

Increase safety with

# Advanced Routing and Guidance



# How does Advanced Routing and Guidance work?

## Are you ready?

A steady growth in airport ground movements will lead to capacity bottlenecks and will increase the risk of accidents at airports with high traffic volumes. Routing and Guidance increase safety through enhanced situational awareness for Air Traffic Controllers (ATCOs) and expand the Safety Nets with conflict resolution and deviation monitoring. Short taxi distances and reduced taxi times will not only increase the efficiency of an airport's taxi operations, it will also decrease the environmental impact of flight operations.

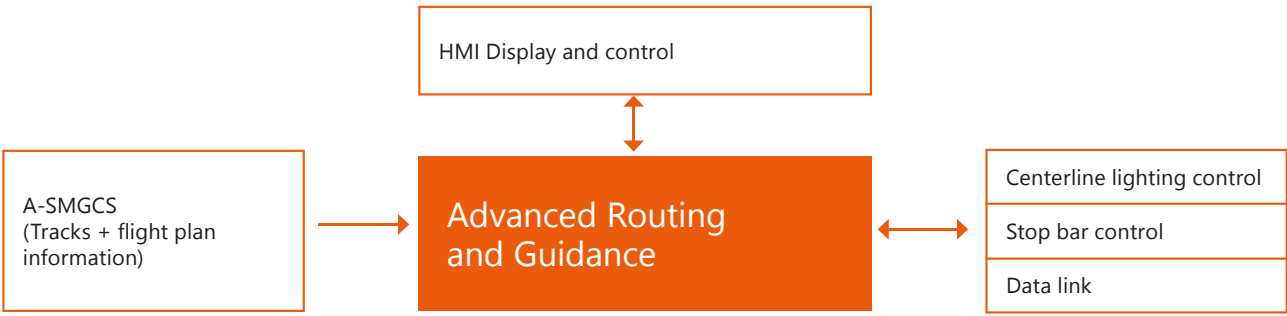
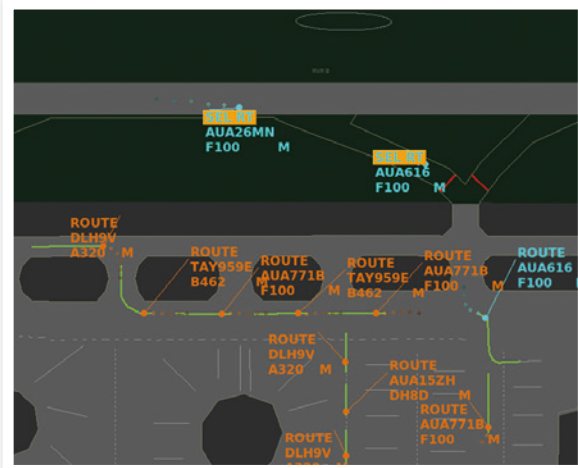
The Routing and Guidance solution from ADB SAFEGATE has been developed as an integrated part of our A-SMGCS (ACEMAX) and supports the "Follow the Green" concept.

## Routing

ADB SAFEGATE Routing and Guidance solution provides a state-of-the-art routing algorithm to find the most appropriate route for each mobile by taking the following criteria into consideration:

- ▶ Route Length
- ▶ Aircraft Wingspan
- ▶ Mobile Weight
- ▶ Allowed Taxi Directions
- ▶ User-defined segment weights

The functionality is integrated into the workflow of ATCOs in an intuitive, simple and non-intrusive manner. The Routing function is located directly in the A-SMGCS label of a mobile to avoid cluttering the display.



*The Advanced Routing and Guidance system and interfaces.*

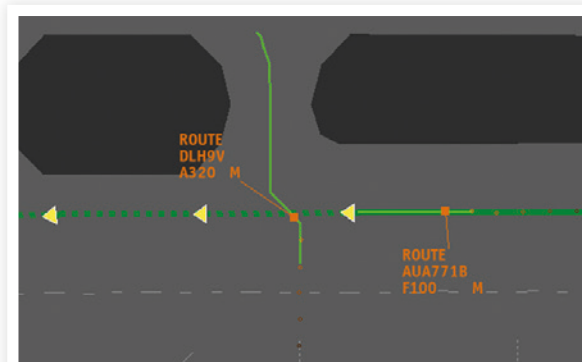
## Guidance

Using the centerline lighting for guidance of mobiles is most effective when single-lamp control is supported by the airfield lighting system. The centerline lights are turned on for a specific distance in front of a mobile and turned off behind it. In addition, the guidance module can control stop bars. Therefore the pilot or driver of a mobile only needs to follow the green lights to get to the proper destination. Furthermore, it is possible to provide the route via data link directly to an aircraft. Single-Lamp Control systems are already available and can be provided by ADB SAFEGATE.

