Integrated Arrival and Departure management aims at increasing predictability and resilience at an airport by improved co-ordination between ACC/APP and TWR controllers. Arrival and Departure flows to the respective runway are integrated by setting up fixed arrival departure sequencing pattern for defined periods. The successive pattern shall be agreed between ATSUs with the support of a tool considering arrival and departure demand for the RWY(s) concerned. Departure flow to the runway is managed by pre-departure sequencing (integrating route planning) while arrival flow to the runway is managed by arrival metering. Procedures for adjusting the Arrival and Departure sequence shall remain unchanged compared to the previous operating method of just using AMAN and DMAN work independently.

The integration of the two systems is achieved as follows:

a) AMAN and DMAN systems shall be coupled and shall provide with an integrated and shared view on the planned arrival and departure flow (and sequence pattern) to the relevant TWR and APP CWPs.

b) Coupled AMAN/DMAN shall operate in a master/slave configuration; the AMAN setting-up gaps (Arrival Free Intervals) to be filled by the DMAN.

This integration shall rely on a stable and optimised pre-departure sequence supported by an enhanced DMAN as described in PCP sub AF 2.1 and 2.2.

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)

<table>
<thead>
<tr>
<th>Applicability Area</th>
<th>Subject to local need.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timescales:</td>
<td>From:</td>
</tr>
<tr>
<td>Initial operational capability</td>
<td>N/A</td>
</tr>
<tr>
<td>Full operational capability</td>
<td>N/A</td>
</tr>
</tbody>
</table>

References

European ATM Master Plan

OI step - TS-0308 — Flow based Integration of Arrival and Departure Management

Enablers - AERODROME -ATC-09a AERODROME -ATC-50 AOP13-ASP01 APP ATC 161

Legend:

Wxyz-001 Covered by SLoA(s) in this objective

Wxyz-002 Covered by SLoA(s) in another objective

zzz Objective covering the enabler

Wxyz-003 Not covered in the Implementation Plan

Applicable legislation

Nil.

ICAO GANP – ASBUs

B2-RSEQ Coupled AMAN-DMAN

Deployment Programme

AF1 (Arrival Management extended to en route Airspace)

AF2 (Departure management Synchronised with Pre-departure sequencing, Departure Management integrating Surface management Constraints)

SESAR Solution

#54 Flow based Integration of Arrival and Departure Management
## Network Strategy Plan

<table>
<thead>
<tr>
<th>SO6/5</th>
<th>Deliver Airport/TMA efficient operations, in all weather conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>SO4/1</td>
<td>Modernise the local/FAB system capabilities including ATC planning functions and Controller tools</td>
</tr>
</tbody>
</table>

## Operating Environment

Airport, Terminal

## Stakeholder Lines of Action (SLoAs)

<table>
<thead>
<tr>
<th>SLoA ref.</th>
<th>Title</th>
<th>From</th>
<th>By</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATC19-INT01</td>
<td>Promulgate AMCs to ensure a harmonised application of the functional system, including roles and responsibilities</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>ATC19-ASP01</td>
<td>Couple AMAN and DMAN systems</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>ATC19-ASP02</td>
<td>Integrate surface movement processing system with DMAN</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>ATC19-ASP03</td>
<td>Upgrade CWP to incorporate the information from integrated AMAN/DMAN</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>ATC19-ASP04</td>
<td>Develop safety assessment of the changes</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>ATC19-ASP05</td>
<td>Train the controllers in the use of integrated Arrival and Departure Management</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

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

## Expected Performance Benefits

<table>
<thead>
<tr>
<th>Category</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety</td>
<td>No</td>
</tr>
<tr>
<td>Capacity</td>
<td>Contribution to Predictability; increase in resilience.</td>
</tr>
<tr>
<td>Operational Efficiency</td>
<td>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).</td>
</tr>
<tr>
<td>Cost Efficiency</td>
<td>No</td>
</tr>
<tr>
<td>Environment</td>
<td>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).</td>
</tr>
<tr>
<td>Security</td>
<td>No</td>
</tr>
</tbody>
</table>

## Detailed SLoA Descriptions

### ATC19-INT01

**Promulgate AMCs to ensure a harmonised application of the functional system, including roles and responsibilities**

**From:** N/A  **By:** N/A

**Action by:** EASA

**Description & purpose:** Establish and promulgate AMCs to ensure a harmonised application of the functional system, including roles and responsibilities


**Finalisation criteria:** 1 - The procedures for use of Enhanced AMAN-DMAN integration have been promulgated.

### ATC19-ASP01

**Couple AMAN and DMAN systems**

**From:** N/A  **By:** N/A

**Action by:** ANS Provider

**Description & purpose:** Arrival Management (AMAN) and Departure Management (DMAN) systems shall be coupled in a master/slave configuration and shall support co-ordination between ACC/APP and TWR controllers. The AMAN acting as the master is setting-up gaps (Arrival Free Intervals) which shall be filled by the DMAN allocating departures in the AFIs. Changes must be synchronised between the ANSP units (TWR, APP and ACC) providing services to the airport / runway. Integration between ANSP and Airport systems may be required at each deployment location depending on the ownership arrangement.
### Supporting material(s):

**ATC19-ASP02**

Integrate surface movement processing system with DMAN

<table>
<thead>
<tr>
<th>From</th>
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<tbody>
<tr>
<td>N/A</td>
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</tbody>
</table>

**Action by:** ANS Provider

**Description & purpose:**

The integration of AMAN and DMAN shall rely on a stable and optimized pre-departure sequence. The aircraft operator provides DMAN with an accurate Target off Block Times (TOBT) via its AOCC or via airport's CDM interface. This provides accurate Target Start-Up Approval Times (TSATs), reliable enough to allow the Controller to adhere to the pre-departure sequence. The integration will enable flow-based improvement of operational management of the traffic among AMAN, DMAN and surface management services, at airports with RWYs used for both arriving and departing flights.

**Supporting material(s):** SJU - SESAR Solution 54: Data pack for Flow based integration of arrival and departure management.

**Finalisation criteria:**

1. The system for surface movement processing has been integrated with DMAN.

---

### Supporting material(s):

**ATC19-ASP03**

Upgrade CWP to incorporate the information from integrated AMAN/DMAN

<table>
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<tr>
<th>From</th>
<th>By</th>
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<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Action by:** ANS Provider

**Description & purpose:**

Upgrade CWP to enable display and management of the data coming from integrated AMAN/DMAN.

**Supporting material(s):** SJU - SESAR Solution 54: Data pack for Flow based integration of arrival and departure management.

**Finalisation criteria:**

1. The system has been upgraded.

---

### Supporting material(s):

**ATC19-ASP04**

Develop safety assessment of the changes

<table>
<thead>
<tr>
<th>From</th>
<th>By</th>
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<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Action by:** ANS Provider

**Description & purpose:**

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 54: Data pack for Flow based integration of arrival and departure management.

**Finalisation criteria:**

1. The safety argument for all changes, generated by the deployment of this functionality, has been delivered to the NSA.

---

### Supporting material(s):

**ATC19-ASP05**

Train the controllers in the use of integrated Arrival and Departure Management

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
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</tbody>
</table>

**Action by:**

**Description & purpose:**

Train the controllers in the responsibilities and actions that should be taken in relation to use of integrated AMAN-DMAN supporting APP and TWR operations ("Flow based Integration of Arrival and Departure Management").

**Supporting material(s):** SJU - SESAR Solution 54: Data pack for Flow based integration of arrival and departure management.

**Finalisation criteria:**

1. The training plans have been updated and a training package has been developed
2. The concerned personnel has been trained