

**EasyWay**



Annual Forum 2010



**Shortcut to the future.**

Lisbon • November 16<sup>th</sup>-18<sup>th</sup>



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# OpenLR - Datex II extension

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## OpenLR™ – what is it?

- Open, compact and royalty-free dynamic location referencing
  - Method for distributing location information across digital maps
  - Location references are calculated on-the-fly
  - No pre-coding necessary (no maintenance effort)
- Initiative launched by TomTom in September 2009
  - Deployed in traffic services in Portugal and Belgium
- Community site: <http://www.openlr.org>
  - White paper outlines all technical details (published under a Creative Commons License)
  - Open source reference implementation for encoder and decoder (Java, GPLv2)
  - Test material and tools
  - Community tools (Issue tracker, forum and newsletter)



# Open source model

- To unlock the barrier allowing the free and successful exchange of location-relevant content through introduction of a universal standard
- To enable market growth and enhance the successful deployment of a wealth of ITS and LBS applications, free of license fees and supported by leading industry players
- Quicker enhancement by the expert community
  - Leadership role in enhancement and maintenance by TomTom
- Potential interest groups are:
  - TISA, ETSI
  - Projects and Consortia, e.g. In-Time and Spits
  - Public authorities and European Broadcasting Union (EBU)
  - Car manufacturers and Traffic service provider



# Characteristics

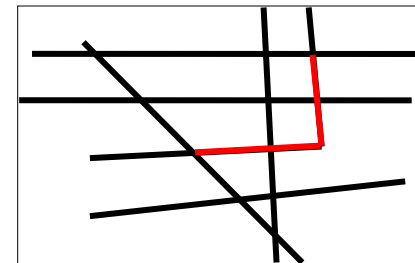
- Originally designed for transferring traffic information
  - Map vendor and version independency
  - Covering all roads, including urban and low level roads
  - Minimum bandwidth usage and communication channel independency
  - Maintenance independency
- OpenLR™ includes:
  - Encoding of a location
  - Several data formats for distributing the location information
    - Binary, XML and Datex II
  - Decoding the data and finding back the location
  - Tools like a map viewer



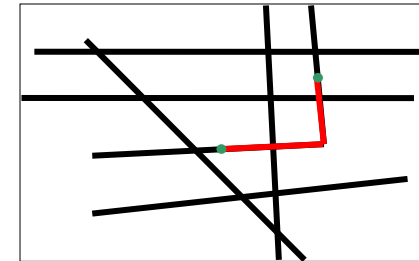


## Location types

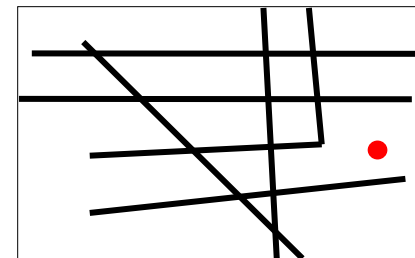
- Line location
  - Connected path in the road network (at least one line)
  - Offsets can be used to identify start and end of the location
  - Use cases: jams, (temporary) speed limits, (calculated) routes
  
- Point locations
  - GeoCoordinate, PointAlongLine, PoiWithAccessPoint
  - Additional information:
    - side of road
    - orientation (with respect to the line direction)
  - Use cases: POIs, speed cams, petrol stations



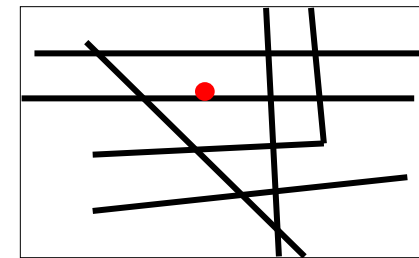
Line location



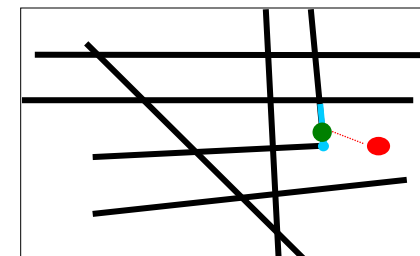
Line location with offsets



GeoCoordinate



PointAlongLine

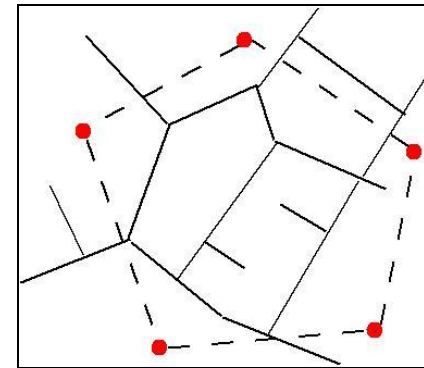


PoiWithAccessPoint



# Current activities

- TomTom and the German Aerospace Center (DLR) agreed on a cooperation to develop area location support
  - Use cases: Environmental zones, weather events or any kind of zones where line location transmission is too bandwidth intensive
- Current OpenLR™ version: 1.3
  - Stable version for point and line locations
  - Next step: OpenLR™ specification based on the white paper
    - Describing the standard and giving recommendations on the implementation
- Supporting 3rd parties in implementing or adapting OpenLR™