If surveillance data for a mobile is unavailable, the system will light the whole route and ATCOs may track the progress of the aircraft or vehicle.

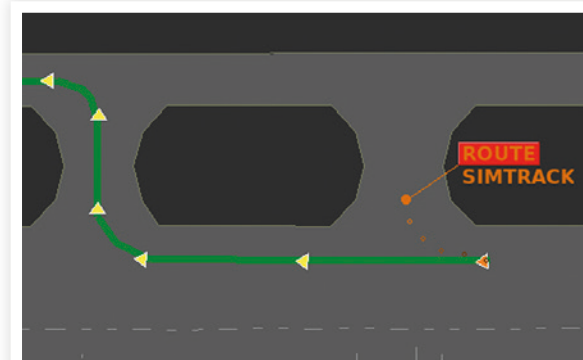
## Conflict Resolution

The system continuously monitors the progress of mobiles along its prescribed route. When the system determines that two or more mobiles will arrive at the same intersection at a similar instance in time, the system anticipates a conflict. In this case the mobiles are prioritized according to a set of rules to be defined individually for each airport. The system also includes functionality to prevent nose-to-nose deadlocks.



## Deviation Monitoring

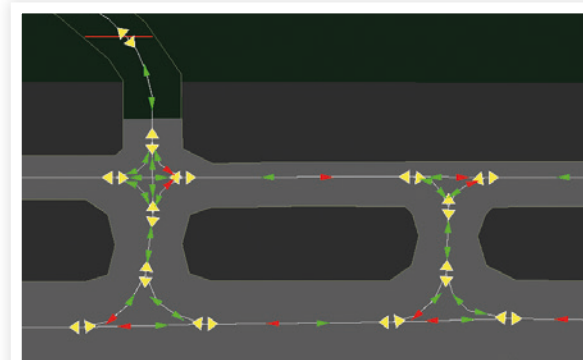
The route deviation monitoring is a separate function that continuously checks the conformance of mobiles with their respective assigned routes. When a deviation occurs, an alarm will be raised and the system may offer recovery options such as rerouting from the current position or changing to untracked mode.



## Areas of Responsibility and Aerodrome Configuration

The Routing and Guidance system from ADB SAFEGATE supports splitting the maneuvering area into smaller areas of responsibilities (AOR). Each AOR can be assigned to a different ATCO.

The configuration of taxiway directions and runways in use can be configured on-line, for example to reflect one-way operations. These aerodrome configurations may be saved and loaded for reuse, for example in case of runway configuration changes.



## Key Features

- Automatic Route Creation based on flight plan data
- Automated Guidance, for example 'Follow the Green' concept
- Conflict Resolution
- Deviation Monitoring
- Online changing of Taxiway Configuration

## Benefits

- Reduced taxi times, especially during low visibility conditions
- Reduced fuel burn and reduced emissions of greenhouse gas
- Reduction of route deviations
- Enhanced safety and enhanced situational awareness for pilots and ATCOs
- Increased capacity and enhanced safety on the movement area
- Easily expandable to meet and support future requirements and procedures





ADB SAFEGATE is a leading provider of intelligent solutions that deliver superior airport performance from approach to departure. We partner with airports and airlines to analyze their current structures and operations, and jointly identify and solve bottlenecks. Our consultative approach enables airports to improve efficiency, enhance safety and environmental sustainability, as well as reduce operational costs. Our portfolio includes solutions and services that harmonize airport performance, tackling every aspect of traffic handling and guidance, from approach, runway and taxiway lighting, to tower-based traffic control systems and intelligent gate and docking automation.

ADB SAFEGATE has 900+ employees in more than 20 countries and serves some 2,000+ airports in more than 175 countries.

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