

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)

<b>Applicability Area 1</b> (CP1 Airports)	See list of airports in MP Level 3 Implementation Plan - Annexes		
<b>Applicability Area 2</b> (Non-CP1 Airports)	See list of airports in MP Level 3 Implementation Plan - Annexes		
<b>Timescales:</b>	<b>From:</b>	<b>By:</b>	<b>Applicable to:</b>
Initial Operational Capability	01/01/2021		Applicability Area 1

<b>AOP19</b>	<b>Departure Management Synchronised with Pre-departure sequencing</b>
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Full Operational Capability / Target Date	31/12/2022	Applicability Area 1
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References

European ATM Master Plan

Ol step -	<a href="#">[AO-0602]-Collaborative Pre-departure Sequencing</a>							
	Enablers -	CDM-01	PRO-214a	PRO-214b				
Ol step -	<a href="#">[TS-0201]-Basic Departure Management (Pre-departure Management)</a>							
	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
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Essential Operational Changes

Airport and TMA performance
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SESAR Solution

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

RSEQ-B0/2	Departure Management
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Deployment Programme

2.1.1	Departure Management Synchronised with Pre-departure sequencing
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European Plan for Aviation Safety

- none -
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Operating Environments

Airport
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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

<b>AOP19</b>	<b>Departure Management Synchronised with Pre-departure sequencing</b>		
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<b>AOP19-APO07</b>	Training	01/01/2021	31/12/2022
<b>AOP19-APO08</b>	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](https://www.eatmportal.eu/working/depl/essip_objectives)

### Expected Performance Benefits

<b>Safety:</b>	Provision of a more stable pre-departure sequence.
<b>Capacity:</b>	Enhanced tactical runway scheduling. Reduced waiting and taxi times and runway delays.
<b>Operational Efficiency:</b>	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).
<b>Cost Efficiency:</b>	-
<b>Environment:</b>	Reduced waiting time at the runway holding point, which saves fuel and CO2 emissions and allows air navigation service efficiency.
<b>Security:</b>	-

### Detailed SLoA Descriptions

<b>AOP19-ASP01</b>	<b>Develop appropriate procedures for synchronisation of initial DMAN with pre-departure sequencing</b>	<b>From:</b> <b>Applicability Area 1:</b> 01/01/2021	<b>By:</b> <b>Applicability Area 1:</b> 31/12/2022
<b>Action by:</b>	<b>ANS Providers</b>		
<b>Description &amp; purpose:</b>	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. <a href="#">Note :This SLoA needs to be synchronised between ANSPs and AOs.</a>		
<b>Supporting material(s):</b>	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : <a href="https://www.sesardeploymentmanager.eu/publications/deployment-programme">https://www.sesardeploymentmanager.eu/publications/deployment-programme</a>		
<b>ATM Master Plan relationship:</b>	<a href="#">[PRO-214a]-Airport CDM Procedures for pre-departure sequencing</a>		
<b>Finalisation criteria:</b>	1 - Operational Procedures for synchronization of initial DMAN with pre-departure sequencing have been developed, tested, and approved.		
<b>AOP19-ASP02</b>	<b>Integrate upgraded DMAN system with ECI system</b>	<b>From:</b> <b>Applicability Area 1:</b> 01/01/2021	<b>By:</b> <b>Applicability Area 1:</b> 31/12/2022
<b>Action by:</b>	<b>ANS Providers</b>		
<b>Description &amp; purpose:</b>	An Electronic Clearance Input (ECI) system must be implemented. <a href="#">Note :This SLoA needs to be synchronised between ANSPs and AOs.</a>		
<b>Supporting material(s):</b>	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : <a href="https://www.sesardeploymentmanager.eu/publications/deployment-programme">https://www.sesardeploymentmanager.eu/publications/deployment-programme</a>		
<b>Finalisation criteria:</b>	1 - Data integration of DMAN synchronized with pre-departure sequencing system with ECI system is installed and tested.		
<b>AOP19-ASP03</b>	<b>Integrate upgraded DMAN systems with A-CDM systems</b>	<b>From:</b> <b>Applicability Area 1:</b> 01/01/2021	<b>By:</b> <b>Applicability Area 1:</b> 31/12/2022
<b>Action by:</b>	<b>ANS Providers</b>		
<b>Description &amp; purpose:</b>	Initial DMAN system needs to be updated/upgraded to meet requirements for pre-departure sequencing and to feed A-CDM processes. <a href="#">Note :This SLoA needs to be synchronised between ANSPs and AOs.</a>		
<b>Supporting material(s):</b>	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : <a href="https://www.sesardeploymentmanager.eu/publications/deployment-programme">https://www.sesardeploymentmanager.eu/publications/deployment-programme</a>		
<b>ATM Master Plan relationship:</b>	<a href="#">[AERODROME-ATC-08]-Basic Departure Management (DMAN) integrated with A-CDM systems</a> <a href="#">[CDM-01]-Community Specifications for A-CDM</a> <a href="#">[PRO-214a]-Airport CDM Procedures for pre-departure sequencing</a>		
<b>Finalisation criteria:</b>	1 - To take into account data from upgraded DMAN synchronized with pre-departure sequencing A-CDM processes and appropriate systems are updated/upgraded.		
<b>AOP19-ASP04</b>	<b>Integrate DMAN with A-SMGCS</b>	<b>From:</b> <b>Applicability Area 1:</b> 01/01/2021	<b>By:</b> <b>Applicability Area 1:</b> 31/12/2022
<b>Action by:</b>	<b>ANS Providers</b>		

