

ADS-B import for ATC Simulation: AEROPVS021

vsTASKER allows Air Traffic Control (ATC) simulations to **import and stream real-time Automatic Dependent Surveillance–Broadcast (ADS-B) data**, effectively blending real-world commercial air traffic with locally generated virtual entities. This hybrid injection is primarily used for high-fidelity ATC training, airspace congestion studies, and "what-if" tactical scenario analysis.

The technical architecture and integration workflow for importing ADS-B data into vsTASKER include several key components:

❏ How ADS-B Import Works in vsTASKER

- **The "White Box" Architecture:** vsTASKER acts as a C++ code generation tool. It features an open SDK capable of dynamically linking external network libraries. If an API or DLL is provided, the software can ingest live streams directly.
- **Live Network Streaming:** The platform connects to online ADS-B streaming providers (such as FlightAware or ADS-B Exchange). It decodes the incoming surveillance data packets—containing flight numbers, timestamps, coordinates, altitude, and heading.
- **Real-to-Virtual Entity Mapping:** As live data drops into the simulation engine, vsTASKER instantly instantiates flight objects on its geo-specific map layout. This maps real flights onto internal, linear, or high-fidelity aircraft aerodynamic models.
- **Coordinate Synchronization:** Spherical trigonometry alongside accurate latitude and longitude tracking is processed continuously. This aligns real-world flights perfectly with local 3D terrains or airport layouts.

❏ Key Capabilities for ATC Simulation

- **Traffic Mixing:** You can populate an empty terminal maneuvering area (TMA) or airport with dozens of live commercial flights, allowing trainee controllers to handle unexpected virtual emergencies amidst actual daily air traffic.

- **Flight Plan Integration:** Virtual aircraft can use automated ARINC 424 RNAV database navigation, while live-imported aircraft track their real flight paths simultaneously.
- **HMI and Radar Feeding:** Imported ADS-B targets are successfully pushed into bespoke Human-Machine Interface (HMI) modules. This means they show up natively on custom radar monitors, digital flight strips, and control panels built within the tool.
- **Interoperability:** The combined traffic telemetry can be broadcast out via standard military/civilian protocols like DIS, CIGI, or HLA. This links vsTASKER directly to external 3D visual engines or tower simulators.

📋 Implementation Workflow

1. **Network Interface Setup:** Write a network listener socket inside vsTASKER's diagram editor to receive standard JSON or Asterix (CAT021) data feeds from an ADS-B antenna or stream aggregator.
2. **Parsing Code Generation:** Let vsTASKER compile the connection wrapper into optimized C++ binaries. [\[1\]](#)
3. **Behavior Attachment:** Define logic loops that convert incoming data streams into real-time positional updates (SetPosition, SetSpeed, SetAltitude) for the respective simulated tracks.

Are you looking to connect to a **live online feed** or play back a **recorded file**? Tell me your **data format (e.g., ASTERIX, JSON)** so I can provide a more specific integration method.

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by VirtualSim

For ATC training and studies, vsTASKER provides a convenient environment to build traffic using flight plans based on ARINC 424 RNAV database. As a simulator builder, bespoke control panels can be defined inside vsTASKER to give the end user all the resources to monitor and interact with the air traffic situation. These control panels can either be build using the HMI builder of vsTASKER (in OpenGL-Glut) or using Qt, or wxWidgets libraries or

any other commercial HMI builders like VAPS (Presagis) or GL-Studio (DSTI), as long as they are C++ compatible.

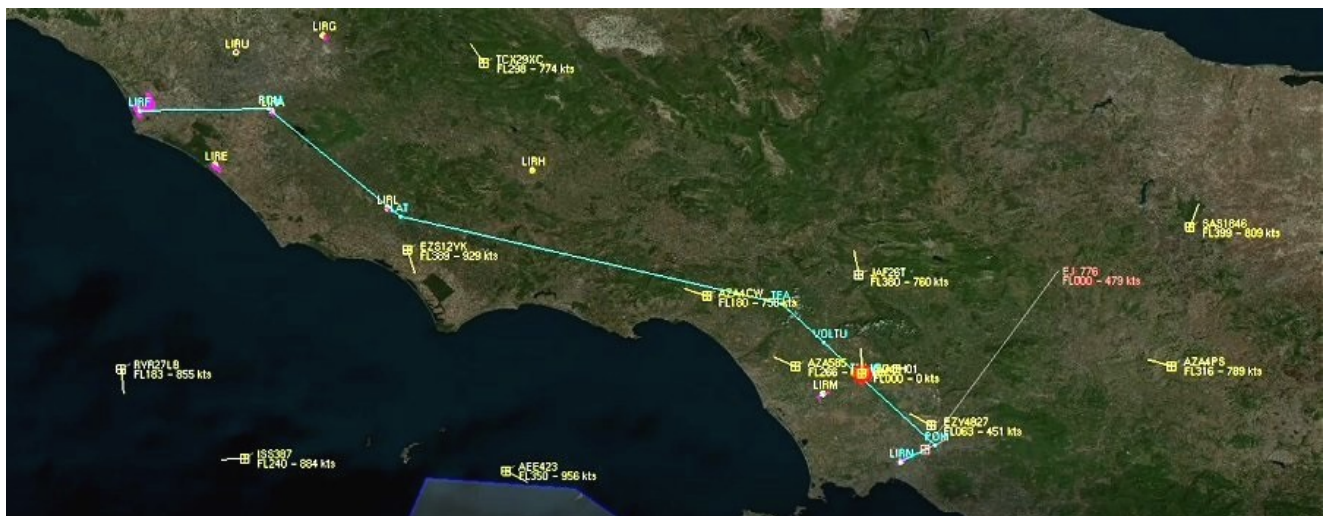
To make the simulation even more realistic, ADS-B traffic can also be inserted into the simulation.

Doing so, the controller can interact with local A/C according to the general traffic.

In this demo:

- ARINC 424 database import
- Flight plan definition using standard procedures
- ADS-B compatible import component (optional)
- Deployable free control panel

The below video shows a little flight plan creation to immerse a local A/V into a recorded ADS-B traffic.



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