Edition 2.1 / 01/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-data-link-services		
Finalisation criteria:	1 - Operators have updated flight manuals with relevant information for the use of data link equipment and for CPDLC operations.		
ITY-AGDL-USE03	**Arrange air-ground ATS data link service provision**	From: -	By: 05/02/2020
Action by:	**Airspace Users**		
Description & purpose:	Make appropriate arrangements (with a CSP) to ensure that data exchanges can be established between their aircraft and all ATS units which may control the flights they operate in the applicable airspace, with due regard to possible coverage limitations inherent in the communication technology used [Regulation (EC) No 29/2009, Article 6(4)].		
Finalisation criteria:	1 - Operators have made appropriate arrangements with Communication Service Providers serving all relevant ATS units.		
ITY-AGDL-USE04	**Organise personnel awareness and training**	From: -	By: 05/02/2020
Action by:	**Airspace Users**		
Description & purpose:	Ensure that the personnel operating data link equipment are made duly aware of Regulation (EC) No 29/2009, and that they are adequately trained for their job functions, and that instructions for using data link equipment are available in the cockpit [Regulation (EC) No 29/2009, Article13(6)].		
Finalisation criteria:	1 - Operators have training package added to training courses. 2 - Operators have training plans. 3 - Operators have Flight Manual with relevant information for the use of data link equipment available in the cockpit.		

SES	Active									EU+
ITY-AGVCS2	8,33 kHz Air-Ground Voice Channel Spacing below FL195									
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

This SES-type objective is derived from Implementing Regulation (EU) No 1079/2012 of 16 November 2012, amended by Commission Implementing Regulation (EU) No 657/2013 of 10 July 2013, laying down requirements for voice channels spacing for the single European sky.

The Regulation applies to:
1. all radios operating in the 117,975-137 MHz band ('the VHF band') allocated to the aeronautical mobile route service, including systems, their constituents and associated procedures;
2. all flights operating as general air traffic, within the airspace of the ICAO EUR region where States are responsible for the provision of air traffic services in accordance with Regulation (EC) No 550/2004.

The conversion requirements of the Regulation do NOT apply to frequency assignments:

(a) that will remain in 25 kHz channel spacing on the following frequencies:
(i) the emergency frequency (121,5 MHz);
(ii) the auxiliary frequency for search and rescue operations (123,1 MHz);
(iii) the VHF digital link (VDL) frequencies (136,725 MHz, 136,775 MHz, 136,825 MHz, 136,875 MHz, 136,925 MHz and 136,975 MHz);
(iv) the aircraft communications addressing and reporting system (ACARS) frequencies (131,525 MHz, 131,725 MHz and 131,825 MHz);

(b) where offset carrier operation within a 25 kHz channel spacing is utilised.

According to Article 14 of Regulation (EU) No 1079/2012, for cases having limited impact on the network, States may take local measures granting exemptions from compliance with:

• Article 4(5) on the obligation for all radios to have 8,33 kHz channel spacing capability by 31 December 2017 at the latest (except ground radios operated by air navigation service providers);
• Article 5(4) on the obligation for aircraft to be equipped with an 8,33 kHz-capable radio from 1 January 2018 to operate in airspace where carriage of radio is required;
• and 6(10) on the obligation to convert all frequency assignments to 8,33 kHz channel spacing by 31 December 2018 at the latest (except frequency assignments that stay in 25 kHz as a result of a safety requirement, or 25 kHz frequency assignments used to accommodate State aircraft).

However, the State shall provide the Commission with detailed information justifying the exemption at the latest one year before the dates identified in the relevant articles. Within six months of receiving the information and after consultation with the Network Manager, the Commission may review the exemption if the impact on the network is not limited.

The terms used in this objective are defined in Article 2 of Regulation (EC) No 549/2004 and Article 2 of Regulation (EU) No 1079/2012.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area	All ECAC States except: Armenia, Georgia, Maastricht UAC, Moldova, Turkey, Ukraine		
Timescales:	**From:**	**By:**	**Applicable to:**
Entry into force	07/12/2012		Applicability Area
New and upgraded radio equipment	17/11/2013		Applicability Area
New or upgraded radios on State aircraft	01/01/2014		Applicability Area
Interim target for freq. conversions		31/12/2014	Applicability Area
All radio equipment		31/12/2017	Applicability Area
All frequencies converted		31/12/2018	Applicability Area
State aircraft equipped, except those notified to EC		31/12/2018	Applicability Area
State aircraft equipped, except those exempted [Art 9(11)]		31/12/2020	Applicability Area

References

European ATM Master Plan

ITY-AGVCS2	8,33 kHz Air-Ground Voice Channel Spacing below FL195

OI step -	- No OI Link -								
	Enablers -	CTE-C01a							

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EU) No 1079/2012 of 16 November 2012 laying down requirements for voice channels spacing.

Essential Operational Changes

CNS Infrastructure and Services

SESAR Solution

- none -

ICAO GANP - ASBUs

- none -	

Deployment Programme

- none -	

European Plan for Aviation Safety

- none -	

Operating Environments

Airport
En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
ITY-AGVCS2-REG01	Ensure radios have 8,33 kHz channel spacing capability		31/12/2017
ITY-AGVCS2-REG02	Ensure the achievement of the interim target for 8,33 kHz frequency conversions	**FINALISED**	
ITY-AGVCS2-REG03	Ensure compliance with the requirements on 8,33 kHz frequency conversions		31/12/2018
ITY-AGVCS2-ASP01	Ensure conformity of voice communications systems and associated procedures		31/12/2018
ITY-AGVCS2-ASP02	Convert 25 kHz frequencies to 8,33 kHz to achieve the interim target	**FINALISED**	
ITY-AGVCS2-ASP03	Convert all 25 kHz frequencies to 8,33 kHz		31/12/2018
ITY-AGVCS2-ASP04	Develop safety assessment		31/12/2018
ITY-AGVCS2-ASP05	Organise personnel training and awareness		31/12/2018
ITY-AGVCS2-MIL01	Equip State aircraft with radio equipment with 8,33 kHz channel spacing capability		31/12/2020
ITY-AGVCS2-MIL02	Organise personnel training and awareness of military aircrew		31/12/2020
ITY-AGVCS2-APO01	Convert all 25 kHz frequencies to 8,33 kHz		31/12/2018
ITY-AGVCS2-APO02	Accommodate non-equipped vehicles		31/12/2017
ITY-AGVCS2-APO03	Organise personnel training and awareness		31/12/2018
ITY-AGVCS2-USE01	Equip aircraft with radio equipment with 8,33 kHz channel spacing capability		31/12/2017
ITY-AGVCS2-USE02	Organise personnel training and awareness		31/12/2017
ITY-AGVCS2-NM01	Ensure the centralised flight planning processing and distribution service complies with the Regulation	**FINALISED**	

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-

ITY-AGVCS2	8,33 kHz Air-Ground Voice Channel Spacing below FL195

Capacity:	-
Operational Efficiency:	Optimisation of the use of the bandwidth, which is a prerequisite to a number of crucial operational improvements that will deliver benefits such as reduced delays and increased capacity. Such benefits will be postponed or even impossible if the additional frequencies required are not readily available.
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

ITY-AGVCS2-REG01	**Ensure radios have 8,33 kHz channel spacing capability**	From: -	By: 31/12/2017
Action by:	**State Authorities**		
Description & purpose:	Take the necessary measures to ensure compliance of ANSPs, operators and other users of radios with the interoperability and performance requirements as specified in Article 4 of Regulation (EU) No 1079/2012. In particular: i) From entry into force of the Regulation, ensure that all radios having the 8,33 kHz channel spacing capability: - Are able to tune to 25 kHz spaced channels [Art. 4(6)]; - The performance of these radios and the transmitter/receiver ground constituent complies with the ICAO standards referred to in the supporting material of this SLoA [Art. 4(7) & 4(8)]. ii) From 17 November 2013: - all radio equipment put into service or subject to radio upgrades by ANSPs, operators and other users or owners of radios includes the 8,33 kHz channel spacing capability [Art. 4(2) & 4(4)]; - aircraft for which the individual certificates of airworthiness or individual flight permits are first issued in the States included in the applicability area of this objective from 17 November 2013 and have a radio equipage requirement are fitted with radios having the 8,33 kHz channel spacing capability [Art. 4(3)]. iii) By 31 December 2017 at the latest all radios have the 8,33 kHz channel spacing capability with the exception of ground radios operated by air navigation service providers [Art. 4(5)].		
	Note :Note that Regulation (EU) No 1079/2012 applies to 'all radios operating in the VHF band allocated to the aeronautical mobile route service' which goes beyond ATM and might affect stakeholders that are not part of the ESSIP/LSSIP process, however this objective is limited to ATM in line with the scope of ESSIP/LSSIP.		
Supporting material(s):	ICAO - Doc 4444 - Air Traffic Management, Section 12.3.1.4 '8,33 kHz channel spacing' - Edition 16 Url : https://store.icao.int/ EUROCONTROL - 8.33kHz Voice Channel Spacing (VCS) implementation handbook Url : https://www.eurocontrol.int/publication/833khz-voice-channel-spacing-vcs-implementation-handbook ICAO - Annex 10, Volume III, Part 2 - Aeronautical Telecommunications, Volume III Communication Systems, Part 2 (incorporating Amendment No 85), Chapter 2, Sections 2.1, 2.2, 2.3.1 and 2.3.2 (excluding Subsection 2.3.2.8) - Second Edition / 07/2007 Url : http://store1.icao.int/		
Finalisation criteria:	1 - Where applicable, the State has published the additional local exemptions as per Article 14 of Regulation (EU) No 1079/2012. 2 - From 17 November 2013: Measures have been taken to ensure that all radio equipment put into service or subject to radio upgrades by ANSPs, operators and other users or owners of radios includes the 8,33 kHz channel spacing capability. 3 - From 17 November 2013: Measures have been taken to ensure that aircraft for which the individual certificates of airworthiness or individual flight permits are first issued from 17 November 2013 and have a radio equipage requirement are fitted with radios having the 8,33 kHz channel spacing capability. 4 - By 31 December 2017: The NSA has evidence that all radios in the State have 8,33 kHz channel spacing capability except where derogations apply and/or exemptions have been granted.		
ITY-AGVCS2-REG03	**Ensure compliance with the requirements on 8,33 kHz frequency conversions**	From: -	By: 31/12/2018
Action by:	**State Authorities**		
Description & purpose:	Ensure that, by 31 December 2018 at the latest, all frequency assignments are converted to 8,33 kHz [Art 6(10)]. Where the State decides not to convert a 25 kHz frequency assignment as a result of a safety requirement (see Derogations below) this shall be subject to a safety assessment.		
Derogations:	The conversion requirements to 8,33 kHz channel spacing do not apply to frequency assignments: a) that are outside the scope of the Regulation [Art 2(4)]; b) that stay in 25 kHz as a result of a safety requirement [Art. 6(10)]; c) 25 kHz frequency assignments used to accommodate State aircraft [Art. 6(10)]. States may grant additional local exemptions as per Article 14 of Regulation (EU) No 1079/2012 (see Objective "Subject Matter and Scope").		
Supporting material(s):	EUROCONTROL - 8.33kHz Voice Channel Spacing (VCS) implementation handbook Url : https://www.eurocontrol.int/publication/833khz-voice-channel-spacing-vcs-implementation-handbook		
Finalisation criteria:	1 - All applicable frequencies converted to 8.33 kHz are published in the national AIP.		
ITY-AGVCS2-ASP01	**Ensure conformity of voice communications systems and associated procedures**	From: -	By: 31/12/2018
Action by:	**ANS Providers**		

ITY-AGVCS2	8,33 kHz Air-Ground Voice Channel Spacing below FL195

Description & purpose:	Ensure that voice communication systems and associated communication procedures comply with the following articles of Regulation (EU) No 1079/2012: i) From entry into force: - Articles 4(6), 4(7) and 4(8) on interoperability and performance requirements; - Article 7(1) on operational coverage; - Article 8(1) on the identification of the transmitting channel; - Article 8(2) on air-ground voice communication procedures; - Article 8(3) on the accommodation of non-equipped aircraft; - Article 12(1) and 12(2) on the verification of systems. ii) From 17 November 2013: - Articles 4(2) and 4(4) on the 8,33 kHz channel spacing capability of new radio equipment or equipment subject to radio upgrades; iii) By 31 December 2017: - Article 4(5) on the 8,33 kHz channel spacing capability of all radios.		
Supporting material(s):	ICAO - Doc 4444 - Air Traffic Management, Section 12.3.1.4 '8,33 kHz channel spacing' - Edition 16 Url : https://store.icao.int/ EUROCONTROL - 8.33kHz Voice Channel Spacing (VCS) implementation handbook Url : https://www.eurocontrol.int/publication/833khz-voice-channel-spacing-vcs-implementation-handbook ICAO - Annex 10, Volume III, Part 2 - Aeronautical Telecommunications, Volume III Communication Systems, Part 2 (incorporating Amendment No 85), Chapter 2, Sections 2.1, 2.2, 2.3.1 and 2.3.2 (excluding Subsection 2.3.2.8) - Second Edition / 07/2007 Url : http://store1.icao.int/		
Finalisation criteria:	1 - Voice communication systems have been upgraded. 2 - The technical file (TF) with evidences of compliance and the EC declaration of verification of systems (DoV) has been delivered to the competent National Supervisory Authority (NSA). 3 - Procedures have been updated (including e.g. LoAs between centres. 4 - Upgraded communication systems have been put into service.		
ITY-AGVCS2-ASP03	**Convert all 25 kHz frequencies to 8,33 kHz**	From: -	By: 31/12/2018
Action by:	**ANS Providers**		
Description & purpose:	Ensure that, by 31 December 2018 at the latest, all 25 kHz frequencies are converted 8,33 kHz [Art. 6(10)].		
Derogations:	The conversion requirements to 8,33 kHz channel spacing do not apply to frequency assignments: a) that are outside the scope of the Regulation [Art 2(4)]; b) that stay in 25 kHz as a result of a safety requirement [Art. 6(10)]; c) 25 kHz frequency assignments used to accommodate State aircraft [Art. 6(10)]. States may grant additional local exemptions as per Article 14 of Regulation (EU) No 1079/2012 (see Objective "Subject Matter and Scope").		
Supporting material(s):	EUROCONTROL - 8.33kHz Voice Channel Spacing (VCS) implementation handbook Url : https://www.eurocontrol.int/publication/833khz-voice-channel-spacing-vcs-implementation-handbook		
ATM Master Plan relationship:	[CTE-C01a]-Existing Voice radio (VHF 25/8.33KHz)		
Finalisation criteria:	1 - All applicable frequencies converted to 8.33 kHz are published in the national AIP.		
ITY-AGVCS2-ASP04	**Develop safety assessment**	From: -	By: 31/12/2018
Action by:	**ANS Providers**		
Description & purpose:	Develop a safety assessment of any changes to existing systems or introduction of new systems referred to in Article 2(1) of Regulation (EU) No 1079/2012 [Art 10]. The tasks to be performed are as follows: - notify the NSA of planned changes; - conduct hazard identification, risk assessment and mitigation; - develop safety assessment; - deliver safety assessment report to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. The assessment shall be based in full validated/recognised method and shall take into consideration, as a minimum, the requirements of Annex III to the Regulation.		
Supporting material(s):	EUROCONTROL - 8.33kHz Voice Channel Spacing (VCS) implementation handbook Url : https://www.eurocontrol.int/publication/833khz-voice-channel-spacing-vcs-implementation-handbook EUROCONTROL - EAM 4 - ESARR 4 - Risk Assessment and Mitigation in ATM - Edition 1.0 / 04/2001 Url : https://www.eurocontrol.int/publication/esarr-4-risk-assessment-and-mitigation-atm		
Finalisation criteria:	1 - Safety assessment report including safety arguments for the changes has been submitted to the NSA and notification of acceptance was received.		
ITY-AGVCS2-ASP05	**Organise personnel training and awareness**	From: -	By: 31/12/2018
Action by:	**ANS Providers**		
Description & purpose:	Ensure that: - personnel are made duly aware of the requirements of the Regulation and adequately trained [Art 13.(1)] - operations manuals, working methods and operating procedures comply with Article 13(3) of the Regulation.		

ITY-AGVCS2	8,33 kHz Air-Ground Voice Channel Spacing below FL195

Finalisation criteria:	1 - The training plans have been updated and a training package has been developed. 2 - All concerned personnel have been trained.		
ITY-AGVCS2-MIL01	**Equip State aircraft with radio equipment with 8,33 kHz channel spacing capability**	From: -	By: 31/12/2020
Action by:	**Military Authorities**		
Description & purpose:	Ensure that aircraft are equipped with 8,33 kHz channel spacing capability in compliance with the following articles of Regulation (EU) No 1079/2012: i) From entry into force of the Regulation, ensure that all radios having the 8,33 kHz channel spacing capability comply with: - Articles 4(6), 4(7) and 4(8) on interoperability and performance requirements; - Articles 8(4) and 8(5) on flight plan requirements, where applicable; - Article 8(6) on the notification to the IFPS, where applicable. ii) From 1 January 2014: - ensure all new State aircraft entering into service are equipped with radios having the 8,33 kHz channel spacing capability [Art. 9.(6)] - ensure that whenever the radios installed on-board State aircraft are subject to radio upgrades, the new radios have the 8,33 kHz channel spacing capability [Art. 9.(7)]. iii) By 30 June 2018: - communicate to the Commission the list of State aircraft that cannot be equipped with 8,33 kHz radios due to compelling technical or budgetary constraints or procurement constraints [Art. 9(9)]. iv) By 31 December 2018: - ensure all State aircraft, except those communicated to the Commission as per the previous bullet, are equipped with radios having the 8,33 kHz channel spacing capability [Art. 9(8)]. v) By 31 December 2020: - ensure the State aircraft not equipped by 31 December 2018 due to procurement constraints (as communicated to the Commission by 30 June 2018) are equipped with radios having the 8,33 kHz channel spacing capability [Art. 9(10)].		
Derogations:	The obligation does not apply to State aircraft that will be withdrawn from operational service by 31 December 2025 [Art 9(11)]. The State can grant additional exemptions to State aircraft that cannot be equipped with radios having the 8,33 kHz channel spacing capability due to compelling technical or budgetary constraints.		
Supporting material(s):	ICAO - Doc 4444 - Air Traffic Management, Section 12.3.1.4 '8,33 kHz channel spacing' - Edition 16 Url : https://store.icao.int/ EUROCONTROL - GUID-174 - EUROCONTROL Guidelines on 8.33kHz Channel Spacing for Military Operators - Edition 2.0 / 07/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-833khz-channel-spacing-military-operators ICAO - Annex 10, Volume III, Part 2 - Aeronautical Telecommunications, Volume III Communication Systems, Part 2 (incorporating Amendment No 85), Chapter 2, Sections 2.1, 2.2, 2.3.1 and 2.3.2 (excluding Subsection 2.3.2.8) - Second Edition / 07/2007 Url : http://store1.icao.int/		
Finalisation criteria:	1 - List of State aircraft that cannot be equipped with 8,33 kHz radios by 31 December 2018 has been communicated to the Commission. 2 - State aircraft have been equipped.		
ITY-AGVCS2-MIL02	**Organise personnel training and awareness of military aircrew**	From: -	By: 31/12/2020
Action by:	**Military Authorities**		
Description & purpose:	Military Authorities shall ensure that the personnel operating radio equipment are made duly aware of Regulation (EU) No 1079/2012 that they are adequately trained to use this equipment and that instructions are available in the cockpit where feasible.		
Supporting material(s):	EUROCONTROL - GUID-174 - EUROCONTROL Guidelines on 8.33kHz Channel Spacing for Military Operators - Edition 2.0 / 07/2018 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-833khz-channel-spacing-military-operators		
Finalisation criteria:	1 - Training manuals have been updated, as required. 2 - All personnel operating radio equipment have been trained.		
ITY-AGVCS2-APO01	**Convert all 25 kHz frequencies to 8,33 kHz**	From: -	By: 31/12/2018
Action by:	**Airport Operators**		
Description & purpose:	Ensure that, by 31 December 2018 at the latest, all 25 kHz frequencies are converted 8,33 kHz [Art. 6(10)].		
Derogations:	The conversion requirements to 8,33 kHz channel spacing do not apply to frequency assignments: a) that are outside the scope of the Regulation [Art 2(4)]; b) that stay in 25 kHz as a result of a safety requirement [Art. 6(10)]; c) 25 kHz frequency assignments used to accommodate State aircraft [Art. 6(10)]. States may grant additional local exemptions as per Article 14 of Regulation (EU) No 1079/2012 (see Objective "Subject Matter and Scope").		
Supporting material(s):	EUROCONTROL - 8.33kHz Voice Channel Spacing (VCS) implementation handbook Url : https://www.eurocontrol.int/publication/833khz-voice-channel-spacing-vcs-implementation-handbook		
ATM Master Plan relationship:	[CTE-C01a]-Existing Voice radio (VHF 25/8.33KHz)		
Finalisation criteria:	1 - All applicable frequencies converted to 8.33 kHz are published in the national AIP.		

ITY-AGVCS2	8,33 kHz Air-Ground Voice Channel Spacing below FL195

ITY-AGVCS2-APO02	**Accommodate non-equipped vehicles**	From:	By:
		-	31/12/2017
Action by:	**Airport Operators**		
Description & purpose:	Ensure that procedures for handling non-8,33 kHz equipped vehicles through airport areas using 8,33 kHz channel spacing are published and applied as appropriate [Annex III.8].		
Finalisation criteria:	1 - Procedures for handling non-8,33 kHz equipped vehicles through airport areas using 8,33 kHz channel spacing have been published and are applied as appropriate.		
ITY-AGVCS2-APO03	**Organise personnel training and awareness**	From:	By:
		-	31/12/2018
Action by:	**Airport Operators**		
Description & purpose:	Ensure that the personnel operating radio equipment are made duly aware of this Regulation, that they are adequately trained for their job functions [Art 13(1)].		
Finalisation criteria:	1 - The training plans have been updated and a training package has been developed. 2 - All personnel operating radio equipment have been trained.		
ITY-AGVCS2-USE01	**Equip aircraft with radio equipment with 8,33 kHz channel spacing capability**	From:	By:
		-	31/12/2017
Action by:	**Airspace Users**		
Description & purpose:	Ensure that aircraft are equipped with 8,33 kHz channel spacing capability in compliance with the following articles of Regulation (EU) No 1079/2012: i) From entry into force: - Articles 4(6), 4(7) and 4(8) on interoperability and performance requirements; - Articles 8(4) and 8(5) on flight plan requirements; - Article 8(6) on the notification to the IFPS. ii) From 17 November 2013: - Articles 4(2) and 4(4) on the 8,33 kHz channel spacing capability of new radio equipment or equipment subject to radio upgrades; iii) By 31 December 2017: - Article 4(5) on the 8,33 kHz channel spacing capability of all radios.		
Supporting material(s):	ICAO - Doc 4444 - Air Traffic Management, Section 12.3.1.4 '8,33 kHz channel spacing' - Edition 16 Url : https://store.icao.int/ ICAO - Annex 10, Volume III, Part 2 - Aeronautical Telecommunications, Volume III Communication Systems, Part 2 (incorporating Amendment No 85), Chapter 2, Sections 2.1, 2.2, 2.3.1 and 2.3.2 (excluding Subsection 2.3.2.8) - Second Edition / 07/2007 Url : http://store1.icao.int/		
Finalisation criteria:	1 - Operators are able to demonstrate the conformity of airborne equipment.		
ITY-AGVCS2-USE02	**Organise personnel training and awareness**	From:	By:
		-	31/12/2017
Action by:	**Airspace Users**		
Description & purpose:	Operators shall ensure that the personnel operating radio equipment are made duly aware of Regulation (EU) No 1079/2012, that they are adequately trained to use this equipment and that instructions are available in the cockpit where feasible.		
Finalisation criteria:	1 - Training manuals have been updated, as required. 2 - All personnel operating radio equipment have been trained.		

SES			Active							ECAC+
ITY-FMTP			Common Flight Message Transfer Protocol (FMTP)							
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

This SES-related implementation objective is derived from Regulation (EC) No 633/2007 of 7 June 2007 laying down requirements for the application of a flight message transfer protocol (FMTP) for information exchanges between flight data processing systems for the purpose of notification, coordination and transfer of flights between air traffic control units and for the purposes of civil-military coordination, in accordance with Regulation (EC) No 1032/2006 [Ref. Article 1(1)].

Regulation (EC) No 633/2007 applies to [Ref. Article 1(2)]:

a) Communication systems supporting the coordination procedures between air traffic control units using a peer-to-peer communication mechanism and providing services to general air traffic;
b) Communication systems supporting the coordination procedures between air traffic services units and controlling military units, using a peer-to-peer communication mechanism and providing services to general air traffic.

The terms used in this objective are defined in Article 2 of Regulation (EC) No 549/2004, complemented by Article 2 of Regulation (EC) No 633/2007.

This implementation objective has been amended in order to introduce the new optional conditional transitional arrangements defined in Regulation (EU) No 283/2011 of 22 March 2011.

NOTE: This SES-related implementation objective does not replace the EC legislation. It aims at facilitating the monitoring and reporting of the implementation of a common flight message transfer protocol in European ATM in line with the EC regulations and through the SES implementation monitoring and reporting mechanism.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area	All ECAC+ States		
Timescales:	**From:**	**By:**	**Applicable to:**
Entry into force of regulation	28/06/2007		Applicability Area
All EATMN systems put into service after 01/01/09	01/01/2009		Applicability Area
All EATMN systems in operation by 20/04/11		20/04/2011	Applicability Area
Transitional arrangements		31/12/2012	Applicability Area
Transitional arrangements when bilaterally agreed between ANSPs		31/12/2014	Applicability Area

References

European ATM Master Plan

OI step -	- No OI Link -								
	Enablers -	CTE-C06							

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Regulation (EC) No 633/2007 of 07 June 2007;
Regulation (EC) No 283/2011 of 22 March 2011 amending Regulation No 633/2007;
Commission Communication (OJ No 2007/C 188/03) concerning the implementation of Article 4 of Regulation (EC) No 552/2004 referring to EUROCONTROL Spec-0100 Edition No 2.0 as Community Specification.

