Product brief: MSDF

Multi-sensor data fusion

Accurate and reliable surveillance information for all objects within an area of interest is essential for safe and efficient traffic management. The MSDF multi-sensor data fusion and tracking system forms the powerful processing centrepiece of the Frequentis group's surveillance solutions. It delivers highly accurate and highly reliable surveillance information services by making use of measurements from multiple surveillance sensors and fusing them into one seamless traffic situation picture for air and ground. MSDF features versatility supporting diverse fields of application and a wide range of surveillance sensor technologies. It allows for the easy integration of new kinds of surveillance technologies.

Key features

Surveillance data fusion and dissemination

MSDF serves as a surveillance engine, delivering improved accuracy, richer information and better fault tolerance by fusing data from multiple surveillance sensors into one continuously disseminated, seamless traffic situation picture for air and ground.

Diverse fields of application

MSDF is versatile and supports diverse traffic management applications and target environments, including airports, remote digital tower solutions, U-space/UTM, counter UAS or ATM solutions. MSDF is scalable with regards to number of sensors & targets, areas of interest and service outputs.

Surveillance sensor technologies

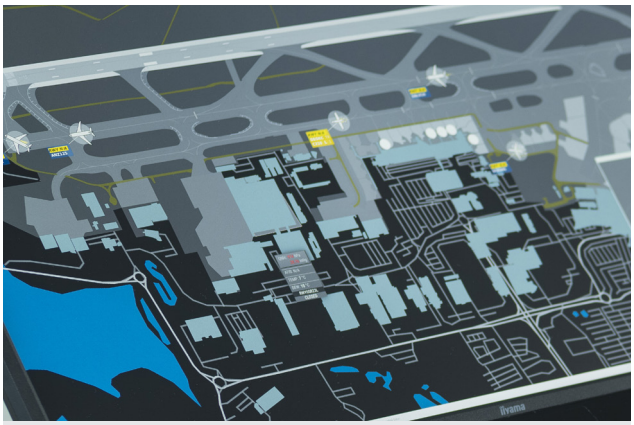
MSDF supports radars (SMR, PSR, SSR, ASR, Mode-S, CMB), ADS-B (ground- and space-based), multilateration (wide & local area MLAT), tracker sources, drone data sources and electro-optical sensors. MSDF implements an open architecture that allows for the easy integration of new sensor types.

Deep Domain knowledge

Frequentis Comsoft is the competence centre for surveillance within the Frequentis group and offers deep expertise in surveillance data fusion and tracking technologies.

Performance

MSDF delivers outstanding data fusion and tracking performance. MSDF meets ESASSP and ED87D mandatory requirements.



MSDF at a glance

- Scalable surveillance services for diverse fields of application, including A-SMGCS, U-space, remote digital tower and ATM
- Seamless air and ground tracking
- Supports a broad range of surveillance sensor technologies
- Improves detectability, accuracy, information richness and fault tolerance
- Conforms to EUROCONTROL ESASSP and EUROCAE ED87D mandatory requirements

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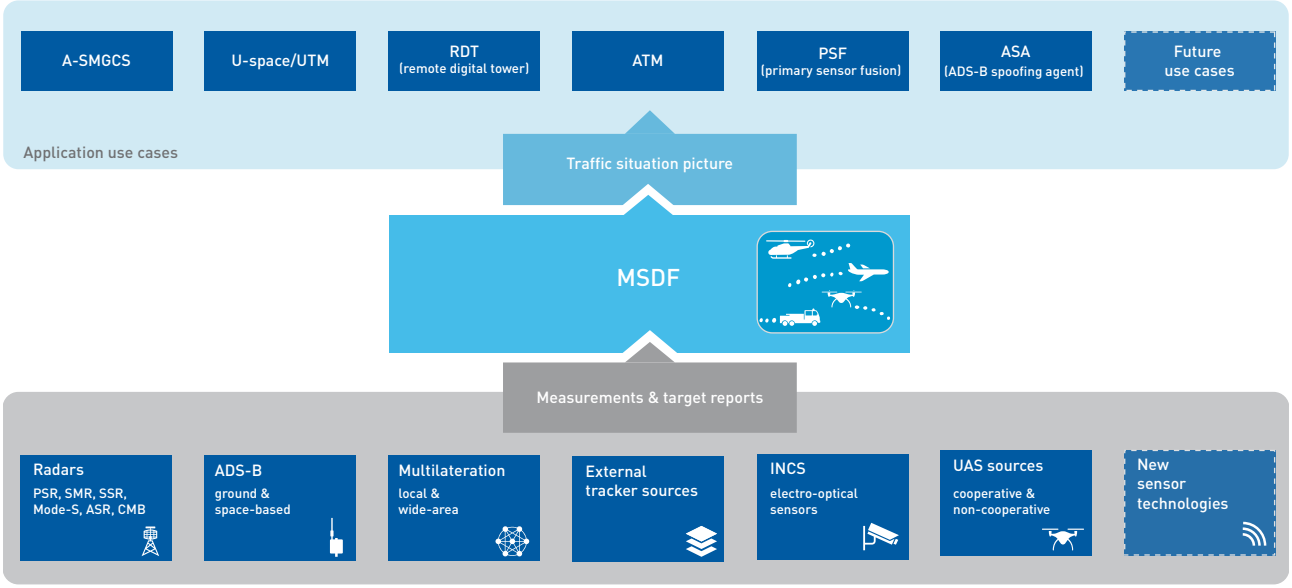

Use cases

Surveillance service for A-SMGCS

Airport traffic situational awareness on the ground and in the air through identification, position and kinematic attributes of aircraft and vehicles within a predefined coverage volume.

Tracking service for U-space/UTM

Situational awareness for manned and unmanned aircraft systems (UAS) through the establishment of a unified traffic situation picture based on multiple cooperative and/or non-cooperative sensor sources.

Data fusion & tracking for RDT

Enables video cameras as additional means of surveillance for remote digital tower solutions (RDT) through fusion and tracking of electro-optical object detections together with conventional surveillance layers.

Main/back-up tracker for ATM

Accurate and up-to-date situational awareness for ATM automation systems (en-route and/or approach).

ADS-B spoofing agent service (ASA)

Enriched ADS-B sensor with independent position verification, indicating suspect ADS-B reports and thus enabling monitoring against jamming and spoofing situations.

Primary sensor fusion service (PSF)

Fusion of one/multiple primary radar sensors e.g. for wind-turbine-radar-interference mitigation or drone-beyond-visual-line-of-sight operation applications.

Facts and figures

Sensor technologies	PSR, SMR, SSR, Mode-S, ASR, CMB, ADS-B, MLAT, external tracker sources, electro-optical sensors, cooperative & non-cooperative UAS sensors
Service outputs	Periodic and event-driven surveillance services
Protocols	EUROCONTROL ASTERIX standard, UDP/IP, SNMP
Standards	ESASSP (EUROCONTROL Specification for ATM Surveillance System Performance) and EUROCAE ED87D (MASPS for A-SMGCS) mandatory requirements, EUROCAE ED153 (Guideline for ANS Software Safety Assurance) SWAL3
Redundancy	Fully redundant system architecture with hot-standby concept
Deployment options	Enterprise (on-premises), cloud, private cloud
Expert services	System configuration and optimisation (tuning), comprehensive performance reports, operator and administrator training, system rollout and acceptance testing

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