

PCP		Active							ECAC+	
AOM19.2		ASM Management of Real-Time Airspace Data								
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

Subject matter and scope

Implement enhanced Airspace Management (ASM) by automated exchange services of ASM data during the tactical phase continuously in real time. ASM information (real-time Airspace Reservation (ARES) status) is shared between ASM systems, civil and military ATS units/systems and needs to be communicated to NM in the tactical phase. The data shared with NM is mostly related to the early airspace release pertinent to the possibility that the released airspace could be plannable by IFPS. These data, consisting of pre-notification of activation, notification of activation, de-activation, modification and release of airspace are collected, saved and processed in order to be exchanged between ASM stakeholders and be made available to ATM actors; while some airspace users are not directly involved in ASM process, they will be notified by the Network Manager.

The scope of this objective encompasses:

- Procedural and system upgrades (ASM, ATM, NM and AU systems (Computer Flight Plan Software Providers (CFSP)) for exchange of real time airspace status data;
- Integration and management of ASM real-time data into ANSPs' ATM systems and into AUs' (CFSPs) flight planning systems;
- Full sharing of real-time airspace status updates in order to take early advantage of possible opportunities and/or to achieve real-time awareness of airspace situation;
- Network impact assessment of the changes resulting of the application of the above processes.

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, Luxembourg, Malta, Moldova, North Macedonia. Plus: Israel		
Timescales:	From:	By:	Applicable to:
Initial operational capability	01/01/2017		Applicability Area
Full operational capability		31/12/2021	Applicability Area

References

European ATM Master Plan

Ol step -	[AOM-0202-A]-Automated Support for strategic, pre-tactical and tactical Civil-Military Coordination in Airspace Management (ASM).								
Enablers -	AAMS-06b AOM19.1, INF08.1	AAMS-09a AOM19.1	AAMS-11	AIMS-06	ER APP ATC 77	MIL-0502 INF08.1	NIMS-42	PRO-011	
	PRO-024	SWIM-APS-02a INF08.1	SWIM-APS-03a INF08.1, INF08.2	SWIM-INFR-05a INF08.1, INF08.2	SWIM-NET-01a INF08.1, INF08.2				
Ol step -	[AOM-0206-A]-Flexible and modular ARES in accordance with the VPA design principle								
Enablers -	AAMS-06b AOM19.1, INF08.1	AAMS-06c	AAMS-09a AOM19.1	AOC-ATM-15	ER APP ATC 77	SWIM-APS-03a INF08.1, INF08.2	SWIM-APS-04a INF08.1	SWIM-INFR-05a INF08.1, INF08.2	
	SWIM-NET-01a INF08.1, INF08.2								
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 2150/2005 of 23 December 2005 on Implementation and Application of the Flexible Use of Airspace
- Regulation (EU) No 716/2014 on the establishment of the Pilot Common Project

Essential Operational Changes

Implementation Plan Edition 2019

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- none -

SESAR Solution

#31 - Variable profile military reserved areas and enhanced (further automated) civil-military collaboration

ICAO GANP - ASBUs

B1-FRTO	Improved Operations through Optimized ATS Routing
B1-NOPS	Enhanced Flow Performance through Network Operational Planning

