



Technical Achievements 2019/2020

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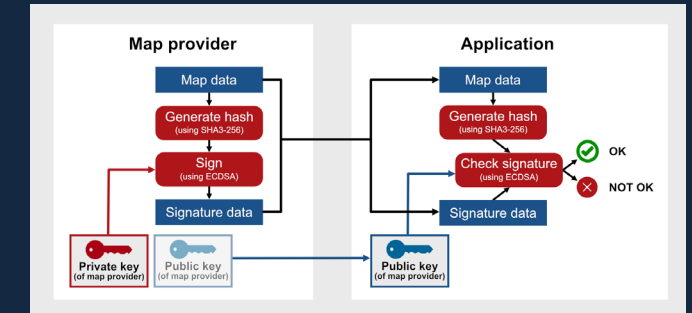
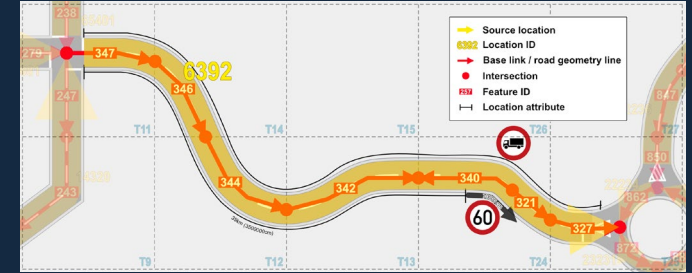


Navigation Data Standard

NDS.Classic – In focus: Functional Safety

Fast Track extensions

- **Location FTX** to support stable IDs
 - SD/HD map matching
 - dynamic service integration
- **Signature FTX** to support signing of NDS data
 - Enable end-to-end data integrity and safety
 - Prevent manipulation of HD data



ASIL Task Force

- working on requirements for **ASIL-ready C++ code generator**

NDS.Classic: Tools

zserio ASIL-ready C++ code generator

- **Memory management** adapted to safety needs
- Usable for zserio schemas as well as RDS DataScript
- **Roundtrip validation** tooling in addition available



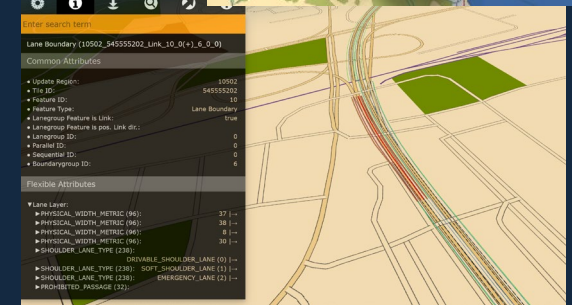
SQLite

- Significant **reduction of memory consumption** for NDS databases
- JDBC driver update

NDS.Classic: Tools

Database Inspector & MapViewer

- Improved Lane visualization and attribute search
- Improved **rendering performance** (runtime & memory)
- Added many smaller community features
- MapViewer **extension API for Python**



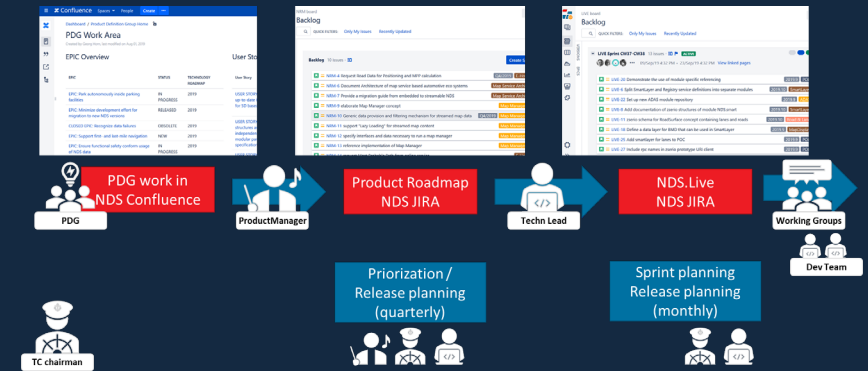
OpenDrive converter

- Added version **support for NDS 2.5.4**
- Smaller adaptations to work with various OpenDRIVE editors

Technical Organization - Processes

NDS.Live development process established

- Continuous delivery
- Modular versioning
- Aligned with NDS Roadmap



Product Definition workflow established

- To implement EPICs from the NDS Roadmap (NDS.Live & NDS.Classic)
- Alignment between NDS Product Management (PDG) and NDS Technical Committee & Working Groups



