

SESAR		Active							APT	
AOP13		Automated Assistance to Controller for Surface Movement Planning and Routing								
REG	ASP	MIL	APO	USE	INT	IND	NM	MET	AIS	USP

## 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)

<b>Applicability Area</b>	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	01/01/2016		Applicability Area
Full operational capability		31/12/2025	Applicability Area

## References

### European ATM Master Plan

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

-none-

### Essential Operational Changes

Airport and TMA performance

### SESAR Solution

<b>AOP13</b>	<b>Automated Assistance to Controller for Surface Movement Planning and Routing</b>
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#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
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**Deployment Programme**

- none -	
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**European Plan for Aviation Safety**

MST.029	Implementation of SESAR Runway safety solutions
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**Operating Environments**

Airport
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**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](https://www.eatmportal.eu/working/depl/essip_objectives)

**Expected Performance Benefits**

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

**Detailed SLoA Descriptions**

<b>AOP13-REG01</b>	<b>Coordination and final official approval of procedures by the local regulator is required</b>	<b>From:</b> 01/01/2016	<b>By:</b> 31/12/2025
<b>Action by:</b>	<b>Regulatory Authorities</b>		
<b>Description &amp; purpose:</b>	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.		
<b>Supporting material(s):</b>	SJU - SESAR Solution 22: Data Pack for automated assistance to controller for surface movement planning and routing Url : <a href="https://www.sesarju.eu/sesar-solutions/automated-assistance-controller-surface-movement-planning-and-routing">https://www.sesarju.eu/sesar-solutions/automated-assistance-controller-surface-movement-planning-and-routing</a>		
<b>Finalisation criteria:</b>	1 - All routing and planning functionalities are approved by the regulator for daily operations.		
<b>AOP13-ASP01</b>	<b>Upgrade ATS systems to support automated assistance to air traffic controllers for surface movement planning and routing</b>	<b>From:</b> 01/01/2016	<b>By:</b> 31/12/2025
<b>Action by:</b>	<b>ANS Providers</b>		

