

Improved access to maps from all regions of the world

Maps from all regions of the world held by Swiss libraries and archives can be accessed via the Kartenportal www.kartenportal.ch. This portal released yesterday has been developed under the leadership of the Zentralbibliothek Zürich (ZB) in order to simplify access to both current maps and those which could not be previously accessed due to copyright restrictions. Until now such maps had to be retrieved in the various traditional library catalogues; this proved to be a time-consuming and cumbersome task.

Zürich, 28th October 2014. This portal enables a simple interactive map search that will retrieve maps from dozens of Swiss map libraries. In addition, there is also a separate directory with information about the various collections involved and their conditions of use. This directory has its own interface providing intuitive access to the at times bewildering collections within the country. There is also a blog with information on current events, specific tips for collectors and general news from the world of maps – both of an historical and of a contemporary nature.

Model for similar map portals

The interactive map search facility has been developed for the needs of Swiss map libraries. It currently serves as a model for similar projects in Europe and North America. The user simply needs to define the section and zoom level of the background map in order to trigger the software which then retrieves the most relevant documents. When required, the results can be refined with the help of chronological and scale filters. Detailed information for each document is available, including a direct link to the library which holds the object and providing a thumbnail image, if available. Entries for around 350,000 maps and atlases are currently available via the map search.

The prerequisite is that the maps are entered in the online catalogues of the libraries and archives, as well as the enrichment of these records with geographical coordinates, i.e. the spatial extent of the maps needs to be recorded in machine-readable form. If the coordinates are depicted on a background map the document 'footprint' becomes visible. A specially designed algorithm compares the document 'footprints' with the selected section of the background map. The most suitable document is ranked at the top position of the hit list and as a red bounding-box on the background map. As a background map one can either select Google Maps, a satellite image or OpenStreetMap. The map retrieval software consists almost exclusively of open-source components and runs in all current web browsers.

New developments enable faster searches

The front-end is essentially a single-page web application, developed in JavaScript using Closure Tools. For several of the mapping components Leaflet and OpenLayers v3 have been used. The user interface is extremely responsive when the background map is panned or the hit list browsed. This is due to a specific indexing technique for geographical metadata called MapRank® that has specially been designed for this particular project. While the traditional R-tree or Quadtree indexing proved to be too slow for the purpose of this large spatial database, the MapRank® indexing used in the Kartenportal is faster because part of the ranking is pre-calculated during the daily uploading of new metadata. This metadata is harvested via the OAI-PMH protocol from the national Swissbib meta

catalogue, which in turn consists of de-duplicated records from the online catalogues of around 900 Swiss libraries and archives.

Any map search query can be refined by using a full-text filter and/or a combination of several other filters. An experimental interface for the visualisation of sheet indexes for complete series of maps (for instance for the Swiss national map series) is pioneering new ground. To enable this, the 'footprints' of the map sheets are displayed on top of the background map like tiles. These swiftly constructed sheet indexes are made possible using the Mapnik open-source component and cached for best performance with Memcached.

The server side is completely implemented in C/C++ and runs on Linux.

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Between 2008 and 2013, the Kartenportal has been promoted by E-lib.ch, the project for innovation and cooperation of the Swiss universities. Since Fall 2014, the Zentralbibliothek Zürich has been responsible for coordinating the Kartenportal project, while the financing is provided by eight partner institutions: ETH-Bibliothek, Kantonsbibliothek Vadiana St. Gallen, Lib4RI, Swiss National Library, swisstopo, Universitätsbibliothek Basel, Universitätsbibliothek Bern, and the Zentralbibliothek Zürich. The software behind the map search has been developed by Klokan Technologies (www.klokantech.com), the world's leading specialist for IT solutions for map libraries.