

PRISMA as back-up ATM automation system for increased resilience



PRISMA – the ideal candidate for an ATM automation back-up system:

- Supports ANSPs in ensuring business continuity
- Contributes to safeguarding critical national infrastructure
- Offers a full range of ATM back-up systems, also in combination with Frequentis VCS
- Enables upgrade from a basic “clear the sky” system to a full, high-performance back-up system through iterative extensions
- Based on the Frequentis MOSAIX platform for managing integrated ATM applications across controller working positions, control rooms and operational centres
- Built-in virtual-centre capabilities in line with the SESAR virtual centre framework

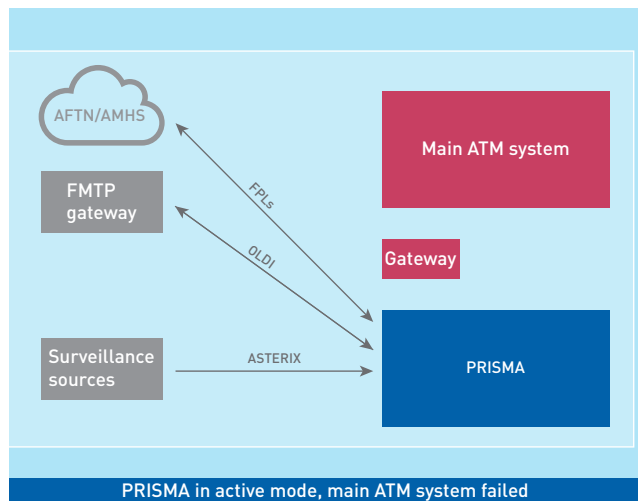
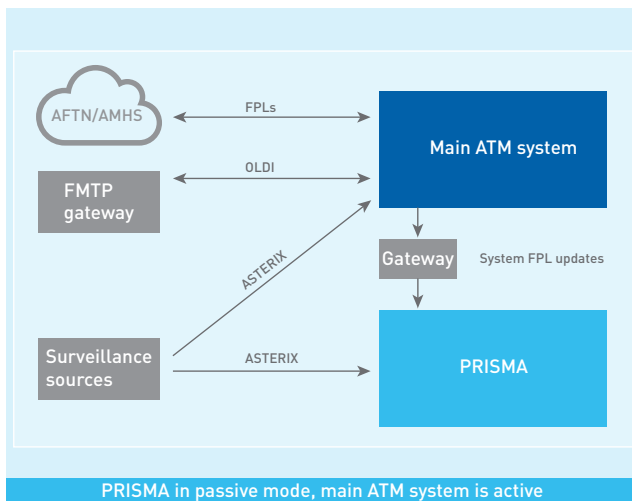
ATM automation systems form a vital part of the ANSPs' infrastructure, providing essential functions to support controllers with the safe separation of aircraft in their controlled sectors. One key purpose of the ANSPs is to ensure that these safety-critical ATC services run uninterrupted at all times – regardless of any crisis or threats such as natural disasters, cyber threats, hardware failures, software obsolescence, network failures and other potential disruptions. Thus, ANSPs need a robust contingency plan and back-up option for their ATM automation systems.

PRISMA as a back-up system is the best possible solution to ensure business continuity, increase resilience and prevent ATC Zero. PRISMA is a scalable, fully functional ATM automation system, supporting all air navigation service functions, from pre-flight planning to real-time situational awareness in a single, modern solution.

With the modular PRISMA ATM automation system the Frequentis group supplies the aviation industry with a full set of ATM automation back-up systems, ranging from “clear the sky” (CTS) systems to complete back-up solutions for the main ATM systems.

If the back-up system is identical to the main system, a large potential risk is embedded: any software failure in the main system will be replicated in the back-up system as well, leading to a double failure. Consequently, by setting up a back-up ATM automation system which is dissimilar from the main ACC, ANSPs will increase their resilience and reduce the risks of ATC Zero.

Whether ANSPs opt for a simple CTS or for a full-scale high-performance back-up system, our approach always includes strong customer involvement from the very beginning of the project by means of agile software development.



- Agile development process allowing adjustment of the back-up system feature development to be aligned with the main ATM automation system adaptations
- Customer involvement from the very beginning at every stage of software development, review and testing

“Clear the sky” back-up system

For limited capacity and performance requirements the CTS configuration is the ideal starting point. The CTS back-up system is designed for use in case of major failure of the main ATM system to swiftly remove aircraft from the controlled sector and to close the airspace safely. This configuration consists of a PRISMA controller working position (CWP) with the air situation display (ASD) receiving all available surveillance data sources. In passive mode PRISMA receives the same data from the surveillance data sources as the main ATM system. In case of failure of the main ATM system, PRISMA takes over immediately depicting the current air situation picture. The modularity of PRISMA enables our customers to start with a simple CTS back-up system and add further components over time until finally having a high-performance contingency back-up system, as described below.

Contingency back-up system

For the highest capacity and performance requirements PRISMA can be configured as a contingency back-up system, including similar components to the main ATM automation system. The PRISMA system running in hot stand-by mode comes with the CWPs plus additional flight data processing system (FDPS) and SafetyNets (SNET) components. The FDPS correlates updates to system flight plans from the main ATM system with the surveillance data coming from the various sensors and surveillance sources. Via its respective gateway, the FDPS takes into account the ATCO clearances entered into the main ATM system. In case of failure of the main ATM automation system PRISMA becomes immediately active and shows all targets and flight plan updates on its CWPs.