DES HE Data Management Plan – Intermediate version

Deliverable ID:	**D7.5**
Project acronym:	**ASTAIR**
Grant :	**101114684**
Call :	**HORIZON-SESAR-2022-DES-ER-01**
Topic :	**HORIZON-SESAR-2022-DES-ER-01 WA1-1**
Consortium coordinator :	**ENAC**
Edition date:	**07 October 2024**
Edition:	**01.01**
Status :	**Official**
Classification:	**PU**

Abstract

ASTAIR goal is to design a seamless partnership between Human and Artificial Intelligence (AI) to manage and perform engine-off and conventional taxiing operations on all the airport surfaces (including aircraft and towing vehicles steering from the gates to the runways at major European airports). Increasing the level of automation overlooking all ground movements will help increase the general predictability of airport turnaround operations and cope with the additional complexity induced by engine-off taxiing techniques.

This document describes how the data will be collected, processed and shared in the ASTAIR project.

This intermerdiate version has only one minor change compared to initial version in chapter 2.1, since it has been found preferable to provide consolidated data concerning interviews.

As per the ASTAIR Grant agreement, the conduct of ethics will adhere to the highest ethical standards and comply with relevant EU (i.e., (UE) 2016/679), international, and national laws governing ethical principles

Authoring & approval

Author(s) of the document

Organisation name	Date
ENAC	29 July 2024

Reviewed by

Organisation name	Date
TUD	30 August 2024
DBL	30 August 2024
ADP	30 August 2024
ECTL	30 August 2024

Approved for submission to the SESAR 3 JU by[1]

Organisation name	Date
TUD	30 August 2024
DBL	30 August 2024
ADP	30 August 2024
ECTL	30 August 2024
ENAC	30 August 2024

Rejected by[2]

Organisation name	Date

Document history

[1] Representatives of all the beneficiaries involved in the project

[2] Representatives of the beneficiaries involved in the project

Edition	Date	Status	Company author	Justification
00.01	29 July 2024	Draft	ENAC	Initial version
00.02	19 August 2024	Draft	ENAC	Revision after internal review
01.00	30 August 2024	Release	ENAC	First release
01.01	07 October 2024	Release	ENAC	Correction after S3JU review

ASTAIR

AUTO-STEER TAXI AT AIRPORT

ASTAIR

This document is part of a project that has received funding from the SESAR 3 Joint Undertaking under grant agreement No 101114684 under European Union's Horizon Europe research and innovation programme.

Table of contents

List of figures

List of tables

List of acronyms

Acronym	Description
AIXM	Aeronautical Information Exchange Model
ASTAIR	AUTO-STEER TAXI AT AIRPORT
CDG	Charles De Gaule
ICAO	International Civil Aviation Organisation
SVG	Scalable Vector Graphics
URL	Unified Resource Locator

Table 1: list of acronyms

1 Data summary

This document contains the guidelines for data management in the framework of the ASTAIR project, which is part of the SESAR 3 program. The scope of this document includes the data collected for the execution of the work as well as the documentation produced in the framework of the project.

ASTAIR will define a concept of highly automated ground operations in airports. It will be demonstrated with simulation facilities that emulates different airport platforms. In order to be representative, this simulator will use two types of data:

- Topographical description of the platform using AIXM or equivalent formatting
- Traffic description, i.e. arrival and departure schedules, parking used, etc.

The geographical data will be either gathered from aeronautical information service if available or generated from a dedicated tool.

The traffic description will preferably be real life recorded data from the simulated airports (presumably Amsterdam Schiphol and Paris Roissy CDG) for better realism. If the data is not available, it could be generated. Validation scenarios should be prepared upon 2 or 3 days of traffic for each airports, representative of the overall traffic.

The data collected in ASTAIR will mostly be of qualitative nature and originate from transcripts of interviews conducted with research participants, survey results and questionnaire results, as well as audio and video recordings. During ASTAIR's validation sessions, feedback on the prototypes will be collected anonymously. The procedure and the formatting to collect this data is still to be determined.

The collection of personal data will be restricted to the following data:

- Demographics data such as age and experience with related systems as well as personal and professional views and experiences or opinions.
- Photographs, audio, and/or video recordings of their participation in ASTAIR research activities (e.g. documentation of discussions in workshops or activities in demonstrations).

For simulation purposes, ASTAIR project may use performance data for different ground vehicles. These data coming from manufacturers will be confidential and stay internal to the project.

2 FAIR data

2.1 Making data findable, including provisions for metadata

The geographical data describing the topology of the airport will be stored using the date of their definition as a key for referencing the data files. The date will help reflect the status of the airport platform in case of road work or taxiways modifications for instance. Generated files will also be stored using a configuration system to clearly identify their versioning.

The recorded traffic data potentially used to generate the validation scenario will be stored using the date of the recording sessions as a key for referencing the data files.

