ASAM OSI v3.4.0
Release Presentation

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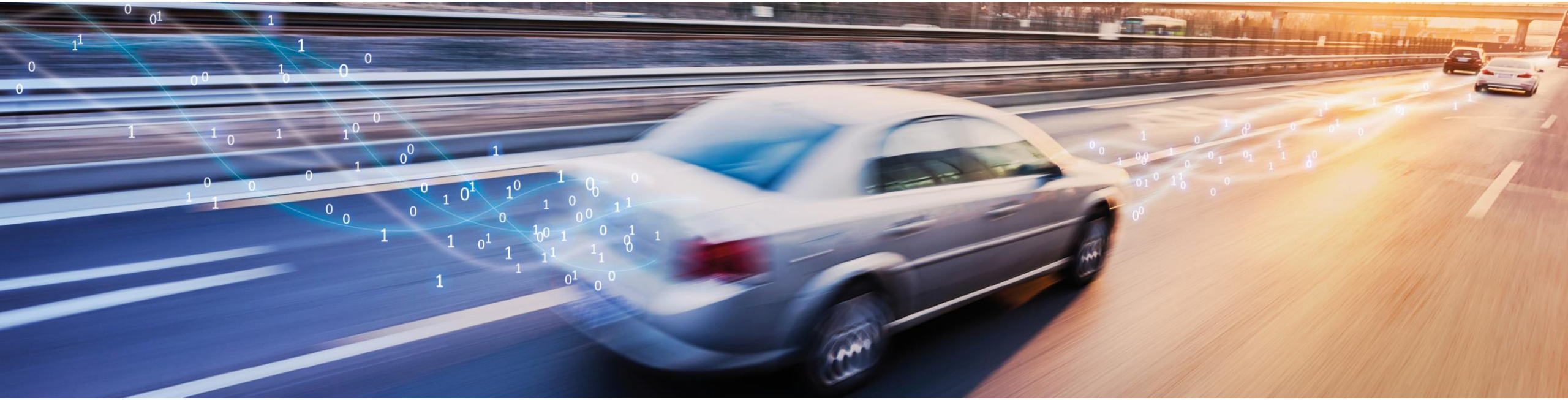
Online



ASAM Association for Standardization of Automation and Measuring Systems

Agenda

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2	Motivation for New Release
3	New Features
4	Other Changes
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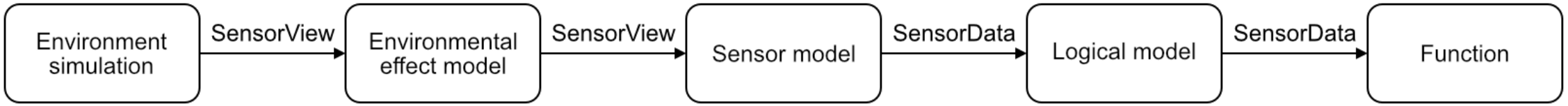
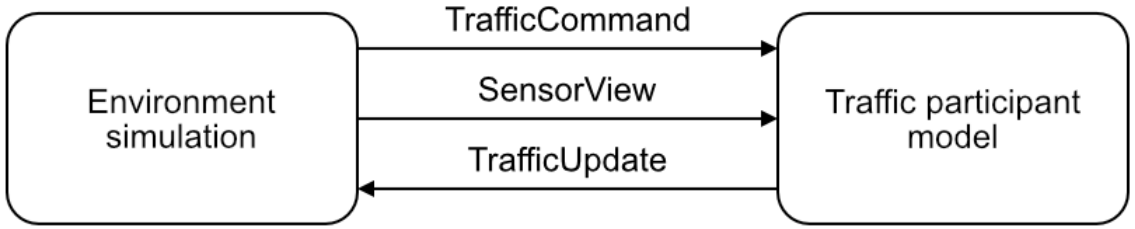
Introduction

- The Open Simulation Interface (OSI) is a specification for interfaces between models and components of a distributed simulation.
- OSI has a strong focus on environmental perception of automated driving functions.

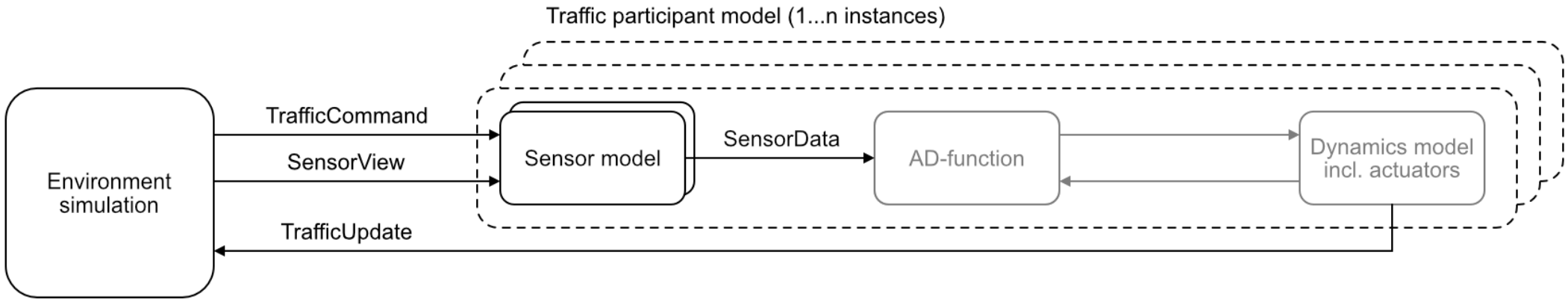


- OSI also defines interfaces for traffic participant models. These interfaces allow to send commands to traffic participant models and to receive their updated state.