Essential Operational Changes

Fully Dynamic and Optimised Airspace

SESAR Solution

- none -

ITY-FMTP	Common Flight Message Transfer Protocol (FMTP)

ICAO GANP - ASBUs

- none -	

Deployment Programme

- none -	

European Plan for Aviation Safety

- none -	

Operating Environments

Airport
En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
ITY-FMTP-ASP01	Upgrade and put into service communication systems to support information exchange via FMTP between FDPS(s) for the purpose of notification, coordination and transfer of the flights between ATC units		20/04/2011 31/12/2012 31/12/2014
ITY-FMTP-ASP02	Develop safety assessment for the changes		20/04/2011 31/12/2012 31/12/2014
ITY-FMTP-ASP03	Train technical staff		20/04/2011 31/12/2012 31/12/2014
ITY-FMTP-MIL01	Upgrade and put into service communication systems to support information exchange via FMTP between FDPS(s) for the purpose of notification, coordination, transfer of the flights and civil-military coordination between ATS units and controlling military units		20/04/2011 31/12/2012 31/12/2014

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	-
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	More cost efficient as X.25 maintenance costs are increasing while TCP/IP costs are lower.
Environment:	-
Security:	-

Detailed SLoA Descriptions

		From:	By:
ITY-FMTP-ASP01	**Upgrade and put into service communication systems to support information exchange via FMTP between FDPS(s) for the purpose of notification, coordination and transfer of the flights between ATC units**	-	20/04/2011 31/12/2012 31/12/2014
Action by:	**ANS Providers**		

ITY-FMTP	Common Flight Message Transfer Protocol (FMTP)

Description & purpose:	Ensure that the communication systems supporting the coordination procedures between ATC units using a peer-to-peer communication mechanism and providing services to general air traffic shall apply the flight message transfer protocol (FMTP). The tasks to be performed are as follows: - Define requirements based on relevant standards/regulations; - Upgrade communication systems to comply with defined requirements; - Verify compliance with Interoperability Regulation(s); - Integrate upgraded communication systems into the EATM Network; - Put into service upgraded communication systems. The application of FMTP shall be in accordance with the interoperability requirements specified in Annex I of Regulation (EC) No 633/2007. The verification of the systems shall be done as defined in Annex II and IV of Regulation (EC) No 633/2007.		
Supporting material(s):	EUROCONTROL - Guidelines for Implementation Support (EGIS) Part 5 Communication & Navigation Specifications Chapter 13 Flight Message Transfer Protocol (FMTP) - Edition 2.0 / 12/2008 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-implementation-support-egis-flight-message-transfer-protocol EUROCONTROL - EUROCONTROL Inter Centre Test Tool (ETIC) - Version 3.2.2. / 08/2012 EUROCONTROL - SPEC-100 - EUROCONTROL Specification of Interoperability and Performance Requirements for the Flight Message Transfer Protocol (FMTP) - Edition 2.0 / 06/2007 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-interoperability-and-performance-requirements-flight-message		
ATM Master Plan relationship:	[CTE-C06]-Ground ATM Data communication Network		
Finalisation criteria:	1 - Communications systems have been upgraded. 2 - The technical file (TF) with evidences of compliance and the EC declaration of verification of systems (DoV) has been delivered to the competent National Supervisory Authority (NSA). 3 - Upgraded communication systems have been put into service. 4 - Note: For states where Regulation (EC) No 552/2004 on the interoperability of the European Air Traffic Management network does not apply, ANSPs should apply compliance procedures as defined by their competent National Authority.		
ITY-FMTP-ASP02	**Develop safety assessment for the changes**	From: -	By: 20/04/2011 31/12/2012 31/12/2014
Action by:	**ANS Providers**		
Description & purpose:	Notify the NSA of planned changes and develop safety assessments of the changes for the upgrades of communication systems which support information exchange using a peer-to-peer communication mechanism via FMTP between FDPS(s). The tasks to be performed are as follows: - Notify the NSA of planned changes; - Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks; - Develop safety assessment; - Deliver a safety assessment report to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. This safety assessment shall be based on fully validated/recognised method.		
Supporting material(s):	EC - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 - (OJ L 62, 8.03.2017, p. 1) - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011 03/2017 Url : https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R0373&from=EN EUROCONTROL - Guidelines for Implementation Support (EGIS) Part 5 Communication & Navigation Specifications Chapter 13 Flight Message Transfer Protocol (FMTP) - Edition 2.0 / 12/2008 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-implementation-support-egis-flight-message-transfer-protocol EUROCONTROL - EAM 4 - ESARR 4 - Risk Assessment and Mitigation in ATM - Edition 1.0 / 04/2001 Url : https://www.eurocontrol.int/publication/esarr-4-risk-assessment-and-mitigation-atm EUROCONTROL - SPEC-100 - EUROCONTROL Specification of Interoperability and Performance Requirements for the Flight Message Transfer Protocol (FMTP) - Edition 2.0 / 06/2007 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-interoperability-and-performance-requirements-flight-message EUROCONTROL - Air Navigation Systems Safety Assessment Methodology (SAM) - Version 2.1 / 11/2006 Url : https://www.eurocontrol.int/tool/safety-assessment-methodology		

ITY-FMTP	Common Flight Message Transfer Protocol (FMTP)

Finalisation criteria:	1 - Safety assessment report including safety arguments for the changes has been submitted to the NSA.		
ITY-FMTP-ASP03	**Train technical staff**	From: -	By: 20/04/2011 31/12/2012 31/12/2014
Action by:	**ANS Providers**		
Description & purpose:	Train technical staff to supervise and maintain communication systems which support information exchange via FMTP between FDPS(s). The tasks to be done are as follows: - Develop a training package (material); - Update the training plans; - Determine staff population to be trained; - Apply the training plans.		
Supporting material(s):	EUROCONTROL - Guidelines for Implementation Support (EGIS) Part 5 Communication & Navigation Specifications Chapter 13 Flight Message Transfer Protocol (FMTP) - Edition 2.0 / 12/2008 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-implementation-support-egis-flight-message-transfer-protocol EUROCONTROL - SPEC-100 - EUROCONTROL Specification of Interoperability and Performance Requirements for the Flight Message Transfer Protocol (FMTP) - Edition 2.0 / 06/2007 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-interoperability-and-performance-requirements-flight-message		
Finalisation criteria:	1 - The training plans have been updated and a training package has been developed by the ANSP. 2 - All concerned personnel has been trained.		
ITY-FMTP-MIL01	**Upgrade and put into service communication systems to support information exchange via FMTP between FDPS(s) for the purpose of notification, coordination, transfer of the flights and civil-military coordination between ATS units and controlling military units**	From: -	By: 20/04/2011 31/12/2012 31/12/2014
Action by:	**ANS Providers**		
Description & purpose:	Ensure that the communication systems supporting the coordination procedures between ATC units and controlling military units using a peer-to-peer communication mechanism shall apply the flight message transfer protocol (FMTP). The application of FMTP shall be in accordance with the interoperability requirements specified in Annex I of Regulation (EC) No 633/2007. The verification of the systems shall be done as defined in Annex II and IV of Regulation (EC) No 633/2007. The tasks to be done are as follows: - Define requirements based on relevant standards/regulations; - Upgrade communication systems to comply with defined requirements; - Verify compliance with Interoperability Regulation(s); - Integrate upgraded communication systems into the EATM Network; - Put into service upgraded communication systems.		
Finalisation criteria:	1 - Communications systems upgraded. 2 - Demonstration of compliance with the essential requirements as laid out in Regulation (EC) No 552/2004 and relevant implementing rules delivered to the competent National Authority. 3 - Upgraded communication systems put into service.		

SES	Active								ECAC+	
NAV03.1	RNAV 1 in TMA Operations									
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

Performance-based navigation distinguishes between RNAV and RNP Specifications, both of which rely on area navigation techniques which allow aircraft to operate on any desired flight path within the coverage of station-referenced navigation aids or within the limits of the capability of self-contained aids, or a combination of these. An RNAV 1 specification includes several requirements, one being a requirement for the lateral and longitudinal total system error (TSE) to be within +/- 1NM at least 95% of the flight time.

Individual States, ANSPs, and airports will evaluate the business need for SID routes or STAR routes. Where providers of ATM/ANS have established SID or STAR, they shall implement those routes in accordance with the requirements of RNAV 1 or RNP1 specification, as applicable.

PBN Regulation (EU) 2018/1048 of 18 July 2018, does not impose obligatory establishment of SID or STAR (business decision on having SID or STAR is up to an individual stakeholder). However, the regulation does prescribe obligatory set of specifications to be complied with, where a stakeholder had decided to establish SID or STAR.

NOTE: Where higher performance requirements than RNAV 1 are required in order to maintain air traffic capacity and safety in environments with high traffic density, traffic complexity or terrain features, SIDs or STARs shall be implemented in accordance with the requirements of the RNP 1 specification. See objective NAV 03.2 for details.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (EU SES states instrument RWY ends)	All EU SES States except: Maastricht UAC
Applicability Area 2 (Other ECAC+ states' instrument RWY ends, except those already listed in Applicability Area 1.)	Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Georgia, Israel, Moldova, Morocco, North Macedonia, Serbia, Turkey, Ukraine, United Kingdom

Timescales:	**From:**	**By:**	**Applicable to:**
Initial operational capability	01/01/2001		Applicability Area 1 + Applicability Area 2
One SID and STAR per instrument RWY, where established		25/01/2024	Applicability Area 1
All SIDs and STARs per instrument RWY, where established		06/06/2030	Applicability Area 1
Locally determined number of RNAV1 SID/STAR, where established		06/06/2030	Applicability Area 2

References

European ATM Master Plan

OI step -	[AOM-0601]-Terminal Airspace Organisation Adapted through Use of Best Practice								
	Enablers -	MIL-STD-01	MIL-STD-02	PRO-021					
OI step -	- No OI Link -								
	Enablers -	CTE-N08							

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018 laying down airspace usage requirements and operating procedures concerning performance-based navigation

Essential Operational Changes

Airport and TMA performance

SESAR Solution

#62 - P-RNAV in a complex TMA

NAV03.1	RNAV 1 in TMA Operations

ICAO GANP - ASBUs

APTA-B0/2	PBN SID and STAR procedures (with basic capabilities)

Deployment Programme

- none -	

European Plan for Aviation Safety

RMT.0445	Technical requirements and operational procedures for airspace design, including flight procedure design
RMT.0639	Performance-based navigation implementation in the European air traffic management network

Operating Environments

Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
NAV03.1-REG01	Verify the transition plan for PBN in ANS provision	03/12/2020	06/06/2030
NAV03.1-ASP01	Develop an airspace concept based on RNAV 1 arrival and departure procedures	01/01/2001	06/06/2030
NAV03.1-ASP02	Provide appropriate terrestrial navigation infrastructure to support RNAV 1 operations	01/01/2001	06/06/2030
NAV03.1-ASP03	Train air traffic controllers in RNAV 1 procedures	01/01/2003	06/06/2030
NAV03.1-ASP04	Train procedure designers in RNAV 1 capabilities	**FINALISED**	
NAV03.1-ASP05	Develop and implement at least one RNAV 1 SID and RNAV 1 STAR per instrument RWY	01/01/2001	25/01/2024 06/06/2030
NAV03.1-ASP06	Publish in AIPs all co-ordinate data in WGS-84 meeting the quality requirements set out in ICAO Annex 15	**FINALISED**	
NAV03.1-ASP07	Define all RNAV procedures to be for RNAV 1 approved aircraft and designed in accordance with the EUROCONTROL guidelines and ICAO PANS OPS	**DELETED**	
NAV03.1-ASP08	Adapt ATS automated systems to ensure the availability of information regarding aircraft RNAV equipage for systematic display to relevant control positions	**FINALISED**	
NAV03.1-ASP09	Implement adaptations to ATS systems to permit the display on flight strips (and extended track labels) radar labels and/or radar position symbols, of aircraft RNAV equipage	**DELETED**	
NAV03.1-ASP10	Recommend to adapt ATS radar display systems to permit the display, on radar labels and/or radar position symbols, of aircraft RNAV equipage. Such display should be automatic. Manual updates should be possible	**DELETED**	
NAV03.1-ASP11	Develop a local RNAV 1 safety assessment	01/01/2001	06/06/2030
NAV03.1-ASP12	Establish the transition plan for PBN in ANS provision	03/12/2020	06/06/2030
NAV03.1-ASP13	Develop and implement all RNAV 1 SID and RNAV 1 STAR per instrument RWY	01/01/2001	06/06/2030
NAV03.1-USE01	Install appropriate RNAV 1 equipment	01/01/2001	31/12/2023
NAV03.1-USE02	Train flight crews in RNAV 1 TMA procedures	01/01/2001	31/12/2023

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Increased situational awareness and indirect benefit to both ATC and pilot through reduction of workload during RNAV operations.
Capacity:	-
Operational Efficiency:	Reduction in fuel burn through optimised routes and TMA procedures.
Cost Efficiency:	-
Environment:	Emissions and noise nuisance reduced by use of optimal flight procedures and routings.
Security:	-

Detailed SLoA Descriptions

NAV03.1-REG01	**Verify the transition plan for PBN in ANS provision**	From: 03/12/2020	By: 06/06/2030
Action by:	**National Supervisory Authorities (NSAs)**		

NAV03.1	RNAV 1 in TMA Operations

Description & purpose:	This SLoA is mandatory only for the States subject to Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018. Verify whether the draft transition plan, or the draft significant update thereof, complies with the requirements of PBN Implementing Regulation and in particular whether it takes account of the views of airspace users where appropriate, including those operating State aircraft. Inform the providers of ATM/ANS of the outcome of that verification without undue delay.		
	Note :This SLoA is recommended as the best practice to other ECAC+ States which are not subject to Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018.		
Finalisation criteria:	1 - The outcome of the verification has been notified to ANSP.		
NAV03.1-ASP01	**Develop an airspace concept based on RNAV 1 arrival and departure procedures**	From: 01/01/2001	By: 06/06/2030
Action by:	**ANS Providers**		
Description & purpose:	Develop an airspace concept based on RNAV 1 arrival and departure procedures with a view to providing performance benefits.		
Supporting material(s):	EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 4.0 / 04/2021 Url : https://www.eurocontrol.int/publication/airspace-concept-handbook-implementation-performance-based-navigation-pbn EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 1 - European Airspace Design Methodology - Guidelines - 2.0 / 12/2018 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-1 ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : https://store.icao.int/en/performance-based-navigation-pbn-manual-doc-9613 EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) – Annex II to EASA Decision 2018/013/R 11/2018 Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf ICAO - Doc 9992 - Manual on the Use of Performance-based Navigation (PBN) in Airspace Design - First Edition / 01/2013 Url : http://store1.icao.int/ ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011 Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/		
ATM Master Plan relationship:	[PRO-021]-ATC Procedures to facilitate the design and utilization of more noise sensitive and efficient SID/STAR routings including CDA and to integrate P-RNAV or RNAV with APV/Baro VNAV capabilities into the TMA route structure		
Finalisation criteria:	1 - An airspace concept based on RNAV 1 arrival and departure procedures has been developed.		
NAV03.1-ASP02	**Provide appropriate terrestrial navigation infrastructure to support RNAV 1 operations**	From: 01/01/2001	By: 06/06/2030
Action by:	**ANS Providers**		
Description & purpose:	Implement appropriate DME/DME Navaid Infrastructure to support nominal or non-nominal mode, dependant on the Airspace Concept at NAV03.1-ASP01. Where RNAV 1 procedures are dependent upon sufficient DME transponders being distributed geographically to allow for DME/DME navigation either in nominal or in non-nominal mode (in the absence of onboard GNSS equipment or GNSS failure), this may result in a requirement to install new DME stations and/or the relocation of existing units.		
Supporting material(s):	EUROCONTROL - GUID-114 - Guidelines for RNAV 1 Infrastructure Assessment - Edition 2.0 / 07/2021 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-rnav-1-infrastructure-assessment ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : https://store.icao.int/en/performance-based-navigation-pbn-manual-doc-9613 EUROCONTROL - Distance Measuring Equipment Tracer (DEMETER) Tool - Version 1.0.4 / 01/2012 Url : https://www.eurocontrol.int/online-tool/distance-measuring-equipment-tracer		
ATM Master Plan relationship:	[CTE-N08]-DME Ground Infrastructure optimisation		
Finalisation criteria:	1 - Infrastructure has been assessed and modified if required to meet the requirements for RNAV 1 procedures based on DME/DME procedures.		
NAV03.1-ASP03	**Train air traffic controllers in RNAV 1 procedures**	From: 01/01/2003	By: 06/06/2030
Action by:	**ANS Providers**		
Description & purpose:	Train ATCOs in RNAV capabilities and new methods of managing traffic on SID/STARs to ensure safe and expeditious operations. RNAV procedures could reduce the need for radar vectors up to the final approach point (FAP).		

NAV03.1	RNAV 1 in TMA Operations

Supporting material(s):	ICAO - Doc 8168-Volume I - Aircraft Operations - Volume I - Flight Procedures - Edition 5 / 11/2010 Url : https://store.icao.int/ ICAO - Doc 4444 - Air Traffic Management - Edition 16 / 11/2016 Url : https://store.icao.int/ ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011 Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/		
Finalisation criteria:	1 - The necessary training has been given to controllers responsible for the operation of RNAV 1 terminal procedures.		
NAV03.1-ASP05	**Develop and implement at least one RNAV 1 SID and RNAV 1 STAR per instrument RWY**	From: **Applicability Area 1:** 01/01/2001	By: **Applicability Area 1:** 25/01/2024 **Applicability Area 2:** 06/06/2030
Action by:	**ANS Providers**		
Description & purpose:	Design, develop and implement RNAV 1 arrival and departure procedures based on the airspace concept and the transition plan. Publish the procedures in the State AIP. Where SID and STAR are established, at least one RNAV 1 SID and RNAV1 STAR shall be implemented at all instrument runway ends in EU SES states by 25 January 2024.		
	Note :Note 1: Other ECAC+ States (i.e. non EU SES States) may chose to implement this SLoA by 06/06/2030.		
Supporting material(s):	EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 4.0 / 04/2021 Url : https://www.eurocontrol.int/publication/airspace-concept-handbook-implementation-performance-based-navigation-pbn ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : https://store.icao.int/en/performance-based-navigation-pbn-manual-doc-9613 EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) – Annex II to EASA Decision 2018/013/R 11/2018 Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/		
ATM Master Plan relationship:	[PRO-021]-ATC Procedures to facilitate the design and utilization of more noise sensitive and efficient SID/STAR routings including CDA and to integrate P-RNAV or RNAV with APV/Baro VNAV capabilities into the TMA route structure		
Finalisation criteria:	1 - At least one RNAV 1 SID and RNAV 1 STAR have been implemented.		
NAV03.1-ASP11	**Develop a local RNAV 1 safety assessment**	From: 01/01/2001	By: 06/06/2030
Action by:	**ANS Providers**		
Description & purpose:	Develop safety assessment of the changes related to the implementation of RNAV 1 procedures. The tasks to be done are as follows: - Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks; - Develop safety assessment; - Deliver a safety assessment report to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. This safety assessment shall be based on fully validated/recognised method.		
Supporting material(s):	EC - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 - (OJ L 62, 8.03.2017, p. 1) - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011 03/2017 Url : https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R0373&from=EN EUROCONTROL - Air Navigation Systems Safety Assessment Methodology (SAM) - Version 2.1 / 11/2006 Url : https://www.eurocontrol.int/tool/safety-assessment-methodology		
Finalisation criteria:	1 - The safety assessment report for the changes has been developed and delivered to the NSA as necessary.		
NAV03.1-ASP12	**Establish the transition plan for PBN in ANS provision**	From: 03/12/2020	By: 06/06/2030
Action by:	**ANS Providers**		

NAV03.1	RNAV 1 in TMA Operations

Description & purpose:	This SLoA is mandatory only for the States subject to Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018. Establish and implement a transition plan for using PBN. The transition plan shall be kept up-to-date. The transition plan shall be consistent with the European ATM Master Plan and the common projects referred to in Article 15a of Regulation (EC) No 550/2004 of the European Parliament and of the Council. Consult all of the following parties on the draft transition plan and the draft of any significant updates thereof and take account of their views where appropriate: a) aerodrome operators, airspace users and representative organisations of such airspace users affected by the provision of ANS services; b) the Network Manager; c) ANS providers in adjacent airspace blocks. The PBN Transition Plan will have to cover both aspects related to the navigation applications to be implemented, but also the related supporting infrastructure. Submit the results of the consultation, as well as the draft transition plan, or the draft significant update thereof, for approval to the competent authority.		
	Note :This SLoA is recommended as the best practice to other ECAC+ States which are not subject to Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018.		
Supporting material(s):	EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 4.0 / 04/2021 Url : https://www.eurocontrol.int/publication/airspace-concept-handbook-implementation-performance-based-navigation-pbn EUROCONTROL - European Route Network Improvement Plan (ERNIP) Part 1 - European Airspace Design Methodology - Guidelines - 2.0 / 12/2018 Url : https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-1 ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : https://store.icao.int/en/performance-based-navigation-pbn-manual-doc-9613 EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) – Annex II to EASA Decision 2018/013/R 11/2018 Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011 Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/		
Finalisation criteria:	0 - The draft transition plan, or the draft significant update thereof, has been submitted to the competent authority for approval		
NAV03.1-ASP13	**Develop and implement all RNAV 1 SID and RNAV 1 STAR per instrument RWY**	From: 01/01/2001	By: 06/06/2030
Action by:	**ANS Providers**		
Description & purpose:	Design, develop and implement RNAV 1 arrival and departure procedures based on the airspace concept and the transition plan. Publish the procedures in the State AIP. Where SID and STAR are established, all SID and STAR shall be RNAV 1 at all instrument runway ends by 6 June 2030.		
	Note :Other ECAC+ States (i.e. non EU SES States) may chose to implement locally determined number of RNAV1 SID/STAR per instrument RWY, where established.		
Supporting material(s):	EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 4.0 / 04/2021 Url : https://www.eurocontrol.int/publication/airspace-concept-handbook-implementation-performance-based-navigation-pbn ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : https://store.icao.int/en/performance-based-navigation-pbn-manual-doc-9613 EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) – Annex II to EASA Decision 2018/013/R 11/2018 Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/		
ATM Master Plan relationship:	[PRO-021]-ATC Procedures to facilitate the design and utilization of more noise sensitive and efficient SID/STAR routings including CDA and to integrate P-RNAV or RNAV with APV/Baro VNAV capabilities into the TMA route structure		
Finalisation criteria:	1 - All SID and STAR have been implemented as RNAV 1.		
NAV03.1-USE01	**Install appropriate RNAV 1 equipment**	From: 01/01/2001	By: 31/12/2023
Action by:	**Airspace Users**		
Description & purpose:	Install equipment meeting RNAV 1 requirements. Where existing RNAV/FMS equipment meets only B-RNAV requirements, there will be a need to update or replace the systems. Aircraft already equipped with RNAV/FMS will need to gain regulatory approval which will include operational approval for the application of the system on RNAV 1 routes.		

NAV03.1	RNAV 1 in TMA Operations

Supporting material(s):	ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : https://store.icao.int/en/performance-based-navigation-pbn-manual-doc-9613 JAA - TGL 10 Revision 1 - Airworthiness and Operational Approval for Precision RNAV Operations in Designated European Airspace 02/2005 Url : http://www.eurocontrol.int/articles/navigation-library		
ATM Master Plan relationship:	[A/C-04]-Flight management and guidance for improved lateral navigation in approach via RNP [A/C-71]-Aircraft Based Augmentation System (ABAS) for Military A/C		
Finalisation criteria:	1 - Aircraft have been certified for RNAV 1 operations.		
NAV03.1-USE02	**Train flight crews in RNAV 1 TMA procedures**	From: 01/01/2001	By: 31/12/2023
Action by:	**Airspace Users**		
Description & purpose:	Train flight crews in the application of RNAV 1 TMA procedures.		
Supporting material(s):	ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : https://store.icao.int/en/performance-based-navigation-pbn-manual-doc-9613		
Finalisation criteria:	1 - Training manuals have been updated to include RNAV TMA procedures. 2 - The aircrew has been trained accordingly. 3 - The aircrew have met the regulatory requirements for RNAV1 operations.		

SES	Active								ECAC+	
NAV03.2	RNP 1 in TMA Operations									
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

Performance-based navigation distinguishes between RNAV and RNP Specifications, both of which rely on area navigation techniques which allow aircraft to operate on any desired flight path within the coverage of station-referenced navigation aids or within the limits of the capability of self-contained aids, or a combination of these. An RNP 1 specification allows an aircraft to fly a specific path between two 3D-defined points in space; to this end, the RNP 1 specification requires a lateral performance accuracy of +/- 1NM 95% of the flight time, on-board performance monitoring, alerting capability and high integrity navigation databases.

Where ANS providers have established SID or STAR and where higher performance requirements than those of RNAV 1 are required in order to maintain air traffic capacity and safety in environments with high traffic density, traffic complexity or terrain features, they shall implement those routes in accordance with the requirements of the RNP 1 specification, including one or more of the following additional navigation functionalities:

(a) operations along a vertical path and between two fixes and with the use of:
(i) an 'AT' altitude constraint;
(ii) an 'AT or ABOVE' altitude constraint;
(iii) an 'AT or BELOW' altitude constraint;
(iv) a 'WINDOW' constraint;

(b) the radius to fix (RF) leg.

Establishment of RNP1 SID or STAR is not imposed as obligatory requirement by the PBN Regulation (EU) 2018/1048 (business decision on having SID or STAR is up to an individual stakeholder). However, the PBN regulation does prescribe obligatory set of specifications to be complied with, where a stakeholder had decided to establish SID or STAR. Individual ANSPs, airports and aircraft operators outside of the Applicability Area 1 may implement this functionality on a voluntary basis. In this case they will need to evaluate the business case for the implementation of RNP 1 procedures according to local circumstances.

NOTE 1: System improvements for controller support tools which may be required are covered by other Implementation Objectives like ATC12.1 (MTCD, conflict resolution support info and MONA), ATC02.9 (STCA) and ATC02.8 (APW).

