Metro Network Journey Simulator
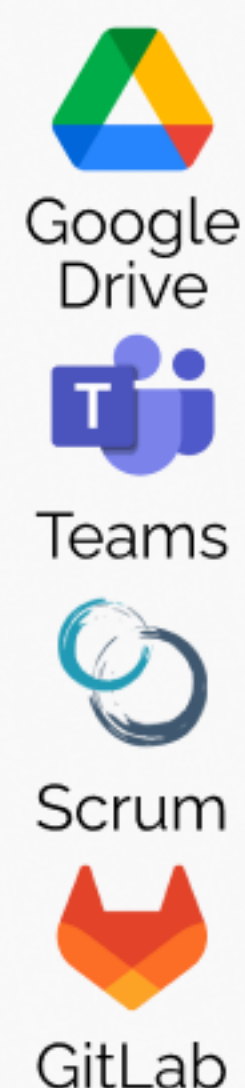
2023-2024

THALES

Context

We have taken over an **existing project** from Thales Ground Transportation Solutions which consists of a **ticketing generator** that simulates the operation of a metro network. A separate **Thales team** collects this input data, which may include potential **incidents** or **events**, to **improve real metro systems.**

Objectives

- **More realistic** simulations with **less random** trips
- Improved **performance**
- More **configuration options from the GUI** and improvements for those that already exist