AOP19		Departure Management Synchronised with Pre-departure sequencing	
<b>Description &amp; purpose:</b>		Integration with A-SMGCS services supports enhanced measuring of variable taxi times as aircraft location and movement on the manoeuvring area is monitored.	
		<a href="#">Note :This SLoA needs to be synchronised between ANSPs and AOs.</a>	
<b>Supporting material(s):</b>		SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : <a href="https://www.sesardeploymentmanager.eu/publications/deployment-programme">https://www.sesardeploymentmanager.eu/publications/deployment-programme</a>	
<b>Finalisation criteria:</b>		1 - Integration of DMAN with pre-departure sequencing with A-SMGCS have been developed, tested and approved.	
<b>AOP19-ASP05</b>	<b>Safety Assessment</b>	<b>From:</b> <b>Applicability Area 1:</b> 01/01/2021	<b>By:</b> <b>Applicability Area 1:</b> 31/12/2022
<b>Action by:</b>		<b>ANS Providers</b>	
<b>Description &amp; purpose:</b>		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.	
		<a href="#">Note :This SLoA needs to be synchronised between ANSPs and AOs.</a>	
<b>Supporting material(s):</b>		SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : <a href="https://www.sesardeploymentmanager.eu/publications/deployment-programme">https://www.sesardeploymentmanager.eu/publications/deployment-programme</a>	
<b>Finalisation criteria:</b>		1 - Safety assessment has been developed and delivered to the competent authority.	
<b>AOP19-ASP06</b>	<b>Training</b>	<b>From:</b> <b>Applicability Area 1:</b> 01/01/2021	<b>By:</b> <b>Applicability Area 1:</b> 31/12/2022
<b>Action by:</b>		<b>ANS Providers</b>	
<b>Description &amp; purpose:</b>		All relevant staff must be duly trained.	
		<a href="#">Note :This SLoA needs to be synchronised between ANSPs and AOs.</a>	
<b>Supporting material(s):</b>		SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : <a href="https://www.sesardeploymentmanager.eu/publications/deployment-programme">https://www.sesardeploymentmanager.eu/publications/deployment-programme</a>	
<b>Finalisation criteria:</b>		1 - Training has been completed	
<b>AOP19-ASP07</b>	<b>Operational use</b>	<b>From:</b> <b>Applicability Area 1:</b> 01/01/2021	<b>By:</b> <b>Applicability Area 1:</b> 31/12/2022
<b>Action by:</b>		<b>ANS Providers</b>	
<b>Description &amp; purpose:</b>		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.	
<b>Finalisation criteria:</b>		1 - DMAN with pre-departure sequencing is put into service.	
<b>AOP19-APO01</b>	<b>Provide relevant additional data to A-CDM systems to feed DMAN synchronised with pre-departure sequencing</b>	<b>From:</b> <b>Applicability Area 1:</b> 01/01/2021	<b>By:</b> <b>Applicability Area 1:</b> 31/12/2022
<b>Action by:</b>		<b>Airport Operators</b>	
<b>Description &amp; purpose:</b>		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.	
		<a href="#">Note :This SLoA needs to be synchronised between ANSPs and AOs.</a>	
<b>Supporting material(s):</b>		SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : <a href="https://www.sesardeploymentmanager.eu/publications/deployment-programme">https://www.sesardeploymentmanager.eu/publications/deployment-programme</a>	
<b>ATM Master Plan relationship:</b>		<a href="#">[AERODROME-ATC-08]-Basic Departure Management (DMAN) integrated with A-CDM systems</a>	
<b>Finalisation criteria:</b>		1 - Provision of additional relevant data to A-CDM to feed DMAN synchronized with pre-departure sequencing.	
<b>AOP19-APO02</b>	<b>Develop appropriate procedures for synchronisation of initial DMAN with pre-departure sequencing</b>	<b>From:</b> <b>Applicability Area 1:</b> 01/01/2021	<b>By:</b> <b>Applicability Area 1:</b> 31/12/2022
<b>Action by:</b>		<b>Airport Operators</b>	
<b>Description &amp; purpose:</b>		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.	
		<a href="#">Note :This SLoA needs to be synchronised between ANSPs and AOs.</a>	
<b>Supporting material(s):</b>		SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : <a href="https://www.sesardeploymentmanager.eu/publications/deployment-programme">https://www.sesardeploymentmanager.eu/publications/deployment-programme</a>	