Deployment Programme

- none -

European Plan for Aviation Safety

- none -

Operating Environments

En-Route
Network
Terminal Airspace

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	By
AOM19.2-ASP01	Adapt ATM systems for real-time ASM data exchanges	01/01/2017	31/12/2021
AOM19.2-ASP02	Adapt local ASM support system for real-time ASM data exchanges with NM systems	01/01/2017	31/12/2021
AOM19.2-ASP03	Implement procedures related to real-time (tactical) ASM level III information exchange	01/01/2017	31/12/2021
AOM19.2-USE01	Adapt airspace users systems for real-time ASM data exchanges with NM	01/01/2017	31/12/2021
AOM19.2-NM01	Adapt NM systems for real-time ASM data exchanges	01/01/2017	31/12/2021
AOM19.2-NM02	Implement procedures related to real-time (tactical) ASM level III information exchange	01/01/2017	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:	Improved through better co-ordination of civil and military airspace needs at the European Network level. Potential gains through more efficient airspace allocation and better knowledge of traffic environment, common situational awareness, and some enhancement through reduction in controller workload.
Capacity:	Increased through better utilization of airspace resources within and across airspace boundaries leading to reduction of flight delays.
Operational Efficiency:	Increased through the availability of more optimum routes/trajectories allowing lower fuel burn.
Cost Efficiency:	-
Environment:	Emissions reduced through the use of more optimum routes/trajectories.
Security:	-

Detailed SLoA Descriptions

AOM19.2-ASP01	Adapt ATM systems for real-time ASM data exchanges	From:	By:
		01/01/2017	31/12/2021
Action by:	ANS Providers		
Description & purpose:	Adapt ATM systems to exchange airspace reservation (ARES) messages containing real time (tactical) activation status of predefined airspace structures with local ASM support systems and to display airspace status data at the CWP.		

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Supporting material(s):	<p>EUROCONTROL - SPEC 112 - EUROCONTROL Specifications for the application of the Flexible Use of Airspace (FUA) - Edition 1.1 - OJ 2009/C 196/05 / 01/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-application-flexible-use-airspace-fua</p> <p>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</p> <p>EUROCONTROL - Advanced FUA Concept - Edition 1.0 Url : http://www.eurocontrol.int/sites/default/files/publication/files/advanced-fua-concept-v1.0-sept-2015.pdf</p> <p>SJU - SESAR Solution 31: Data Pack for variable profile military reserved areas and enhanced civil-military collaboration Url : https://www.sesarju.eu/sesar-solutions/variable-profile-military-reserved-areas-and-enhanced-civil-military-collaboration</p> <p>EUROCONTROL - SPEC 166 - EUROCONTROL Specification for ASM Support System Requirements supporting the ASM processes at local and FAB level Part I - Baseline Requirements - 1.0 / 09/2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/esdp_16_002_final_spec_ASM_v1.0.pdf</p>		
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 - ATM systems have been adapted to enable real-time ASM data exchanges with local ASM support systems.		
AOM19.2-ASP02	Adapt local ASM support system for real-time ASM data exchanges with NM systems	From: 01/01/2017	By: 31/12/2021
Action by:	ANS Providers		
Description & purpose:	Adapt local ASM support system to provide NM systems real time airspace status updates through the exchange of ASM data. These data consist of pre-notification of activation, notification of activation, de-activation, modification and release of airspace.		
Supporting material(s):	<p>EUROCONTROL - SPEC 112 - EUROCONTROL Specifications for the application of the Flexible Use of Airspace (FUA) - Edition 1.1 - OJ 2009/C 196/05 / 01/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-application-flexible-use-airspace-fua</p> <p>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</p> <p>EUROCONTROL - LARA (Local and sub-Regional Airspace Management Support System) Url : https://www.eurocontrol.int/software/local-and-sub-regional-airspace-management-support-system</p> <p>EUROCONTROL - Advanced FUA Concept - Edition 1.0 Url : http://www.eurocontrol.int/sites/default/files/publication/files/advanced-fua-concept-v1.0-sept-2015.pdf</p> <p>EUROCONTROL - NM B2B Airspace Services Reference Manual Url : https://www.eurocontrol.int/service/network-manager-business-business-b2b-web-services</p> <p>SJU - SESAR Solution 31: Data Pack for variable profile military reserved areas and enhanced civil-military collaboration Url : https://www.sesarju.eu/sesar-solutions/variable-profile-military-reserved-areas-and-enhanced-civil-military-collaboration</p> <p>EUROCONTROL - SPEC 166 - EUROCONTROL Specification for ASM Support System Requirements supporting the ASM processes at local and FAB level Part I - Baseline Requirements - 1.0 / 09/2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/esdp_16_002_final_spec_ASM_v1.0.pdf</p>		
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-11]-ASM support systems enhanced to exchange real-time airspace status updates		
Finalisation criteria:	1 - ASM support systems have been adapted to enable real-time ASM data exchanges with NM.		
AOM19.2-ASP03	Implement procedures related to real-time (tactical) ASM level III information exchange	From: 01/01/2017	By: 31/12/2021
Action by:	ANS Providers		
Description & purpose:	Develop and implement the ASM/ATFCM and ATC procedures for ASM real time data exchanges with different actors and systems (NM, Military authorities, AMC, ATC).		

