CP1 Active				4	\PT					
AOP19			Depart	ure Manage	ement Sync	hronised w	vith Pre-dep	arture sequ	encing	
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 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: Applicability Area 1 Initial Operational Capability 01/01/2021 Applicability Area 1

Applicability Area(s) & Timescale(s)

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Departure Management Synchronised with Pre-departure sequencing

Full Operational Capability / Target Date

31/12/2022 Applicability Area 1

European ATM Master Plan

OI step -	[AO-0602]-Collaborative Pre-departure Sequencing						
	Enablers -	CDM-01 PRO-21	4a PRO-214	b			
OI step -	[TS-0201]-B	asic Departure Manageme	ent (Pre-departure	e Management)			
	Enablers -	AERODROME -ATC-08					
						-	
Legend:	WXYZ-001 Covered by SLoA this objective	Covered by SLoA(s) in V	WXYZ-002	Covered by SLoA(s) in another objective		WXYZ-	Not covered in the
		this objective	ZZZ	Objective covering	g the enabler	003	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	
Francisco Dian for Articles Orfere		

European Plan for Aviation Safety

- none -

Operating Environments

Airport

Stakeholder Lines of Action (SLoAs)

SloA ref.	Title	From	Ву
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	Departure Management Synchronised with Pre-departure sequencing					
	Training	04/04/000	4 24/42/2022			
		01/01/202	1 31/12/2022			
Description of finalised a	Operational use and deleted SLoAs is available on the eATM Portal @ https://www.eatmp	01/01/202 ortal.eu/working/depl/ess				
Description of infalloca (
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					
		From:	By:			
AOP19-ASP01	Develop appropriate procedures for synchronisation of initial DMAN with pre-departure sequencing	Applicability Area 1: 01/01/2021	Applicability Area 1: 31/12/2022			
Action by:	ANS Providers					
Description & purpose:	Specific procedures and processes must be implemented to be able to This activity must be synchronised with all involved stakeholders.	handle, calculate and se	quence departing traffic.			
	Note :This SLoA needs to be synchronised between ANSPs and AOs.					
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 202	21, Deliverable D1.1.1 07	/2021			
	Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme					
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.					
		From:	By:			
AOP19-ASP02	Integrate upgraded DMAN system with ECI system	Applicability Area 1:	Applicability Area 1: 31/12/2022			
Action by:	01/01/2021					
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 20	21. Deliverable D1.1.1 07	/2021			
• • • • • • • • • • • • • • • • • • •	Url : https://www.sesardeploymentmanager.eu/publications/deploymer	nt-programme				
Finalisation criteria:	1 - Data integration of DMAN synchronized with pre-departure sequen tested.	cing system with ECI sys	tem is installed and			
		From:	By:			
AOP19-ASP03	Integrate upgraded DMAN systems with A-CDM systems	Applicability Area	Applicability Area 1:			
		1:	31/12/2022			
Action by:	ANS Providers	01/01/2021				
Description & purpose:	Initial DMAN system needs to be updated/upgraded to meet requireme CDM processes.	ents for pre-departure sec	uencing and to feed A-			
	Note :This SLoA needs to be synchronised between ANSPs and AOs.					
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 20	21, Deliverable D1.1.1 07	/2021			
	Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme					
ATM Master Plan	[AERODROME-ATC-08]-Basic Departure Management (DMAN) integrated with A-CDM systems					
relationship.	[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 appropriate systems are updated/upgraded.	pre-departure sequencin	g A-CDM processes and			
		From:	By:			
AOP19-ASP04	Integrate DMAN with A-SMGCS	Applicability Area 1:	Applicability Area 1: 31/12/2022			
		01/01/2021				
Action by:	ANS Providers					

