AMAN

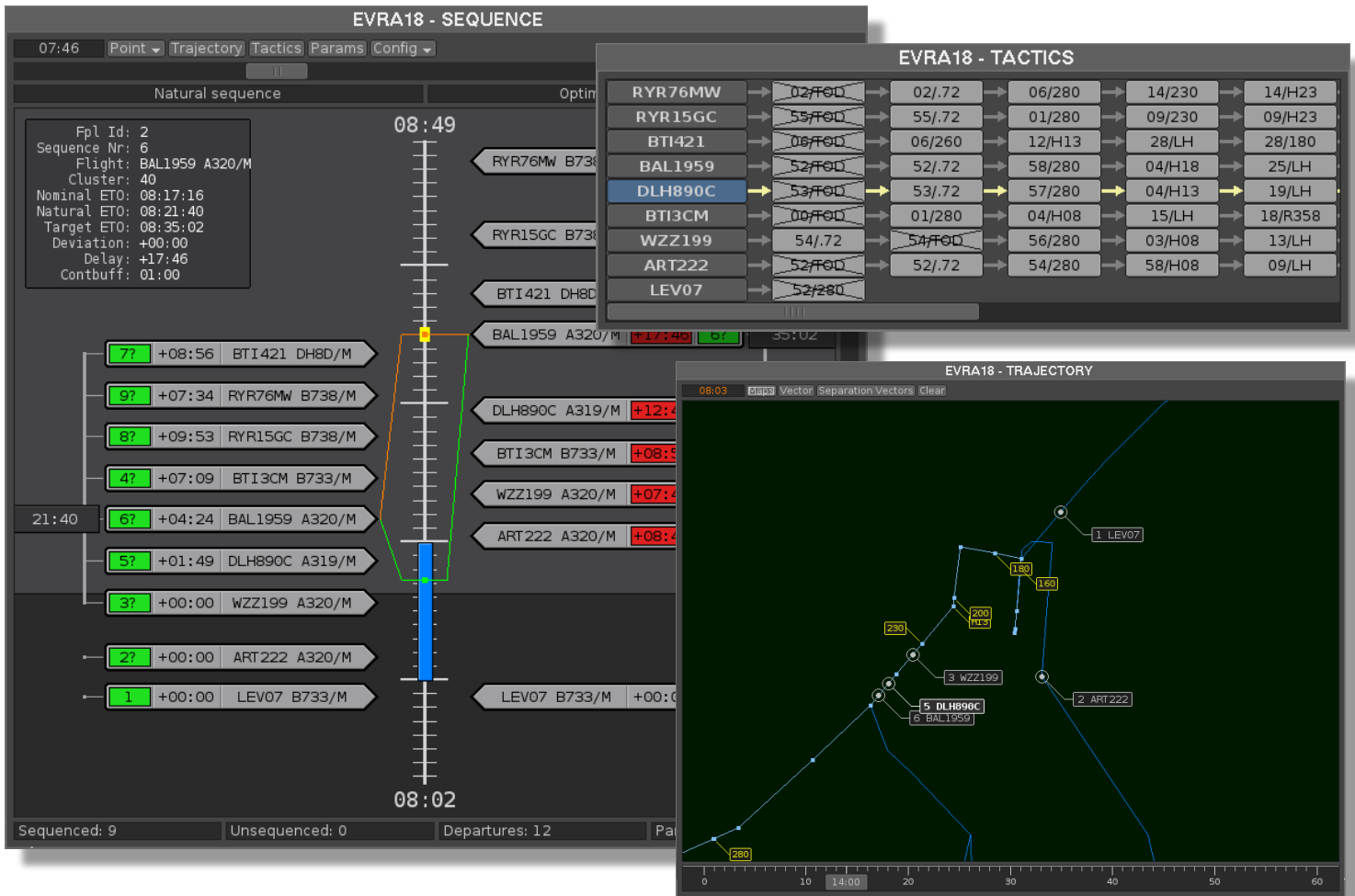## Arrival Manager

Delivered as part of ATMSys, as a standalone tool or integrated within a third-party ATM system. Fully adaptable – content, layout and parameters can easily be tailored to individual requirements.