Introduction

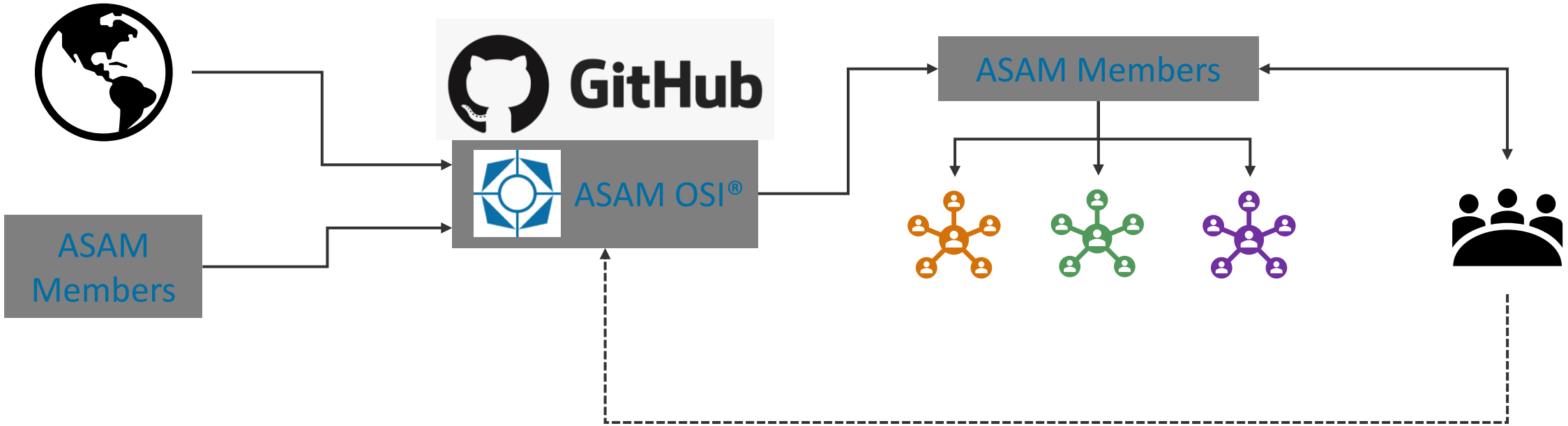
- Traffic participant models may use other OSI interfaces internally, for example, to model autonomous vehicles. The following figure shows a more advanced use case for traffic participants.



- OSI Sensor Model Packaging specifies ways in which models (like e.g. environmental effect models, sensor models and logical models) using the Open Simulation Interface (OSI) are to be packaged for their use in simulation environments using FMI 2.0.

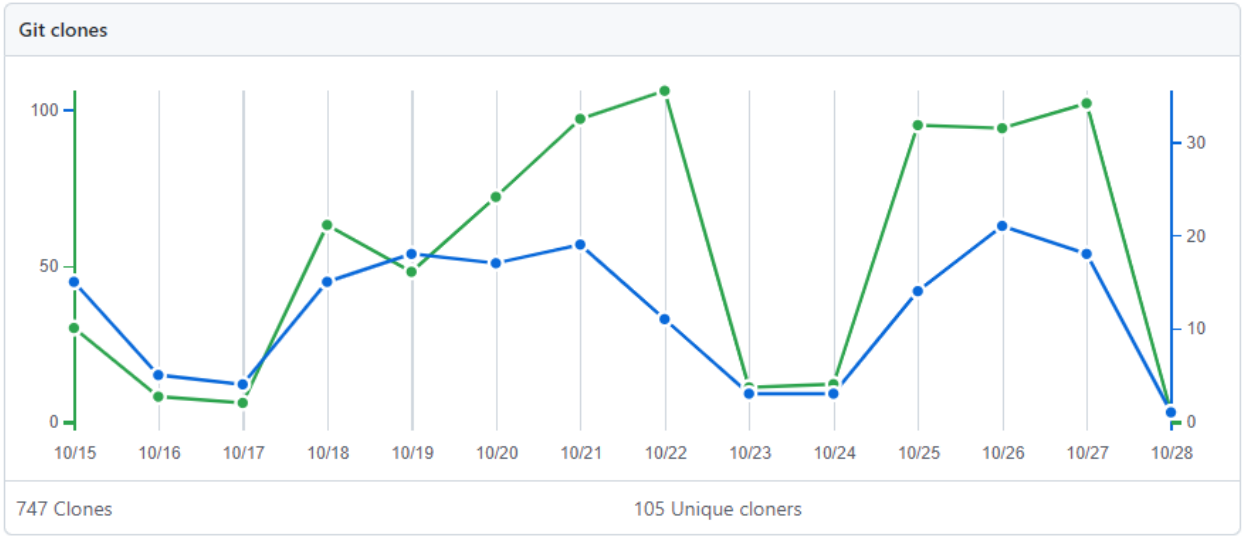
Motivation

1. Cover new feature requests.
2. Improvements and updates on the changes that were introduced in v3.3.



Motivation

- Great continuous interest in Open Simulation Interface



105 unique cloners in 2 weeks!