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Supporting material(s):	<p>EUROCONTROL - SPEC 112 - EUROCONTROL Specifications for the application of the Flexible Use of Airspace (FUA) - Edition 1.1 - OJ 2009/C 196/05 / 01/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-application-flexible-use-airspace-fua</p> <p>EUROCONTROL - NOP Portal User Guide - Edition 21.5-119 Url : https://www.eurocontrol.int/sites/default/files/content/documents/nm/network-operations/user-guides/nop-portal-user-guide-current.pdf</p> <p>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</p> <p>EUROCONTROL - Advanced FUA Concept - Edition 1.0 Url : http://www.eurocontrol.int/sites/default/files/publication/files/advanced-fua-concept-v1.0-sept-2015.pdf</p> <p>SJU - SESAR Solution 31: Data Pack for variable profile military reserved areas and enhanced civil-military collaboration Url : https://www.sesarju.eu/sesar-solutions/variable-profile-military-reserved-areas-and-enhanced-civil-military-collaboration</p> <p>EUROCONTROL - SPEC 166 - EUROCONTROL Specification for ASM Support System Requirements supporting the ASM processes at local and FAB level Part I - Baseline Requirements - 1.0 / 09/2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/esdp_16_002_final_spec_ASM_v1.0.pdf</p>		
ATM Master Plan relationship:	<p>[PRO-011]-ASM Procedures to ensure that the change in airspace availability is promulgated through SWIM and reflected in the NOP</p> <p>[PRO-024]-ASM Procedures related to real-time (tactical) ASM level III information exchange</p>		
Finalisation criteria:	1 - Procedures related to real-time (tactical) ASM level III information exchange implemented.		
AOM19.2-USE01	Adapt airspace users systems for real-time ASM data exchanges with NM	From: 01/01/2017	By: 31/12/2021
Action by:	Airspace Users		
Description & purpose:	Adapt airspace users' systems (Computer Flight Plan Software Providers (CFSP) for real-time ASM data exchanges.		
Supporting material(s):	<p>EUROCONTROL - SPEC 112 - EUROCONTROL Specifications for the application of the Flexible Use of Airspace (FUA) - Edition 1.1 - OJ 2009/C 196/05 / 01/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-application-flexible-use-airspace-fua</p> <p>EUROCONTROL - NOP Portal User Guide - Edition 21.5-119 Url : https://www.eurocontrol.int/sites/default/files/content/documents/nm/network-operations/user-guides/nop-portal-user-guide-current.pdf</p> <p>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</p> <p>EUROCONTROL - Advanced FUA Concept - Edition 1.0 Url : http://www.eurocontrol.int/sites/default/files/publication/files/advanced-fua-concept-v1.0-sept-2015.pdf</p> <p>SJU - SESAR Solution 31: Data Pack for variable profile military reserved areas and enhanced civil-military collaboration Url : https://www.sesarju.eu/sesar-solutions/variable-profile-military-reserved-areas-and-enhanced-civil-military-collaboration</p> <p>EUROCONTROL - SPEC 166 - EUROCONTROL Specification for ASM Support System Requirements supporting the ASM processes at local and FAB level Part I - Baseline Requirements - 1.0 / 09/2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/esdp_16_002_final_spec_ASM_v1.0.pdf</p>		
Finalisation criteria:	1 - Systems have been adapted for real-time ASM data exchanges with NM.		
AOM19.2-NM01	Adapt NM systems for real-time ASM data exchanges	From: 01/01/2017	By: 31/12/2021
Action by:	NM		
Description & purpose:	<p>NM systems should be enhanced to receive and process and display real-time airspace activation, de-activation and modification of ARES using standard format and protocols and include this information in the NOP.</p> <p>NM system should be enhanced to perform the Network impact assessment of the airspace changes resulting of the real-time airspace data exchanges.</p>		

