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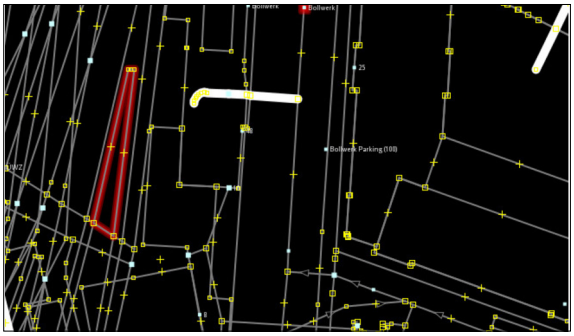
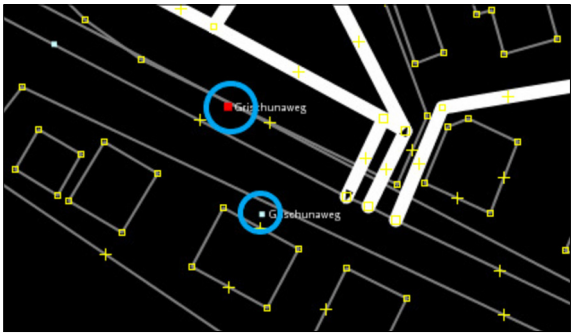
Subject Area	Software and Systems

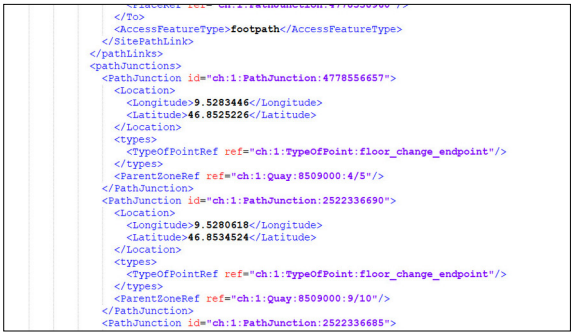
Integrating OpenStreetMap with Public Transport Network Format NeTEx using the JOSM Editor



A look at how OSM elements and relations are displayed in JOSM (Location - Bern, Switzerland)
Own presentment



A bus stop example in OSM consisting of two platforms in OSM (Location - Chur, Switzerland)
Own presentment



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A snippet of some exported NeTEx data which was converted from OSM data using the NeTExConverter plugin
Own presentment

Introduction: Exchanging data between parties is always necessary to have a functioning and robust service. This exchange process however, needs to have some sort of consistency after a while. A standardization technique for such processes must be in place.

The European Committee for Standardization (CEN) is a public standards organization that fosters the economy of the European Union (EU) in global trading and develops various technical standards for various products, materials or processes. Network Timetable Exchange (NeTEx) is a CEN Technical Standard for exchanging public transform data.

In this project, we try to create a plugin for the Java OpenStreetMap editor (JOSM) that converts OpenStreetMap (OSM) data to the NeTEx format and tries to improve the OSM data by suggesting different edits for the OSM elements after the conversion
has been finished. The NeTEx data is represented using XML.

Objective: The main objective of this project is creating a JOSM plugin that grabs the currently loaded OSM map data and then does various operations to convert such data into the NeTEx format.

The plugin, during the conversion process, tries to find any inconsistencies or problems with the OSM data and saves them for the end of the conversion. After the conversion is completed, the plugin takes all the accumulated problems of OSM data and displays them on the JOSM map, suggesting different edits and operations for transport data that need improvement in order to stay consistent with other OSM data and with the usual approach of describing such elements.

Result: The plugin has been added to JOSM and has been developed and tested with real OSM data. There exists a lot of inconsistent data within JOSM, the plugin tries to fix/map such data itself during the conversion by putting different conditions, and if that data cannot be mapped or fixed by the algorithm, it means that an OSM element is missing some sort of tag that is used for identification. These elements with missing/wrong tags are displayed at the end of the conversion.

The plugin first takes the OSM data and creates NeTEx Java classes that have been generated by an XML binding framework, and then serializes them at the end and writes them in an XML-format file in order to complete the conversion and the export process.