<b>AOP13</b>	<b>Automated Assistance to Controller for Surface Movement Planning and Routing</b>		
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<b>Description &amp; purpose:</b>	<p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p>		
<b>Supporting material(s):</b>	<p>EUROCONTROL - Integrated Tower Working Position (ITWP) Baseline HMI Description - V1.0 / 10/2020            Url : <a href="https://www.eurocontrol.int/publication/integrated-tower-working-position-itwp-human-machine-interface-hmi-description">https://www.eurocontrol.int/publication/integrated-tower-working-position-itwp-human-machine-interface-hmi-description</a></p> <p>EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - Edition 2.0 / 04/2020            Url : <a href="https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services">https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services</a></p> <p>SJU - SESAR Solution 22: Data Pack for automated assistance to controller for surface movement planning and routing            Url : <a href="https://www.sesarju.eu/sesar-solutions/automated-assistance-controller-surface-movement-planning-and-routing">https://www.sesarju.eu/sesar-solutions/automated-assistance-controller-surface-movement-planning-and-routing</a></p>		
<b>ATM Master Plan relationship:</b>	<p><a href="#">[AERODROME-ATC-12]-Provision of automatically generated taxi routes for aircraft and vehicles</a></p> <p><a href="#">[AERODROME-ATC-13]-Surface movement information processing system enhanced with storage and dissemination of surface routes</a></p> <p><a href="#">[AERODROME-ATC-18]-Interfacing between DMAN and Routing module</a></p> <p><a href="#">[AERODROME-ATC-44a]-Departure sequence updated taking into account surface management information</a></p> <p><a href="#">[AERODROME-ATC-50]-Advanced Airport Tower Controller Working Position (A-CWP)</a></p>		
<b>Finalisation criteria:</b>	1 - Systems have been upgraded.		
<b>AOP13-ASP02</b>	<b>Ensure the planning and routing function is used to optimise pre-departure sequencing</b>	From: 01/01/2021	By: 31/12/2025
<b>Action by:</b>	<b>ANS Providers</b>		
<b>Description &amp; purpose:</b>	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).		
<b>Supporting material(s):</b>	<p>EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - Edition 2.0 / 04/2020            Url : <a href="https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services">https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services</a></p> <p>SJU - SESAR Solution 53: Data Pack for Pre-Departure Sequencing Supported by Route Planning            Url : <a href="https://www.sesarju.eu/sesar-solutions/pre-departure-sequencing-supported-route-planning">https://www.sesarju.eu/sesar-solutions/pre-departure-sequencing-supported-route-planning</a></p>		
<b>ATM Master Plan relationship:</b>	<a href="#">[AERODROME-ATC-18]-Interfacing between DMAN and Routing module</a>		
<b>Finalisation criteria:</b>	1 - Interaction of DMAN and planning and routing function is implemented.		
<b>AOP13-ASP03</b>	<b>Implement operational procedures implementing automated assistance to air traffic controllers for surface movement planning and routing</b>	From: 01/01/2016	By: 31/12/2025
<b>Action by:</b>	<b>ANS Providers</b>		
<b>Description &amp; purpose:</b>	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.		
<b>Supporting material(s):</b>	<p>EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - Edition 2.0 / 04/2020            Url : <a href="https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services">https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services</a></p> <p>SJU - SESAR Solution 22: Data Pack for automated assistance to controller for surface movement planning and routing            Url : <a href="https://www.sesarju.eu/sesar-solutions/automated-assistance-controller-surface-movement-planning-and-routing">https://www.sesarju.eu/sesar-solutions/automated-assistance-controller-surface-movement-planning-and-routing</a></p>		
<b>Finalisation criteria:</b>	1 - Local procedures have been developed, implemented, approved/certified and are being used by controllers at airports equipped with planning and routing functions.		
<b>AOP13-ASP04</b>	<b>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</b>	From: 01/01/2016	By: 31/12/2025
<b>Action by:</b>	<b>ANS Providers</b>		

<b>AOP13</b>	<b>Automated Assistance to Controller for Surface Movement Planning and Routing</b>
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<b>Description &amp; purpose:</b>	<p>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:</p> <ul style="list-style-type: none"> <li>- Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks;</li> <li>- Develop safety assessment;</li> <li>- Deliver safety assessment to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2.</li> </ul> <p>This safety assessment shall be based on fully validated/recognised method.</p>		
<b>Supporting material(s):</b>	<p>SJU - SESAR Solution 22: Data Pack for automated assistance to controller for surface movement planning and routing            Url : <a href="https://www.sesarju.eu/sesar-solutions/automated-assistance-controller-surface-movement-planning-and-routing">https://www.sesarju.eu/sesar-solutions/automated-assistance-controller-surface-movement-planning-and-routing</a></p>		
<b>Finalisation criteria:</b>	<p>1 - The safety argument for all changes, generated by the deployment of this functionality, has been delivered by the ANSP to the NSA.</p>		
<b>AOP13-ASP05</b>	<b>Train all operational personnel concerned in the use of automated assistance for surface movement planning and routing</b>	From:	By:
		01/01/2016	31/12/2025
<b>Action by:</b>	<b>ANS Providers</b>		
<b>Description &amp; purpose:</b>	<p>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.</p>		
<b>Supporting material(s):</b>	<p>EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - Edition 2.0 / 04/2020            Url : <a href="https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services">https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services</a></p> <p>SJU - SESAR Solution 22: Data Pack for automated assistance to controller for surface movement planning and routing            Url : <a href="https://www.sesarju.eu/sesar-solutions/automated-assistance-controller-surface-movement-planning-and-routing">https://www.sesarju.eu/sesar-solutions/automated-assistance-controller-surface-movement-planning-and-routing</a></p>		
<b>Finalisation criteria:</b>	<p>1 - Controllers training in accordance with agreed training requirements and programme has been completed.</p>		

