

Integrated AMAN/DMAN

Flexible runway management



Key facts

- Conforms with the ICAO Aviation System Block Upgrades (ASBU) level 2.
- Successfully validated within the Single European Sky ATM Research (SESAR) programme.
- Enables European ANSPs and airports to comply with the Common Project One (CP1) mandate for AMAN/DMAN integration.
- Supports Airport Collaborative Decision Making (A-CDM) by calculating target times for departure traffic (TSAT, TTOT) in coordination with arrival management.
- Successfully deployed operationally for CAA Singapore in 2021 as the world's first Integrated AMAN/DMAN.

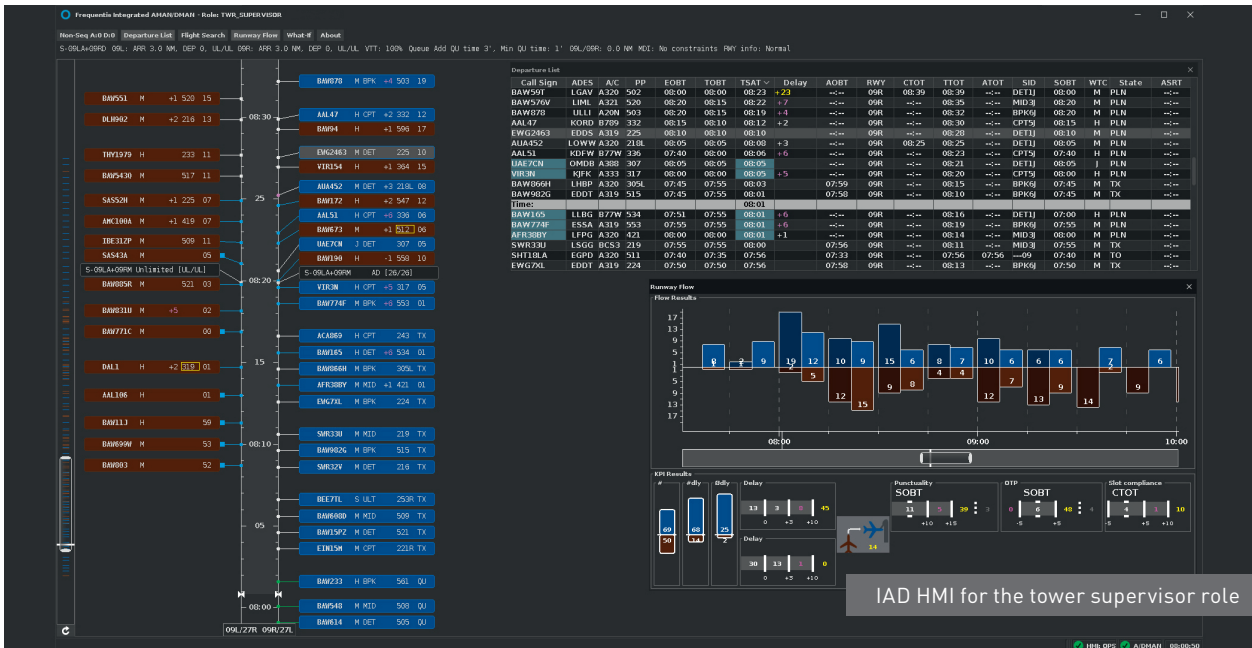
Improved airport performance through decision-making support for tower and approach

Synchronisation of arrival and departure traffic for multiple runways and runways operated in mixed mode relies upon consistent information and joint decision-making between the relevant ATC stakeholders. Optimising runway capacities to match demand and balancing traffic accordingly are crucial for achieving peak airport performance, particularly when factoring in additional constraints such as TMA (Terminal Manoeuvring Area) route restrictions and departure slot windows.

The Frequentis Integrated Arrival/Departure Manager (IAD) facilitates collaboration between tower and approach by providing supervisors and controllers with a common Human-Machine Interface (HMI) and joint planning functions. It also allows for automated data sharing of real-time predictions with other airport stakeholders. IAD significantly improves the decision-making processes and enables a systemised approach to organising arrival and departure traffic. It allows the tower and approach controller teams to collaboratively assess traffic and identify efficient measures, such as allocating arrival and departure traffic effectively to the runway system and adjusting arrival and departure rates per runway accordingly.

IAD offers automatic recommendations for the most efficient traffic pattern based on performance-driven optimisation. This leads to a more balanced utilisation of the available runway resources and enables well-organised air traffic movements to and from the airport, resulting in fewer delays. There are also environmental benefits such as improved noise abatement and reduced CO2 emissions.

IAD integrates our globally proven Arrival and Departure Manager (AMAN/DMAN) products to enhance air traffic controllers' decision-making processes. With over two decades of experience in deploying AMAN and DMAN products worldwide, Frequentis enables customers to benefit from more efficient processes, contributing to more sustainable operations.



IAD HMI for the tower supervisor role

Benefits

- Improved situational awareness and productivity for tower and approach based on common HMIs.
- Reduced arrival and departure delays by operating multiple runway systems and mixed-mode runways in accordance with the actual traffic demand.
- Reduction in airborne and ground holding, leading to reduced emissions and improved sustainability.
- Most efficient capacity utilisation through effective runway allocation and traffic sequencing that takes into consideration both arrival and departure flight information.
- Improved noise abatement procedures through coordinated and effective arrival and departure route allocations.

Common HMI and joint planning functions

The IAD HMI visualises both arrival and departure traffic, allowing controllers to have a shared view of the traffic demand and planned sequences. Runway closure slots or changes in runway strategy are displayed to both the tower and approach for improved situational awareness and joint decision-making, all facilitated by the IAD planning capabilities.

Coordination of arrivals and departures

IAD provides various functions that support the coordination of inbound and outbound flights, including traffic load windows, consideration of flow constraints for runway sequencing, as well as what-if analysis. Additionally, IAD can also provide automatic suggestions, such as the most efficient arrival/departure pattern.

Runway balancing

IAD includes a runway balancing function that considers alternative runways for arrival and departure traffic if multiple runway assignments are possible. In such cases, IAD balances these flights over the available runways, considering applicable constraints, to achieve desired performance objectives.

Consideration of additional ATC constraints

For runway sequencing, IAD considers additional restrictions, such as Air Traffic Flow Management (ATFM) slot windows or Minimum Departure Intervals (MDI) for the affected departure routes. This ensures that the available runway capacity is used to the maximum while respecting all applicable ATC constraints.

Further information



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