CHOUETTE AN OPEN SOURCE SOFTWARE FOR PT REFERENCE DATA EXCHANGE

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ABSTRACT
This article presents CHOUETTE, an open source software supported by the French Ministry of Ecology, Sustainable development, Transport and Housing (MEDDTL). Its main purpose is to validate, exchange and manage reference Public Transport (PT) data in conformance to a standard exchange profile (currently the French Neptune XML profile).
The software is available via the www.chouette.mobi site. In 2011, this web site will also host a new application: a SIRI server which can validate conformance of data exchange with the European standard profile for real-time PT data.
Perspectives include upgrading towards NeTEx, the European standard for reference PT data exchange currently being finalized.
1. STANDARDISATION OF EXCHANGE PROFILE FOR PT REFERENCE DATA

In the early 2000’s, a few years after the French PT network opened their web sites with journey planners, emerged a second generation of regional web sites (so-called Multimodal Information Systems or SIM in France), where the user could plan his/her travel over a larger area (French agglomeration, département or région) comprising several networks. As no European standard was available at that time, the French standardisation group relied on the results of the TRIDENT project to define an XML profile for exchanging PT reference data (which is quite similar to UK’s TransXchange).

As a way to foster the adoption of the profile, CERTU (a technical centre of the French ministry of transport) proposed to support the creation of a freely distributed software that would implement the profile. After a prototyping phase, a first version was released in 2007.

2. THE CHOUETTE SOFTWARE

CHOUETTE is an open source software, the code can be freely downloaded and adapted, as long as the credits are mentioned. CHOUETTE is a web application with the following main functions:
- validation of the conformance with the standard XML profile;
- import / export of data to various formats;
- editing of data.

Technically, the software relies on well known open source software (PostgreSQL/postgis for the database, Apache/Tomcat for the web servers) and libraries (Spring, Struts, Hibernate, Castor...).

In late 2009, a new contract was awarded to a group comprising Dryade, Cityway, Mobigis, CB Conseil, KBIC. The contract has two parts:
- software maintenance and evolution,
- accompanying measures: web site, reachout, training, and other studies.

Since early 2010, 3 versions were released with the following enhancements:
- update of the profile from the Trident/CHOUETTE version to the renewed Neptune version adopted as a French Standard in 2010;
- English version;
- interactive mapping of stop points, connections and stop areas;
- improvement of the conformance tests which were formerly accessible in a separate web site (www.bateri.fr);
- simplified installation procedures, and an all-in-one Virtual Machine, a shell command level version of the software enabling validation and import/export from linux or DOS without database and web application.

The software is available via a web site, which provides:
- general information about the software and the Neptune standard data exchange profile
- a demonstration version of the software
- a validation tool to test conformance of your data with the Neptune profile
- complete documentation and access to the source code
- free access enabling you to create your own account and to test the software with your data
- the possibility to install the software on your own PC (command line tool, virtual machine) or server (web app)
The next evolutions in 2011 will be:
- complete rewriting of the core java code;
- export of stop point data to the French geoportal of IGN;
- audit of the man machine interface and new screens for the management of the new Neptune profile data elements: PT Access, Accessibility attributes, Group of lines, frequency-based Schedules

Further evolutions envisaged are:
- implementation of a REST–based data transport layer;
- adaptation of the software for the coming NeTex European standard, at least as regards the Neptune profile of NeTEx;
- enabling multi-user sessions.

The CHOUETTECHOUETTE software main goal is to be used as a validation and training tool, as this will be the case for the new SIRI software. However, it has also been used in various ‘real-life’ situations:
- reference data exchange between STIF (public transport authority of the Ile –de-France region) and RATP,
- management of airport lines schedule data for the Transisere web site,
- validation of reference data for the Toulouse CIMM multimodal data repository,
- reference data feeds of TER regional trains schedules by SNCF,
- GIS transport studies in the realm of the Potimart R&D project,
- reference data for traveler information systems such as the TUR network in Reims.
- using the IFOPT standard to publish geo-referenced PT data, in particular according to the Inspire directive (Camera project)
3. THE SIRI SERVER

As real-time bus and public transport fleet monitoring and information systems are being deployed across the world and in Europe, the need for a standard way of exchanging real-time information about public transport services and vehicles became more evident.

In Europe, the SIRI specification has been standardised at CEN level, with initial participation by France, Germany (VDV), Scandinavia, and the UK (RTIG). SIRI has recently gained interest outside Europe.

SIRI is based on the Transmodel conceptual model for public transport, a general purpose model, and XML schema for public transport information. SIRI has a quite wide scope, as it takes into account a lot of use cases. In France, a particular profile has been specified at the initiative of STIF, the regional transport authority of the Paris region (Ile-de-France); this profile has been published later at the French level.

In the same software maintenance contract than CHOUETTE, a SIRI server will be delivered by Dryade in Spring 2011. This SIRI server will be hosted on the CHOUETTE web server and accessible freely as a demonstrator, enabling to test the conformance of a client to the SIRI ‘STIF’ profile. The client software will be under an open source licence.
4. PERSPECTIVES

In the last few years, a lot of open data initiatives emerged in the Public Transport, especially in the US and in the UK, and are appearing in France and elsewhere. Making data easily and freely available makes it possible for third-party developers to produce useful applications and service. The de-facto standard used in practice by the independent developers is the GTFS format. This format is not as complete as the Neptune profile which has been designed for back-office business applications (or of course as the future NeTEx profile); however, as it is widely used, an GTFS export functionality has been added to CHOUETTE.

At the European level, the CEN/TC278 is currently working on a Technical Standard called NeTEx. The goal of NeTEx is to provide an efficient European wide standard for exchanging Public Transport schedules and related data. NeTEx is intended to be a general purpose format capable of exchanging timetables for Rail, Bus, Coach, Ferry, Air or any other mode of public transport. It includes full support for rail services and can be used to exchange UIC (International Union Of Railways) data.

NeTEx is based on the CEN Transmodel standard which specifies a Conceptual model for Public Transport data, extended with additional concepts for stops and stations from the CEN Technical Specification IFOPT (Identification of Fixed Objects in Public Transport). A first version of NeTEx for part 1 & 2 (topology, schedules) will be published before End 2011 and completed by 2013 (part 3: fare information). The scope is quite wide, as NeTEx will include profiles for national data exchange that will enable to upgrade existing data (e.g. for Neptune in France, TransXchange in the UK, VDV452 in Germany, or Bison in the Netherlands).

Certainly, a perspective in line with the goals of the ITS European Directive, would be to develop freely accessible tools that would serve as reference implementations for validating the conformance of data to exchange standards such as NeTEx and SIRI, and maybe for other profiles or protocols. In our views, delivering the tool as an open source software would be beneficial for such a project.

A new Agency for Multimodal Information and Ticketing (AFIMB) was created in France in 2010. From 2011 onwards, this new Agency is expected to manage the software evolution and delivery maintenance contract and thus the future evolutions of the software.

REFERENCES

(1) the CHOUETTE software web site www.chouette.mobi
(2) NFP 99509, CN03/GT7, Profil d’échange NEPTUNE (Location, Date), AFNOR Janvier 2010
(4) NETEX, CEN/TC278/SG3.9 http://www.netex.org.uk/
(5) SIRI developers group : https://groups.google.com/group/siri-developers
(6) Comparison between the GTFS profile and the UK TransXchange profile (similar to the French Neptune profile) http://www.dft.gov.uk/transxchange/gtfs.htm
(7) Potimart, an R&D project focused on open source transport GIS toolbox www.potimart.org
(8) Camera, R&D project focused on publishing geo-referenced PT data www.camera-tp.org