# RPAS/ATC validation environment

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## "PAVING THE WAY FOR RPAS INTEGRATION INTO NON-SEGREGATED AIRSPACE BY INTEGRATED RPAS/ATC SIMULATION"

Integration of RPAS (Remotely Piloted Aircraft System) into non-segregated airspace is recognized as a major issue to be solved for future acceptance of RPAS in air transport. Up to now most civil and military RPAS operations are taking place in segregated airspace in order to ensure separation and collision avoidance with other traffic. This limitation to segregated airspace limits the exploitation of the potential capabilities of RPAS; hence unmanned aircraft must be able to fly their mission in airspace where other traffic is operating as well. The integration must be safe, while adhering to operational practices that are compatible with those of manned aircraft.

Major challenges lie ahead

- Full access to all airspace classes in the Single European Sky
- Separation and collision avoidance with other traffic
- Adequate user interface for Remote Pilot Station (RPS) and Air Traffic Control (ATC) working position
- Emergency recovery procedures (e.g. loss of communication link)
- Training for Remote Pilot and Air Traffic Controller (ATCo)
- Safe integration in airport operations

# "A UNIQUE COMBINATION OF RPAS AND ATC SIMULATION FOR ATM VALIDATIONS"

**NLR's flexible and modular RPAS/ATC validation environment is designed to support the development of solutions to meet these challenges. The facilities have flexible interface capabilities (e.g. for interfacing with SWIM) and are scalable and adaptable to meet specific validation goals for a wide variety of stakeholders, both civil and military.**

The RPAS/ATC validation environment has specific added value for programmes like SESAR, supporting both V2 and V3 experiments (in conformance with the Concept Lifecycle Model of E-OCVM). With this unique combination of RPAS and ATC simulation NLR can perform ATM validations on human factors, capacity and efficiency issues regarding the safe integration of one or more simultaneous unmanned aircraft in non-segregated airspace.

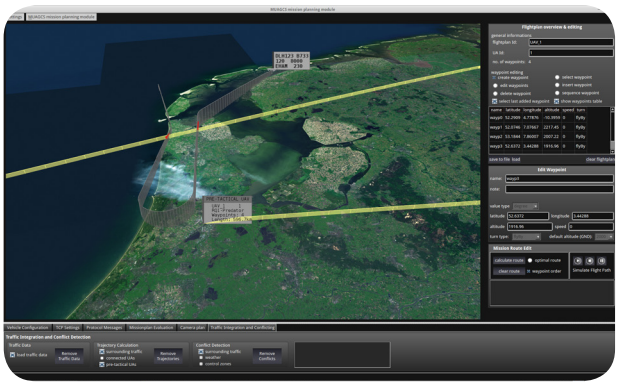
NLR operates a variety of physically different but highly interoperable simulators, including the Multi-Unmanned Aircraft Supervision Testbed (MUST) and NLR's ATC Research Simulator (NARSIM) with realistic simulations of operational environments for area control, approach control and tower control.

## Features

- A wide range of unmanned aircraft types
- Live and simulated platforms and payloads
- STANAG 4586 compliant
- Platform and payload control
- Preflight planning (check against fuel, terrain and traffic)
- Reconfigurable graphical user interface, both PC and tablet based
- External communication (e.g. TCP/UDP, DIS, HLA, data-link)
- Scenario and mission generation
- ADEXP traffic information
- Logging functionality

## NLR:

- has multidisciplinary teams of dedicated and independent operational experts, system development experts, simulation experts, and verification and validation experts
- is Associate Partners to the SESAR Joint Undertaking (SJU)
- has demonstrated its strength by performing many large-scale validation exercises using a (combination of) networked simulation and operational facilities with associated operators



# Please contact us for more information

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