„NDS.Live is not a database, it is a distributed map data system“

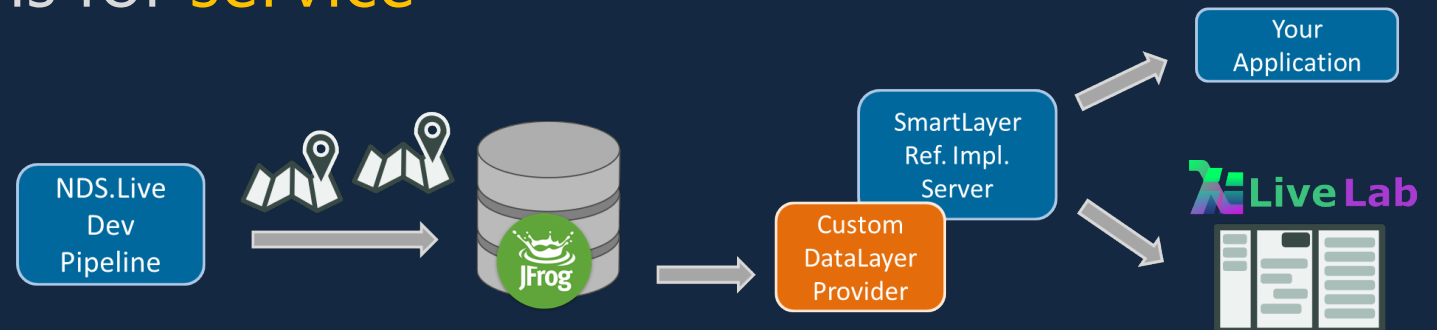
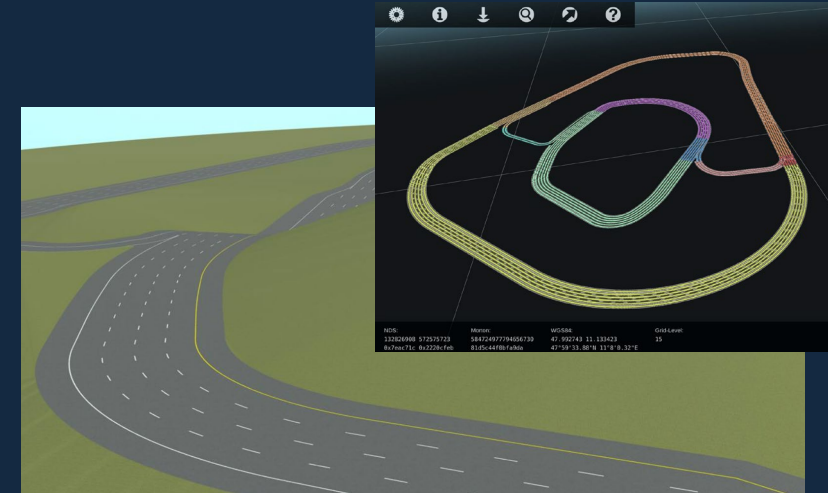
→ Details later!

Although this makes up most if not all of the current specification work in the Working Groups WG5 and WG3...

NDS.Islands – Sample maps

Sample maps for NDS.Live

- To boost development and interoperability
- Artificial data **created in a map editor**
- Available for all NDS members
- Utilizing **NDS infrastructure** and NDS.Live reference implementations for **service deployment**



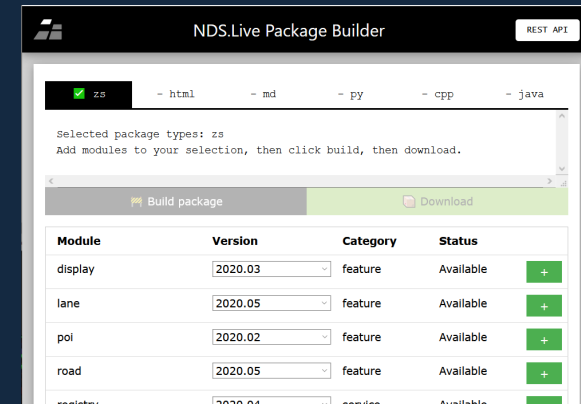
NDS.Live: Tools

Package Manager

- Access to all **module versions** incl. compatibility and dependencies
- Generates code for selected modules (Python, C++, JAVA)

Live Tools – Developer packages for Python

- Supporting all released NDS.Live modules using zserio reflection
- **MapViewer API**



NDS.Live: Tools

Live Lab – Database Inspector & MapViewer for NDS.Live

- App and web-based IDE for Live Tools
- User Interface for **map data & service infrastructure** inspection

Reference implementations available for

- Registry server and client
- SmartLayer server and client