Organisation: 4 sprints of 3 weeks

- **Sprint 1 - October**
  Reviewing and understanding the existing project
- **Sprint 2 - October - November**
  Simulator functions available from the GUI and improvements of certain events
- **Presentation Week - Novermber**
  Preparation of the mid-term meeting and production of the poster
- **Sprint 3 - November - December**
  Implementation of new events, simulation over several days and display of results in Power BI
- **Sprint 4 - December - January**
  Optimisations and Docker deployment
- **What's next ?**
  - Power BI at simulation output
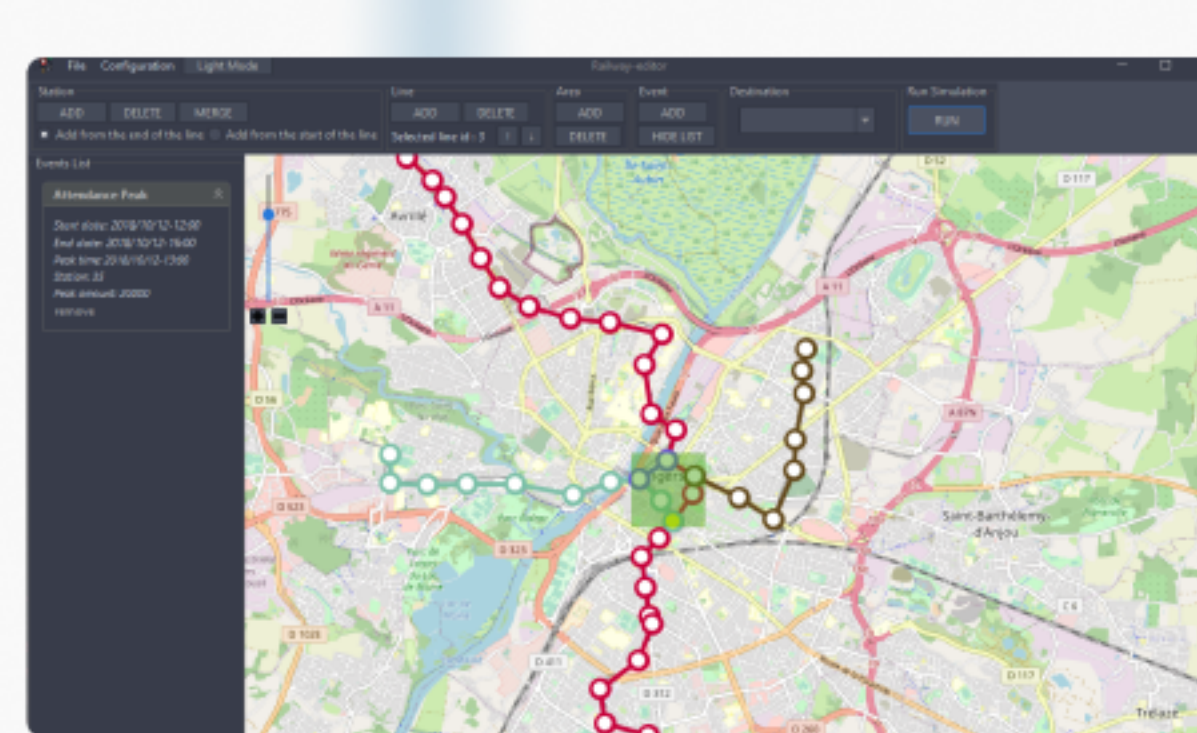 - Config in a single JSON file
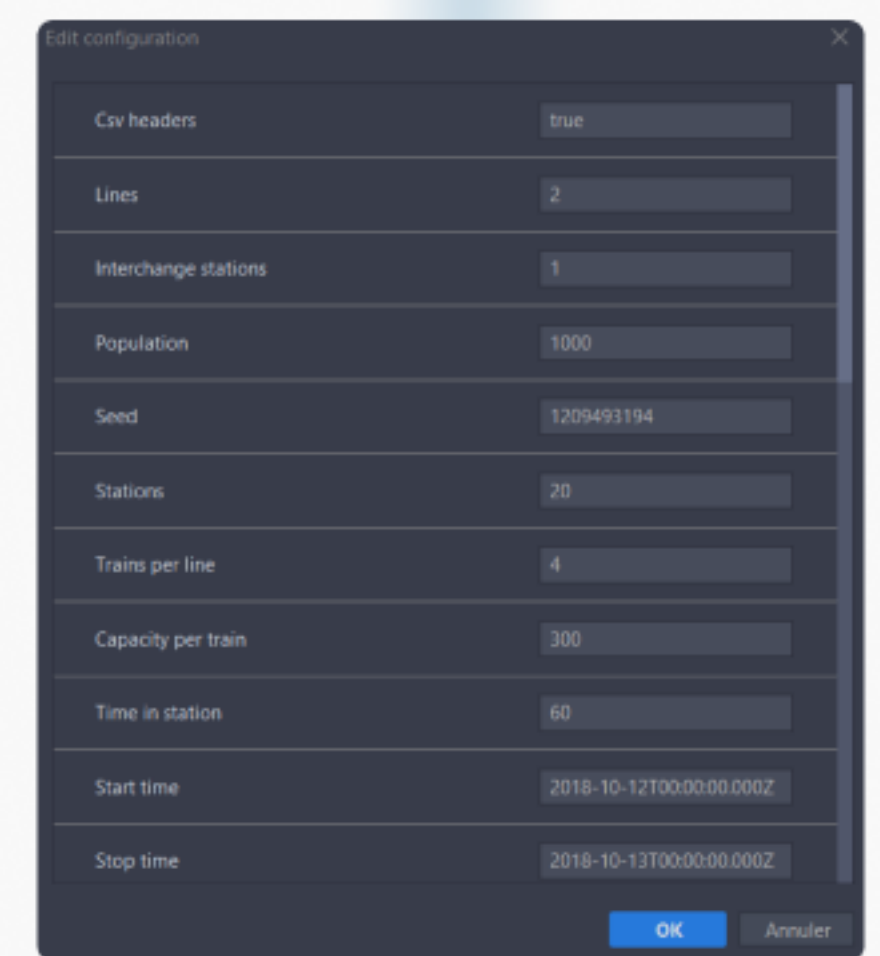 - Existing metro network database