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (EU SES states instrument RWY ends.)	All EU SES States except: Estonia, Hungary, Latvia, Maastricht UAC, Malta, Portugal, Romania
Applicability Area 2 (Other ECAC+ states instrument RWY ends, except those already listed in Applicability Area 1.)	Albania, Bosnia and Herzegovina, Israel, Moldova, Montenegro, North Macedonia, Serbia, Turkey, Ukraine, United Kingdom

Timescales:	**From:**	**By:**	**Applicable to:**
Start	07/08/2018		Applicability Area 1 + Applicability Area 2
One SID and STAR per instrument RWY, where established		25/01/2024	Applicability Area 1
All SIDs and STARs per instrument RWY, where established		06/06/2030	Applicability Area 1
Locally determined number of RNP1 SID/STAR, where established.		06/06/2030	Applicability Area 2

References

European ATM Master Plan

OI step -	[AOM-0603]-Enhanced Terminal Airspace for RNP-based Operations								
	Enablers -	APP ATC 134	CTE-N08	MIL-STD-01	MIL-STD-02	REG-0500			
OI step -	[AOM-0605]-Enhanced Terminal Operations with RNP transition to ILS/GLS/LPV								
	Enablers -	A/C-07	CTE-N01	MIL-STD-01	MIL-STD-02				

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

NAV03.2	RNP 1 in TMA Operations

COMMISSION IMPLEMENTING REGULATION (EU) 2018/1048 of 18 July 2018 laying down airspace usage requirements and operating procedures concerning performance-based navigation

Essential Operational Changes

Airport and TMA performance

SESAR Solution

#09 - Enhanced terminal operations with automatic RNP transition to ILS/GLS, #51 - Enhanced terminal operations with LPV procedures

ICAO GANP - ASBUs

APTA-B1/2	PBN SID and STAR procedures (with advanced capabilities)

Deployment Programme

- none -	

European Plan for Aviation Safety

RMT.0445	Technical requirements and operational procedures for airspace design, including flight procedure design
RMT.0639	Performance-based navigation implementation in the European air traffic management network

Operating Environments

Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
NAV03.2-REG01	Verify the transition plan for PBN in ANS provision	03/12/2020	06/06/2030
NAV03.2-ASP01	Develop an airspace concept based on designated RNP 1 arrival and departure procedures with Radius to Fix (RF)	01/01/2018	25/01/2024 06/06/2030
NAV03.2-ASP02	Where necessary, provide appropriate navigation infrastructure to support RNP 1 operations including the infrastructure required for GNSS reversion	01/01/2018	06/06/2030
NAV03.2-ASP03	Train air traffic controllers in RNP1 with Radius to Fix (RF) procedures	01/01/2018	06/06/2030
NAV03.2-ASP04	Implement at least one RNP1 SID and STAR with radius to Fix (RF), per instrument RWY	01/01/2018	25/01/2024 06/06/2030
NAV03.2-ASP05	Develop a local safety assessment	01/01/2018	06/06/2030
NAV03.2-ASP06	Establish the transition plan for PBN in ANS provision	03/12/2020	06/06/2030
NAV03.2-ASP07	Implement all RNP1 SID and STAR with radius to Fix (RF), per instrument RWY	07/08/2018	06/06/2030 06/06/2030
NAV03.2-USE01	Install appropriate RNP 1 with Radius to Fix (RF) equipment	01/01/2018	06/06/2030
NAV03.2-USE02	Train flight crews in RNP 1 TMA procedures	01/01/2018	06/06/2030

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Increased situational awareness and indirect benefit to both ATC and pilot through reduction of workload during RNP operations.
Capacity:	Increased capacity through efficient and improved systemisation of SID/STARs based on RNP 1, particularly on curved paths using Radius to Fix functionality.
Operational Efficiency:	Reduction in fuel burn and potential to reduce track miles through optimised TMA procedures using the Radius to Fix Functionality.
Cost Efficiency:	-
Environment:	Emissions and noise nuisance reduced by use of optimal flight procedures and routings.
Security:	-

Detailed SLoA Descriptions

		From:	By:
NAV03.2-REG01	**Verify the transition plan for PBN in ANS provision**	03/12/2020	06/06/2030
Action by:	**National Supervisory Authorities (NSAs)**		

NAV03.2	RNP 1 in TMA Operations

Description & purpose:	This SLoA is mandatory only for the States subject to Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018. Verify whether the draft transition plan, or the draft significant update thereof, complies with the requirements of PBN Implementing Regulation and in particular whether it takes account of the views of airspace users where appropriate, including those operating State aircraft. Inform the providers of ATM/ANS of the outcome of that verification without undue delay.		
	Note :This SLoA is recommended as the best practice to the States which are not subject to Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018.		
Supporting material(s):	EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 4.0 / 04/2021 Url : https://www.eurocontrol.int/publication/airspace-concept-handbook-implementation-performance-based-navigation-pbn ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : https://store.icao.int/en/performance-based-navigation-pbn-manual-doc-9613 EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) – Annex II to EASA Decision 2018/013/R 11/2018 Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011 Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/		
Finalisation criteria:	1 - The outcome of the verification has been notified to ANSP.		
NAV03.2-ASP01	**Develop an airspace concept based on designated RNP 1 arrival and departure procedures with Radius to Fix (RF)**	From: 01/01/2018	By: **Applicability Area 1:** 25/01/2024 **Applicability Area 2:** 06/06/2030
Action by:	**ANS Providers**		
Description & purpose:	Develop an airspace concept, including designated RNP 1 SID and STAR procedures with Radius to Fix (RF) with a view to providing performance benefits. The airspace concept is to include non-nominal operations to accommodate reversion from RNP 1 operations.		
Supporting material(s):	EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 4.0 / 04/2021 Url : https://www.eurocontrol.int/publication/airspace-concept-handbook-implementation-performance-based-navigation-pbn ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : https://store.icao.int/en/performance-based-navigation-pbn-manual-doc-9613 EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) – Annex II to EASA Decision 2018/013/R 11/2018 Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf ICAO - Doc 9992 - Manual on the Use of Performance-based Navigation (PBN) in Airspace Design - First Edition / 01/2013 Url : http://store1.icao.int/ ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011 Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/		
Finalisation criteria:	1 - An airspace concept based on RNP 1 arrival and departure procedures with Radius to Fix (RF) has been implemented.		
NAV03.2-ASP02	**Where necessary, provide appropriate navigation infrastructure to support RNP 1 operations including the infrastructure required for GNSS reversion**	From: 01/01/2018	By: 06/06/2030
Action by:	**ANS Providers**		
Description & purpose:	The RNP 1 specification requires the mandatory use of GNSS, specifically GPS. This means that the ANSPs would need to determine whether and to what extent a DME infrastructure is needed to accommodate non-nominal operations in the event of a GNSS outage requiring reversion from RNP 1 operations. Such a determination is made on the basis of several criteria, including fleet equipage with DME/DME, traffic density and complexity. This may result in a requirement to install new DME stations and/or the relocation of existing units.		
	Note :According to ICAO standards the only appropriate basis for RNP1 procedures is GNSS. For reversion a fallback to RNAV1 operations based on DME/DME is a feasible option (see NAV03.1-ASP02). The actual fallback solution has to be chosen under local considerations.		

NAV03.2	RNP 1 in TMA Operations

Supporting material(s):	EUROCONTROL - GUID-114 - Guidelines for RNAV 1 Infrastructure Assessment - Edition 2.0 / 07/2021 Url : https://www.eurocontrol.int/publication/eurocontrol-guidelines-rnav-1-infrastructure-assessment ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : https://store.icao.int/en/performance-based-navigation-pbn-manual-doc-9613 EUROCONTROL - Distance Measuring Equipment Tracer (DEMETER) Tool - Version 1.0.4 / 01/2012 Url : https://www.eurocontrol.int/online-tool/distance-measuring-equipment-tracer		
ATM Master Plan relationship:	[CTE-N01]-GPS L1/L5 [CTE-N08]-DME Ground Infrastructure optimisation		
Finalisation criteria:	1 - Infrastructure has been assessed and modified if required to meet the requirements for RNP1 procedures.		
NAV03.2-ASP03	**Train air traffic controllers in RNP1 with Radius to Fix (RF) procedures**	From: 01/01/2018	By: 06/06/2030
Action by:	**ANS Providers**		
Description & purpose:	Train ATCOs in RNP1 with radius to Fix (RF) operations and new methods of managing traffic on SID/STARs to ensure safe and expeditious operations. RNP1 with radius to Fix (RF) procedures could reduce the need for radar vectors up to the FAP.		
Supporting material(s):	ICAO - Doc 4444 - Air Traffic Management - Edition 16 / 11/2016 Url : https://store.icao.int/ ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011 Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/		
Finalisation criteria:	1 - The necessary training has been given to controllers responsible for the operation of RNP1 with Radius to Fix (RF) terminal procedures.		
NAV03.2-ASP04	**Implement at least one RNP1 SID and STAR with radius to Fix (RF), per instrument RWY**	From: 01/01/2018	By: **Applicability Area 1:** 25/01/2024 **Applicability Area 2:** 06/06/2030
Action by:	**ANS Providers**		
Description & purpose:	Where SID or STAR are established, design, develop and implement at least one RNP 1 arrival and departure procedures with Radius to Fix (RF), based on the airspace concept and the transition plan. Publish the procedures in the State AIP.		
	Note :Note 1: This SLoA is applicable only where higher performance requirements than those of RNAV 1 are required. Otherwise RNAV1 SID/STAR described in objective NAV03.1 are sufficient. Note 2: If you implement RNP1 SID and STAR with vertical paths defined by the constraints, rather than RF, please report it in the LSSIP comment to this SLoA. Note 3: The deadline of 25/01/2024 applies only to EU SES states. Other ECAC+ states have deadline 06/06/2030.		
Supporting material(s):	EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 4.0 / 04/2021 Url : https://www.eurocontrol.int/publication/airspace-concept-handbook-implementation-performance-based-navigation-pbn ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : https://store.icao.int/en/performance-based-navigation-pbn-manual-doc-9613 EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) – Annex II to EASA Decision 2018/013/R 11/2018 Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf ICAO - Doc 9992 - Manual on the Use of Performance-based Navigation (PBN) in Airspace Design - First Edition / 01/2013 Url : http://store1.icao.int/ ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011 Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/		
Finalisation criteria:	1 - RNP 1 arrival and departures with radius to Fix (RF) have been published in AIP and implemented. (If you implement RNP1 SID and STAR with vertical paths defined by the constraints, rather than RF, please report it in the LSSIP comment to this SLoA).		
NAV03.2-ASP05	**Develop a local safety assessment**	From: 01/01/2018	By: 06/06/2030
Action by:	**ANS Providers**		

NAV03.2	RNP 1 in TMA Operations

Description & purpose:	Develop safety assessment of the changes related to the implementation of RNP 1 procedures. The tasks to be done are as follows: - Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks; - Develop safety assessment; - Deliver a safety assessment report to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2. This safety assessment shall be based on fully validated/recognised method.		
Supporting material(s):	EC - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 - (OJ L 62, 8.03.2017, p. 1) - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011 03/2017 Url : https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R0373&from=EN EUROCONTROL - Air Navigation Systems Safety Assessment Methodology (SAM) - Version 2.1 / 11/2006 Url : https://www.eurocontrol.int/tool/safety-assessment-methodology		
Finalisation criteria:	1 - The safety assessment report for the changes has been developed and delivered to the NSA as necessary.		
NAV03.2-ASP06	**Establish the transition plan for PBN in ANS provision**	From: 03/12/2020	By: 06/06/2030
Action by:	**ATM Service Providers**		
Description & purpose:	This SLoA is mandatory only for the States subject to Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018. Establish and implement a transition plan for using PBN. The transition plan shall be kept up-to-date. The transition plan shall be consistent with the European ATM Master Plan and the common projects referred to in Article 15a of Regulation (EC) No 550/2004 of the European Parliament and of the Council. Consult all of the following parties on the draft transition plan and the draft of any significant updates thereof and take account of their views where appropriate: a) aerodrome operators, airspace users and representative organisations of such airspace users affected by the provision of ANS services; b) the Network Manager; c) ANS providers in adjacent airspace blocks. Submit the results of the consultation, as well as the draft transition plan, or the draft significant update thereof, for approval to the competent authority.		
	Note :This SLoA is recommended as the best practice to the States which are not subject to Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018.		
Supporting material(s):	EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 4.0 / 04/2021 Url : https://www.eurocontrol.int/publication/airspace-concept-handbook-implementation-performance-based-navigation-pbn ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : https://store.icao.int/en/performance-based-navigation-pbn-manual-doc-9613 EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) – Annex II to EASA Decision 2018/013/R 11/2018 Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf ICAO - Doc 9992 - Manual on the Use of Performance-based Navigation (PBN) in Airspace Design - First Edition / 01/2013 Url : http://store1.icao.int/ ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011 Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/		
Finalisation criteria:	1 - The draft transition plan, or the draft significant update thereof, has been submitted to the competent authority for approval.		
NAV03.2-ASP07	**Implement all RNP1 SID and STAR with radius to Fix (RF), per instrument RWY**	From: 07/08/2018	By: 06/06/2030
Action by:	**ANS Providers**		
Description & purpose:	Where SID or STAR are established design, develop and implement RNP 1 arrival and departure procedures with Radius to Fix (RF), based on the airspace concept and the transition plan. Publish the procedures in the State AIP.		
	Note :Note 1: This SLoA is applicable only where higher performance requirements than those of RNAV 1 are required. Otherwise RNAV1 SID/STAR described in objective NAV03.1 are sufficient. Note 2: If you implement RNP1 SID and STAR with vertical paths defined by the constraints, rather than RF, please report it in the LSSIP comment to this SLoA. Note 3: In the LSSIP comment field, name the airports where the implementation takes/took place.		

NAV03.2	RNP 1 in TMA Operations

Supporting material(s):	EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 4.0 / 04/2021 Url : https://www.eurocontrol.int/publication/airspace-concept-handbook-implementation-performance-based-navigation-pbn ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : https://store.icao.int/en/performance-based-navigation-pbn-manual-doc-9613 EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) – Annex II to EASA Decision 2018/013/R 11/2018 Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf ICAO - Doc 9992 - Manual on the Use of Performance-based Navigation (PBN) in Airspace Design - First Edition / 01/2013 Url : http://store1.icao.int/ ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011 Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/		
Finalisation criteria:	1 - RNP 1 arrival and departures with radius to Fix (RF) have been published in AIP and implemented.		
NAV03.2-USE01	**Install appropriate RNP 1 with Radius to Fix (RF) equipment**	From: 01/01/2018	By: 06/06/2030
Action by:	**Airspace Users**		
Description & purpose:	Install equipment meeting RNP1 requirements.		
Supporting material(s):	ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : https://store.icao.int/en/performance-based-navigation-pbn-manual-doc-9613 ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/		
ATM Master Plan relationship:	[A/C-07]-Flight management and guidance for RNP transition to ILS/GLS/LPV		
Finalisation criteria:	1 - Aircraft have been certified for both RNP 1 and Radius to Fix (RF) operations.		
NAV03.2-USE02	**Train flight crews in RNP 1 TMA procedures**	From: 01/01/2018	By: 06/06/2030
Action by:	**Airspace Users**		
Description & purpose:	Train flight crews in the application of RNP1 TMA procedures.		
Supporting material(s):	ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : https://store.icao.int/en/performance-based-navigation-pbn-manual-doc-9613		
Finalisation criteria:	1 - Training manuals have been updated to include RNP1 TMA procedures. 2 - The aircrew has been trained accordingly. 3 - The aircrew have met the regulatory requirements for RNP1 and RF transition operations.		

SES	Active								ECAC+	
NAV10	RNP Approach Procedures to instrument RWY									
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

Implement RNP Approach procedures with vertical guidance . The intention is to transition from conventional Non Precision Approach (NPA) procedures to RNP approach procedures with vertical guidance. RNP approach operations with vertical guidance using SBAS are flown to LPV minima, while the operations using Baro are flown to LNAV/VNAV minima. In addition, RNP approach operations using SBAS can be flown to LNAV/VNAV minima. The main incentive is to enhance safety but there are potential benefits in terms of reduced minima and better access to airports that do not have precision approach and landing capabilities.

This objective is in line with Regulation (EU) 2018/1048 on PBN. It also supports the Performance Based Navigation implementation and harmonisation strategy of the ICAO European Region. Individual ANSPs, airports and aircraft operators in ECAC area (in non-EU member states) should implement this functionality based on ICAO 37th Assembly resolution which recommends implementation of RNP approaches with vertical guidance to all instrument RWY ends.

At instrument runway ends where, due to terrain, obstacles or air traffic separation conditions, the implementation of RNP approach procedures to LNAV/VNAV and LPV minima is excessively difficult or not feasible, providers of ATM/ANS shall implement RNP Non-precision approach procedures (NPA) in accordance with the requirements of the RNP APCH specification, down to LNAV minima (See SLoA-ASP06 in this objective).

NOTE: The implementation of RNP approach procedures based on SBAS may be restricted by the coverage limitation of EGNOS satellite signal within the concerned airspace.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SloAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (EU SES states instrument RWY ends.)	All EU SES States except: Maastricht UAC
Applicability Area 2 (Other ECAC+ instrument RWY ends, which are not listed in Applicability Area 1.)	Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Georgia, Israel, Moldova, Montenegro, Morocco, North Macedonia, Serbia, Turkey, Ukraine, United Kingdom

Timescales:	**From:**	**By:**	**Applicable to:**
Initial operational capability	01/06/2011		Applicability Area 1 + Applicability Area 2
Instrument RWY ends without precision approach in EU SES States.		03/12/2020	Applicability Area 1
Instrument RWY ends served by precision approach.		25/01/2024	Applicability Area 1 + Applicability Area 2
Instrument RWY ends without precision approach at other ECAC+ instrument RWYs.		25/01/2024	Applicability Area 2

References

European ATM Master Plan

OI step -	[AOM-0602]-Enhanced terminal operations with APV using Barometric VNAV								
	Enablers -	A/C-04 NAV03.1	A/C-05a	CTE-N01 NAV03.2	MIL-STD-01	MIL-STD-02			
OI step -	[AOM-0604]-Enhanced terminal operations with LPV using SBAS								
	Enablers -	A/C-01	A/C-06	CTE-N01 NAV03.2	CTE-N06	CTE-N06a	MIL-STD-01	MIL-STD-02	PRO-AC-06
OI step -	- No OI Link -								
	Enablers -	CTE-N06a	CTE-N06b						

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018 laying down airspace usage requirements and operating procedures concerning performance-based navigation

Essential Operational Changes

NAV10	RNP Approach Procedures to instrument RWY

CNS Infrastructure and Services

SESAR Solution

#103 - LPV approaches using SBAS as alternative to ILS CAT I

ICAO GANP - ASBUs

APTA-B0/1	PBN Approaches (with basic capabilities)
APTA-B1/1	PBN Approaches (with advanced capabilities)
NAVS-B0/2	Satellite Based Augmentation Systems (SBAS)

Deployment Programme

- none -	

European Plan for Aviation Safety

RMT.0445	Technical requirements and operational procedures for airspace design, including flight procedure design
RMT.0639	Performance-based navigation implementation in the European air traffic management network
RMT.0643	Regular update of AMC-20

Operating Environments

Airport

Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
NAV10-REG01	Apply EASA material to local national regulatory activities	01/06/2010	25/01/2024
NAV10-REG02	Verify the transition plan for PBN in ANS provision	03/12/2020	25/01/2024
NAV10-ASP01	Design and Publish RNP approach procedures to LNAV, LNAV/VNAV and LPV minima to RWYs served by precision approach	01/06/2008	25/01/2024
NAV10-ASP02	Provide an approved SBAS Service to support APV/SBAS and declare the Service area	**FINALISED**	
NAV10-ASP03	Develop National safety case for RNP approach down to LNAV/VNAV and LPV minima	01/01/2009	25/01/2024
NAV10-ASP04	Publish in AIPs all coordinates data in WGS-84 in accordance with ICAO Annex 15 requirements and Article 14 of Regulation (EU) No 73/2010	01/01/2009	25/01/2024
NAV10-ASP05	Design and Publish RNP approach procedures to LNAV, LNAV/VNAV and LPV minima to RWYs without precision approach	07/08/2018	03/12/2020 25/01/2024
NAV10-ASP06	Design and Publish RNP non-precision (NPA) approach procedures to LNAV minima	07/08/2018	03/12/2020 25/01/2024
NAV10-ASP07	Establish the transition plan for PBN in ANS provision	03/12/2020	25/01/2024
NAV10-ASP08	At PCP airport, Design and Publish RNP approach procedures to LNAV, LNAV/VNAV and LPV minima to RWYs without precision approach	**DELETED**	
NAV10-ASP09	At PCP airport, Design and Publish RNP non-precision (NPA) approach procedures to LNAV minima	**DELETED**	
NAV10-USE01	Equip aircraft with systems approved for RNP approach down to LNAV/VNAV and/or LPV minima operations	01/04/2006	25/01/2024
NAV10-USE02	Get airworthiness certification and operational approval	01/04/2006	25/01/2024

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Reduction in Controlled Flight Into Terrain (CFIT) occurrences. Improved pilot situation awareness and reduced crew workload.
Capacity:	Potential to enhance capacity due to lower minima than can be achieved through conventional NPA.
Operational Efficiency:	Improved thanks to shortened approaches, increased flexibility in the use of runways, reduced landing minima for runways with only conventional NPAs, fallback during precision approach system outages.
Cost Efficiency:	-

NAV10	RNP Approach Procedures to instrument RWY

Environment:	Emissions and noise nuisance reduced by use of optimal flight procedures and routings and the elimination of step-down approach procedures.
Security:	-

Detailed SLoA Descriptions

NAV10-REG01	**Apply EASA material to local national regulatory activities**	From: 01/06/2010	By: 25/01/2024
Action by:	**State Authorities**		
Description & purpose:	Publish national regulatory material for RNP approach procedures based on Airworthiness Approval and Operational Criteria for RNP approach (RNP APCH) operations including LNAV/VNAV minima (EASA AMC 20-27) and Airworthiness approval and Operational criteria RNP approach (RNP APCH) Operations including LPV minima (EASA AMC 20-28).		
Supporting material(s):	EASA - AMC 20-28 - Airworthiness Approval and Operational Criteria related to Area Navigation for Global Navigation Satellite System approach operation to Localiser Performance with Vertical guidance minima using Satellite Based Augmentation System ED Decision 2009/014/R 09/2012 Url : http://www.easa.europa.eu/system/files/dfu/Annex II - AMC 20-28.pdf EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) – Annex II to EASA Decision 2018/013/R 11/2018 Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf EASA - AMC 20-27 - Airworthiness Approval and Operational Criteria for RNP APPROACH (RNP APCH) Operations Including APV BARO- NAV Operations - ED Decision 2009/019/R / 12/2009 Url : https://www.easa.europa.eu/agency-measures/docs/agency-decisions/2009/2009-019-R/Annex%20III%20-%20AMC%2020-27.pdf		
Finalisation criteria:	1 - National regulatory material for RNP approach procedures based on EASA AMC 20-27 and EASA AMC 20-28 has been published.		
NAV10-REG02	**Verify the transition plan for PBN in ANS provision**	From: 03/12/2020	By: 25/01/2024
Action by:	**National Supervisory Authorities (NSAs)**		
Description & purpose:	This SLoA is mandatory only for the States subject to Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018. Verify whether the draft transition plan, or the draft significant update thereof, complies with the requirements of PBN Implementing Regulation and in particular whether it takes account of the views of airspace users where appropriate, including those operating State aircraft. Inform the providers of ATM/ANS of the outcome of that verification without undue delay.		
	Note :This SLoA is recommended as the best practice to the States which are not subject to Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018.		
Supporting material(s):	EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 4.0 / 04/2021 Url : https://www.eurocontrol.int/publication/airspace-concept-handbook-implementation-performance-based-navigation-pbn ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : https://store.icao.int/en/performance-based-navigation-pbn-manual-doc-9613 EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) – Annex II to EASA Decision 2018/013/R 11/2018 Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf ICAO - Doc 9992 - Manual on the Use of Performance-based Navigation (PBN) in Airspace Design - First Edition / 01/2013 Url : http://store1.icao.int/ ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011 Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/		
Finalisation criteria:	1 - The outcome of the verification has been notified to ANSP.		
NAV10-ASP01	**Design and Publish RNP approach procedures to LNAV, LNAV/VNAV and LPV minima to RWYs served by precision approach**	From: 01/06/2008	By: 25/01/2024
Action by:	**ANS Providers**		
Description & purpose:	Develop RNP approach procedures at all instrument runway ends already served by precision approach, either as the primary approach or as a back-up for precision approaches except where due to terrain, obstacles or air traffic separation conditions, the implementation is not feasible. This action includes the following tasks: - Identify runways where RNP approach should be introduced; - Design RNP approach procedures; - Publish RNP approach procedures in national AIPs. At instrument runway ends without an appropriate SBAS coverage, providers of ATM/ANS shall also implement LPV minima, no later than 18 months from the date at which such appropriate SBAS coverage becomes available. Where required due to traffic density or traffic complexity, implement radius to fix (RF) legs.		

	Note : Note1: An alternative implementation option, for the case where LNAV/VNAV and LPV are not feasible, is described in SLoA-ASP06 of this objective. Note2: If RF legs are implemented due to traffic density or traffic complexity, it should be reported via LSSIP in the comment to this SLoA. Note3: The name (the list) of the aerodrome(s) where this SLoA is implemented, and the minima which was applied (i.e. LNAV/VNAV or LPV) should be reported via LSSIP in the comment field to this SLoA. Note4: This SLoA should be used to provide reports for all ECAC+ RWYs served by Precision Approach.		
Supporting material(s):	EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) – Annex II to EASA Decision 2018/013/R 11/2018 Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf ICAO - EUR-Doc 025 - EUR RNP APCH Guidance Material - Second Edition / 01/2021 Url : https://www.icao.int/EURNAT/EUR%20and%20NAT%20Documents/EUR%20Documents/EUR%20Documents/025%20-%20EUR%20RNP%20APCH%20Guidance%20Material.pdf ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/		
ATM Master Plan relationship:	[PRO-250]-Rotorcraft procedures for IFR access to VFR FATOs		
Finalisation criteria:	1 - RNP approach down to LNAV, LNAV/VNAV and LPV minima Procedures have been implemented in accordance with guidance material and published in the National AIP, and are in use.		
NAV10-ASP03	**Develop National safety case for RNP approach down to LNAV/VNAV and LPV minima**	From: 01/01/2009	By: 25/01/2024
Action by:	**ANS Providers**		
Description & purpose:	Develop a generic safety case for RNP approach down to LNAV/VNAV and/or LPV, or LNAV minima procedures developed upon the EASA AMC for RNP APCH. Identify and develop the means for mitigation of any issues requiring remedial action to ensure safety targets are met. The material will be developed in a manner, and approval sought through the appropriate bodies, that will enable cross reference to be made by States in their implementation of RNP approaches. At instrument runway ends without an appropriate SBAS coverage, providers of ATM/ANS shall also implement LPV minima, no later than 18 months from the date at which such appropriate SBAS coverage becomes available.		
Supporting material(s):	EC - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 - (OJ L 62, 8.03.2017, p. 1) - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011 03/2017 Url : https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R0373&from=EN EUROCONTROL - EAM 4 - ESARR 4 - Risk Assessment and Mitigation in ATM - Edition 1.0 / 04/2001 Url : https://www.eurocontrol.int/publication/esarr-4-risk-assessment-and-mitigation-atm EUROCONTROL - Air Navigation Systems Safety Assessment Methodology (SAM) - Version 2.1 / 11/2006 Url : https://www.eurocontrol.int/tool/safety-assessment-methodology		
Finalisation criteria:	1 - National Safety case for RNP approach down to LNAV/VNAV, LPV, and LNAV minima has been developed and submitted to the NSA.		
NAV10-ASP04	**Publish in AIPs all coordinates data in WGS-84 in accordance with ICAO Annex 15 requirements and Article 14 of Regulation (EU) No 73/2010**	From: 01/01/2009	By: 25/01/2024
Action by:	**ANS Providers**		
Description & purpose:	It is an essential requirement for RNAV/RNP procedures that all coordinates data published in AIPs, e.g. Runway Thresholds, Navigation Aids, Waypoints, etc, are surveyed with reference to the WGS84 standard. Following survey which must be undertaken in accordance with the Eurocontrol standard for WGS 84 survey (Doc 006), the data must be maintained with adequate integrity.		
Supporting material(s):	EC - REGULATION (EU) 2020/469 of 14 February 2020 - COMMISSION IMPLEMENTING REGULATION (EU) 2020/469 of 14 February 2020 amending Regulation (EU) No 923/2012, Regulation (EU) No 139/2014 and Regulation (EU) 2017/373 as regards requirements for air traffic management/air navigation services, design of airspace structures and data quality, runway safety and repealing Regulation (EC) No 73/2010. 01/2010 Url : https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32020R0469 ICAO - Doc 9674 - World Geodetic System - 1984 (WGS-84) Manual - Edition 2 / 12/2002 Url : https://store.icao.int/		
Finalisation criteria:	1 - AIP Updated accordingly		
NAV10-ASP05	**Design and Publish RNP approach procedures to LNAV, LNAV/VNAV and LPV minima to RWYs without precision approach**	From: 07/08/2018	By: **Applicability Area 1:** 03/12/2020 **Applicability Area 2:** 25/01/2024
Action by:	**ANS Providers**		