Area location example



# DATEX II OpenLR extension

- Joint initiative between Swedish Transport Administration and TomTom.
- Goal
  - Extend DATEX II so that OpenLR can be used as an additional option to describe a location. (dynamic, on the fly reference system)

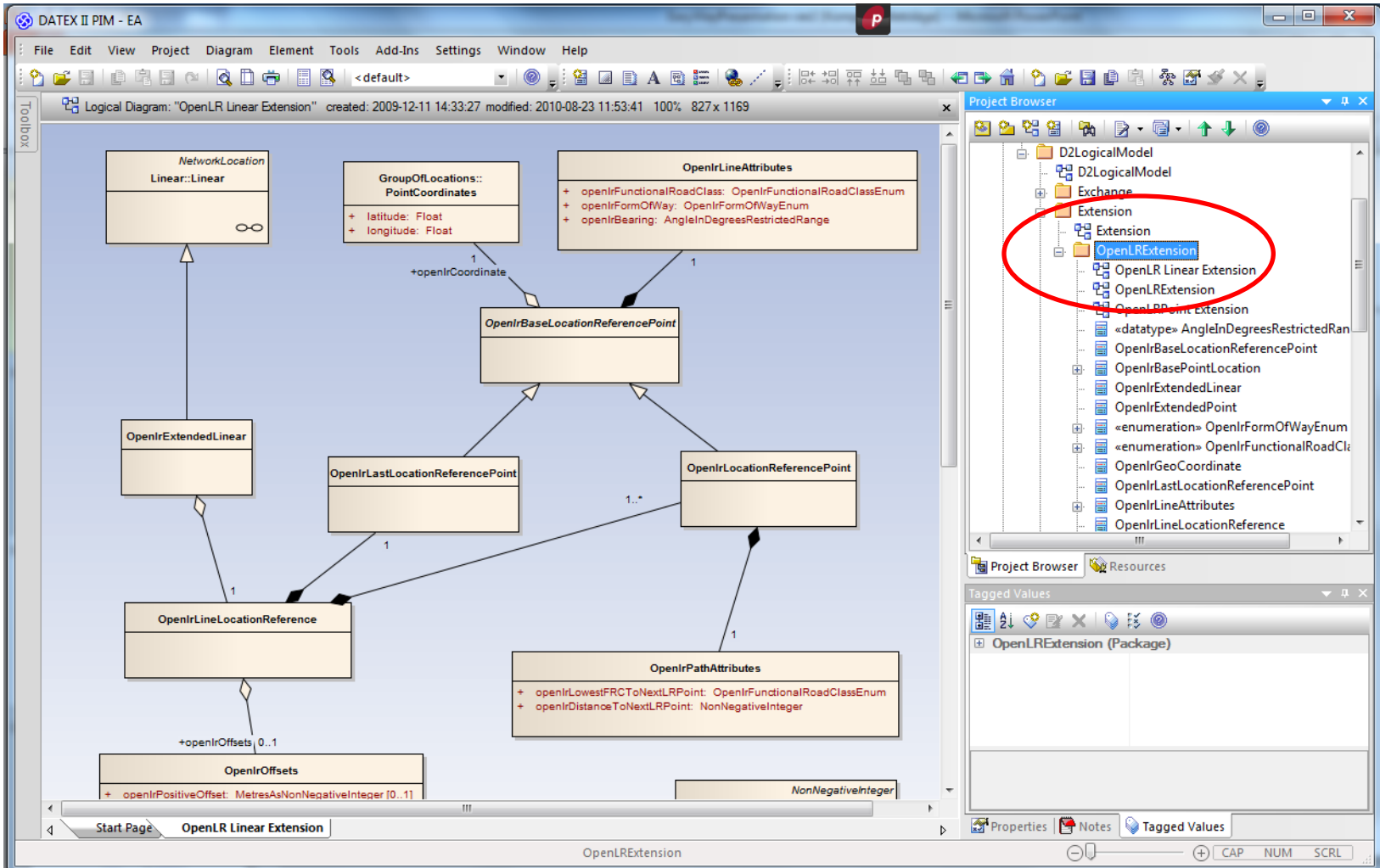


# The extension

- Latest version based on DATEX II version 2.0 RC2
- Model compliance with OpenLR 1.3
- Supports both
  - Line locations
  - Point locations
- Follow DATEX II extension rules
  - DATEX II designed to be extended
- Level B extension
  - Interoperability