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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-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 competence	ent authority.			
		From:	By:		
AOP19-ASP06	Training	Applicability Area 1:	Applicability Area 1: 31/12/2022		
A stille in here		01/01/2021			
Action by:	ANS Providers				
Description & purpose:	All relevant staff must be duly trained.				
	Note : This SLOA needs to be synchronised between ANSP's and AOs.	Deliverable D1 1 1 07	/2021		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021				
Finalization oritoria	On . https://www.sesardepioymentmanager.eu/publications/depioyment-	programme			
Finalisation criteria:	r - fraining has been completed	From	Dy.		
			Dy.		
AOP19-ASP07	Operational use	1: 01/01/2021	31/12/2022		
Action by:	ANS Providers				
Description & purpose:	DMAN synchronised with pre-departure sequencing is ready for operatic systems have been upgraded, the safety assessment has been delivered completed.	nal use once the proce d and approved, and th	dures are in place, the e training has been		
Finalisation criteria:	1 - DMAN with pre-departure sequencing is put into service.				
		From:	By:		
AOP19-APO01	Provide relevant additional data to A-CDM systems to feed DMAN synchronised with pre-departure sequencing	Applicability Area 1: 01/01/2021	Applicability Area 1: 31/12/2022		
Action by:	Airport Operators				
Description & purpose:	Local A-CDM processes must guarantee that appropriate data necessar will be provided from concerned stakeholders in real-time to feed DMAN	y for establishing a pre- . De-icing data, RWY/T	departure sequencing WY 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 synchro	onized with pre-departu	re sequencing.		
	Develop announista procedures for supelymenia-tion of initial	From:	By:		
AOP19-APO02	DMAN with pre-departure sequencing	Applicability Area 1: 01/01/2021	Applicability Area 1: 31/12/2022		
Action by:	Airport Operators				
Description & purpose:	Specific procedures and processes must be implemented to be able to h This activity must be synchronised with all involved stakeholders.	andle, calculate and se	quence departing traffic.		
	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
AOP19	Departure Management Synchronised with Pre-departure sequencing

ATM Master Plan	[PRO-214a]-Airport CDM Procedures for pre-departure sequencing			
Finalisation criteria:	1 - Operational Procedures for synchronization of initial DMAN with tested, and approved.	pre-departure sequencing h	nave been developed,	
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 AC)s.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021			
ATM Master Plan	Url : https://www.sesardeploymentmanager.eu/publications/deploym	nent-programme		
relationship:	[AERODROME-ATC-08]-Basic Departure Management (DMAN) inte	egrated with A-CDM system	<u>15</u>	
Finalisation criteria:	1 - To take into account data from upgraded DMAN synchronized w appropriate systems are updated/upgraded	ith pre-departure sequencin	g A-CDM processes and	
		From:	Bv:	
AOP19-AP004	Integrate upgraded DMAN system with FCI system	Applicability Area	Applicability Area 1:	
		1:	31/12/2022	
A stien hur	Aliment Oneuctore	01/01/2021		
Action by:	Airport Operators			
Description & purpose.	An Electronic Clearance Input (ECI) system shall be implemented.			
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021			
Finalisation criteria:	1 - Data integration of DMAN synchronized with pre-departure sequencing system with ECI system is installed and tested.			
		From:	By:	
AOP19-APO05	Integrate DMAN with A-SMGCS	Applicability Area 1:	Applicability Area 1: 31/12/2022	
Action by:	Airport Operators	01/01/2021		
Description & purpose:	Integration with A-SMGCS services supports enhanced measuring of	of variable taxi times as airc	raft location and	
	movement on the maneuvering area is monitored.			
Cummonting material(a)	Note : This SLoA needs to be synchronised between ANSPs and AC)S. 2004 Delivereble D4.4.4.07	/2024	
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2	2021, Deliverable D1.1.1 07	/2021	
Finalisation criteria:	1 - Integration of DMAN with pre-departure sequencing with A-SMG	CS has been developed, te	sted and approved	
i manoation ontena.	i integration of Dinnar man pro dopartare ocquerioning warry enro	From:	Bv:	
AOP19-APO06	Safety assessment	Applicability Area	Applicability Area 1: 31/12/2022	
Action by:	Aliment Operators	01/01/2021		
Description & purpose:	The safety assessment of the changes must be developed in coordinate stakeholders. This safety assessment must be delivered to the community of the community o	nation and synchronization	with all concerned	
	Note :This SLoA needs to be synchronised between ANSPs and AC)s.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment	2021, Deliverable D1.1.1 07	/2021	
Finalisation criteria:	1 - Safety assessment has been developed and delivered to the cor	npetent authority		
i mansation criteria.		From:	Bv:	
AOP19-APO07	Training	Applicability Area 1:	Applicability Area 1: 31/12/2022	
Action by:	Airport Operators	01/01/2021		
Description & purpose	All relevant staff must be duly trained.			
	Note :This SLoA needs to be synchronised between ANSPs and AC)s.		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2	2021, Deliverable D1.1.1 07	/2021	
	Url : https://www.sesardeploymentmanager.eu/publications/deployment-programme			

AOP19 Depa	rture Management Synchronised with Pre-departure sequencing
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Finalisation criteria:	1 - Training has been completed.		
AOP19-APO08	Operational use	From:	By:
		Applicability Area 1: 01/01/2021	Applicability Area 1: 31/12/2022
Action by:	Airport Operators		
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.		