NAV10	RNP Approach Procedures to instrument RWY

Description & purpose:	Develop RNP approach procedures at all instrument runway ends without precision approach, except where due to terrain, obstacles or air traffic separation conditions, the implementation is not feasible. This action includes the following tasks: - Identify runways where RNP approach should be introduced; - Design RNP approach procedures; - Publish RNP approach procedures in national AIPs. At instrument runway ends without an appropriate SBAS coverage, providers of ATM/ANS shall also implement LPV minima, no later than 18 months from the date at which such appropriate SBAS coverage becomes available. Where required due to traffic density or traffic complexity, implement radius to fix (RF) legs.		
	Note :Note 1: For EU SES states instrument RWY without precision approach procedures, i.e. with NPA only, this SLoA shall be finalised by 03/12/2020. For other ECAC+ states (non-EU SES states), it should be implemented by 25/01/2024. Note 2: An alternative implementation option, for the case where LNAV/VNAV and LPV is not feasible, is described in SLoA-ASP06 of this objective. Note 3: If RF legs are implemented due to traffic density or traffic complexity, it should be reported via LSSIP in the comment to this SLoA. Note 4: Name (list) of the aerodrome(s) where this SLoA is implemented, and the minima which was applied (i.e. LNAV/VNAV or LPV) should be reported via LSSIP in the comment field to this SLoA.		
Supporting material(s):	EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) – Annex II to EASA Decision 2018/013/R 11/2018 Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf ICAO - EUR-Doc 025 - EUR RNP APCH Guidance Material - Second Edition / 01/2021 Url : https://www.icao.int/EURNAT/EUR%20and%20NAT%20Documents/EUR%20Documents/EUR%20Documents/025%20-%20EUR%20RNP%20APCH%20Guidance%20Material.pdf ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/		
ATM Master Plan relationship:	[PRO-250]-Rotorcraft procedures for IFR access to VFR FATOs		
Finalisation criteria:	1 - RNP approach down to LNAV, LNAV/VNAV and LPV minima Procedures have been implemented in accordance with guidance material and published in the National AIP, and are in use.		
NAV10-ASP06	**Design and Publish RNP non-precision (NPA) approach procedures to LNAV minima**	From: 07/08/2018	By: **Applicability Area 1:** 03/12/2020 **Applicability Area 2:** 25/01/2024
Action by:			
Description & purpose:	At instrument runway ends where, due to terrain, obstacles or air traffic separation conditions, the implementation of RNP approach procedures to LNAV/VNAV and LPV minima is excessively difficult or not feasible, providers of ATM/ANS shall implement RNP Non-precision approach procedures (NPA) in accordance with the requirements of the RNP APCH specification, down to LNAV minima. RWY end with only circling approach is not a subject to this SLoA and a requirement of PBN IR. This action includes the following tasks: - Identify runways where RNP approach should be introduced; - Design RNP approach procedures; - Publish RNP approach procedures in national AIPs.		
	Note :Note 1: This SLoA is alternative implementation option to the one described in SLoA-ASP01 and SLoA-ASP05 of this objective. Note 2: For EU SES states instrument RWY without precision approach procedures, i.e. with NPA only, this SLoA shall be finalised by 03/12/2020. For other ECAC+ states (non-EU SES states), it should be finalised by 25/01/2024. Note 3: As an 'instrument runway' means instrument runway adequate for straight-in approaches, and knowing that a circling is an extension of an instrument approach procedure which provides for visual circling of the aerodrome prior to landing (in other words a visual manoeuvre), RWY end with a only circling approach is not included in PBN IR. Note 4: The name (the list) of the aerodromes where this SLoA is implemented, should be reported via LSSIP in the comment field to this SLoA. Note 5: If RF legs are implemented due to traffic density or traffic complexity, report it in the comment to this SLoA.		
Supporting material(s):	EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) – Annex II to EASA Decision 2018/013/R 11/2018 Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf ICAO - EUR-Doc 025 - EUR RNP APCH Guidance Material - Second Edition / 01/2021 Url : https://www.icao.int/EURNAT/EUR%20and%20NAT%20Documents/EUR%20Documents/EUR%20Documents/025%20-%20EUR%20RNP%20APCH%20Guidance%20Material.pdf ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/		
ATM Master Plan relationship:	[PRO-250]-Rotorcraft procedures for IFR access to VFR FATOs		
Finalisation criteria:	1 - RNP non-precision approach (NPA) down to LNAV minima have been implemented in accordance with guidance material and published in the National AIP, and are in use.		
		From:	By:

NAV10-ASP07	Establish the transition plan for PBN in ANS provision	03/12/2020	25/01/2024
Action by:	**ANS Providers**		
Description & purpose:	This SLoA is mandatory only for the States subject to Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018. Establish and implement a transition plan for using PBN. The transition plan shall be kept up-to-date. The transition plan shall be consistent with the European ATM Master Plan and the common projects referred to in Article 15a of Regulation (EC) No 550/2004 of the European Parliament and of the Council. Consult all of the following parties on the draft transition plan and the draft of any significant updates thereof and take account of their views where appropriate: a) aerodrome operators, airspace users and representative organisations of such airspace users affected by the provision of ANS services; b) the Network Manager; c) ANS providers in adjacent airspace blocks. Submit the results of the consultation, as well as the draft transition plan, or the draft significant update thereof, for approval to the competent authority		
	Note :This SLoA is recommended as the best practice to the States which are not subject to Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018.		
Supporting material(s):	EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 4.0 / 04/2021 Url : https://www.eurocontrol.int/publication/airspace-concept-handbook-implementation-performance-based-navigation-pbn ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : https://store.icao.int/en/performance-based-navigation-pbn-manual-doc-9613 EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) – Annex II to EASA Decision 2018/013/R 11/2018 Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf ICAO - Doc 9992 - Manual on the Use of Performance-based Navigation (PBN) in Airspace Design - First Edition / 01/2013 Url : http://store1.icao.int/ ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011 Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/		
Finalisation criteria:	1 - The draft transition plan, or the draft significant update thereof, has been submitted to the competent authority for approval.		
NAV10-USE01	**Equip aircraft with systems approved for RNP approach down to LNAV/VNAV and/or LPV minima operations**	From: 01/04/2006	By: 25/01/2024
Action by:	**Airspace Users**		
Description & purpose:	Fit the aircraft with suitably approved equipment (Stand alone or integrated with existing FMS) as follows: - APV/Baro equipment compliant to AMC 20-27; - APV/SBAS SBAS compliant to AMC 20-28. For new or modified aircraft, the Aircraft Flight Manual (AFM) or the Pilot's Operating Handbook (POH), whichever is applicable, should be updated according to AMC 20-27 and AMC 20-28.		
Supporting material(s):	EASA - AMC 20-28 - Airworthiness Approval and Operational Criteria related to Area Navigation for Global Navigation Satellite System approach operation to Localiser Performance with Vertical guidance minima using Satellite Based Augmentation System ED Decision 2009/014/R 09/2012 Url : http://www.easa.europa.eu/system/files/dfu/Annex II - AMC 20-28.pdf FAA - AC 20-138C - Airworthiness Approval of Positioning and Navigation Systems 05/2012 Url : http://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.list/parentTopicID/101 FAA - AC 90-105 - Approval Guidance for RNP Operations and Barometric Vertical Navigation in the U.S. National Airspace System 01/2009 Url : http://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.list/parentTopicID/128 EASA - AMC 20-27 - Airworthiness Approval and Operational Criteria for RNP APPROACH (RNP APCH) Operations Including APV BARO- NAV Operations - ED Decision 2009/019/R / 12/2009 Url : https://www.easa.europa.eu/agency-measures/docs/agency-decisions/2009/2009-019-R/Annex%20III%20-%20AMC%2020-27.pdf		
ATM Master Plan relationship:	[A/C-05a]-APV Barometric VNAV [CTE-N06]-Satellite-based Augmentation System (SBAS) [CTE-N06a]-EGNOS V2.4.X [CTE-N06b]-EGNOS V3		
Finalisation criteria:	1 - Aircraft have been fitted with suitable APV/Baro equipment compliant to AMC 20-27 or APV/SBAS compliant to AMC 20-28. 2 - The AFM or the POH, whichever is applicable, have been updated according to AMC 20-27 and AMC 20-28.		
		From:	By:

NAV10	RNP Approach Procedures to instrument RWY

NAV10-USE02	Get airworthiness certification and operational approval	01/04/2006	25/01/2024
Action by:	**Airspace Users**		
Description & purpose:	Apply for approval against EASA AMC 20-27 and 20-28. The applicant needs to submit, to the competent National Authorities, a compliance statement which shows how the criteria of the AMC 20-27 and 20-28 have been satisfied.		
Supporting material(s):	EASA - AMC 20-28 - Airworthiness Approval and Operational Criteria related to Area Navigation for Global Navigation Satellite System approach operation to Localiser Performance with Vertical guidance minima using Satellite Based Augmentation System ED Decision 2009/014/R 09/2012 Url : http://www.easa.europa.eu/system/files/dfu/Annex II - AMC 20-28.pdf ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : https://store.icao.int/en/performance-based-navigation-pbn-manual-doc-9613 EASA - AMC 20-27 - Airworthiness Approval and Operational Criteria for RNP APPROACH (RNP APCH) Operations Including APV BARO- NAV Operations - ED Decision 2009/019/R / 12/2009 Url : https://www.easa.europa.eu/agency-measures/docs/agency-decisions/2009/2009-019-R/Annex%20III%20-%20AMC%2020-27.pdf ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/		
Finalisation criteria:	1 - The airworthiness and operational approval has been granted by the competent National Authorities to the operator.		

SESAR	Active								LOC	
NAV11.1	Implement precision approach procedures using GBAS CAT II based on GAST C									
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

In current ILS Cat II operations there is a need to protect the ILS critical and sensitive areas which result in restricted ground movements and extra spacing margins between aircraft in order to accommodate the longer runway occupancy times (ROT) through the need to protect the larger ILS sensitive area. At capacity constrained airports this may lead to flights being diverted or even cancelled. In addition, this is typically also associated with longer flight times, i.e. more fuel being used.

This objective proposes the use of GBAS which has limited (GBAS Local Object Consideration Areas) or no protection areas, usually located outside aircraft movement areas. This allows the reduction of runway occupancy times in low visibility conditions resulting in reduced spacing between arrival aircraft. The amount of runway throughput gained depends on wake turbulence separation and any other additional spacing needs. With a proper siting of the GBAS ground equipment (compliant with the GBAS Local Object Consideration Areas), there's no need for critical/sensitive areas.

Use of GBAS GAST C for CAT II enables:

a) flexible approaches; synergistic with RNAV/RNP, PA where ILS cannot due to geography, signal stability (immune to signal bends inherent in ILS);
b) complement ILS at airports with multiple RWYs during LVP;
c) the rationalization of some ILS thus reducing operation and maintenance costs and optimizing spectrum;
d) PA at aerodromes without SBAS coverage or where PA performances cannot be achieved with SBAS.

Benefits of using GBAS in Low Visibility Conditions include improved resilience of airport capacity with fewer flight cancellations due to LVP in force. GBAS GAST C for CAT II will enable runway ends which are not ILS CATII equipped to be used for CATII operations as long as the runway is CATII qualified. This will have positive effects on gaseous emissions, i.e. less CO2.

NOTE: The benefits mentioned are only gained if a sufficient number of aircraft are qualified; therefore, an action should be included to verify upgradeability of existing aircraft equipage, promote further airborne equipage, monitor aircraft equipage rate and qualification and assess incentives.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each Military Authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the Military Authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to MIL Authorities.

Applicability Area(s) & Timescale(s)

Applicability Area (Subject lo local need)			
Timescales:	**From:**	**By:**	**Applicable to:**
IOC used for Analytics functioning only - not for implementation planning	01/07/2022		
FOC used for Analytics functioning only - not for implementation planning		31/12/2030	

References

European ATM Master Plan

OI step -	[AO-0506]-Improve Low Visibility Operations using GLS Cat II operation based on GBAS GAST-C								
	Enablers -	A/C-56a	CTE-N07h						

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

None

Essential Operational Changes

CNS Infrastructure and Services

SESAR Solution

NAV11.1	Implement precision approach procedures using GBAS CAT II based on GAST C

#119 - GLS CAT II operations using GBAS GAST-C

ICAO GANP - ASBUs

NAVS-B1/1	Extended GBAS

Deployment Programme

- none -	

European Plan for Aviation Safety

RMT.0379	All-weather operations
RMT.0682	Implementation of the regulatory needs of the SESAR common projects

Operating Environments

Airport
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
NAV11.1-REG01	Apply EASA and ICAO material to local national regulatory activities		
NAV11.1-ASP01	Install GBAS GAST C CAT II ground equipment		
NAV11.1-ASP02	Design and Publish GBAS CAT II precision approach procedures		
NAV11.1-ASP03	Ensure the conformity assessment of GBAS GAST C CAT II ground equipment		
NAV11.1-USE01	Equip aircraft with systems approved for GBAS GAST C CAT II		
NAV11.1-USE02	Get airworthiness certification and operational approval		

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Safety of approach, landing and guided-take-off operations based on GBAS GAST C CAT II are as safe as operations based on ILS CAT II assuming the identified safety requirements are met. GBAS improves safety in the segment of avoiding a scenario of false LOC or Glide beam capture.
Capacity:	GBAS has limited (GBAS Local Object Consideration Areas) or no protection areas, usually located outside aircraft movement areas. This allows the reduction of runway occupancy times in low visibility conditions resulting in reduced spacing between arrival aircraft. The amount of runway throughput gained depends on wake turbulence separation and any other additional spacing needs.
Operational Efficiency:	Fewer flights will be cancelled or diverted saving the Airspace User (Main and Regional airliners) associated costs. To be noted that cancellations also affect the subsequent legs planned with those aircraft. Business Aviation see minimal benefits as they fly infrequently to capacity constrained airports during LVP. Avoiding the loss of runway capacity will reduce the level of delay and avoid the associated costs. A key issue is the impact of the primary delays on the subsequent legs to be performed by those aircraft which try to absorb the delay where possible. Higher glide slopes than those possible with ILS, 3.2° even in CAT II weather conditions. Many fielded avionics and ground systems are upgradeable with limited effort
Cost Efficiency:	One GBAS station can provide approaches for multiple runway end as well as multiple approaches per runway end. The GBAS station in the long term is much more cost efficient than the ILS in terms of less maintenance and flight inspection required.
Environment:	The environmental benefits come from the saving of jet fuel due to the resilience of the system in keeping its capacity even in Low Visibility Operations. Fuel savings results in direct reductions in CO2 emissions. There is also a direct benefit in term of local air quality by having less aircraft queuing on the runway for departure conditions. Noise abatement.
Security:	-

Detailed SLoA Descriptions

NAV11.1-REG01	**Apply EASA and ICAO material to local national regulatory activities**	From:	By:
		-	-
Action by:	**Regulatory Authorities**		
Description & purpose:	Publish national regulatory material for GBAS CAT II procedures based on Airworthiness Approval and Operational Criteria for GBAS CAT II (EASA AMC in preparation).		
Supporting material(s):	ICAO - NSP JWG7 WP19 - Concept for GBAS Cat II Operations using ICAO GAST-C 04/2021		
Finalisation criteria:	1 - National regulatory material for GBAS CAT II procedures.		
		From:	By:

NAV11.1	Implement precision approach procedures using GBAS CAT II based on GAST C

NAV11.1-ASP01	**Install GBAS GAST C CAT II ground equipment**	-	-
Action by:	**ANS Providers**		
Description & purpose:	Procure and install GBAS GAST C CAT II ground equipment to support the precision approach procedures based on GBAS CAT II. Perform siting and site feasibility study. Integrate GBAS GAST C CAT II ground equipment in ATC (& airport) infrastructure. Verify performance of installed GBAS GAST C CAT II ground equipment (ground testing, flight testing). Develop maintenance and training material.		
Supporting material(s):	ICAO - NSP JWG7 WP19 - Concept for GBAS Cat II Operations using ICAO GAST-C 04/2021 ICAO - Annex 10 - Aeronautical Telecommunications Url : http://store1.icao.int/ EUROCAE - ED-114B - MOPS For Global Navigation Satellite Ground Based Augmentation System Ground Equipment to support Precision Approach and Landing 09/2019 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-114b/		
ATM Master Plan relationship:	[CTE-N07]-Ground Based Augmentation System (GBAS) [CTE-N07h]-GBAS Cat II based on GAST-C Single-Constellation / Single-Frequency GNSS (GPS L1)		
Finalisation criteria:	1 - GBAS CAT GAST C II is procured, installed and flight tested.		
NAV11.1-ASP02	**Design and Publish GBAS CAT II precision approach procedures**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Develop GBAS CAT II precision approach procedures at instrument runways. This action includes the following tasks: - Identify runways where GBAS CAT II should be introduced; - Design GBAS CAT II procedures; - Provide Final Approach Segment (FAS) data for GBAS CAT II ground equipment (in EUROCAE ED-114B FAS data file format) - Publish GBAS CAT II procedures in national AIPs.		
Supporting material(s):	ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/ ICAO - EUR-Doc 013 - Guidance Material on All Weather Operations at Aerodromes Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx?RootFolder=%2FEURNAT%2FEUR%20and%20NAT%20Documents%2FEUR%20Documents%2F013%20%2D%20EUR%20Guidance%20Material%20on%20AWO%20at%20Aerodromes&FolderCTID=0x012000DAF95319EADD9946B510C5D7B595637D00AA5EB47B299B9A4BAD1968B24E18655C&View=%7B2666E7DD%2D5F4E%2D4E64%2DB16A%2DCF142A1E5BC9%7D ICAO - NSP JWG7 WP19 - Concept for GBAS Cat II Operations using ICAO GAST-C 04/2021 EUROCAE - ED-114B - MOPS For Global Navigation Satellite Ground Based Augmentation System Ground Equipment to support Precision Approach and Landing 09/2019 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-114b/		
Finalisation criteria:	1 - GBAS CAT II precision approach procedures have been implemented in accordance with guidance material and published in the National AIP, and are in operational use.		
NAV11.1-ASP03	**Ensure the conformity assessment of GBAS GAST C CAT II ground equipment**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Before putting the ground equipment into service, the ANSP shall ensure that the equipment has been subject to a declaration or certification process confirming the compliance with the appropriate regulatory requirements.		
ATM Master Plan relationship:	[CTE-N07]-Ground Based Augmentation System (GBAS) [CTE-N07h]-GBAS Cat II based on GAST-C Single-Constellation / Single-Frequency GNSS (GPS L1)		
Finalisation criteria:	1 - The appropriate declarations or certificates have been issues.		
NAV11.1-USE01	**Equip aircraft with systems approved for GBAS GAST C CAT II**	From: -	By: -
Action by:	**Airspace Users**		
Description & purpose:	Fit the aircraft with suitably approved equipment GBAS GAST C CAT II equipment compliant to EASA AMC (in preparation).		
Supporting material(s):	EASA - CRI F-27 issue 2 for CAT II operations		
ATM Master Plan relationship:	[A/C-02a]-Enhanced positioning using GBAS single frequency [A/C-56a]-Flight management and guidance for Precision Approach GBAS CATII/III using GPS L1		
Finalisation criteria:	1 - Aircraft have been fitted with suitable GBAS GAST C CAT II equipment compliant to EASA AMC (in preparation).		
NAV11.1-USE02	**Get airworthiness certification and operational approval**	From: -	By: -
Action by:	**Airspace Users**		
Description & purpose:	Apply for approval against EASA CRI F-27 issue 2 for CAT II operations. The applicant needs to submit, to the competent National Authorities, a compliance statement which shows how the criteria of the EASA CS AWO and IR OPS have been satisfied.		

NAV11.1	Implement precision approach procedures using GBAS CAT II based on GAST C

Supporting material(s):	ICAO - NSP JWG7 WP19 - Concept for GBAS Cat II Operations using ICAO GAST-C 04/2021 EUROCAE - ED-114B - MOPS For Global Navigation Satellite Ground Based Augmentation System Ground Equipment to support Precision Approach and Landing 09/2019 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-114b/
ATM Master Plan relationship:	[A/C-02a]-Enhanced positioning using GBAS single frequency [A/C-56a]-Flight management and guidance for Precision Approach GBAS CATII/III using GPS L1
Finalisation criteria:	1 - The airworthiness and operational approval has been granted by the competent National Authorities to the operator.

SESAR	Initial								LOC	
NAV11.2	Implement precision approach procedures using GBAS CAT II/III based on GPS L1 and/or GALILEO E1									
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

In current ILS Cat II/III operations there is a need to protect the ILS critical and sensitive areas which result in restricted ground movements and extra spacing margins between aircraft in order to accommodate the longer runway occupancy times (ROT) through the need to protect the larger ILS sensitive area. At capacity constrained airports this may lead to flights being diverted or even cancelled. In addition, this is typically also associated with longer flight times, i.e. more fuel being used.

This objective proposes the use of GBAS which has limited (GBAS Local Object Consideration Areas) or no protection areas, usually located outside aircraft movement areas. This allows the reduction of runway occupancy times in low visibility conditions resulting in reduced spacing between arrival aircraft. The amount of runway throughput gained depends on wake turbulence separation and any other additional spacing needs. With a proper siting of the GBAS ground equipment (compliant with the GBAS Local Object Consideration Areas), there's no need for critical/sensitive areas.

Use of GBAS CAT II/III enables:

a) flexible approaches; synergistic with RNAV/RNP, PA where ILS cannot due to geography, signal stability (immune to signal bends inherent in ILS);
b) complement ILS at airports with multiple RWYs during LVP;
c) the rationalization of some ILS thus reducing operation and maintenance costs and optimizing spectrum;
d) PA at aerodromes without SBAS coverage or where PA performances cannot be achieved with SBAS.

Benefits of using GBAS CATII/III in Low Visibility Conditions include improved resilience of airport capacity with fewer flight cancellations due to LVP in force. GBAS CATII/III will enable runway ends which are not ILS CATII/III equipped to be used for CATII/III operations as long as the runway is CATII/III qualified. This will have positive effects on gaseous emissions, i.e. less CO2.

This objective adds GALILEO single frequency operations to the basic GAST D functionality to improve availability. It is an intermediate step to achieve full Dual Frequency Multi-Constellation (DFMC) GBAS.

NOTE: The benefits mentioned are obviously only gained if a sufficient number of aircraft are equipped; therefore, an action should be included to promote airborne equipage, monitor aircraft equipage rate and assess incentives.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each Military Authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the Military Authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to MIL Authorities.

Applicability Area(s) & Timescale(s)

Applicability Area (Not yet defined)			
Timescales:	**From:**	**By:**	**Applicable to:**
IOC used for Analytics functioning only - not for implementation planning	01/07/2022		
FOC used for Analytics functioning only - not for implementation planning		31/12/2030	

References

European ATM Master Plan

OI step -	[AO-0505-A]-Improve Low Visibility Operation using GBAS Cat II/III based on GPS L1								
	Enablers -	A/C-02a	A/C-56a	CTE-N01 NAV03.2	CTE-N07	CTE-N07b			

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

None

Essential Operational Changes

NAV11.2	Implement precision approach procedures using GBAS CAT II/III based on GPS L1 and/or GALILEO E1

CNS Infrastructure and Services

SESAR Solution

#55 - Precision approaches using GBAS CATII/III

ICAO GANP - ASBUs

NAVS-B1/1	Extended GBAS

Deployment Programme

- none -	

European Plan for Aviation Safety

RMT.0682	Implementation of the regulatory needs of the SESAR common projects

Operating Environments

Airport
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
NAV11.2-REG01	Apply ICAO material to local national regulatory activities		
NAV11.2-ASP01	Install GBAS CAT II/III ground equipment		
NAV11.2-ASP02	Design and Publish GBAS CAT II/III precision approach procedures		
NAV11.2-ASP03	Ensure the conformity assessment of GBAS CAT II/III ground equipment		
NAV11.2-USE01	Equip aircraft with systems approved for GBAS CAT II/III		
NAV11.2-USE02	Get airworthiness certification and operational approval		
NAV11.2-INT01	Develop material for certification of GBAS ground facilities		

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Safety of approach, landing and guided-take-off operations based on GBAS CAT III L1 (GAST-D and D+) are as safe as operations based on ILS CAT III assuming the identified safety requirements are met. GBAS improves safety in the segment of avoiding a scenario of false LOC or Glide beam capture.
Capacity:	GBAS has limited (GBAS Local Object Consideration Areas) or no protection areas, usually located outside aircraft movement areas. This allows the reduction of runway occupancy times in low visibility conditions resulting in reduced spacing between arrival aircraft. The amount of runway throughput gained depends on wake turbulence separation and any other additional spacing needs.
Operational Efficiency:	Fewer flights will be cancelled or diverted saving the Airspace User (Main and Regional airliners) associated costs. To be noted that cancellations also affect the subsequent legs planned with those aircraft. Business Aviation see minimal benefits as they fly infrequently to capacity constrained airports during LVP. Avoiding the loss of runway capacity will reduce the level of delay and avoid the associated costs. A key issue is the impact of the primary delays on the subsequent legs to be performed by those aircraft which try to absorb the delay where possible. Higher glide slopes than those possible with ILS, 3.2° even in CAT II/III weather conditions.
Cost Efficiency:	One GBAS station can provide approaches for multiple runway end as well as multiple approaches per runway end. The GBAS station in the long term is much more cost efficient than the ILS in terms of less maintenance and flight inspection required.
Environment:	The environmental benefits come from the saving of jet fuel due to the resilience of the system in keeping its capacity even in Low Visibility Operations. Fuel savings results in direct reductions in CO2 emissions. For single runway operations there is also a direct benefit in term of local air quality by having less aircraft queuing on the runway for departure conditions. Noise abatement potentially due to higher glide slope and 2nd runway aiming point.
Security:	-

Detailed SLoA Descriptions

NAV11.2-REG01	Apply ICAO material to local national regulatory activities	From:	By:
		-	-
Action by:	**State Authorities**		
Description & purpose:	Publish national regulatory material for GBAS CAT II/III procedures based on ICAO standards. (to be developed)		

NAV11.2	Implement precision approach procedures using GBAS CAT II/III based on GPS L1 and/or GALILEO E1

Supporting material(s):	EUROCAE - ED-114B - MOPS For Global Navigation Satellite Ground Based Augmentation System Ground Equipment to support Precision Approach and Landing 09/2019 Url : https://eshop.eurocae.net/eurocae-documents-and-reports/ed-114b/		
Finalisation criteria:	1 - National regulatory material for GBAS CAT II/III procedures based on ICAO standards. (to be developed).		
NAV11.2-ASP01	**Install GBAS CAT II/III ground equipment**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Procure and install GBAS CAT II/III ground equipment to support the precision approach procedures based on GBAS CAT II/III. Perform siting and site feasibility study. Integrate GBAS CAT II/III ground equipment in ATC (& airport) infrastructure. Verify performance of installed GBAS CAT II/III ground equipment (ground testing, flight testing). Develop maintenance and training material.		
ATM Master Plan relationship:	[CTE-N07]-Ground Based Augmentation System (GBAS) [CTE-N07b]-GBAS Cat II/III based on Single-Constellation / Single-Frequency GNSS (GPS L1)		
Finalisation criteria:	1 - GBAS CAT II/III is procured, installed and flight tested.		
NAV11.2-ASP02	**Design and Publish GBAS CAT II/III precision approach procedures**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Develop GBAS CAT II/III precision approach procedures at instrument runways. This action includes the following tasks: - Identify runways where GBAS CAT II/III should be introduced; - Design GBAS CAT II/III procedures; - Provide Final Approach Segment (FAS) data for GBAS CAT II/III ground equipment (in EUROCAE ED-114B FAS data file format) - Publish GBAS CAT II/III procedures in national AIPs.		
Finalisation criteria:	1 - GBAS CAT II/III precision approach procedures have been implemented in accordance with guidance material and published in the National AIP, and are in operational use.		
NAV11.2-ASP03	**Ensure the conformity assessment of GBAS CAT II/III ground equipment**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Before putting the ground equipment into service, the ANSP shall ensure that the equipment has been subject to a declaration or certification process confirming the compliance with the appropriate regulatory requirements.		
ATM Master Plan relationship:	[CTE-N07]-Ground Based Augmentation System (GBAS) [STD-026]-ED-114B, MOPS for GBAS ground systems to support precision approach and landing (CATIII)		
Finalisation criteria:	1 - The appropriate declarations or certificates have been issues.		
NAV11.2-USE01	**Equip aircraft with systems approved for GBAS CAT II/III**	From: -	By: -
Action by:	**Airspace Users**		
Description & purpose:	Fit the aircraft with suitably approved equipment GBAS CAT II/III equipment compliant to EASA AMC XX-YY.		
ATM Master Plan relationship:	[A/C-02a]-Enhanced positioning using GBAS single frequency [A/C-56a]-Flight management and guidance for Precision Approach GBAS CATII/III using GPS L1		
Finalisation criteria:	1 - Aircraft have been fitted with suitable GBAS CAT II/III equipment compliant to EASA AMC XX-YY.		
NAV11.2-USE02	**Get airworthiness certification and operational approval**	From: -	By: -
Action by:	**Airspace Users**		
Description & purpose:	Apply for approval against EASA CS AWO and IR OPS. The applicant needs to submit, to the competent National Authorities, a compliance statement which shows how the criteria of the EASA CS AWO and IR OPS have been satisfied.		
ATM Master Plan relationship:	[A/C-02a]-Enhanced positioning using GBAS single frequency [A/C-56a]-Flight management and guidance for Precision Approach GBAS CATII/III using GPS L1		
Finalisation criteria:	1 - The airworthiness and operational approval has been granted by the competent National Authorities to the operator.		
NAV11.2-INT01	**Develop material for certification of GBAS ground facilities**	From: -	By: -
Action by:	**ICAO, EUROCAE, RTCA**		
Description & purpose:	Publish standards material for GBAS CAT II/III ground facilities approval/certification using the L1/E1 frequency.		
Finalisation criteria:	1 - Standards material for approval of GBAS CAT II/III ground facilities has been published.		