New Features

SensorViewConfiguration

- Extended SensorViewConfiguration message to indicate that no static content should be included in the SensorView ground truth information.
- This flag specifies whether GroundTruth information data that has already been provided at initialization time shall be omitted from the SensorView ground truth information during run time.

StationaryObject

- Updated StationaryObject classification enums to avoid "pylon" duplication.
- Extended StationaryObject classification message to include speed bumps.
- Extended StationaryObject to include emitting structures of electromagnetic waves (for example this can be used to define a streetlamp).

LaneBoundary

- Extended LaneBoundary classification enums to include additional types (TYPE_BARRIER, TYPE_SOUND_BARRIER), to better align with ASAM OpenDRIVE.

New Features

TrafficSign

- Extended the TrafficSign classification message, by adding attributes like country, country_revision, code and sub_code, in order to better align with OpenDRIVE.

Color Coding

- Updated the color-coding message description to better align with OpenDRIVE.
- Update the color-coding message description to include Grey, RGB, RGBIR, HSV, LUV and thus align with ISO-23150.

HostVehcileData

- Host vehicle data is about the perception of the vehicle about its own internal states.
- Extended HostVehcileData and enabled message exchange between simulation environments and (external) dynamic models.

New Features

LidarDetection

- Extended LidarDetection message under feature data to include echo pulse width to better support several sensor outputs that are currently on the market.
- The echo pulse width is measured in m and correlates to some extent with the intensity (peak height) of the echo pulse and its overall energy (area under the peak), depending on the current threshold.

ExternalReference

- Extended OSI to include a generic external reference message to ensure interoperability within other standards, especially OpenX-Standards.
- The external reference is an optional recommendation to refer to objects defined outside of OSI. This could be other OpenX standards, 3rd-party standards or user-defined objects.

Flatbuffers

- Added support for using OSI with Flatbuffers encoding for OSI messages instead of ProtoBuffers, in preparation for a potential switch of default encoding in a future major release.
- Currently it supports generation of the code for Flatbuffers encoding, by auto-mapping of OSI3 proto files. It does not yet include examples making use of this encoding.

New Features – OSMP

Documentation Updates

- Updated the documentation's structure and migrated it to AsciiDoc.
- Updated the description of OSI's top level messages and model types.

Technical Updates:

- Revamped build process to capture build settings in the source code provided for the example FMUs.
- Updated referenced OSI release to 3.4.0.

Other Changes

Documentation Update

- Updated the documentation's structure and migrated it to AsciiDoc.
- Review for proto files (old and new).
- 29 pull requests reviewed for v3.4.0.
- Updated the description of OSI's top level messages.
- Updates on additional descriptions, like those for trace file formats, naming conventions and installation instructions for Linux/Windows.

Additional Progress

- Road-Model working group is meeting on a regular basis to further discuss the use-cases and potential improvements or need of a new OSI road model.
- Fork available on a new Environmental model, including harmonization with OpenX.
- TrafficUpdate message to include HostVehicleData.
- Lidar and Radar SensorView update (output from SetLevel).
- Lidar and Radar SensorViewConfiguration update (output from SetLevel).

Backward Compatibility

- All changes for the current minor release are backward compatible.
- All changes that are set to be deprecated in the future major release are either tagged with an attention ***“\attention”*** or a note ***“\note”*** message in the corresponding proto file:

```
// \attention DEPRECATED: This color enum will be removed in version
// 4.0.0. Use \c ColorDescription instead.
```

Relation to Other Standards

ASAM OpenSCENARIO

- ExternalReference (new OSI message).
- Environmental conditions.

ASAM OpenDRIVE

- ExternalReference (new OSI message).
- Color Coding.
- TrafficSign classification message.
- OSI road model alignment with OpenDRIVE (under development).

ISO 23150

- Grey, RGB, RGBIR, HSV, LUV color coding added.
- ISO 23150:2021 is now available, a thorough alignment with OSI (SensorData) still needs to be done.

Deliverables

- Starting with 3.4 we will provide a deliverable package to **download on the ASAM website**.
  - https://www.asam.net/standards/detail/osi/

- (As before) GitHub will host the current development version of OSI including documentation.
  - https://github.com/OpenSimulationInterface/open-simulation-interface

- Versioning was reworked to reflect this and is now consistent.
  - **Release candidate**: v3.4.0-RC1
  - **Release version:** v3.4.0
  - **Development version**: master (*[commithash]*)

    Example: master (412521e)