Topological data:

- File format: an SVG[3] file stores both the map information including, but no limited to, runways pavements, taxiways, apron, terminal buildings, service roads, together with data needed for routing processing. The routing data is stored as explained in the figure below:

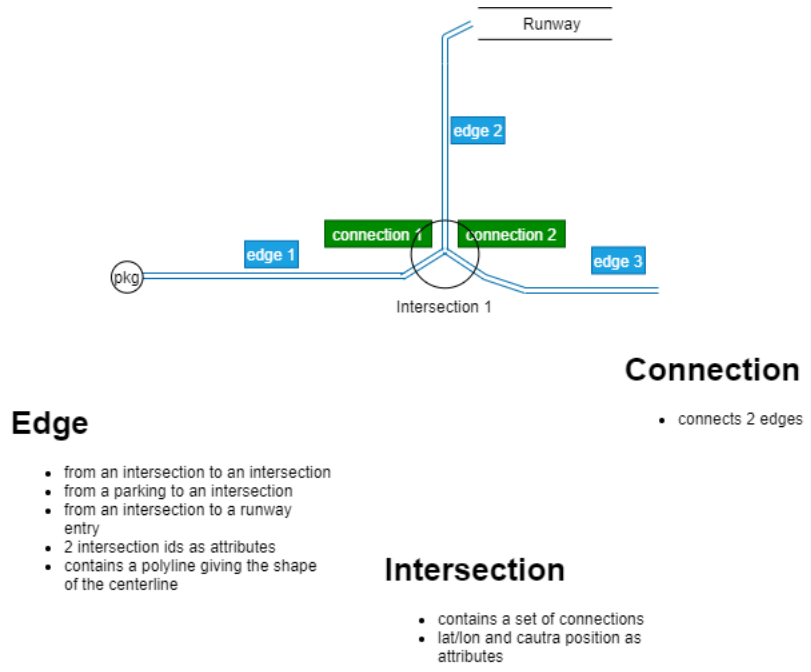

Figure 1: routing information

- Naming conventions: The files will simply be named according to the airport it represents using the ICAO code: either LFPG.svg or EHAM.svg

[3] https://fr.wikipedia.org/wiki/Scalable_Vector_Graphics

- Storage: The code used to generate the SVG files and the SVG files themselves will be stored in ENAC's source version control system (git).

Traffic description:

- File format: The input files format still needs to be defined and may be specific to the airport. Data for the simulator will be generated from operational recordings. The simulator files format is proprietary to ENAC and consists in a text file containing for each aircraft its flight plan and its trajectory.
- Naming conventions: The filename will be composed of the concerned airport's ICAO code and the date of the recording.
- Storage: the files will be stored in ENAC's source version control system (git).

ASTAIR's validation sessions feedback are summarized and consolidated in project's deliverables. The first year activities are described in D1.2 Workshops Report, while the second year validation results will be gathered in D5.2 Exploratory Research Report.

Publications of the project will have a Digital Object Identifier (DOI) and will have keywords.

2.2 Making data accessible

Scientific papers and journal articles based on the project work will be publicly available from the publishing company. For all research publications web links will be provided on the project website and STELLAR.

2.2.1 Repository

For project-internal sharing and collaboration of data, a secure repository within the consortium has been established, called the ASTAIR Redmine. The platform is only accessible with a personalized account provided by ENAC to consortium members upon request and protected by username and password.

Storage and versioning of the data is ensured by Git version control system.

2.2.2 Data

Additional information may be requested by any ASTAIR partner to ascertain the identity of the request owner.

2.2.3 Metadata

No metadata use is foreseen on the project data.

2.3 Making data interoperable

Technical datasets (airport topology and traffic data) will be produced using the most appropriate standard format to facilitate their use.

Data collected during validation session will be stored in an easily reusable format.

2.4 Increase data re-use

The collected data will remain available up to five year after project closure.

Produced technical data may be shared to open data sources like Eurocontrol R&D data archive (https://www.eurocontrol.int/dashboard/rnd-data-archive).

3 Other research outputs

The same version control system is used on the project to manage source code configuration for all software produced.

4 Allocation of resources

The production of topological data is included in WP4 workload.

5 Data security

The security measures taken for collected data will be detailed in a dedicated deliverable, D7.4.

6 Ethics

As per the ASTAIR Grant agreement, the conduct of ethics will adhere to the highest ethical standards and comply with relevant EU (i.e., (UE) 2016/679), international, and national laws governing ethical principles

The ASTAIR project may tackle minor ethical issues, mainly due to the voluntary participation of end-users for specific research and administrative tasks and the collection of their personal data.

An informed consent document will be provided for taking part in research activities. In accordance with well-established guidelines on the ethics of research, this document will report the objectives and aims of the project, in general, and the specific purpose(s) of the task(s) requiring the involvement of volunteers. The Consortium ensures that the participants will provide a freely given, specific, informed and unambiguous indication of their individual wishes to be engaged in ASTAIR. Moreover, the participants will be free to withdraw their consent before the effective date of the related activities.

The ethical aspects of recruitment and consent will be detailed in a dedicated deliverable, D8.1.

In case the project activities will need the collection of personal data, the legal basis for the processing will be the consent of data subjects. These processing activities will mainly involve professional and contact personal data and will be collected for technical purposes. In particular, the processing will be limited to the categories of data necessary for the correct fulfilment of the documentation attesting informed consent, consent to the processing of personal data and the exercise of the related fundamental rights to the respect of private life and the protection of personal data. All the processing activities will be compliant with the applicable EU legislation for the protection of personal data. The period of data retention will be no longer than project duration.

Only anonymous data will be collected during the validation sessions.

In all instances, our approach will require the collection of the consent of data subject, by means of a dedicated document. This form will comprehensively outline our intended use of each data point within the project. Moreover, the document will also provide clear instructions to participants on how to withdraw their consent to the processing of personal data and how to exercise their rights as per the GDPR without incurring any associated risks throughout the entirety of our project activities.

7 Other issues

There is no plan to use any other procedure for data management.