SES		Active								ECAC+
NAV12		ATS IFR Routes for Rotorcraft Operations								
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

The implementation objective is aligned to Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018 laying down requirements for PBN.

The objective describes the implementation of:

a) ATS routes for rotorcraft operations,
b) SID and STAR for rotorcraft to instrument RWYs,
c) Low-level IFR routes (LLR) for rotorcraft.

PBN Regulation (EU) 2018/1048 of 18 July 2018, does not impose obligatory establishment of ATS routes, SID or STAR for rotorcraft operations. However, the regulation does prescribe obligatory set of specifications to be complied with, where a stakeholder had decided to establish ATS routes, SID or STAR for rotorcraft operations.

Where ANSPs have established ATS routes, SID or STAR for rotorcraft operations, they shall implement those routes in accordance with the requirements of the RNP 0.3, or RNP 1, or RNAV 1 specifications. In that case, they shall be entitled to decide which of those three requirements (specifications) they comply with.

This Objective supports implementation of SESAR Solution #113 “Low-level IFR routes (LLR) for rotorcraft” which improves connectivity between the airports included into the TMA airspace and also introduces the use of "Standard PinS - Point In Space" procedures concept. The PinS procedures consist in flying under instrument flight rules (IFR) to/from a Point-In-Space in the proximity of the landing/departure site using very high accuracy (RNP0.3 or better).

The segment joining the 'PinS" and the landing/departure site (FATO - Final Approach & Take-Off areas) is flown visually. The point-in-space procedures allow an easier way to manage both traffic flows - fixed-wing aircraft and rotorcraft - at medium and large airports, simultaneously and in a non-interfering way (SNI operations). If this objective is implemented where NAV03.2 is also applied, it should be part of the airspace concept developed in SLoA NAV03.2-ASP01.

NOTE: System improvements for controller support tools which may be required are covered by other Implementation Objectives like ATC12.1 (MTCD, conflict resolution support info and MONA), ATC02.9 (STCA) and ATC02.8 (APW).

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this implementation Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area 1 (EU SES States)	Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, Greece, Ireland, Italy, Luxembourg, Norway, Poland, Slovak Republic, Spain, Switzerland
Applicability Area 2 (Other ECAC+ States not listed in Applicability Area 1)	Albania, Georgia, Moldova, North Macedonia

Timescales:	**From:**	**By:**	**Applicable to:**
Entry in force of regulation	01/08/2018		
Rotorcraft RNP0.3, RNP1 or RNAV1 ATS routes above FL150, where established.		03/12/2020	Applicability Area 1
One rotorcraft RNP0.3, RNP01 or RNAV1 SID and STAR per instrument RWY, where established.		25/01/2024	Applicability Area 1
Rotorcraft RNP0.3, RNP1 or RNAV1 ATS routes below FL150, where established.		25/01/2024	Applicability Area 1
All rotorcraft RNP0.3, RNP01 or RNAV1 SIDs and STARs per instrument RWY, where established.		06/06/2030	Applicability Area 1
IFR ATS route above/below FL150, SID and STAR for Rotorcraft Operations, where established		06/06/2030	Applicability Area 2

References

European ATM Master Plan

OI step -	[AOM-0810]-Integration into the TMA route structure of optimised Low Level IFR route network for rotorcraft using RNP-1/RNP-0.3								
	Enablers -	A/C-04b	PRO-258						

NAV12	ATS IFR Routes for Rotorcraft Operations

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018 laying down airspace usage requirements and operating procedures concerning performance-based navigation

Essential Operational Changes

Multimodal Mobility and integration of all Airspace Users

SESAR Solution

#113 - Optimised low-level instrument flight rules (IFR) routes for rotorcraft

ICAO GANP - ASBUs

APTA-B0/6	PBN Helicopter Point in Space (PinS) Operations

Deployment Programme

- none -	

European Plan for Aviation Safety

MST.031	Implementation of SESAR solutions aiming to facilitate safe IFR operations

Operating Environments

En-Route
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
NAV12-REG01	Verify the transition plan for PBN in ANS provision	03/12/2020	06/06/2030
NAV12-ASP01	Implement low-level IFR routes (LLR) for rotorcraft operations		25/01/2024 06/06/2030
NAV12-ASP02	Train air traffic controllers procedures supporting low-level IFR routes (LLR) in TMA and other routes for rotorcraft operations		06/06/2030
NAV12-ASP03	Develop a local safety assessment for the implementation of low-level IFR routes (LLR) in TMA and other ATS routes for rotorcraft operations		06/06/2030
NAV12-ASP04	Implement Rotorcraft ATS routes above FL150		03/12/2020 06/06/2030
NAV12-ASP05	Implement Rotorcraft ATS routes below FL150		25/01/2024 06/06/2030
NAV12-ASP06	Implement one rotorcraft RNP0.3, RNP01 or RNAV1 SID and STAR per instrument RWY		25/01/2024 06/06/2030
NAV12-ASP07	Implement all rotorcraft RNP0.3, RNP01 or RNAV1 SID and STAR per instrument RWY		06/06/2030 06/06/2030
NAV12-ASP08	Establish the transition plan for PBN in ANS provision	03/12/2020	06/06/2030
NAV12-USE01	Install appropriate RNP equipment		06/06/2030
NAV12-USE02	Train flight crews in RNP ATS routes		06/06/2030

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Improved through airspace de-confliction of low altitude airways. It can provide more visibility into planning of those sectors (up-stream sectors) where the ATCO is arranging the arrivals sequence.
Capacity:	The point-in-space procedures have the potential to enable an increasing of passenger throughput at medium and large airports, removing IFR rotorcraft from active runways (no low performance/low speed movements into the approach sequence to runway).

NAV12	ATS IFR Routes for Rotorcraft Operations

Operational Efficiency:	Improved through: - Reduced track mileage, resulting in less fuel consumption and associated CO2 emissions; - Enhanced transition from the en-route phase (flying the Low Level IFR routes) to the approach phase (e.g Point In Space IFR rotorcraft procedures) to the final approach and take-off area (FATO) and vice versa; - More direct routing in dense terminal airspace (obstacle-rich or noise-sensitive terminal environment).
Cost Efficiency:	-
Environment:	Reduced track mileage, resulting in less fuel consumption and associated CO2 emissions.
Security:	-

Detailed SLoA Descriptions

NAV12-REG01	**Verify the transition plan for PBN in ANS provision**	From: 03/12/2020	By: 06/06/2030
Action by:	**National Supervisory Authorities (NSAs)**		
Description & purpose:	This SLoA is mandatory only for the States subject to Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018. Verify whether the draft transition plan, or the draft significant update thereof, complies with the requirements of PBN Implementing Regulation and in particular whether it takes account of the views of airspace users where appropriate, including those operating State aircraft. Inform the providers of ATM/ANS of the outcome of that verification without undue delay.		
	Note :This SLoA is recommended as the best practice to the States which are not subject to Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018.		
Supporting material(s):	EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 4.0 / 04/2021 Url : https://www.eurocontrol.int/publication/airspace-concept-handbook-implementation-performance-based-navigation-pbn ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : https://store.icao.int/en/performance-based-navigation-pbn-manual-doc-9613 EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) – Annex II to EASA Decision 2018/013/R 11/2018 Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf ICAO - Doc 9992 - Manual on the Use of Performance-based Navigation (PBN) in Airspace Design - First Edition / 01/2013 Url : http://store1.icao.int/ ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011 Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx SJU - SESAR Solution 113: Data Pack for Optimised Low Level IFR routes for rotorcraft Url : https://www.sesarju.eu/sesar-solutions/optimised-low-level-ifr-routes-rotorcraft ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/		
Finalisation criteria:	1 - The outcome of the verification has been notified to ANSP.		
NAV12-ASP01	**Implement low-level IFR routes (LLR) for rotorcraft operations**	From: -	By: **Applicability Area 1:** 25/01/2024 **Applicability Area 2:** 06/06/2030
Action by:	**ANS Providers**		
Description & purpose:	This SLoA is focused at implementation of SESAR Solution #113 “Low-level IFR routes (LLR) for rotorcraft”. Implement IFR LLR for rotorcraft between the airports included into the TMA airspace, and also implement "Standard PinS - Point In Space" procedures concept. The LLR departure and arrival procedures should comply with normal climb and descent profiles for the operation considered and identify minimum segment altitude requirements. Where NAV03.2 is implemented, these routes should be part of the airspace concept developed in SLoA NAV03.2 - ASP01.		
	Note :Note 1: The deadline of 25/01/2024 does not apply to other ECAC+ (non-EU SES states), in LSSIP context they should not be labelled as being “Late “against this deadline. Note 2: In the context of LSSIP reporting, this SLoA may be reported, as “Not Applicable” where there is no any business need or intention to implement it. Note 3: In LSSIP reporting, the implemented PBN Specification should be listed/stated in the LSSIP comment field of this SLoA.		

Supporting material(s):	EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 4.0 / 04/2021 Url : https://www.eurocontrol.int/publication/airspace-concept-handbook-implementation-performance-based-navigation-pbn ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : https://store.icao.int/en/performance-based-navigation-pbn-manual-doc-9613 ICAO - Doc 9992 - Manual on the Use of Performance-based Navigation (PBN) in Airspace Design - First Edition / 01/2013 Url : http://store1.icao.int/ ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011 Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx SJU - SESAR Solution 113: Data Pack for Optimised Low Level IFR routes for rotorcraft Url : https://www.sesarju.eu/sesar-solutions/optimised-low-level-ifr-routes-rotorcraft ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/		
Finalisation criteria:	1 - RNP1.0 or RNP0.3 or RNAV 1 low level IFR routes in TMA have been published in AIP and implemented.		
NAV12-ASP02	**Train air traffic controllers procedures supporting low-level IFR routes (LLR) in TMA and other routes for rotorcraft operations**	From: -	By: 06/06/2030
Action by:	**ANS Providers**		
Description & purpose:	Air traffic controllers who provide ATC services where RNP 1.0 / RNP 0.3 or RNAV 1 is implemented should have completed training specific to the RNP 1.0 / RNP0.3 or RNAV 1navigation specification.		
Supporting material(s):	EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 4.0 / 04/2021 Url : https://www.eurocontrol.int/publication/airspace-concept-handbook-implementation-performance-based-navigation-pbn ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : https://store.icao.int/en/performance-based-navigation-pbn-manual-doc-9613 ICAO - Doc 4444 - Air Traffic Management - Edition 16 / 11/2016 Url : https://store.icao.int/ ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011 Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/		
Finalisation criteria:	1 - The necessary training has been given to controllers responsible for the operation of RNP 1.0/RNP 0.3 or RNAV 1.		
NAV12-ASP03	**Develop a local safety assessment for the implementation of low-level IFR routes (LLR) in TMA and other ATS routes for rotorcraft operations**	From: -	By: 06/06/2030
Action by:	**ANS Providers**		
Description & purpose:	Develop a safety study for the intended operations (which will depend on the route configuration, air traffic density and intervention capability, etc.). Horizontal separation standards are published in PANS-ATM (Doc 4444). Guidance on obstacle clearance is provided in PANS-OPS (Doc 8168, Volume II).		

Supporting material(s):	EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 4.0 / 04/2021 Url : https://www.eurocontrol.int/publication/airspace-concept-handbook-implementation-performance-based-navigation-pbn EC - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 - (OJ L 62, 8.03.2017, p. 1) - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011 03/2017 Url : https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R0373&from=EN ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : https://store.icao.int/en/performance-based-navigation-pbn-manual-doc-9613 ICAO - Doc 9992 - Manual on the Use of Performance-based Navigation (PBN) in Airspace Design - First Edition / 01/2013 Url : http://store1.icao.int/ ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011 Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx EUROCONTROL - Helicopter low level route operations in controlled and uncontrolled airspace - Edition 1.3 / 10/2019 Url : Url: https://www.eurocontrol.int/publication/helicopter-low-level-route-operations-controlled-and-uncontrolled-airspace EUROCONTROL - Helicopter point in space operations in controlled and uncontrolled airspace - Edition 1.4 / 10/2019 Url : https://www.eurocontrol.int/publication/helicopter-point-space-operations-controlled-and-uncontrolled-airspace ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/		
Finalisation criteria:	1 - Local safety assessment has been finalised and delivered to the National Supervisory Authority as necessary.		
NAV12-ASP04	**Implement Rotorcraft ATS routes above FL150**	From: -	By: **Applicability Area 1:** 03/12/2020 **Applicability Area 2:** 06/06/2030
Action by:	**ANS Providers**		
Description & purpose:	Where providers of ATM/ANS have established ATS routes above FL150, for rotorcraft operations, they shall implement those routes in accordance with the requirements of the RNP 0.3, RNP 1 or RNAV 1 specifications. The providers are entitled to decide which of those three sets of requirements (specifications) they will comply with.		
	Note :Note 1: The deadline of 03/12/2020 does not apply to other ECAC (non-EU member) states, in LSSIP context they should not be labelled as being “Late “against this deadline. Note 2: In the context of LSSIP reporting, this SLoA may be reported, as “Not Applicable” where there is no any business need or intention to implement it. Note 3: In LSSIP reporting, the implemented PBN Specification should be listed/stated in the LSSIP comment field of this SLoA.		
Supporting material(s):	EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 4.0 / 04/2021 Url : https://www.eurocontrol.int/publication/airspace-concept-handbook-implementation-performance-based-navigation-pbn ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : https://store.icao.int/en/performance-based-navigation-pbn-manual-doc-9613 EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) – Annex II to EASA Decision 2018/013/R 11/2018 Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf ICAO - Doc 9992 - Manual on the Use of Performance-based Navigation (PBN) in Airspace Design - First Edition / 01/2013 Url : http://store1.icao.int/ ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011 Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx SJU - SESAR Solution 113: Data Pack for Optimised Low Level IFR routes for rotorcraft Url : https://www.sesarju.eu/sesar-solutions/optimised-low-level-ifr-routes-rotorcraft ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/		
Finalisation criteria:	1 - RNP03, RNP1 or RNAV 1 ATS routes for rotorcraft above FL150 have been published in AIP and implemented.		
NAV12-ASP05	**Implement Rotorcraft ATS routes below FL150**	From: -	By: **Applicability Area 1:** 25/01/2024 **Applicability Area 2:** 06/06/2030

NAV12	ATS IFR Routes for Rotorcraft Operations

Action by:	**ANS Providers**		
Description & purpose:	Where providers of ATM/ANS have established ATS routes below FL150, for rotorcraft operations, they shall implement those routes in accordance with the requirements of the RNP 0.3, RNP 1 or RNAV 1 specifications. The providers are entitled to decide which of those three sets of requirements (specifications) they will comply with.		
	Note :Note 1: The deadline of 25/01/2024 does not apply to other ECAC+ (non-EU SES) states, in LSSIP context they should not be labelled as being "Late "against this deadline. Note 2: In the context of LSSIP reporting, this SLoA may be reported, as "Not Applicable" where there is no any business need or intention to implement it. Note 3: In LSSIP reporting, the implemented PBN Specification should be listed/stated in the LSSIP comment field of this SLoA.		
Supporting material(s):	EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 4.0 / 04/2021 Url : https://www.eurocontrol.int/publication/airspace-concept-handbook-implementation-performance-based-navigation-pbn ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : https://store.icao.int/en/performance-based-navigation-pbn-manual-doc-9613 EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) – Annex II to EASA Decision 2018/013/R 11/2018 Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf ICAO - Doc 9992 - Manual on the Use of Performance-based Navigation (PBN) in Airspace Design - First Edition / 01/2013 Url : http://store1.icao.int/ ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011 Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx SJU - SESAR Solution 113: Data Pack for Optimised Low Level IFR routes for rotorcraft Url : https://www.sesarju.eu/sesar-solutions/optimised-low-level-ifr-routes-rotorcraft ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/		
Finalisation criteria:	1 - RNP03, RNP1 or RNAV1 ATS routes for rotorcraft below FL150 have been published in AIP and implemented.		
NAV12-ASP06	**Implement one rotorcraft RNP0.3, RNP01 or RNAV1 SID and STAR per instrument RWY**	From: -	By: **Applicability Area 1:** 25/01/2024 **Applicability Area 2:** 06/06/2030
Action by:	**ANS Providers**		
Description & purpose:	Where SID or STAR are established for rotorcraft operations, at least one RNP03, RNP1 or RNAV 1 SID or STAR shall be implemented at all instrument runway ends by 25 January 2024.		
	Note :Note 1: The deadline of 25/01/2024 does not apply to other ECAC+ (non-EU SES) states, in LSSIP context they should not be labelled as being "Late "against this deadline. Note 2: In the context of LSSIP reporting, this SLoA may be reported, as "Not Applicable" where there is no any business need or intention to implement it. Note 3: In LSSIP reporting, the implemented PBN Specification should be listed/stated in the LSSIP comment field of this SLoA.		
Supporting material(s):	EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 4.0 / 04/2021 Url : https://www.eurocontrol.int/publication/airspace-concept-handbook-implementation-performance-based-navigation-pbn ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : https://store.icao.int/en/performance-based-navigation-pbn-manual-doc-9613 EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) – Annex II to EASA Decision 2018/013/R 11/2018 Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf ICAO - Doc 9992 - Manual on the Use of Performance-based Navigation (PBN) in Airspace Design - First Edition / 01/2013 Url : http://store1.icao.int/ ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011 Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/		
Finalisation criteria:	1 - At least one SID and STAR have been implemented per instrument RWY.		
NAV12-ASP07	**Implement all rotorcraft RNP0.3, RNP01 or RNAV1 SID and STAR per instrument RWY**	From: -	By: 06/06/2030
Action by:	**ANS Providers**		

NAV12	ATS IFR Routes for Rotorcraft Operations

Description & purpose:	Where SID or STAR are established for rotorcraft operations, all SID and STAR shall be implemented as RNP03, RNP1 or RNAV 1 at all instrument runway ends by 06 June 2030.		
	Note :Note 1: The deadline of 06/06/2030 does not apply to other ECAC+ (non-EU SES) states, in LSSIP context they should not be labelled as being "Late "against this deadline. Note 2: In the context of LSSIP reporting, this SLoA may be reported, as "Not Applicable" where there is no any business need or intention to implement it. Note 3: In LSSIP reporting, the implemented PBN Specification should be listed/stated in the LSSIP comment field of this SLoA.		
Supporting material(s):	EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 4.0 / 04/2021 Url : https://www.eurocontrol.int/publication/airspace-concept-handbook-implementation-performance-based-navigation-pbn ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : https://store.icao.int/en/performance-based-navigation-pbn-manual-doc-9613 EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) – Annex II to EASA Decision 2018/013/R 11/2018 Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf ICAO - Doc 9992 - Manual on the Use of Performance-based Navigation (PBN) in Airspace Design - First Edition / 01/2013 Url : http://store1.icao.int/ ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011 Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/		
Finalisation criteria:	1 - All SID and STAR have been implemented at all instrument RWYs.		
NAV12-ASP08	**Establish the transition plan for PBN in ANS provision**	From: 03/12/2020	By: 06/06/2030
Action by:	**ANS Providers**		
Description & purpose:	This SLoA is mandatory only for the States subject to Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018. Establish and implement a transition plan for using PBN. The transition plan shall be kept up-to-date. The transition plan shall be consistent with the European ATM Master Plan and the common projects referred to in Article 15a of Regulation (EC) No 550/2004 of the European Parliament and of the Council. Consult all of the following parties on the draft transition plan and the draft of any significant updates thereof and take account of their views where appropriate: (a) aerodrome operators, airspace users and representative organisations of such airspace users affected by the provision of ANS services; (b) the Network Manager; (c) ANS providers in adjacent airspace blocks. Submit the results of the consultation, as well as the draft transition plan, or the draft significant update thereof, for approval to the competent authority.		
	Note :Note: This SLoA is recommended as the best practice to the States which are not subject to Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018.		
Supporting material(s):	EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 4.0 / 04/2021 Url : https://www.eurocontrol.int/publication/airspace-concept-handbook-implementation-performance-based-navigation-pbn ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : https://store.icao.int/en/performance-based-navigation-pbn-manual-doc-9613 EASA - EASA Decision 2018/013/R - AMC & GM to Regulation (EU) 2018/1048 (PBN IR) – Annex II to EASA Decision 2018/013/R 11/2018 Url : https://www.easa.europa.eu/sites/default/files/dfu/Annexes%20to%20EDD%202018-013-R.pdf ICAO - Doc 9992 - Manual on the Use of Performance-based Navigation (PBN) in Airspace Design - First Edition / 01/2013 Url : http://store1.icao.int/ ICAO - Doc 7030 - Regional supplementary Procedures - Edition 5 / 07/2011 Url : https://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/		
Finalisation criteria:	1 - The draft transition plan, or the draft significant update thereof, has been submitted to the competent authority for approval.		
NAV12-USE01	**Install appropriate RNP equipment**	From: -	By: 06/06/2030
Action by:	**Airspace Users**		
Description & purpose:	Install equipment meeting operational requirements for RNP operations.		

NAV12	ATS IFR Routes for Rotorcraft Operations

Supporting material(s):	ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : https://store.icao.int/en/performance-based-navigation-pbn-manual-doc-9613 ICAO - Doc 8168-Volume II - Aircraft Operations - Volume II - Construction of Visual and Instrument Flight Procedures - Edition 5 / 11/2011 Url : https://store.icao.int/		
ATM Master Plan relationship:	[A/C-04b]-Flight management and guidance for RNP 0.3 (Category H(rotorcraft)) in all phases of flight, except final approach and initial missed approach		
Finalisation criteria:	1 - Aircraft have been fitted with suitable RNP aircraft equipment.		
NAV12-USE02	**Train flight crews in RNP ATS routes**	From:	By:
		-	06/06/2030
Action by:	**Airspace Users**		
Description & purpose:	Provide sufficient training to crew (e.g. simulator, training device, or aircraft) on the aircraft RNP system to the extent that the pilot is familiar with RNP equipment operating procedures and system-specific information.		
	Note :Operators need not establish a separate training programme if they already integrate RNAV training as an element of their training programme. However, the operator should be able to identify the aspects of RNP 0.3 operations covered within their training programme.		
Supporting material(s):	ICAO - Doc 9613 - Performance-based Navigation (PBN) Manual - Edition 4 / 03/2013 Url : https://store.icao.int/en/performance-based-navigation-pbn-manual-doc-9613		
Finalisation criteria:	1 - Training manuals have been updated to include RNP equipment operating procedures. 2 - The aircrew has been trained accordingly.		