- **PBN compatible**
- **Highly advanced, sophisticated algorithms**
- **Improved fuel efficiency**
- **Reduction in delay and associated cost**
- **Compliant with ICAO regulations and SESAR strategy**

Operation

The AMAN system is an automated application that calculates optimised arrival sequences for En-route and Approach Controllers. It can be synchronised with an airport DMAN system, allowing the Tower and Ground Controllers to plan departures based on accurate arrival times.

In the Approach environment, AMAN determines the demand for the runway and creates an optimised arrival sequence based on the airspace configuration, actual location and 4D-trajectory or flight plan of each aircraft. The sequence is then presented to the Controller. This sequence can then be manipulated by the Controller if required, and once the sequence is finally accepted by the Controller, AMAN provides "advisories". These are indications to the Controller as to which speed, heading, altitude or holding instructions are required in order to adhere to the sequence. Flight labels for flights which have been sequenced by AMAN contain a sequence number. In the event of an emergency or priority flight, this can be entered into the system using the mouse and the sequence is automatically recalculated.

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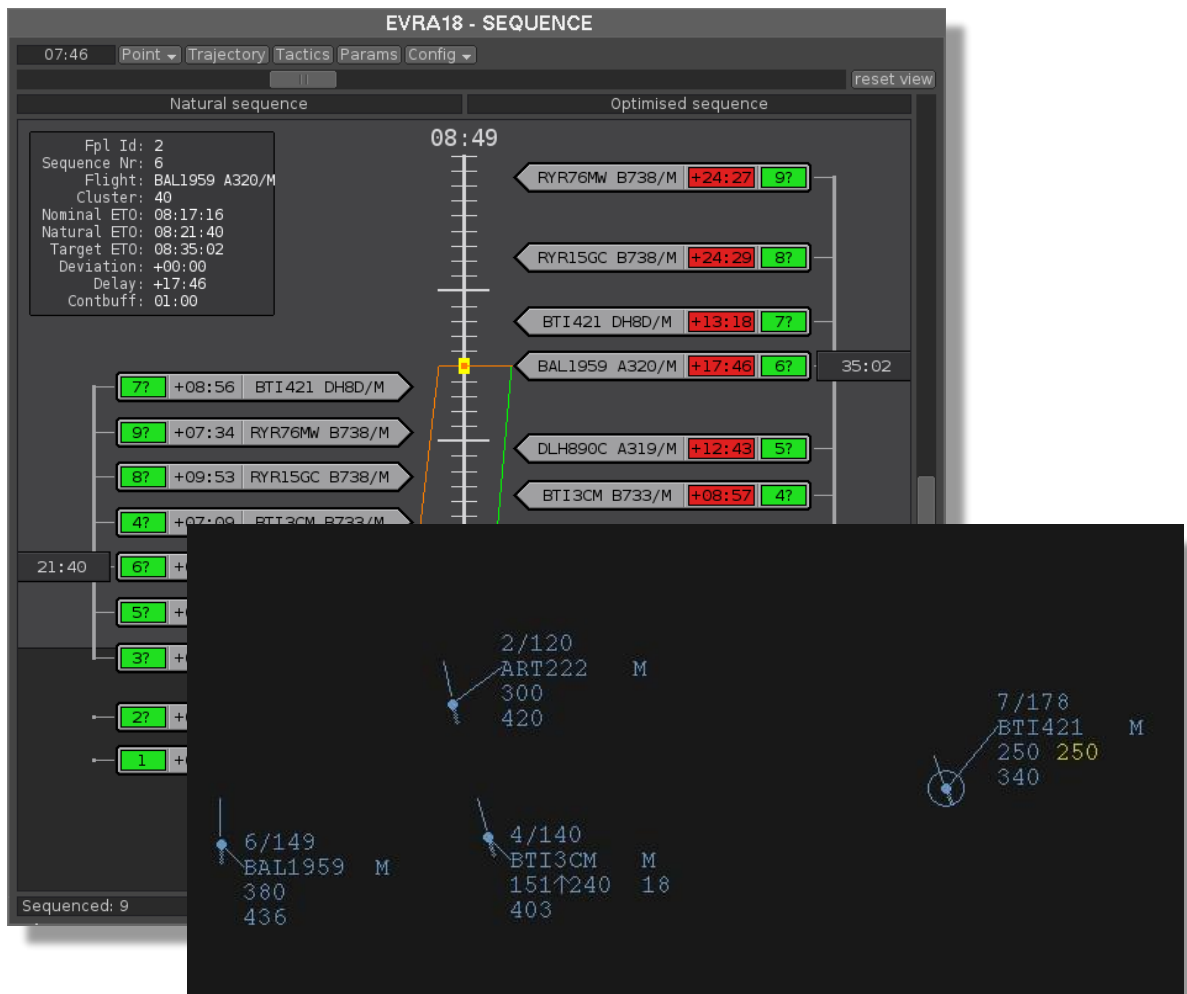
AMAN Tactics