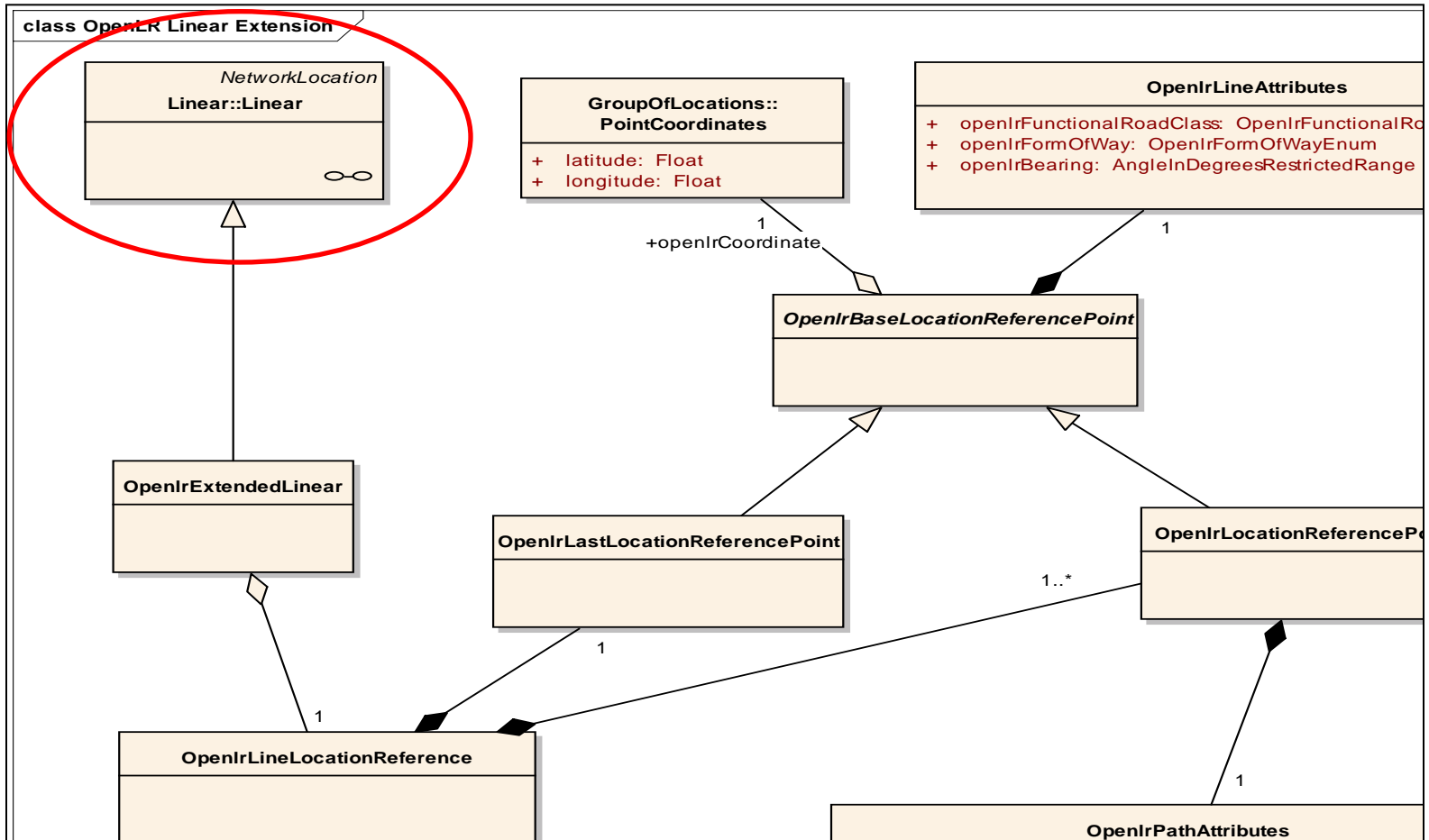


# UML model



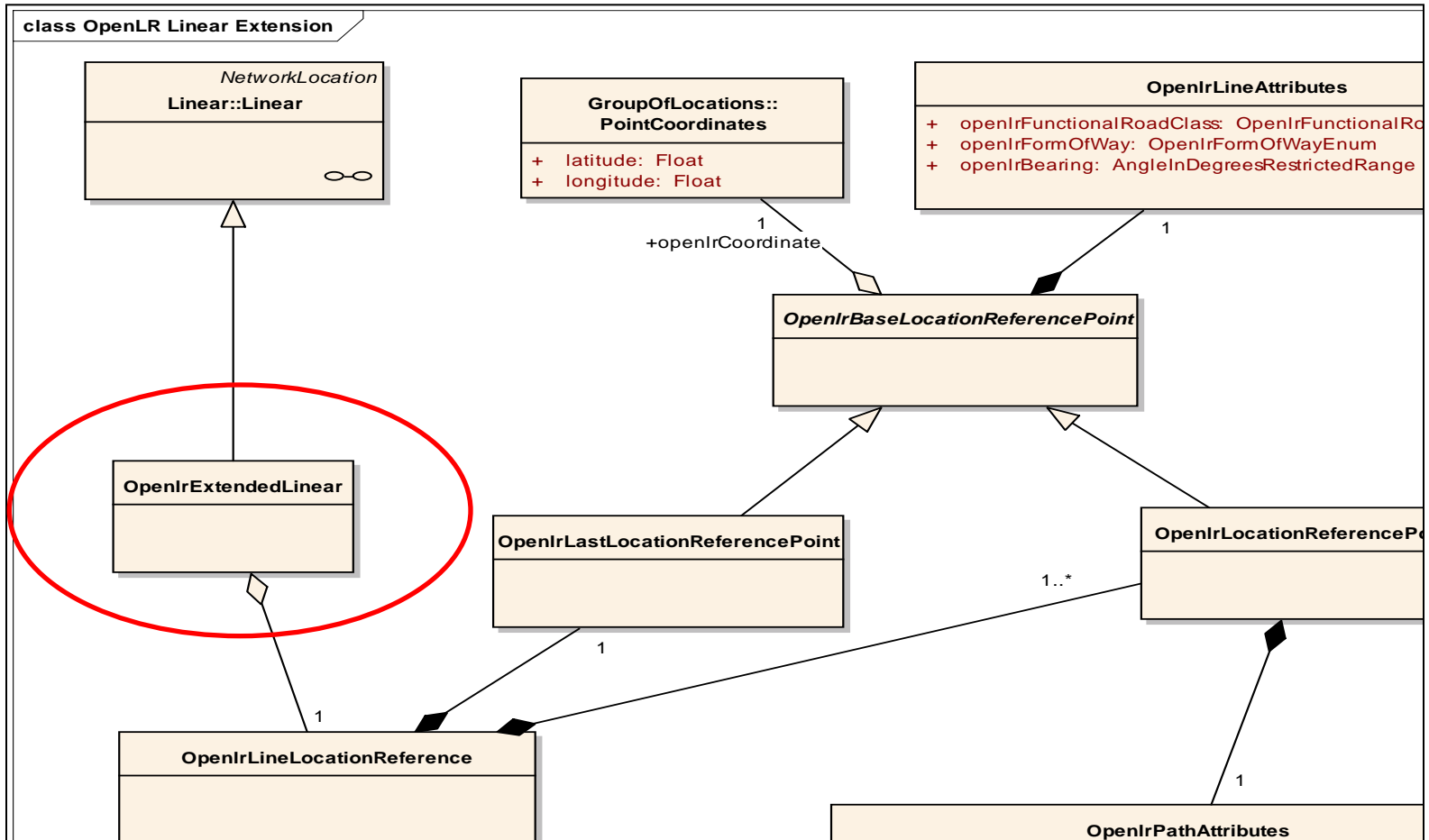


## UML model



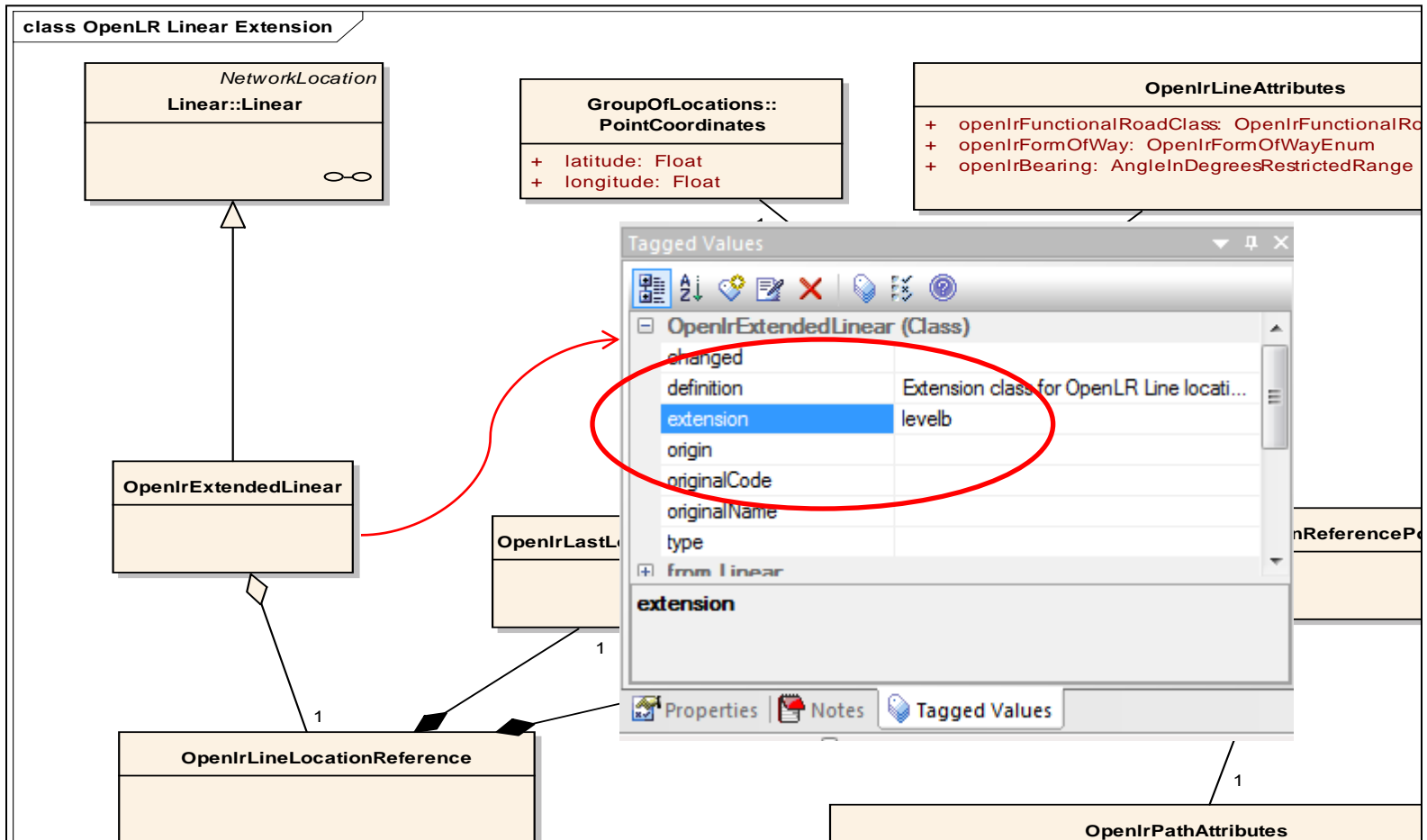


## UML model





# UML model





# Where to find the extension

Two versions of the extension is published on the DATEX II website

[www.datex2.eu](http://www.datex2.eu)

There is also a forum  
for the OpenLR extension

The screenshot shows the DATEX II website interface. At the top, there is a navigation menu with links for HOME, DATEX II, NEWS, DOWNLOAD, DEPLOYMENTS, and FORUM. Below the navigation is a blue header with the DATEX logo and a background of stars. The main content area is divided into