SESAR	Active									LOC
SAF10.1	Implement measures to reduce the risk to aircraft operations caused by airspace infringements									
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

Involved aviation stakeholders should implement measures to reduce the risk to aircraft operations caused by airspace infringements. Airspace infringement occurrences include unauthorised penetration of controlled airspace (ICAO classes A to D), such as danger areas, restricted areas, prohibited areas and temporary segregated/reserved areas by all types of traffic and Aerodrome Traffic Zones.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

Applicability Area (Subject to local need)			
Timescales:	**From:**	**By:**	**Applicable to:**
IOC used for Analytics functioning only - not for implementation planning	01/07/2022		
FOC used for Analytics functioning only - not for implementation planning		31/12/2030	

References

European ATM Master Plan

OI step -	None								
	Enablers -								

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

None

Essential Operational Changes

Fully Dynamic and Optimised Airspace

SESAR Solution

- none -

ICAO GANP - ASBUs

- none -	

Deployment Programme

- none -	

European Plan for Aviation Safety

MST.016	Airspace infringement risk in General Aviation

Operating Environments

En-Route
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By

SAF10.1	Implement measures to reduce the risk to aircraft operations caused by airspace infringements

SAF10.1-REG01	Implement the appropriate parts of the European Action Plan for Airspace Infringement Risk Reduction
SAF10.1-ASP01	Implement the appropriate parts of the European Action Plan for Airspace Infringement Risk Reduction
SAF10.1-USE01	Assess and Implement the appropriate parts of the European Action Plan for Airspace Infringement Risk Reduction
SAF10.1-AIS01	Implement the appropriate parts of the European Action Plan for Airspace Infringement Risk Reduction

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Reduction of a major key risk to aircraft operations and reduction of the risk of accident/serious incident
Capacity:	Reduction in controller workload caused by airspace infringements
Operational Efficiency:	Improved Air traffic Flow
Cost Efficiency:	Reduced fuel burn caused by arrivals delay or hold
Environment:	Reduction in extra fuel burn and noise caused by flights' deviation from arrival route, delays or holdings
Security:	-

Detailed SLoA Descriptions

SAF10.1-REG01	**Implement the appropriate parts of the European Action Plan for Airspace Infringement Risk Reduction**	From: -	By: -
Action by:	**State Authorities**		
Description & purpose:	Determine which of the recommendations are relevant to the National circumstances. Create a subset of the selected relevant recommendations to be implemented at National Level and ensure that respective risk mitigation measures are being implemented.		
Supporting material(s):	EUROCONTROL - European Action Plan for Airspace Infringement Risk Reduction and Guidance Material Url : http://www.eurocontrol.int/sites/default/files/content/documents/nm/safety/european-action-plan-for-airsapce-infringement-risk-reduction.pdf EASA - European Plan for Aviation Safety 2021 – 2025, Volume III Url : https://www.easa.europa.eu/downloads/123564/en		
Finalisation criteria:	1 - A documented decision was taken on the implementation of the relevant recommendations. 2 - Relevant Stakeholders received a decision on the implementation of the relevant recommendations. 3 - The Implementation has been reported back through the appropriate mechanism.		
SAF10.1-ASP01	**Implement the appropriate parts of the European Action Plan for Airspace Infringement Risk Reduction**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	Implement the respective recommendations of European Action Plan for Airspace Infringement Risk Reduction as decided by the Regulator.		
Supporting material(s):	EUROCONTROL - European Action Plan for Airspace Infringement Risk Reduction and Guidance Material Url : http://www.eurocontrol.int/sites/default/files/content/documents/nm/safety/european-action-plan-for-airsapce-infringement-risk-reduction.pdf EASA - European Plan for Aviation Safety 2021 – 2025, Volume III Url : https://www.easa.europa.eu/downloads/123564/en		
Finalisation criteria:	1 - A decision of the Regulator on the implementation of the relevant recommendations has been received. 2 - The relevant recommendations have been implemented. 3 - The Implementation is reported back to the Regulator through the appropriate mechanism.		
SAF10.1-USE01	**Assess and Implement the appropriate parts of the European Action Plan for Airspace Infringement Risk Reduction**	From: -	By: -
Action by:	**Airspace Users**		
Description & purpose:			
Supporting material(s):	EUROCONTROL - European Action Plan for Airspace Infringement Risk Reduction and Guidance Material Url : http://www.eurocontrol.int/sites/default/files/content/documents/nm/safety/european-action-plan-for-airsapce-infringement-risk-reduction.pdf EASA - European Plan for Aviation Safety 2021 – 2025, Volume III Url : https://www.easa.europa.eu/downloads/123564/en		
Finalisation criteria:	1 - The relevant recommendations have been implemented. 2 - The Implementation is reported through the appropriate mechanism.		
SAF10.1-AIS01	**Implement the appropriate parts of the European Action Plan for Airspace Infringement Risk Reduction**	From: -	By: -
Action by:	**AIS Providers**		

SAF10.1	Implement measures to reduce the risk to aircraft operations caused by airspace infringements

Description & purpose:	Implement the respective recommendations of European Action Plan for Airspace Infringement Risk Reduction as decided by the Regulator.
Supporting material(s):	EUROCONTROL - European Action Plan for Airspace Infringement Risk Reduction and Guidance Material Url : http://www.eurocontrol.int/sites/default/files/content/documents/nm/safety/european-action-plan-for-airsapce-infringement-risk-reduction.pdf EASA - European Plan for Aviation Safety 2021 – 2025, Volume III Url : https://www.easa.europa.eu/downloads/123564/en
Finalisation criteria:	1 - A decision of the Regulator on the implementation of the relevant recommendations has been received. 2 - The relevant recommendations have been implemented. 3 - The Implementation is reported back to the Regulator through the appropriate mechanism.

SESAR		Active							LOC	
SAF11.1		Improve Runway Safety by Preventing Runway Excursions								
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

The rate and number of runway excursions worldwide remained steady in the last decade. Data show the industry has reduced the rate of commercial aviation runway excursion accidents, but the absolute num¬ber of accidents and incidents and their severity still indicate a very high risk.

In a study of incident and accident data dedicated to this action plan process, the International Air Transport Associa¬tion (IATA) reported that between 2005 and the first half of 2019, 23 percent (283) of accidents in IATA's global accident database involved a runway excursion. This was the most frequent end state, followed by gear-up landing/gear collapse (15 percent) and ground damage (12 percent).

Runway excursion risk is a complex combination of factors involving different aviation segments. To address the risk of runway excursions an industry initiative produced the Global Action Plan for the Prevention of Runway Excursions (GAPPRE), which was published in 2021. GAPPRE was developed by an international working group led by representatives from IATA, CANSO, the U.K. Civil Aviation Authority, Gulfstream, Paris Charles de Gaulle Airport and the Royal Netherlands Aerospace Centre (NLR). The work was coordinated by Flight Safety Foundation and EUROCONTROL. GAPPRE was reviewed and validated by EASA, IATA, Civil Air Navigation Services Organisation (CANSO) and Airports Council International World.

GAPPRE contains 101 consensus based recommendations that define actions beyond regulatory compliance for regulators and ICAO, aircraft manufacturers, airports, ANSPs, aircraft operators and research organisations. Additionally, GAPPRE includes guidance and explanatory material that provides further context to the targeted audience in order to facilitate the implementation of the recommendations.

GAPPRE asks organisations to which the action plan is addressed to:

• Organise a review of the respective recommendations and assess their relevance against their local conditions and specific context.
• Consult the best practices for implementing the selected recommendations and seek support, if needed, from the GAPPRE coordinating partners.
• Conduct an appropriate impact assessment (including safety assessment) when deciding on the specific action to implement the recommendations.
• Implement the specific action/change and monitor its effectiveness.
• Share the lessons learnt with the industry.

The EASA European Plan for Aviation Safety (EPAS 2022-2026) supports GAPPRE implementation/ Within the key actions for the most important risk areas for CAT aeroplanes, EPAS defines: "Promote and implement the Global Action Plans for the Prevention of Runway Incursions (GAPPRI) and Excursions (GAPPRE), in support of Regulation (EU) 2020/2148."

Applicability Area(s) & Timescale(s)

Applicability Area (Subject to local need)			
Timescales:	**From:**	**By:**	**Applicable to:**
IOC used for Analytics functioning only - not for implementation planning	01/07/2022		
FOC used for Analytics functioning only - not for implementation planning		31/12/2030	

References

European ATM Master Plan

OI step -	None								
	Enablers -								

Legend:	WXYZ-001	Covered by SLoA(s) in this objective	WXYZ-002 zzz	Covered by SLoA(s) in another objective Objective covering the enabler	WXYZ-003	Not covered in the Implementation Plan

Applicable legislation

SAF11.1	Improve Runway Safety by Preventing Runway Excursions

None

Essential Operational Changes

- none -

SESAR Solution

- none -

ICAO GANP - ASBUs

- none -	

Deployment Programme

- none -	

European Plan for Aviation Safety

MST.007	Include runway excursions in national SSPs
RMT.0570	Reduction of runway excursions
RMT.0703	Runway Safety

Operating Environments

Airport

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
SAF11.1-REG01	Assess all safety recommendations from the Global Action Plan for the Prevention of Runway Excursions for their relevance against the local conditions and specific context together with the local stakeholders		
SAF11.1-REG02	Implement the selected recommendations for regulators and monitor the Implementation of the appropriate parts of the Global Action Plan for the Prevention of Runway Excursions, selected in SAF11.1-REG01		
SAF11.1-ASP01	Assess relevant safety recommendations from the Global Action Plan for the Prevention of Runway Excursions for their relevance against the local conditions and specific context and implement the selected recommendations		
SAF11.1-APO01	Assess relevant safety recommendations from the Global Action Plan for the Prevention of Runway Excursions for their relevance against the local conditions and specific context and implement the selected recommendations		
SAF11.1-USE01	Assess relevant safety recommendations from the Global Action Plan for the Prevention of Runway Excursions for their relevance against the local conditions and specific context and implement the selected recommendations		

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety:	Significant improvement, through reduced risk of incidents and accidents on runways.
Capacity:	-
Operational Efficiency:	-
Cost Efficiency:	-
Environment:	-
Security:	-

Detailed SLoA Descriptions

SAF11.1-REG01	**Assess all safety recommendations from the Global Action Plan for the Prevention of Runway Excursions for their relevance against the local conditions and specific context together with the local stakeholders**	From: -	By: -
Action by:	**State Authorities**		
Description & purpose:	Together with the local stakeholders, organise a review and determine which of the recommendations are relevant for the local circumstances. .Create subset of the selected relevant recommendations to be implemented and monitored nationally.		

SAF11.1	Improve Runway Safety by Preventing Runway Excursions

Supporting material(s):	EUROCONTROL - GAPRE - Global Action Plan for the Prevention of Runway Excursions (GAPPRE) 05/2021 Url : https://skybrary.aero/articles/global-action-plan-prevention-runway-excursions-gappre		
Finalisation criteria:	1 - Documented explanation/decision per recommendation to implement or not.		
SAF11.1-REG02	**Implement the selected recommendations for regulators and monitor the Implementation of the appropriate parts of the Global Action Plan for the Prevention of Runway Excursions, selected in SAF11.1-REG01**	From: -	By: -
Action by:	**State Authorities**		
Description & purpose:	- Ensure that the selected recommendations for regulator are implemented. - Monitor the implementation of the selected recommendations for the local stakeholders.		
Supporting material(s):	EUROCONTROL - GAPRE - Global Action Plan for the Prevention of Runway Excursions (GAPPRE) 05/2021 Url : https://skybrary.aero/articles/global-action-plan-prevention-runway-excursions-gappre		
Finalisation criteria:	1 - Monitoring arrangements, including the local stakeholders, are established. 2 - Monitoring report addressing selected GAPPRE recommendations is published.		
SAF11.1-ASP01	**Assess relevant safety recommendations from the Global Action Plan for the Prevention of Runway Excursions for their relevance against the local conditions and specific context and implement the selected recommendations**	From: -	By: -
Action by:	**ANS Providers**		
Description & purpose:	- Review and determine which of the recommendations are relevant for the local circumstances. .Create subset of the selected relevant recommendations to be implemented and monitored. - Ensure that the selected recommendations for ANSP are implemented.		
Supporting material(s):	EUROCONTROL - GAPRE - Global Action Plan for the Prevention of Runway Excursions (GAPPRE) 05/2021 Url : https://skybrary.aero/articles/global-action-plan-prevention-runway-excursions-gappre		
Finalisation criteria:	1 - Documented explanation/decision per recommendation to implement or not. 2 - GAPPRE recommendations annual implementation report.		
SAF11.1-APO01	**Assess relevant safety recommendations from the Global Action Plan for the Prevention of Runway Excursions for their relevance against the local conditions and specific context and implement the selected recommendations**	From: -	By: -
Action by:	**Airport Operators**		
Description & purpose:	- Review and determine which of the recommendations are relevant for the local circumstances. .Create subset of the selected relevant recommendations to be implemented and monitored. - Ensure that the selected recommendations for Airport Operators are implemented.		
Supporting material(s):	EUROCONTROL - GAPRE - Global Action Plan for the Prevention of Runway Excursions (GAPPRE) 05/2021 Url : https://skybrary.aero/articles/global-action-plan-prevention-runway-excursions-gappre		
Finalisation criteria:	1 - Documented explanation/decision per recommendation to implement or not. 2 - GAPPRE recommendations annual implementation report.		
SAF11.1-USE01	**Assess relevant safety recommendations from the Global Action Plan for the Prevention of Runway Excursions for their relevance against the local conditions and specific context and implement the selected recommendations**	From: -	By: -
Action by:	**Airspace Users**		
Description & purpose:	- Review and determine which of the recommendations are relevant for the local circumstances. .Create subset of the selected relevant recommendations to be implemented and monitored. - Ensure that the selected recommendations for Airspace Users are implemented.		
Supporting material(s):	EUROCONTROL - GAPRE - Global Action Plan for the Prevention of Runway Excursions (GAPPRE) 05/2021 Url : https://skybrary.aero/articles/global-action-plan-prevention-runway-excursions-gappre EASA - European Plan for Aviation Safety 2021 – 2025, Volume III Url : https://www.easa.europa.eu/downloads/123564/en		
Finalisation criteria:	1 - Documented explanation/decision per recommendation to implement or not. 2 - GAPPRE recommendations annual implementation report.		

ANNEXES

ANNEX 1 – THE TERMINOLOGY USED IN THE MASTER PLAN LEVEL 3 IMPLEMENTATION PLAN

This Annex provides a summary of the terminology and designators used across the Master Plan Level 3 (MPL3) Implementation Plan.

The **Essential Operational Changes** (EOCs) defined in the MPL1 set out the structure of the MPL3 Plan 2022.

The main sections of the Plan feature this graphical designator, in line with the EOCs introduced in the Level 1 of the European ATM Master Plan Edition 2020.

The MPL3 Plan refers to the following **Stakeholder Group** designators:

ASP	Air Navigation Service Providers (Civil & Military)	**AGY**	EUROCONTROL Agency (non-Network Manager)
APO	Airport Operators	**INT**	International Organisations and Regional Bodies
REG	State Authorities	**IND**	Aeronautics Industry
USE	Airspace Users	**MET**	Meteorological Service Providers
AIS	Aeronautical Information Service Providers	**NM**	EUROCONTROL Network Manager

The **Key Performance Areas** (KPAs) used in this document reflect those defined in Chapter 3 "Performance View" of the Level 1 of the European ATM Master Plan Edition 2020.

The **Implementation Objective** (OI) designators consists of the acronym of the designated ATM area of work and a serial number.

AOM = Airspace Organisation and Management
AOP = Airport Operations
ATC = Air Traffic Control
COM = Communications
ENV = Environment
FCM = Flow and Capacity Management
INF = Information Management
ITY = Interoperability
NAV = Navigation
SAF = Safety Management

The Implementation Objectives set out the operational, technical and institutional improvements that contribute to meet the performance requirements for the key performance areas. They also reflect the outcomes of the Planning and Architecture level (Level 2) when it comes to the integration of operationally and technically mature operational changes, supported by common agreement for their inclusion in the plan and, where applicable, their deployment. It is the case for Objectives derived from existing (EU) Regulations in ATM, such as the Common Project One (CP1).

Implementation Objectives features **Stakeholder Lines of Action** (SLoAs) of ANSPs, National Regulators, Airport Operators, Military Authorities, Airspace Users that address the deployment and operational aspects of the functionalities described in the IO. It is important to highlight that this year's edition does not include any Objective linked to SESAR Solutions in the industrialisation phase, i.e. the V4 phase in the E-OCVM.

Outline Descriptions (ODs) are developed as a working tool to achieve expert-level consensus on the technical and operational content of the targeted implementations, their timescales and the main set of Stakeholder Lines of Action (SLoAs) which would guide the implementers through the deployment phase. ODs can be considered as embryonic Implementation Objectives and allow the experts to investigate different implementing options, while respecting the overall technical requirements expressed in the SESAR Solution.

An Implementation Objective can feature one of the following statuses:

- **Active**, fully ready for implementation and monitored in LSSIP;

- **Initial**, including elements that still require validation / commitment, therefore not yet monitored through the LSSIP+ mechanism.

The Implementation Objectives present a categorisation from a decision-making point of view:

- **Regulated**, where there is a law act (usually a EU IR) binding the concerned stakeholders to implement a specified functionality by a predefined date and within a predefined applicability area;
- **Committed**, in case stakeholders engaged through the EUROCONTROL Provisional Council to implement a functionality by an agreed date within an agreed applicability area in a coordinated manner, while there is no law act regulating these two elements.
- **Local**, when there is no commonly agreed pan-European implementation plan and Stakeholders decide whether to implement a functionality or not.

The above-mentioned classification is without prejudice to the existing SES regulatory framework in ATM (e.g. common requirements, safety, conformity assessment, etc.). Any implementation including purely local ones has to be performed taking fully into account the entire regulatory framework.

An Implementation Objective may have one of the following **Applicability Area(s)** defined as follows:

- **ECAC**, States members of the European Civil Aviation Conference + Maastricht UAC.
- **ECAC+**, ECAC States + EUROCONTROL Comprehensive Agreement States, i.e. Israel and Morocco.
- **EU+**, European Union Member States (including Maastricht UAC) + European Common Aviation Area Agreement (ECAA) States. i.e. Albania, Bosnia and Herzegovina, North Macedonia, Georgia, Montenegro, Serbia and Moldova, Norway, and Switzerland.
- **EU SES**, European Union Member States (including Maastricht UAC) + Norway and Switzerland, who signed the contractual commitment with EU to implement the SES legislation.
- **EU**, 27 Member States of the European Union.
- **30 CP1 Airports,** as identified in the CP1 Regulation: Vienna, Brussels, Prague, Berlin Brandenburg, Düsseldorf, Frankfurt am Main, Hamburg, Munich, Stuttgart, Copenhagen, Barcelona, Madrid Barajas, Málaga Costa del Sol, Palma de Mallorca, Helsinki, Lyon, Nice, Paris Charles de Gaulle, Paris Orly, Athens, Dublin, Milan Linate, Milan Malpensa, Rome Fiumicino, Amsterdam Schiphol, Warsaw, Lisbon, Stockholm Arlanda, Geneva, Zurich Kloten.

ANNEX 2 – RELEVANT MAPPINGS OF MPL3 PLAN 2022

Mapping of the L3 implementation Objectives to corresponding SESAR Essential Operational Changes, SESAR Solutions, SESAR Deployment Programme Families, ICAO ASBU, EASA EPAS, the Network Strategy Plan, the Airspace Architecture Study Transition Plan (AAS TP) Milestones and the SESAR Key Features.

Level 3 Implementation Objective	SESAR Solution	SDP Family	OI Steps/ *Enablers*	ICAO ASBUs	EPAS	NSP	AAS TP	KF
ATC21 – Composite surveillance ADS-B/WAM	#114	-	*CTE-S06, CTE-S05, CTE-S03a, CTE-S03b, CTE-S04a*	ASUR-B0/1 ASUR-B0/2	RMT.0679 RMT.0519	SO8/3 SO8/4	AM-1.17	EAI
COM10.2 – Extended AMHS	-	-	CTE-C06c	COMI-B0/7	-	SO7/4	-	EAI
COM11.1 – Voice over Internet Protocol (VoIP) in En-Route	-	-	*CTE-C05a* *CTE-C05b*	COMI-B2/1	-	SO8/4	AM-1.3	EAI
COM11.2 – Voice over Internet Protocol (VoIP) in Airport/Terminal	-	-	*CTE-C05a* *CTE-C05b*	COMI-B2/1	-	SO8/4	-	EAI
COM13 – Air Traffic Services (ATS) datalink using SatCom Class B	#109	-	POI-0018-COM	COMI-B1/3	-	-	AM-1.16	EAI
ITY-ACID – Aircraft identification	-	-	*GSURV-0101*	-	-	SO8/2	-	EAI
ITY-AGDL – Initial ATC air-ground data link services	-	-	AUO-0301	COMI-B0/4 COMI-B1/2	RMT.0524	SO4/1 SO8/3	AM-1.1	EAI
ITY-AGVCS2 – 8.33 kHz Air-Ground Voice Channel Spacing below FL195	-	-	*CTE-C01a*	-	-	SO8/1	-	EAI
NAV10 – RNP Approach Procedures to instrument RWY	#103	-	AOM-0602 AOM-0604 CTE-N06a CTE-N06b	APTA-B0/1 APTA-B1/1 NAVS-B0/2	RMT.0445 RMT.0643	SO6/5	-	AATS

CNS infrastructure and services

Level 3 Implementation Objective	SESAR Solution	SDP Family	OI Steps/ *Enablers*	ICAO ASBUs	EPAS	NSP	AAS TP	KF
NAV11.2 – Implement precision approach procedures using GBAS CAT II/III based on GPS L1 and/or GALILEO E1	#55	-	AO-0505-A	NAVS-B1/1	RMT.0682	-	-	HPAO

iN ATM interconnected network

Level 3 Implementation Objective	SESAR Solution	SDP Family	OI Steps/*Enablers*	ICAO ASBUs	EPAS	NSP	AAS TP	KF
AOM13.1 – Harmonise OAT and GAT handling	-	-	AOM-0301 AOM-0303	-	-	SO6/2	-	OANS
AOP11.1 – Initial Airport Operations Plan	#21	2.2.1	AO-0801-A	ACDM-B1/1	-	SO6/2	-	HPAO
AOP11.2 – Extended Airport Operations Plan	#21	2.2.2	AO-0801-A, AO-0802-A, AO-0803, DCB-0310	ACDM-B1/1	-	SO5/2	-	HPAO
AOP17 – Provision/integration of DPI to NMOC	#61	-	DCB-0304	NOPS-B0/4	-	-	-	HPAO
COM12 – NewPENS	-	-	*CTE-C06b*	COMI-B1/1	-	SO2/3, SO2/4, SO8/3, SO8/4	-	EAI
FCM03 – Collaborative flight planning	-	-	IS-0102	NOPS-B0/2	-	SO4/3	AM-1.14	OANS
FCM04.2 – Enhanced Short Term ATFCM Measures	#17	4.1.1	DCB-0308	NOPS-B1/1	-	SO4/5	AM-1.11	OANS

Level 3 Implementation Objective	SESAR Solution	SDP Family	OI Steps/*Enablers*	ICAO ASBUs	EPAS	NSP	AAS TP	KF
FCM06.1 – Automated Support for Traffic Complexity Assessment and Flight Planning interfaces	#19 PJ.18-02c	4.3.1	CM-0101 CM-0103-A IS-0102	NOPS-B0/2 NOPS-B1/4	-	SO4/3 SO4/5	AM-1.13	OANS
FCM10 – Interactive rolling NOP	#18 #20	4.2.1	DCB-0102	NOPS-B1/2 NOPS-B1/9	-	SO2/2, SO4/2, SO4/5	AM-1.9 AM-1.12	OANS
FCM11.1 – Initial AOP/NOP Information Sharing	#20 #21	4.2.2	DCB-0103-A AO-0801-A	NOPS-B0/4	-	SO4/4, SO4/5, SO5/2	AM-1.12	OANS
FCM11.2 – AOP/NOP integration	#18 #20 #21	4.4.1	AO-0801–A, AO-0802–A, AO-0803, DCB-0310, DCB-0103-A, DCB-0208	NOPS-B1/3	-	SO4/4, SO4/5, SO5/2	AM-1.12	OANS
INF10.2 – Stakeholders' SWIM PKI and cyber security	#46	5.2.1	IS-0901-A	SWIM-B2/3	RMT.0720	SO2/4	AM-1.5	EAI
INF10.3 – Aeronautical Information Exchange - Airspace structure service	#46	5.3.1	IS-0901-A	-	-	SO2/4	AM-1.5	EAI
INF10.4 – Aeronautical Information Exchange - Airspace availability service	#46	5.3.1	IS-0901-A	-	-	SO2/4	AM-1.5	EAI
INF10.5 – Aeronautical Information Exchange - Airspace Reservation (ARES) service	#46	5.3.1	IS-0901-A	-	-	SO2/4	AM-1.5	EAI
INF10.6 – Aeronautical Information Exchange - Digital NOTAM service	#34 #46	5.3.1	IS-0901-A IS-0205	-	-	SO2/4	AM-1.5	EAI
INF10.7 – Aeronautical Information Exchange -	#34 #46	5.3.1	IS-0901-A IS-0205	-	-	SO2/4	AM-1.5	EAI

Level 3 Implementation Objective	SESAR Solution	SDP Family	OI Steps/*Enablers*	ICAO ASBUs	EPAS	NSP	AAS TP	KF
Aerodrome Mapping information exchange service								
INF10.8 – Aeronautical Information Exchange - Aeronautical Information Features service	#34 #46	5.3.1	IS-0901-A IS-0205	-	-	SO2/4	AM-1.5	EAI
INF10.9 – Meteorological Information Exchange - Volcanic ash concentration service	#34 #35 #46	5.4.1	IS-0901-A IS-0205 MET-0101	-	-	SO2/4	AM-1.5	EAI
INF10.10 – Meteorological Information Exchange - Aerodrome Meteorological information Service	#34 #35 #46	5.4.1	IS-0901-A IS-0205 MET-0101	-	-	SO2/4	AM-1.5	EAI
INF10.11 – Meteorological Information Exchange - En-Route and Approach Meteorological information service	#34 #35 #46	5.4.1	IS-0901-A IS-0205 MET-0101	-	-	SO2/4	AM-1.5	EAI
INF10.12 – Meteorological Information Exchange - Network Manager Meteorological Information	#34 #35 #46	5.4.1	IS-0901-A IS-0205 MET-0101	-	-	SO2/4	AM-1.5	EAI
INF10.13 – Cooperative Network Information Exchange - ATFCM Tactical Updates Service	#46	5.5.1	IS-0901-A	-	-	SO2/4	AM-1.5	EAI
INF10.14 – Cooperative Network Information Exchange - Flight Management Service	#46	5.5.1	IS-0901-A	-	-	SO2/4 SO5/2	AM-1.5	EAI
INF10.15 – Cooperative Network Information Exchange - Measures Service	#46	5.5.1	IS-0901-A	-	-	SO2/4 SO4/5	AM-1.5	EAI

Level 3 Implementation Objective	SESAR Solution	SDP Family	OI Steps/*Enablers*	ICAO ASBUs	EPAS	NSP	AAS TP	KF
INF10.16 – Cooperative Network Information Exchange - Short Term ATFCM Measures services	#46	5.5.1	IS-0901-A	-	-	SO2/4 SO4/5	AM-1.5	EAI
INF10.17 – Cooperative Network Information Exchange - Counts service	#46	5.5.1	IS-0901-A	-	-	SO2/4	AM-1.5	EAI
INF10.18 – Flight Information Exchange -Filing Service	#46	5.6.1	AUO-0207	FICE-B2/2	-	SO2/4	AM-1.5	EAI
INF10.19 – Flight Information Exchange - Flight Data Request Service	#46	5.6.1	AUO-0207	FICE-B2/4	-	SO2/4	AM-1.5	EAI
INF10.20 – Flight Information Exchange - Notification Service	#46	5.6.1	AUO-0207	FICE-B2/5	-	SO2/4	AM-1.5	EAI
INF10.21 – Flight Information Exchange - Publication Service	#46	5.6.1	AUO-0207	FICE-B2/6	-	SO2/4	AM-1.5	EAI
INF10.22 – Flight Information Exchange - Trial Service	#46	5.6.1	AUO-0219	FICE-B2/3	-	SO2/4	AM-1.5	EAI
INF10.23 – Flight Information Exchange - Extended AMAN SWIM Service	#46	5.6.1	AUO-0207	DAIM-B2/1 SWIM-B3/1	-	SO2/4	AM-1.5	EAI

dS Digital AIM and MET services

Level 3 Implementation Objective	SESAR Solution	SDP Family	OI Steps/*Enablers*	ICAO ASBUs	EPAS	NSP	AAS TP	KF
INF07 – Electronic Terrain and Obstacle Data (e-TOD)	-	-	*AIMS-16*	DAIM-B1/3 DAIM-B1/4	RMT.0703 RMT.0722	SO2/5	-	EAI
INF11.1 – Enhanced Ground Weather Management System (GWMS) as local 4DWxCube	PJ.18-04b-01	-	POI-0044-MET	-	-	-	-	-
INF11.2 – Cb-global capability and service	PJ.18-04b-02	-	POI-0048-MET	-	-	-	-	-

ATp Airport and TMA performance

Level 3 Implementation Objective	SESAR Solution	SDP Family	OI Steps/*Enablers*	ICAO ASBUs	EPAS	NSP	AAS TP	KF
AOP04.1 – A-SMGCS Surveillance Service (former ICAO Level 1)	#70 #110	-	AO-0201 AO-0201-A POI-0071-SUR	SURF-B0/2	MST.0029	SO6/6	-	HPAO
AOP04.2 – A-SMGCS RMCA (former ICAO Level 2)	-	-	AO-0102	SURF-B0/3	MST.0029	SO6/6	-	HPAO
AOP05 – Airport CDM	-	-	AO-0501, AO-0601, AO-0602, AO-0603, TS-0201	ACDM-B0/1 ACDM-B0/2 NOPS-B0/4	-	SO6/4	-	HPAO
AOP10 – Time Based Separation	#64	-	AO-0303	WAKE-B2/7	-	SO6/5	-	HPAO
AOP12.1 – Airport Safety Nets	#02	2.3.1	AO-0104-A	SURF-B1/3	MST.0029	SP6/6	-	HPAO