Google Drive

Teams

Scrum

GitLab

Technologies

GitLab
IntelliJ IDEA
Java
GO
Power BI
Maven
sonarqube
squash
checkstyle

Solution

Railway Editor
Simulation Config Editor

Java GUI

Metro Network Config — XML
Simulation Config — JSON

Go Simulator

Results In CSV Datasheets

Power BI

Somme de Nombre par entry_station

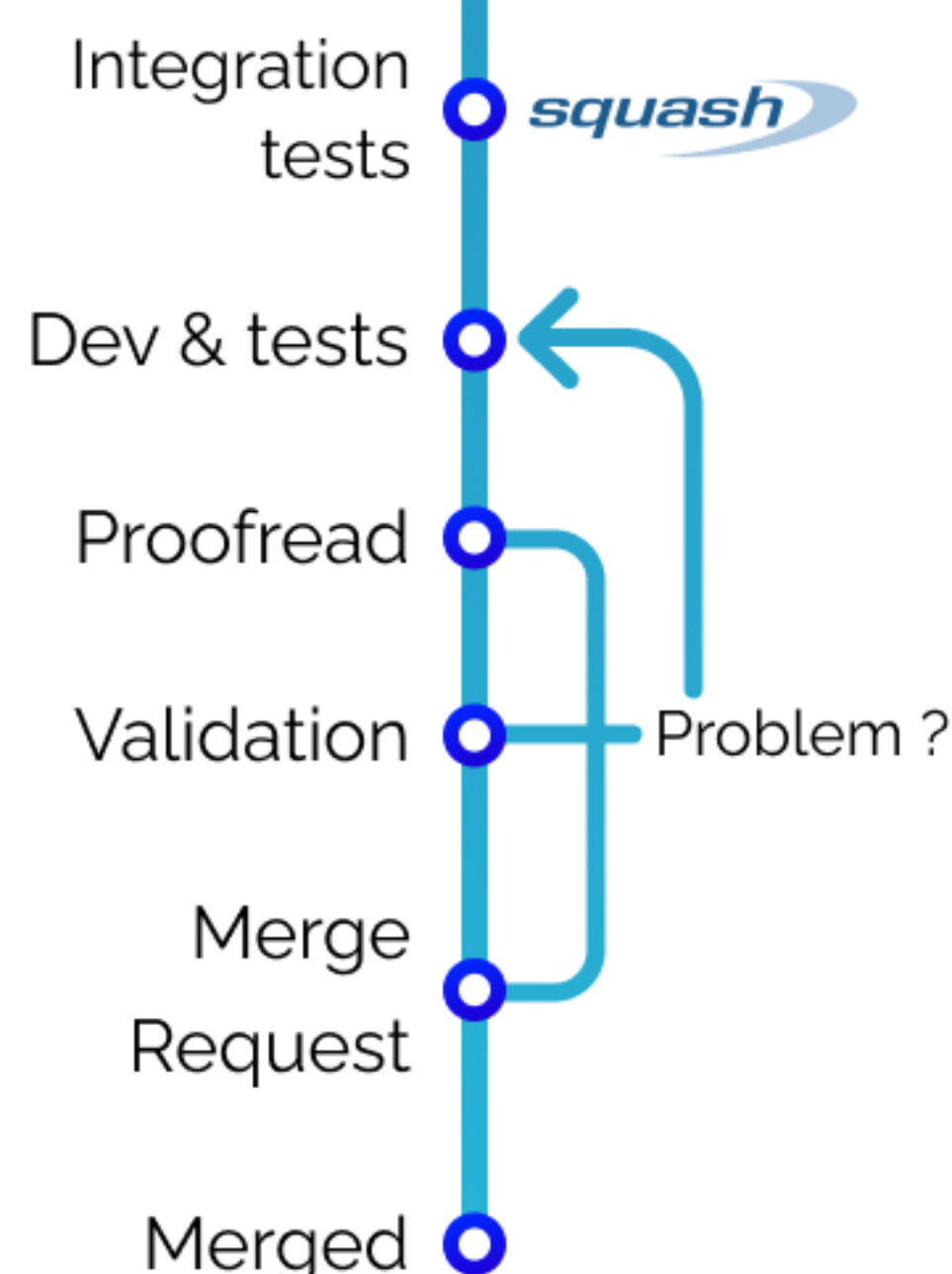Nombre de entry_station par transaction_hour

Methods

Quality

sonarqube checkstyle

Objective: maintainability for future teams

Includes:
- Guides for external tools
- Manuals for using our application
- Code documentation
- Software quality assurance: definition of quality rules to be respected, processes used, etc.

Steps

Integration tests — squash

Dev & tests

Proofread

Validation — Problem ?

Merge Request

Merged

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