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Supporting material(s):	<p>EUROCONTROL - SPEC 112 - EUROCONTROL Specifications for the application of the Flexible Use of Airspace (FUA) - Edition 1.1 - OJ 2009/C 196/05 / 01/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-application-flexible-use-airspace-fua</p> <p>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</p> <p>EUROCONTROL - Advanced FUA Concept - Edition 1.0 Url : http://www.eurocontrol.int/sites/default/files/publication/files/advanced-fua-concept-v1.0-sept-2015.pdf</p> <p>SJU - SESAR Solution 31: Data Pack for variable profile military reserved areas and enhanced civil-military collaboration Url : https://www.sesarju.eu/sesar-solutions/variable-profile-military-reserved-areas-and-enhanced-civil-military-collaboration</p> <p>EUROCONTROL - SPEC 166 - EUROCONTROL Specification for ASM Support System Requirements supporting the ASM processes at local and FAB level Part I - Baseline Requirements - 1.0 / 09/2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/esdp_16_002_final_spec_ASM_v1.0.pdf</p>		
ATM Master Plan relationship:	[NIMS-42]-NM systems enhanced to receive, process and display real-time tactical (ASM level III) airspace usage information		
Finalisation criteria:	1 - NM systems adapted for real-time ASM data exchanges.		
AOM19.2-NM02	Implement procedures related to real-time (tactical) ASM level III information exchange	From: 01/01/2017	By: 31/12/2021
Action by:	NM		
Description & purpose:	Develop and implement the ASM/ATFCM procedures for ASM real time data exchanges with different actors and systems (NM, Military authorities, CFSPs, ATC, AMC), including a Network impact assessment of the airspace changes resulting of the real-time airspace data exchanges.		
Supporting material(s):	<p>EUROCONTROL - SPEC 112 - EUROCONTROL Specifications for the application of the Flexible Use of Airspace (FUA) - Edition 1.1 - OJ 2009/C 196/05 / 01/2009 Url : https://www.eurocontrol.int/publication/eurocontrol-specification-application-flexible-use-airspace-fua</p> <p>EUROCONTROL - NOP Portal User Guide - Edition 21.5-119 Url : https://www.eurocontrol.int/sites/default/files/content/documents/nm/network-operations/user-guides/nop-portal-user-guide-current.pdf</p> <p>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</p> <p>EUROCONTROL - Advanced FUA Concept - Edition 1.0 Url : http://www.eurocontrol.int/sites/default/files/publication/files/advanced-fua-concept-v1.0-sept-2015.pdf</p> <p>SJU - SESAR Solution 31: Data Pack for variable profile military reserved areas and enhanced civil-military collaboration Url : https://www.sesarju.eu/sesar-solutions/variable-profile-military-reserved-areas-and-enhanced-civil-military-collaboration</p> <p>EUROCONTROL - SPEC 166 - EUROCONTROL Specification for ASM Support System Requirements supporting the ASM processes at local and FAB level Part I - Baseline Requirements - 1.0 / 09/2017 Url : https://www.eurocontrol.int/sites/default/files/publication/files/esdp_16_002_final_spec_ASM_v1.0.pdf</p>		
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 - Procedures related to real-time (tactical) ASM level III information exchange implemented.		