Level 3 Implementation Objective	SESAR Solution	SDP Family	OI Steps/*Enablers*	ICAO ASBUs	EPAS	NSP	AAS TP	KF
AOP13 – Automated assistance to Controller for Surface Movement planning and routing	#22 #53	-	AO-0205 TS-0202	SURF-B1/4	MST.0029	SO6/6	-	HPAO
AOP15 – Safety Nets for vehicle drivers	#04	-	AO-0105 AO-0204	SURF-B2/2	MST.0029	-	-	HPAO
AOP16 – Guidance assistance through airfield lighting	#47	-	AO-0222-A	SURF-B1/1	MST.0029	-	-	HPAO
AOP18 – Runway Status Lights	#01	-	AO-0209	SURF-B2/2, SURF-B2/3-	MST.0029	-	-	HPAO
AOP19 – Departure Management Synchronised with Pre-departure sequencing	#53 #106	2.1.1	AO-0602 TS-0201	RSEQ-B0/2	-		-	HPAO
AOP20 – Wake Turbulence Separations for Departures based on Static Aircraft Characteristics (S-PWS-D)	PJ.02-01-06	-	AO-0323		RMT.0476		-	HPAO
AOP21 – Wake Turbulence Separations for Arrivals based on Static Aircraft Characteristics (S-PWS-A)	PJ.02-01-04	-	AO-0306		RMT.0476		-	HPAO
AOP22 – Minimum pair separations based on SRP	PJ.02-03	-	AO-0309	-	-		-	HPAO
AOP23 – Integrated runway sequence for full traffic optimization on single and multiple runway airports	PJ.02-08-01	-	TS-0301	RSEQ-B2/1	-		-	HPAO

Level 3 Implementation Objective	SESAR Solution	SDP Family	OI Steps/*Enablers*	ICAO ASBUs	EPAS	NSP	AAS TP	KF
AOP24 – Optimised use of runway configuration for multiple runway airports	PJ.02-08-02	-	TS-0313		-		-	HPAO
AOP25 – De-icing Management Tool	#116	-	POI-0070-AO	-	-	-	-	HPAO
AOP26 – Reduced separation based on local Runway Occupancy Time (ROT) characterisation	PJ.02-08-03	-	AO-0337	-	-	-	-	-
ATC07.1 – Arrival management tools	-	-	TS-0102	RSEQ-B0/1	-	SO4/1	-	AATS
ATC19 – Enhanced AMAN-DMAN integration	#54	1.2.1	TS-0308	RSEQ-B2/1	-	SO6/5 SO4/1	-	AATS
ATC26 – Point Merge in complex TMA	#107	-	AOM-0601	RSEQ-B0/3	-	-	-	AATS
ENV01 – Continuous Descent Operations	#11	-	AOM-0701 AOM-0702-A	APTA-B0/4 APTA-B1/4	-	SO6/5	-	AATS
ENV02 – Airport Collaborative Environmental Management	-	-	AO-0703, AO-0705, AO-0706	-	-	-	-	HPAO
ENV03 – Continuous Climb Operations	-	-	AOM-0703	APTA-B0/5 APTA-B1/5	-	SO6/5	-	AATS
NAV03.1 – RNAV1 in TMA Operations	#62	-	AOM-0601 *CTE-N08*	APTA-B0/2	RMT.0445	SO6/5	-	AATS
NAV03.2 – RNP1 in TMA Operations	#09 #51	-	AOM-0603 AOM-0605	APTA-B1/2	RMT.0445	SO6/5	-	AATS
NAV11.1 – GLS CAT II operations using GBAS GAST-C	#119	-	AO-0506	NAVS-B1/1	RMT.0682 RMT.379	-	-	HPAO

ATp Airport and TMA performance

Level 3 Implementation Objective	SESAR Solution	SDP Family	OI Steps/*Enablers*	ICAO ASBUs	EPAS	NSP	AAS TP	KF
SAF11.1 – Improve runway safety by preventing runway excursions	-	-	-	-	-	-	-	HPAO

dA Fully dynamic and optimised airspace

Level 3 Implementation Objective	SESAR Solution	SDP Family	OI Steps/*Enablers*	ICAO ASBUs	EPAS	NSP	AAS TP	KF
AOM19.4 – Management of Pre-defined Airspace Configurations	#31 #66	3.1.2	AOM-0202-A AOM-0206-A CM-0102-A	FRTO-B1/4, NOPS-B1/6	-	SO3/2 SO3/3	AM-1.10 AM-1.8-	OANS
AOM19.5 – ASM and A-FUA	#31 #66	3.1.1	AOM-0202 AOM-0202-A AOM-0206-A		-	SO3/2 SO3/3	AM-1.10 AM-1.8	OANS
AOM21.2 – Initial Free Route Airspace	#32 #33 #66	3.2.1	AOM-0501 AOM-0505 CM-0102-A	FRTO-B1/1	-	SO3/1 SO3/4	AM-1.10 AM-5.1	AATS
AOM21.3 – Enhanced Free Route Airspace Operations	#33 PJ.06-01	3.2.2	AOM-0501 AOM-0505	FRTO-B2/3	-	SO3/1 SO3/4	AM-1.6 AM-1.7	AATS
ATC12.1 – MONA, TCT and MTCD	#27 #104 # PJ.10-02a1	3.2.1	CM-0202, CM-0203, CM-0205, CM-0207-A	FRTO-B0/4 FRTO-B1/5	-	SO3/1 SO4/1	AM-1.15 AM-5.1	AATS
ATC15.1 – Initial Extension of AMAN to En-route	-	-	TS-0305	-	-	SO4/1	-	AATS
ATC15.2 – Arrival Management Extended to En-route Airspace	#05	1.1.1	TS-0305-A	RSEQ-B1/1 NOPS-B1/8	-	SO4/1	AM-1.3	AATS

dA Fully dynamic and optimised airspace

Level 3 Implementation Objective	SESAR Solution	SDP Family	OI Steps/*Enablers*	ICAO ASBUs	EPAS	NSP	AAS TP	KF
ATC18 – Multi Sector Planning En-route – 1P2T	#63 #118 PJ.10-01a1	-	CM-0301	FRTO-B1/6	-	SO4/1	AM-4.3 AM-5.1	AATS
ITY-FMTP – Apply a common flight message transfer protocol (FMTP)	-	-	*CTE-C06*	-	-	SO8/3	AM-1.3	EAI
SAF10.1 – Implement measures to reduce the risk to aircraft operations caused by airspace infringements	-	-	-	-	SI.2025	-	-	AATS

TBO Trajectory -based operations

Level 3 Implementation Objective	SESAR Solution	SDP Family	OI Steps/*Enablers*	ICAO ASBUs	EPAS	NSP	AAS TP	KF
ATC02.8 – Ground based safety nets	-	3.2.1	CM-0801	SNET-B0/2 SNET-B0/3 SNET-B0/4	-	SO4/1	-	AATS
ATC20 – Enhanced STCA with DAP via Mode S EHS	#69	-	CM-0807-A	SNET-B1/1	MST.0030	SO7/2	-	AATS
ATC22 – Initial Air-Ground Trajectory Information Sharing (Airborne Domain)	#115	6.1.1	IS-0303-A	-	RMT.0682	SO4/5	AM-1.2	EAI
ATC23 – Initial Air-Ground Trajectory Information Sharing (Ground Domain)	#115 PJ.18-06b1	6.1.2	IS-0303-A	-	RMT.0682	SO4/5	AM-1.2	EAI

TBO Trajectory -based operations

Level 3 Implementation Objective	SESAR Solution	SDP Family	OI Steps/*Enablers*	ICAO ASBUs	EPAS	NSP	AAS TP	KF
ATC24 – Network Manager Trajectory Information Enhancement	PJ.18-06b1	6.2.1	POI-0011-IS POI-0013-IS	-	RMT.0682	SO4/5	-	EAI
ATC25 – Initial Trajectory Information Sharing ground distribution	#115	6.3.1	IS-0303-A	-	MST.0031		AM-1.2	EAI

M3 Multimodal mobility and integration of all airspace users

Level 3 Implementation Objective	SESAR Solution	SDP Family	OI Steps/*Enablers*	ICAO ASBUs	EPAS	NSP	AAS TP	KF
NAV12 – ATS IFR Routes for Rotorcraft Operations	#113	-	AOM-0810	APTA-B0/6	MST.0031	SO6/5	-	AATS

U-S U-space services

Level 3 Implementation Objective	SESAR Solution	SDP Family	OI Steps/*Enablers*	ICAO ASBUs	EPAS	NSP	AAS TP	KF
-	-	-	-	-	-	-	-	-

Virtualisation of service provision

Level 3 Implementation Objective	SESAR Solution	SDP Family	OI Steps/*Enablers*	ICAO ASBUs	EPAS	NSP	AAS TP	KF
AOP14.1 – Remote Tower Services	#12 #13 #52 #71	-	SDM-0201 SDM-0204 SDM-0205	RATS-B1/1	RMT.0624	SO6/5	-	HPAO
AOP14.2 – Multiple Remote Tower Module	PJ.05-02	-	SDM-0207	RATS-B1/1	RMT.0624	SO6/5	-	HPAO

ANNEX 3 – APPLICABILITY TO AIRPORTS

Several Implementation Objectives are applicable to specific European airports. For the Objectives related to the CP1, the Applicability Area includes the list defined in the Regulation. However, being the scope of airport Objectives substantially broader than the CP1, some airports have committed to implement even if not explicitly targeted by the Implementing Rule.

The following table consolidates the Applicability Area for all the airport Objectives listed in the Implementation Plan.

Legend:
"Y" The Objective is Applicable to that Airport
CP1 Objectives linked to a CP1 Sub-Functionality

CP1 Airports

State	Airport	ICAO Code	AOP04.1	AOP04.2 [1]	AOP05	AOP10	AOP11.1	AOP11.2	AOP12.1	AOP13	AOP19	ATC07.1	ATC15.2	ATC19	ENV01	FCM11.1	FCM11.2
AT	Vienna	LOWW	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
BE	Brussels	EBBR	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y		Y	Y	Y
CH	Geneva	LSGG	Y	Y	Y			Y				Y			Y		Y
CH	Zurich	LSZH	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
CZ	Prague	LKPR	Y	Y	Y			Y	Y			Y	Y		Y		Y
DE	Berlin Brandenburg	EDDB	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
DE	Düsseldorf	EDDL	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

[1] Objective AOP12.1 includes the scope of AOP04.2 for the 18 CP1 Airports: Vienna, Brussels, Berlin Brandenburg, Düsseldorf, Frankfurt Main, Munich, Copenhagen, Barcelona, Madrid Barajas, Palma de Mallorca, Nice, Paris CDG, Paris ORY, Dublin, Milan Malpensa, Rome Fiumicino, Amsterdam Schiphol, and Stockholm Arlanda. The status for these airports is therefore Not Applicable in Objective AOP04.2.

State	Airport	ICAO Code	AOP04.1	AOP04.2 1	AOP05	AOP10	AOP11.1	AOP11.2	AOP12.1	AOP13	AOP19	ATC07.1	ATC15.2	ATC19	ENV01	FCM11.1	FCM11.2
DE	Frankfurt Main	EDDF	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y
DE	Hamburg	EDDH			Y		Y	Y			Y				Y		Y
DE	Munich	EDDM	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y
DE	Stuttgart	EDDS			Y		Y	Y			Y				Y		Y
DK	Copenhagen	EKCH	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y
ES	Barcelona	LEBL	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y		Y	Y	Y
ES	Madrid Barajas	LEMD	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y		Y	Y	Y
ES	Málaga Costa del Sol	LEMG						Y									Y
ES	Palma de Mallorca	LEPA	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y		Y	Y	Y
FI	Helsinki	EFHK	Y	Y	Y		Y	Y				Y			Y		Y
FR	Lyon	LFLL	Y	Y	Y			Y							Y		Y
FR	Nice	LFMN	Y	Y	Y		Y	Y	Y		Y	Y	Y	Y	Y	Y	Y
FR	Paris, Charles de Gaulle	LFPG	Y	Y	Y		Y	Y	Y		Y	Y	Y	Y	Y	Y	Y
FR	Paris, Orly	LFPO	Y	Y	Y		Y	Y	Y		Y	Y	Y		Y	Y	Y
GR	Athens	LGAV	Y	Y	Y			Y									Y
IE	Dublin	EIDW	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
IT	Milan Linate	LIML	Y		Y			Y									Y
IT	Milan Malpensa	LIMC	Y		Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

State	Airport	ICAO Code	AOP04.1	AOP04.2 1	AOP05	AOP10	AOP11.1	AOP11.2	AOP12.1	AOP13	AOP19	ATC07.1	ATC15.2	ATC19	ENV01	FCM11.1	FCM11.2
IT	Rome Fiumicino	LIRF	Y		Y		Y	Y	Y	Y	Y	Y	Y		Y	Y	Y
NL	Amsterdam Schiphol	EHAM	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
PL	Warsaw	EPWA	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
PT	Lisbon	LPPT	Y	Y	Y		Y	Y				Y			Y		Y
SE	Stockholm Arlanda	ESSA	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y		Y	Y	Y

Non-CP1 Airports

State	Airport	ICAO Code	AOP04.1	AOP04.2	AOP05	AOP10	AOP11.1	AOP11.2	AOP12.1	AOP13	AOP19	ATC07.1	ATC15.2	ATC19	ENV01	FCM11.1	FCM11.2
AL	Tirana	LATI															
AM	Yerevan	UDYZ													Y		
AZ	Baku	UBBB	Y	Y								Y			Y		
BA	Sarajevo	LQSA			Y										Y		
BE	Charleroi	EBCI													Y		
BE	Liege	EBLG													Y		
BG	Sofia	LBSF	Y														
CY	Larnaca	LCLK															
DE	Cologne Bonn	EDDK													Y		

State	Airport	ICAO Code	AOP04.1	AOP04.2	AOP05	AOP10	AOP11.1	AOP11.2	AOP12.1	AOP13	AOP19	ATC07.1	ATC15.2	ATC19	ENV01	FCM11.1	FCM11.2
DE	Hannover	EDDV													Y		
DE	Nurnberg	EDDN													Y		
EE	Tallinn	EETN	Y	Y	Y										Y		
FR	Marseille	LFML	Y	Y											Y		
FR	Toulouse	LFBO	Y	Y											Y		
GE	Tbilisi	UGTB													Y		
GR	Kerkira	LGKR			Y												
GR	Rhodes	LGRP			Y												
GR	Thessaloniki	LGTS	Y	Y	Y												
HR	Zagreb	LDZA	Y	Y	Y	Y	Y								Y		
HU	Budapest	LHBP	Y	Y	Y				Y	Y				Y	Y		
IL	Tel Aviv / Ben Gurion	LLBG	Y	Y	Y		Y	Y							Y		
IT	Venezia	LIPZ	Y		Y										Y		
LT	Vilnius	EYVI	Y	Y	Y										Y		
LU	Luxembourg	ELLX	Y	Y					Y						Y		
LV	Riga	EVRA	Y	Y	Y							Y			Y		
MA	Casablanca	GMMN	Y	Y	Y			Y				Y	Y		Y		

State	Airport	ICAO Code	AOP04.1	AOP04.2	AOP05	AOP10	AOP11.1	AOP11.2	AOP12.1	AOP13	AOP19	ATC07.1	ATC15.2	ATC19	ENV01	FCM11.1	FCM11.2
MA	Marrakesh	GMMX	Y		Y										Y		
MD	Chișinău	LUKK	Y	Y					Y								
ME	Podgorica	LYPG															
MK	Skopje	LWSK															
MT	Luqa	LMML													Y		
NO	Oslo Gardermoen	ENGM	Y	Y	Y			Y	Y	Y	Y	Y	Y	Y	Y		Y
RO	Bucharest	LROP	Y	Y								Y		Y	Y		
RS	Belgrade	LYBE	Y	Y								Y	Y	Y	Y		
SE	Göteborg	ESGG													Y		
SE	Malmö Sturup	ESMS													Y		
SE	Umea	ESNU													Y		
SI	Ljubljana	LJLJ															
SK	Bratislava	LZIB															
TR	Ankara	LTAC	Y	Y													
TR	Antalya	LTAI	Y	Y											Y		
TR	Istanbul Airport	LTFM	Y	Y	Y	Y			Y	Y	Y	Y	Y	Y	Y	Y	Y
UA	Kyiv Boryspil	UKBB	Y	Y	Y							Y			Y		
UK	Birmingham	EGBB	Y	Y	Y										Y		

State	Airport	ICAO Code	AOP04.1	AOP04.2	AOP05	AOP10	AOP11.1	AOP11.2	AOP12.1	AOP13	AOP19	ATC07.1	ATC15.2	ATC19	ENV01	FCM11.1	FCM11.2
UK	Bristol	EGGD													Y		
UK	Edinburgh	EGPH	Y	Y	Y										Y		
UK	Glasgow	EGPF													Y		
UK	London Gatwick	EGKK	Y	Y	Y	Y	Y		Y	Y		Y			Y		
UK	London Heathrow	EGLL	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
UK	London Luton	EGGW			Y										Y		
UK	London Stansted	EGSS	Y	Y	Y		Y		Y	Y		Y			Y		
UK	Manchester	EGCC	Y	Y	Y	Y	Y		Y	Y		Y			Y		
UK	Newcastle	EGNT													Y		
UK	Nottingham East Midlands	EGNX													Y		

ANNEX 4 – MPL3 IMPLEMENTATION ROADMAP

Annex 4 shows the implementation roadmap of Solutions and related Implementation Objectives in deployment phase included in the L3 Plan 2022. Those Solutions not yet linked to an Objective are reported in a separate section of this Annex, as their implementation roadmap is not yet defined.

Legend:

Decision Type	R	Regulated
	C	Committed
	L	Local
Reported Progress	%	Progress as stated in the MPL3 Report 2022 (Reference Year 2021)

Achievement date is prior or equal to the FOC

Achievement date is after the FOC date

Objective achieved

Solutions and Implementation Objectives in V5 with implementation roadmap

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2021 LSSIP data)									
								←	2022	2023	2024	2025	2026	2027	2028	2029	2030
ATp	#70 #110	Enhanced Ground Controller Situation Awareness in all Weather Conditions ADS-B surveillance of aircraft in flight and on the surface	AOP04.1	A-SMGCS Surveillance Service (former ICAO Level 1)	-	C	31 Dec 2020	75%									
ATp	Nil	Nil	AOP04.2	A-SMGCS RMCA (former ICAO Level 2)	-	C	31 Dec 2025	65%									
ATp	Nil	Nil	AOP05	Airport CDM	-	C	31 Dec 2020	60%									
ATp	#64	Time Based Separation	AOP10	Time Based Separation	-	C	31 Dec 2023	7%									
ATp	#02	Airport Safety Nets for controllers: conformance monitoring alerts and detection of conflicting ATC clearances	AOP12.1	Airport Safety Nets	2.3.1	R	31 Dec 2025	9%									
ATp	#22 #53	Automated Assistance to Controller for Surface Movement Planning and Routing Pre-Departure Sequencing supported by Route Planning	AOP13	Automated Assistance to ATCO for Surface planning and routing	-	C	31 Dec 2025	0%									
ATp	#04	Enhanced Traffic Situational Awareness and Airport Safety Nets for the vehicle drivers	AOP15	Safety Nets for Vehicle Drivers	-	L	Open	Based on local decision									
ATp	#47	Guidance Assistance through Airfield Ground Lighting	AOP16	Guidance assistance through AGL	-	L	Open	Based on local decision									

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2021 LSSIP data) ← 2022 2023 2024 2025 2026 2027 2028 2029 2030
ATp	#01	Runway Status Lights	AOP18	Runway Status Lights (RWSL)	-	L	Open	Based on local decision
ATp	#53 #106	Pre-Departure Sequencing supported by Route Planning DMAN Baseline for integrated AMAN DMAN	AOP19	Departure Management Synchronised with Pre-departure sequencing	2.1.1	R	31 Dec 2022	20%
ATp	PJ.02-01-06	Wake Turbulence Separations (for Departures) based on Static Aircraft Characteristics	AOP20	Wake Turbulence Separations for Departures based on Static Aircraft Characteristics (S-PWS-D)	-	No decision	Initial	Initial objective, not monitored in LSSIP yet.
ATp	PJ.02-01-04	Wake Turbulence Separations (for Arrivals) based on Static Aircraft Characteristics	AOP21	Wake Turbulence Separations for Arrivals based on Static Aircraft Characteristics (S-PWS-A)	-	No decision	Initial	Initial objective, not monitored in LSSIP yet.
ATp	PJ.02-03	Minimum-Pair separations based on RSP	AOP22	Minimum pair separations based on RSP	-	No decision	Initial	Initial objective, not monitored in LSSIP yet.
ATp	PJ.02-08-01	Integrated Runway Sequence for full traffic Optimization on Single and Multiple Runway Airports	AOP23	Integrated runway sequence for full traffic optimization on single and multiple runway airports	-	No decision	Initial	Initial objective, not monitored in LSSIP yet.
ATp	PJ.02-08-02	Optimised use of runway configuration for multiple runway airports	AOP24	Optimised use of runway configuration for multiple runway airports	-	No decision	Initial	Initial objective, not monitored in LSSIP yet.
ATp	#116	De-icing Management Tool	AOP25	De-icing Management Tool	-	L	Open	Based on local decision
ATp	PJ.02-08-03	Reduced separation based on local Runway Occupancy Time (ROT) characterisation	AOP26	Reduced separation based on local Runway Occupancy Time characterisation	-	L	Open	Based on local decision
ATp	Nil	Nil	ATC07.1	AMAN Tools and Procedures	-	C	31 Dec 2019	69%
ATp	#54	Flow based Integration of Arrival and Departure Management	ATC19	AMAN/DMAN integration	1.2.1	R	31 Dec 2027	6%
ATp	#107	Point Merge in complex TMA	ATC26	Point Merge in complex TMA	-	L	Open	Based on local decision
ATp	#11	Continuous Descent Operations (CDO)	ENV01	Continuous Descent Operations	-	C	31 Dec 2023	51%
ATp	Nil	Nil	ENV02	Airport Collaborative Env. Management	-	L	Open	Based on local decision
ATp	Nil	Nil	ENV03	Continuous Climb Operations	-	L	Open	Based on local decision

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2021 LSSIP data									
								←	2022	2023	2024	2025	2026	2027	2028	2029	2030
ATp	#62	P-RNAV in a complex TMA	NAV03.1	RNAV1 in TMA Operations	-	R	06 Jun 2030	38%									
ATp	#09 #51	Enhanced terminal operations with automatic RNP transition to ILS/GLS Enhanced terminal operations with LPV procedures	NAV03.2	RNP1 in TMA Operations	-	R	06 Jun 2030	24%									
ATp	#119	GLS CAT II operations using GBAS GAST-C	NAV11.1	GLS CAT II operations using GBAS GAST-C	-	L	Open	Based on local decision									
ATp	Nil	Nil	SAF11.1	Improve RWY safety by preventing RWY excursions	-	L	Open	Based on local decision									

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2021 LSSIP data)									
								←	2022	2023	2024	2025	2026	2027	2028	2029	2030
CNS	#114	Cooperative Surveillance ADS-B / WAM	ATC21	Composite Surveillance (ADS-B/WAM)	-	No decision	Initial	Initial objective, not monitored in LSSIP yet.									
CNS	Nil	Nil	COM10.2	Extended AMHS	-	C	31 Dec 2024	77%									
CNS	Nil	Nil	COM11.1	VoIP in En-Route	-	C	31 Dec 2021	26%									
CNS	Nil	Nil	COM11.2	VoIP in Airport/Terminal	-	C	31 Dec 2023	22%									
CNS	#109	Air Traffic Services (ATS) datalink using SatCom Class B	COM13	Air Traffic Services datalink using SatCom Class B	-	L	Open	Based on local decision									
CNS	Nil	Nil	ITY-ACID	Aircraft identification	-	R	02 Jan 2020	40%									
CNS	Nil	Nil	ITY-AGDL	Initial ATC air-ground data link services	-	R	05 Feb 2020	64%									
CNS	Nil	Nil	ITY-AGVCS2	8.33 kHz A/G Voice Channel Spacing below FL195	-	R	31 Dec 2020	56%									
CNS	#103	LPV approaches using SBAS as alternative to ILS CAT I	NAV10	RNP Approach Procedures to instrument RWY	-	R	25 Jan 2024	33%									
CNS	#55	Precision approaches using GBAS CATII/III	NAV11.2	Implement precision approach procedures using GBAS CAT II/III based on GPS L1 and/or GALILEO E1	-	No decision	Initial	Initial objective, not monitored in LSSIP yet.									

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2021 LSSIP data									
								←	2022	2023	2024	2025	2026	2027	2028	2029	2030
dA	#31 #66	Variable profile military reserved areas and enhanced (further automated) civil-military collaboration Automated Support for Dynamic Sectorisation	AOM19.4	Management of Pre-defined Airspace Configurations	3.1.2	R	31 Dec 2022	26%									
dA	#31 #66	Variable profile military reserved areas and enhanced (further automated) civil-military collaboration Automated Support for Dynamic Sectorisation	AOM19.5	ASM and A-FUA	3.1.1	R	31 Dec 2022	11%									
dA	#32 #33 #66	Free Route through the use of Direct Routing Free Route through Free Routing for Flights both in cruise and vertically evolving above a specified Flight Level Automated Support for Dynamic Sectorisation	AOM21.2	Initial Free Route Airspace	3.2.1	R	31 Dec 2022	82%									
dA	#33 PJ.06-01	Free Route through Free Routing for Flights both in cruise and vertically evolving above a specified Flight Level Optimized traffic management to enable Free Routing in high and very high complexity cross border environments	AOM21.3	Enhanced Free Route Airspace Operations	3.2.2	R	31 Dec 2025	57%									
dA	#27 #104 PJ.10-02a1	MTCD and conformance monitoring tools Sector Team Operations - En-route Air Traffic Organiser Integrated tactical and medium Conflict Detection & Resolution (CD&R) services and Conformance Monitoring tools for En-Route and TMA	ATC12.1	MONA, TCT and MTCD	3.2.1	C	31 Dec 2021	49%									
dA	Nil	Nil	ATC15.1	Information Exchange with en-route in Support of AMAN	-	C	31 Dec 2019	64%									
dA	#05	Extended Arrival Management (AMAN) horizon	ATC15.2	Arrival Management Extended to En-route Airspace	1.1.1	R	31 Dec 2024	23%									
dA	#63 #118 PJ.10-01a1	Multi Sector Planning Basic EAP (Extended ATC Planning) function High Productivity Controller Team Organisation in En-Route (1PC-2ECs)	ATC18	Multi Sector Planning En-route 1P2T	-	L	Open	Based on local decision									
dA	Nil	Nil	ITY-FMTP	Common flight message transfer protocol (FMTP)	-	R	31 Dec 2014	82%									
dA	Nil	Nil	SAF10.1	Implement measures to reduce the risk to aircraft operations caused by airspace infringements	-	L	Open	Based on local decision									

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2021 LSSIP data									
								←	2022	2023	2024	2025	2026	2027	2028	2029	2030
dS	Nil	Nil	INF07	Electronic Terrain and Obstacle Data (e-TOD)	-	C	31 Dec 2018	28%									
dS	PJ.18-04b-01	Enhanced Ground Weather Management System (GWMS) as local 4DWxCube	INF11.1	Enhanced Ground Weather Management System (GWMS) as local 4DWxCube	-	No decision	Initial	Initial objective, not monitored in LSSIP yet.									