AOP19		Departure Management Synchronised with Pre-departure sequencing	
ATM Master Plan relationship:	<a href="#">[PRO-214a]-Airport CDM Procedures for pre-departure sequencing</a>		
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.		
	<a href="#">Note :This SLoA needs to be synchronised between ANSPs and AOs.</a>		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : <a href="https://www.sesardeploymentmanager.eu/publications/deployment-programme">https://www.sesardeploymentmanager.eu/publications/deployment-programme</a>		
ATM Master Plan relationship:	<a href="#">[AERODROME-ATC-08]-Basic Departure Management (DMAN) integrated with A-CDM systems</a> <a href="#">[CDM-01]-Community Specifications for A-CDM</a>		
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.		
	<a href="#">Note :This SLoA needs to be synchronised between ANSPs and AOs.</a>		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : <a href="https://www.sesardeploymentmanager.eu/publications/deployment-programme">https://www.sesardeploymentmanager.eu/publications/deployment-programme</a>		
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.		
	<a href="#">Note :This SLoA needs to be synchronised between ANSPs and AOs.</a>		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : <a href="https://www.sesardeploymentmanager.eu/publications/deployment-programme">https://www.sesardeploymentmanager.eu/publications/deployment-programme</a>		
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.		
	<a href="#">Note :This SLoA needs to be synchronised between ANSPs and AOs.</a>		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : <a href="https://www.sesardeploymentmanager.eu/publications/deployment-programme">https://www.sesardeploymentmanager.eu/publications/deployment-programme</a>		
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.		
	<a href="#">Note :This SLoA needs to be synchronised between ANSPs and AOs.</a>		
Supporting material(s):	SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 Url : <a href="https://www.sesardeploymentmanager.eu/publications/deployment-programme">https://www.sesardeploymentmanager.eu/publications/deployment-programme</a>		

AOP19		Departure Management Synchronised with Pre-departure sequencing	
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.		