two columns. The left column contains a search box with a 'Search' button and a 'User login' section with fields for 'Username: \*' and 'Password: \*'. The right column contains a 'Home' section with a 'Version: 2.0 RC2' heading and a list of extensions: Parking Publication Extension, CCTV Publications Extension Updated, OpenLR Extension 1.1, OpenLR Extension 1.0 Updated, and Data Quality Publication Extension. Below this is a 'Version: 2.0 RC1' heading with a list of extensions: VMS Publication Extension and Catalogue Extension.

HOME | DATEX II | NEWS | DOWNLOAD | DEPLOYMENTS | FORUM

DATEX

Search

Search this site:

Search

User login

Username: \*

Password: \*

Home

Version: 2.0 RC2

- Parking Publication Extension
- CCTV Publications Extension Updated
- OpenLR Extension 1.1
- OpenLR Extension 1.0 Updated
- Data Quality Publication Extension

Version: 2.0 RC1

- VMS Publication Extension
- Catalogue Extension



# How to use the extension

Step by step guide

- Download the extension
- Import the XMI into your own UML model
- Export the model to XMI
- Use DATEX II schema generation tool to create the schema.

Or, use the artefacts supplied with the extension

- XML schema



# Known implementations

- Included in OpenLR 1.3
- Swedish Transport Administration included in DATEX services since November 2010.