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2021 LSSIP data									
								←	2022	2023	2024	2025	2026	2027	2028	2029	2030
dS	PJ.18-04b-02	Cb-global capability and service	INF11.2	Cb-global capability and service	-	No decision	Initial	Initial objective, not monitored in LSSIP yet.									

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2021 LSSIP data									
								←	2022	2023	2024	2025	2026	2027	2028	2029	2030
iN	Nil	Nil	AOM13.1	Harmonise OAT and GAT handling	-	C	31 Dec 2018	61%									
iN	#21	Airport Operations Plan and AOP-NOP Seamless Integration	AOP11.1	Initial Airport Operations Plan	2.2.1	R	31 Dec 2023	10%									
iN	#21	Airport Operations Plan and AOP-NOP Seamless Integration	AOP11.2	Extended Airport Operations Plan	2.2.2	R	31 Dec 2027	0%									
iN	#61	CWP Airport - Low Cost and Simple Departure Data Entry Panel	AOP17	Provision/integration of DEP planning info to NMOC	-	L	Open	Based on local decision									
iN	Nil	Nil	COM12	NewPENS	-	C	31 Dec 2024	73%									
iN	Nil	Nil	FCM03	Collaborative flight planning	-	C	31 Dec 2022	52%									
iN	#17	Advanced Short-Term ATFCM Measures (STAM)	FCM04.2	Enhanced Short Term ATFCM Measures	4.1.1	R	31 Dec 2022	16%									
iN	#19 PJ.18-02c	Automated support for Traffic Complexity Detection and Resolution eFPL distribution to ATC	FCM06.1	Traffic Complexity Assessment	4.3.1	R	31 Dec 2022	21%									
iN	#18 #20	CTOT and TTA Collaborative NOP for Step 1	FCM10	Interactive rolling NOP	4.2.1	R	31 Dec 2023	10%									
iN	#20 #21	Collaborative NOP for Step 1 Airport Operations Plan and AOP-NOP Seamless Integration	FCM11.1	Initial AOP/NOP Information Sharing	4.2.2	R	31 Dec 2023	0%									
iN	#18 #20 #21	CTOT and TTA Collaborative NOP for Step 1 Airport Operations Plan and AOP-NOP Seamless Integration	FCM11.2	AOP/NOP integration	4.4.1	R	31 Dec 2027	0%									
iN	#46	SWIM Yellow Profile	INF10.2	Stakeholders' SWIM PKI and cybersecurity	5.2.1	R	31 Dec 2025	0%									
iN	#46	SWIM Yellow Profile	INF10.3	Aeronautical Information Exchange - Airspace structure service	5.3.1	R	31 Dec 2025	45%									

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2021 LSSIP data									
								←	2022	2023	2024	2025	2026	2027	2028	2029	2030
iN	#46	SWIM Yellow Profile	INF10.4	Aeronautical Information Exchange - Airspace availability service	5.3.1	R	31 Dec 2025	38%									
iN	#46	SWIM Yellow Profile	INF10.5	Aeronautical Information Exchange - Airspace Reservation (ARES) service	5.3.1	R	31 Dec 2025	0%									
iN	#34 #46	Digital Integrated Briefing SWIM Yellow Profile	INF10.6	Aeronautical Information Exchange - Digital NOTAM service	5.3.1	R	31 Dec 2025	0%									
iN	#34 #46	Digital Integrated Briefing SWIM Yellow Profile	INF10.7	Aeronautical Information Exchange - Aerodrome Mapping information exchange service	5.3.1	R	31 Dec 2025	0%									
iN	#34 #46	Digital Integrated Briefing SWIM Yellow Profile	INF10.8	Aeronautical Information Exchange - Aeronautical Information Features service	5.3.1	R	31 Dec 2025	0%									
iN	#34 #35 #46	Digital Integrated Briefing MET Information Exchange SWIM Yellow Profile	INF10.9	Meteorological Information Exchange - Volcanic ash mass concentration information service	5.4.1	R	31 Dec 2025	0%									
iN	#34 #35 #46	Digital Integrated Briefing MET Information Exchange SWIM Yellow Profile	INF10.10	Meteorological Information Exchange - Aerodrome Meteorological information Service	5.4.1	R	31 Dec 2025	0%									
iN	#34 #35 #46	Digital Integrated Briefing MET Information Exchange SWIM Yellow Profile	INF10.11	Meteorological Information Exchange - En-Route and Approach Meteorological information service	5.4.1	R	31 Dec 2025	0%									
iN	#34 #35 #46	Digital Integrated Briefing MET Information Exchange SWIM Yellow Profile	INF10.12	Meteorological Information Exchange - Network Manager Meteorological Information	5.4.1	R	31 Dec 2025	0%									
iN	#46	SWIM Yellow Profile	INF10.13	Cooperative Network Information Exchange - ATFCM Tactical Updates Service	5.5.1	R	31 Dec 2025	10%									
iN	#46	SWIM Yellow Profile	INF10.14	Cooperative Network Information Exchange - Flight Management Service	5.5.1	R	31 Dec 2025	4%									
iN	#46	SWIM Yellow Profile	INF10.15	Cooperative Network Information Exchange - Measures Service	5.5.1	R	31 Dec 2025	16%									
iN	#46	SWIM Yellow Profile	INF10.16	Cooperative Network Information Exchange - Short Term ATFCM Measures services	5.5.1	R	31 Dec 2025	5%									
iN	#46	SWIM Yellow Profile	INF10.17	Cooperative Network Information Exchange - Counts service	5.5.1	R	31 Dec 2025	21%									
iN	#46	SWIM Yellow Profile	INF10.18	Flight Information Exchange (Yellow Profile) – Filing Service	5.6.1	R	31 Dec 2025	Achieved in 2021									

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2021 LSSIP data									
								←	2022	2023	2024	2025	2026	2027	2028	2029	2030
iN	#46	SWIM Yellow Profile	INF10.19	Flight Information Exchange (Yellow Profile) – Flight Data Request Service	5.6.1	R	31 Dec 2025	0%									
iN	#46	SWIM Yellow Profile	INF10.20	Flight Information Exchange (Yellow Profile) – Notification Service	5.6.1	R	31 Dec 2025	0%									
iN	#46	SWIM Yellow Profile	INF10.21	Flight Information Exchange (Yellow Profile) – Data Publication Service	5.6.1	R	31 Dec 2025	0%									
iN	#46	SWIM Yellow Profile	INF10.22	Flight Information Exchange (Yellow Profile) – Trial Service	5.6.1	R	31 Dec 2025	100% (NM only)									
iN	#46	SWIM Yellow Profile	INF10.23	Flight Information Exchange (Yellow Profile) – Extended AMAN SWIM Service	5.6.1	R	31 Dec 2025	7%									

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2021 LSSIP data									
								←	2022	2023	2024	2025	2026	2027	2028	2029	2030
M3	#113	Optimised low-level instrument flight rules (IFR) routes for rotorcraft	NAV12	ATS IFR Routes for Rotorcraft Operations	-	R	06 Jun 2030	14%									

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2021 LSSIP data									
								←	2022	2023	2024	2025	2026	2027	2028	2029	2030
TBO	Nil	Nil	ATC02.8	Ground based safety nets	3.2.1	C	31 Dec 2021	67%									
TBO	#69	Enhanced STCA with down-linked parameters	ATC20	Enhanced STCA with DAPs via Mode S EHS	-	L	Open	Based on local decision									
TBO	#115	Extended Projected Profile (EPP) availability on ground	ATC22	Initial Air-Ground Trajectory Information Sharing (Airborne Domain)	6.1.1	R	31 Dec 2027	Initial objective, not monitored in LSSIP yet.									
TBO	#115 PJ.18-06b1	Extended Projected Profile (EPP) availability on ground NM Profile Improvement using ADS-C	ATC23	Initial Air-Ground Trajectory Information Sharing (Ground Domain)	6.1.2	R	31 Dec 2027	Initial objective, not monitored in LSSIP yet.									
TBO	PJ.18-06b1	NM Profile Improvement using ADS-C	ATC24	Network Manager Trajectory Information Enhancement	6.2.1	R	31 Dec 2027	Initial objective, not monitored in LSSIP yet.									
TBO	#115	Extended Projected Profile (EPP) availability on ground	ATC25	Initial Trajectory Information Sharing ground distribution	6.3.1	R	31 Dec 2027	Initial objective, not monitored in LSSIP yet.									

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2021 LSSIP data									
								←	2022	2023	2024	2025	2026	2027	2028	2029	2030
vS	#12 #13 #52 #71	Single Remote Tower operations for medium traffic volumes Remotely Provided Air Traffic Service for Contingency Situations at Aerodromes Remote Tower for two low density aerodromes ATC and AFIS service in a single low density aerodrome from a remote CWP	AOP14.1	Remote Tower Services	-	L	Open	Based on local decision									
vS	PJ.05-02	Multiple remote tower module	AOP14.2	Multiple Remote Tower Module	-	No decision	Initial	Initial objective, not monitored in LSSIP yet.									

Solutions without Implementation Objectives in V5 (no roadmap yet)

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2021 LSSIP data									
								←	2022	2023	2024	2025	2026	2027	2028	2029	2030
ATp	#108	AMAN and Point Merge	Nil	Nil	-	No decision	-	No objective yet									
ATp	#117	Reducing Landing Minima in Low Visibility Conditions using Enhanced Flight Vision Systems (EFVS)	Nil	Nil	-	No decision	-	No objective yet									
ATp	#23	D-TAXI service for CPDLC application	Nil	Nil	-	No decision	-	No objective yet									
ATp	#26	Manual Taxi Routing Function	Nil	Nil	-	No decision	-	No objective yet									
ATp	#48	Virtual Block Control in LVPs	Nil	Nil	-	No decision	-	No objective yet									
ATp	PJ.02-01-01	Optimised Runway Delivery on Final Approach	Nil	Nil	-	No decision	-	No objective yet									
ATp	PJ.02-01-02	Optimised Separation Delivery for Departure	Nil	Nil	-	No decision	-	No objective yet									
ATp	PJ.02-01-03	Weather-Dependent Reductions of WTS for Departures	Nil	Nil	-	No decision	-	No objective yet									
ATp	PJ.02-01-05	Weather-Dependent Reductions of Wake Turbulence Separations for Final Approach	Nil	Nil	-	No decision	-	No objective yet									
ATp	PJ.02-01-07	Wake Decay Enhancing Devices	Nil	Nil	-	No decision	-	No objective yet									
ATp	PJ.03a-04	Enhanced Visual Operations	Nil	Nil	-	No decision	-	No objective yet									
ATp	PJ.03b-05	Traffic alerts for pilots for airport operations	Nil	Nil	-	No decision	-	No objective yet									

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2021 LSSIP data									
								←	2022	2023	2024	2025	2026	2027	2028	2029	2030
ATp	PJ.15-02	E-AMAN service	Nil	Nil	-	No decision	-	No objective yet									

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2021 LSSIP data									
								←	2022	2023	2024	2025	2026	2027	2028	2029	2030
CNS	#102	Aeronautical mobile airport communication system (AeroMACS)	Nil	Nil	-	No decision	-	No objective yet									
CNS	PJ.11-A1	ACAS Xa European acceptability framework	Nil	Nil	-	No decision	-	No objective yet									
CNS	PJ.14-02-06	AeroMACs integrated with ATN, Digital Voice and Multilink	Nil	Nil	-	No decision	-	No objective yet									
CNS	PJ.14-03-04	RNP1 reversion based on DME/DME	Nil	Nil	-	No decision	-	No objective yet									

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2021 LSSIP data									
								←	2022	2023	2024	2025	2026	2027	2028	2029	2030
dA	#10	Optimised Route Network using Advanced RNP	Nil	Nil	-	No decision	-	No objective yet									

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2021 LSSIP data)									
								←	2022	2023	2024	2025	2026	2027	2028	2029	2030
dS	PJ.15-10	Aeronautical data service	Nil	Nil	-	No decision	-	No objective yet									
dS	PJ.15-11	Aeronautical digital map service	Nil	Nil	-	No decision	-	No objective yet									
dS	PJ.18-04a	Aeronautical Dataset service	Nil	Nil	-	No decision	-	No objective yet									

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2021 LSSIP data									
								←	2022	2023	2024	2025	2026	2027	2028	2029	2030
iN	#37	Extended Flight Plan	Nil	Nil	-	No decision	-	No objective yet									
iN	#57	UDPP Departure	Nil	Nil	-	No decision	-	No objective yet									
iN	#67	AOC data increasing trajectory prediction accuracy	Nil	Nil	-	No decision	-	No objective yet									

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2021 LSSIP data									
								←	2022	2023	2024	2025	2026	2027	2028	2029	2030
iN	PJ.09-03-02	AOP/NOP departure information integrated in eFPL	Nil	Nil	-	No decision	-	No objective yet									
iN	PJ.15-01	Initial Sub-regional Demand Capacity Balancing Service	Nil	Nil	-	No decision	-	No objective yet									
iN	PJ.17-01	SWIM TI purple profile for A/G advisory information sharing	Nil	Nil	-	No decision	-	No objective yet									
iN	PJ.18-02b	Flight Object Interoperability	Nil	Nil	-	No decision	-	No objective yet									

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2021 LSSIP data)									
								←	2022	2023	2024	2025	2026	2027	2028	2029	2030
M3	PJ.01-06	Enhanced Rotorcraft operations in the TMA	Nil	Nil	-	No decision	-	No objective yet									
M3	PJ.02-05	Independent Rotorcraft operations at the airports	Nil	Nil	-	No decision	-	No objective yet									

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2021 LSSIP data									
								←	2022	2023	2024	2025	2026	2027	2028	2029	2030
TBO	#06	Controlled Time of Arrival (CTA) in Medium density / medium complexity environment	Nil	Nil	-	No decision	-	No objective yet									
TBO	#08	Arrival Management into Multiple Airports	Nil	Nil	-	No decision	-	No objective yet									
TBO	#100	ACAS Ground Monitoring and Presentation system	Nil	Nil	-	No decision	-	No objective yet									
TBO	#101	Extended hybrid surveillance	Nil	Nil	-	No decision	-	No objective yet									
TBO	#105	Enhanced airborne collision avoidance system (ACAS) operations using the autoflight system	Nil	Nil	-	No decision	-	No objective yet									
TBO	PJ.07-01-01	Reactive Flight Delay Criticality Indicator	Nil	Nil	-	No decision	-	No objective yet									

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2021 LSSIP data)									
								←	2022	2023	2024	2025	2026	2027	2028	2029	2030
vS	PJ.16-04-01	Multi-Touch Input at the Controller Working Position	Nil	Nil	-	No decision	-	No objective yet									
vS	PJ.16-03	Enabling rationalisation of infrastructure using virtual centre based technology	OD-5	VC concept, CWP and service interface	-	No decision	-	No objective yet									

Achieved Solutions and related Implementation Objectives over previous MPL3 Editions

EOC	Solution ID	Solution Name	Objective ID	Objective Title	SDP Family	Decision Type	FOC Date	Planned Implementation (2021 LSSIP data								
								←	2022	2023	2024	2025	2026	2027	2028	2029	2030
dA	#65	User Preferred Routing	AOM21.1	Direct Routing	-	R	31 Dec 2017	Achieved in 2017									
iN	#56	Enhanced ATFM Slot Swapping	FCM09	Enhanced ATFM Slot swap	-	C	31 Dec 2021	Achieved in 2021									
TBO	#60	Enhanced short-term conflict alert (STCA) for terminal manoeuvring areas (TMAs)	ATC02.9	Enhanced Short Term Conflict Alert (STCA) for TMAs	-	R	31 Dec 2020	Achieved in 2020									

ANNEX 5 – ACRONYMS AND ABBREVIATIONS

A

AAS	Airspace and Architecture Study
ACARS	Aircraft Communication Addressing and Reporting System
ACAS	Airborne Collision Avoidance System
ACC	Area Control Centre
A-CDM	Airport Collaborative Decision Making
ACH	ATC Flight Plan Change
ACID	Aircraft Identification
ACL	ATC Clearance
ACM	ATC Communication Management
AD	Aerodrome
ADD	Aircraft Derived Data
ADEXP	ATC Data Exchange Presentation
ADS-B	Automatic Dependent Surveillance Broadcast
ADS-C	Automatic Dependent Surveillance Contract
AF	ATM Functionality
AFIS	Aerodrome Flight Information Service
AFISO	Aerodrome Flight Information Service Officer
AFP	ATC Flight Plan
AFTN	Aeronautical Fixed Telecommunications Network
A-FUA	Advanced Flexible Use of Airspace
AG	Air-Ground
AGL	Airfield Ground Lighting
AGY	EUROCONTROL Agency
AIM	Aeronautical Information Management
AIP	Aeronautical Information Publication
AIRAC	Aeronautical Information Regulation and Control
AIS	Aeronautical Information Service
AISP	Aeronautical Information Service Provider
AIXM	Aeronautical Information Exchange Model
AMAN	Arrival Manager
AMC	Acceptable Means of Compliance
AMC	ATS Messaging Management Centre
AMHS	ATS Message Handling Service
ANS	Air Navigation Service
ANSP	Air Navigation Service Provider
AO	Airport Operator
AOM	Airspace Organisation and Management
AOP	Airport Operations Plan
API	Arrival Planning Information
APL	ATC Flight Plan
APM	Approach Path Monitor
APO	Airport Operations
APP	Approach
APW	Airborne Proximity Warning
ARES	Airspace Reservation
ASBU	Aviation System Block Upgrade
ASM	Airspace Management
A-SMCGS	Advanced Surface Movement Control and Guidance System
ASP	Air Navigation Service Providers
ATC	Air Traffic Control
ATFCM	Air Traffic Flow and Capacity Management
ATFM	Air Traffic Flow Management
ATCO	Air Traffic Control Officer
ATCU	Air Traffic Control Unit
ATM	Air Traffic Management
ATN	Aeronautical Telecommunication Network
ATp	Airport and TMA Performance
ATS	Air Traffic Services
ATSMHS	ATS Message Handling System
ATSU	Air Traffic Services Unit
AU	Airspace User
AUP	Airspace Use Plan

B

B2B	Business to Business

C

CA	Certificate Authority
CAT	Category
CATC	Conflicting ATC Clearances
CCO	Continuous Climb Operations
CDM	Collaborative Decision Making
CDO	Continuous Descent Operations
CD&R	Conflict Detection & Resolution
CEM	Collaborative Environmental Management
CFIT	Controlled Flight Into Terrain
CIAM	Collaboration Interface for Airspace Management
CIDIN	Common ICAO Data Interchange Network

CMAC	Conformance Monitoring Alerts for Controllers
CNL	Flight Plan Cancellation Message
CNS	Communications, Navigation and Surveillance
CO2	Carbon Dioxide
COM	Communications
COP	Changeover Point
COTS	Connection-mode Transport Service
CP1	Common Project 1
CPDLC	Controller Pilot Data Link Communications
CTOT	Calculated Take-Off Time
CWP	Controller's Working Position

D

dA	Fully Dynamic and Optimised Airspace Organisation
DAC	Dynamic Airspace Configuration
DAP	Downloaded Aircraft Parameter
DBS	Distance Based Separation
DCT	Direct Routing
DEP	Departure
DFMC	Dual Frequency/Multi-Constellation
DLIC	Data Link Initiation Capability
DLS	Data Link Services
DMAN	Departure Manager
DME	Distance Measuring Equipment
DP	Deployment Programme
DPI	Departure Planning Information
dS	Digital AIM and MET Services
DS	Deployment Scenario

E

EACP	European Common Aviation PKI
EAD	European Aeronautical Database
E-AMAN	Extended Arrival Management
EAPPRE	European Action Plan on the Prevention of Runway Excursion
EASA	European Aviation Safety Agency
EATMN	European Air Traffic Management Network
EAUP	European Airspace Use Plan
EC	European Commission
ECAA	European Common Aviation Area
ECAC	European Civil Aviation Conference
ECI	Electronic Clearance Input
eFPL	Extended Flight Plan
EFS	Electronic Flight Strip
EGPWS	Enhanced Ground Proximity Warning System
EHL	Runway Entrance Lights
EHS	Enhanced Surveillance
ELDT	Estimated Landing Time
ENV	Environment
EOBT	Estimated Off-Block Time
EOC	Essential Operational Change
EPAS	European Plan for Aviation Safety
EPP	Extended Projected Profile
ETFMS	Enhanced Tactical Flow Management System
eTOD	Electronic Terrain and Obstacle Data
ETSI	European Telecommunications Standards Institute
EU	European Union
EUROCAE	European Organisation for Civil Aviation Equipment
EUUP	European Updated Airspace Use Plan
EXOT	Estimated Taxi-Out Time

F

FAB	Functional Airspace Block
FATO	Final Approach and Take-Off Areas
FDP	Flight Data Processing
FDPS	Flight Data Processing System
FF-ICE	Flight & Flow Information for a Collaborative Environment
FIR	Flight Information Region
FIXM	Flight Information Exchange Model
FL	Flight Level
FLDT	Forecasted Landing Time
FMTP	Flight Message Transfer Protocol
FO	Flight Object
FOC	Flight Operations Centre
FOC	Full Operational Capability
FP	Flight Plan
FPL	Filed Flight Plan
FRA	Free Route Airspace
FTOT	Forecasted Take Off Time
FUA	Flexible Use of Airspace
FUM	Flight Update Message

G

GANP	ICAO Global Air Navigation Plan
GAT	General Air Traffic
GBAS	Ground Based Augmentation System
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
GUFI	Global Unique Flight Identifier

H

HMI	Human Machine Interface

I

i4D	Initial Trajectory Information Sharing
iAOP	Initial Airport Operations Plan
ICAO	International Civil Aviation Organisation
IFPS	Initial Flight Plan Processing System
IFR	Instrument Flight Rules
ILS	Instrument Landing System
IND	Aeronautics Industry
INF	Information Management
INT	International Organisations and Regional Bodies
IOs	Implementation Objectives
IP	Internet Protocol
IR	Implementing Rule
ITY	Interoperability

J

JU	Joint undertaking

K

kg	Kilogram
KHz	Kilohertz
KPA	Key Performance Area
KPI	Key Performance Indicator

L

LNAV	Lateral Navigation
LLR	Low Level IFR Route
LOC	Localization
LOF	Logon Forward
LSSIP	Local Single Sky ImPlementation
LVP	Low Visibility Procedures
L1	Level 1
L2	Level 2
L3	Level 3

M

MAS	Manual Assumption of Communication (message)
MASPS	Minimum Aviation System Performance Standard
MCDM	Measure Collaborative Decision Making
MET	Meteorology
MHz	Megahertz
MIL	Military Authorities
MLAT	Multilateration
MP L3	Master Plan Level 3
MoC	Memorandum of Cooperation
Mode S	SSR Selective Interrogation Mode
MONA	Monitoring Aids
MOPS	Minimum Operational Performance Standards
MoU	Memorandum of Understanding
MRS	Minimum Radar Separation
MSAW	Minimum Safe Altitude Warning
MSP	Multi-Sector Planner
MTCD	Medium Term Conflict Detection
MUAC	Maastricht Upper Area Control (Centre)
MWO	MET Watch Office
M3	Multimodal Mobility and integration of all airspace users

N

N/A	Not applicable
NAN	Next Authority Notified
NAV	Navigation
NES	n-CONECT Eco System
NM	Network Manager
NMOC	Network Manager Operations Centre
NOP	Network Operations Plan
NOTAM	Notice to Airmen
NOx	Nitrogen Oxides
NPA	Non Precision Approach
NSA	National Supervisory Authority

O

OAT	Operational Air Traffic
ODs	Outline Descriptions
OI	Operational improvements
ORD	Optimised Runway Delivery

P

PA	Precision Approach
PANS-OPS	Procedures for Air Navigation Services Aircraft Operations
PBN	Performance Based Navigation
PCP	Pilot Common Project
PENS	Pan-European Network Service
PinS	Points in Space
PKI	Public Key Infrastructure
POC	Point of Contact

R

RAD	Route Availability Document
RBT	Reference Business Trajectory
RCT	Remote Contingency Tower
RDP	Rolling Development Plan
REG	National Regulatory Authorities/NSAs
RF	Radio Frequency
RF	Radius to Fix
RMAN	Runway Manager
RMCA	Runway Monitoring and Conflict Alerting
RMT	Rulemaking Task
RNAV	Area Navigation
RNP	Required Navigation Performance
RP3	Third Reference Period
RSP	Required Surveillance Performance
RWSL	Runway Status Lights
RWY	Runway

S

SAF	Safety
SARPS	Standards and Recommended Practices
SBAS	Satellite Based Augmentation System
SBT	Shared Business Trajectory
SD	Service Description
SDM	SESAR Deployment Manager
SDP	SESAR Deployment Program
SDPS	Surveillance Data Processing System
SES	Single European Sky
SESAR	Single European Sky ATM Research
SFL	Selected Flight Level
SID	Standard Instrumental Departure
SJU	SESAR Joint Undertaking
SLoA	Stakeholder Line(s) of Action
SNET	Safety Nets
SOL	SESAR Solution
SPI	Surveillance Performance and Interoperability
S-PWS-D	Static Pair-Wise Separation for Departures
SSR	Secondary Surveillance Radar
STAM	Short-Term ATFCM Measures
STAR	Standard Terminal Arrival Route
STCA	Short Term Conflict Alert
SUR	Surveillance
SVS	Synthetic Vision System
SWIM	System-Wide Information Management

T

TBD	To Be Determined
TBO	Time-Based Operations
TBS	Time-Based Separation
TCAS	Traffic Alert and Collision Avoidance System
TCP/IP	Transmission Control Protocol / Internet Protocol
TCT	Tactical Controller Tool
TF	Task Force
THL	Take-off Hold Lights
TI	Technical Infrastructure
TLDT	Target Landing Time
TOBT	Target Off-Block Time
TOD	Terrain and Obstacle Data
TMA	Terminal Control Area
TRA	Temporary Restricted Area
TSA	Temporary Segregated Area
TSE	Total System Error
TT	Target Time
TTA	Target Time of Arrival
TTOT	Target Take Off Time
TWR	Tower Control Unit

TWY	Taxiway

U

UDPP	User-Driven Prioritisation Process
USE	Airspace Users
U-S	U-Space Services
UUP	Updated Airspace Use Plan

V

VAAC	Volcanic Ash Advisory Centre
VCS	Voice Communications System
VDL	VHF Digital Link
VFE	Vertical Flight Efficiency
VFR	Visual Flight Rules
VHF	Very High Frequency
VNAV	Vertical Navigation
VoIP	Voice over Internet Protocol
VPA	Variable Profile Area
vS	Virtualisation of Service Provision

W

WAM	Wide Area Multilateration
WAFC	World Area Forecast Centre
WBS	Wake Turbulence Separation
WTC	Wake Turbulence Separation