AMAN creates an arrival sequence using various tactics, which are applied in the following priority order:

1. *Speed control*
2. *Vectoring*
3. *Holding*

It is possible to view the AMAN tactics applied to each flight in the tactics window, together with the time at which the manoeuvre is to be applied. This is presented in the format "TIME/MANOEUVRE" (e.g. "53/.72", meaning "at time 53, maintain speed Mach .72"), as the window below illustrates:

EVRA18 - TACTICS

|				
RYR76MW	02/TOD	02/.72	06/280	14/230	14/H23
RYR15GC	55/TOD	55/.72	01/280	09/230	09/H23
BTI421	06/TOD	06/260	12/H13	28/LH	28/180
BAL1959	52/TOD	52/.72	58/280	04/H18	25/LH
DLH890C	53/TOD	53/.72	57/280	04/H13	19/LH
BTI3CM	00/TOD	01/280	04/H08	15/LH	18/R358
WZZ199	54/.72	54/TOD	56/280	03/H08	13/LH
ART222	52/TOD	52/.72	54/280	58/H08	09/LH
LEV07	52/280				

AMAN Trajectories

In addition to the tactics window above, the Controller may also wish to see the overall flow of traffic according to the AMAN sequence. The trajectory window provides this information, with a time slider allowing the Controller to scroll and view the flight trajectories over time:

Advisories

When a manoeuvre is due for an AMAN-sequenced flight, the Controller is presented with "advisories" in the flight label in the ASD for the affected flight, shown here in purple:
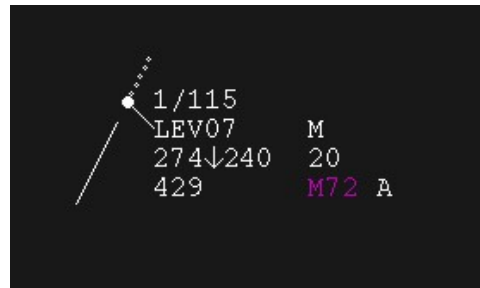
The Controller selects the advisory with the mouse, and the instruction is entered into the FPL system. If the flight is CPDLC-connected, the relevant instruction is automatically sent (after confirmation if required), otherwise the instruction is sent by voice.

Manual sequencing and probe function

AMAN presents the optimal arrival sequence for a given runway based on known trajectory and surveillance data. If the Controller wishes to manually edit the sequence, this is possible by "drag and drop" of the labels in the AMAN window. With every change of position within the sequence, AMAN presents the new time to lose/gain for the affected flights. Once the Controller is satisfied with the sequence, they can accept it and AMAN then provides the appropriate advisories.

AMAN/DMAN synchronisation

Where available, the AMAN system can synchronise with a Departure Manager (DMAN). This allows Tower Controllers to share information with the AMAN system, such as runway acceptance rate, runway closures/departure blocks, low visibility procedures etc. When such information is received, AMAN automatically recalculates a new arrival sequence and presents this to the Approach Controller for approval.