MAP+ Workshop

Flavio Hendry - TYDAC AG

Web- und Software-Components

Web Base:

PHP: Server script language
JavaScript: Client script language
JSON: Configuration [JavaScript Object Notation]
CSS3: Styling
HTML: Static pages

Software Base:

Geodatabases, Databases: any, for example PostgreSQL/PostGIS, MySQL/MariaDB, SQL Server, Oracle - as well combined

Mapping Server, WMS Server: any. For example UMN MapServer, GeoServer, ArcGIS Server, Autodesk AIMS - as well combined

TCPDF: PDF generation

OpenLayers: Display and query of geodata

DOJO Toolkit: Graphic elements. In addition jQuery.

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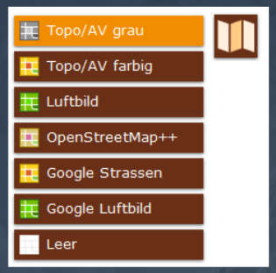
Components User Interface

- Background maps:
  - WMTS (Tile-Services = Tiles)
  - WMS, as well combined with WMTS
  - Google, Bing Maps, OSM, etc.
- Layer-Manager:
  - WMS: UMN MapServer, GeoServer, any ...
  - WMTS
  - ArcGIS Server Services
  - Autodesk AIMS Services
  - GeoJSON Objects
- Apps:
  - Print: HTML, PDF (scale, rotation, layered, coordinate grid, north arrow, layouts up to A0 etc.)
  - Simple measurement: distance, area, distance with cross section
  - Precise measurement: point to point and orthogonal. Printable as PDF, can be stored as bookmark
  - redlining: symbol, text, line and polygon. Printable as PDF, can be stored as bookmark
  - Integration of external WMS by users, can be stored as bookmark
  - Import- and selection- / export tools



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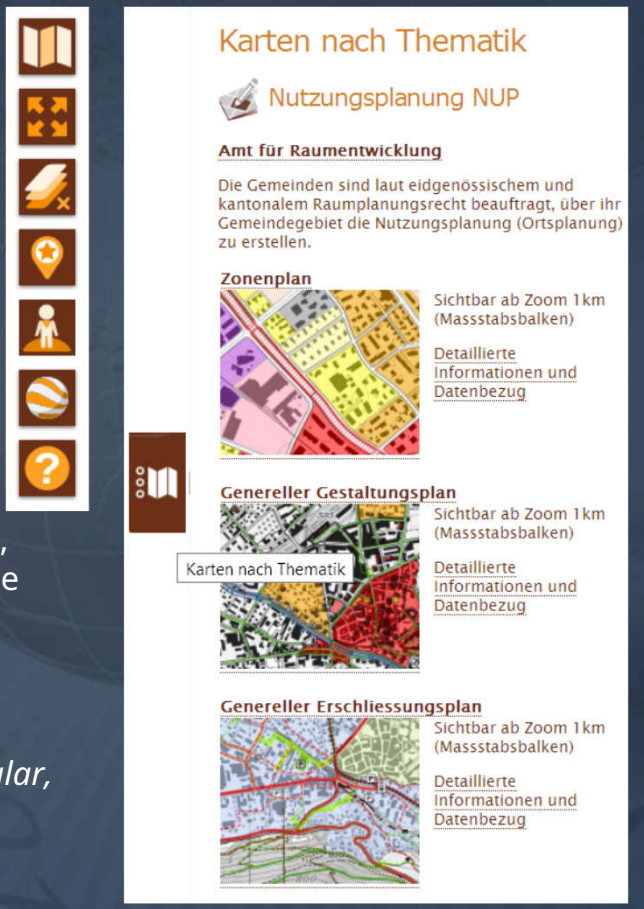
Functions / StoryMaps / Others

- Functions, configurable:
  - Choice of background maps
  - Home-Button
  - All layers off
  - GPS localization
  - Google StreetView Integration
  - Google Earth (=KML Export)
- StoryMaps:
  - HTML pages
  - Any map composition including measures and redlining can be integrated
  - Example GeoGR (see image): map compositions for all themes, links to metadata, link to the GeoGR shop for data download, link to the department in charge of the data
- Others:
  - Search: simple and using categories
  - "Suggest" search using Apache Lucene Solr on millions of objects: *Solr is the popular, blazing-fast, open source enterprise search platform built on Apache Lucene*
  - Overview map, scale, disclaimers, sort/transparency function for layers



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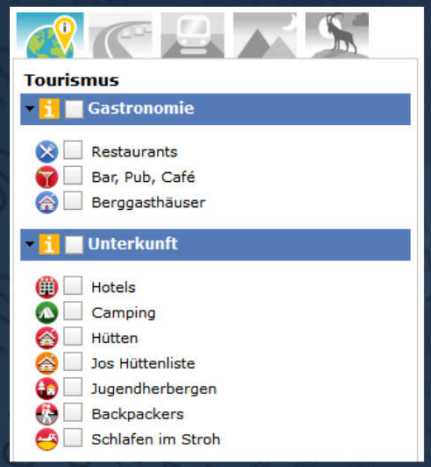
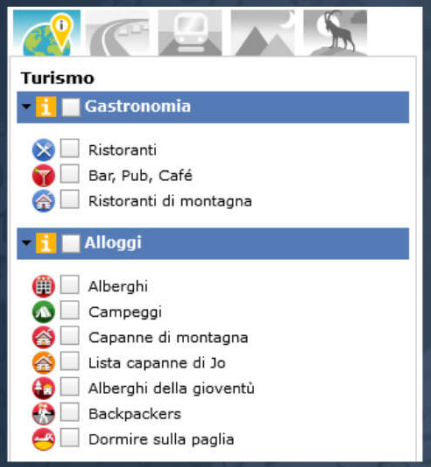
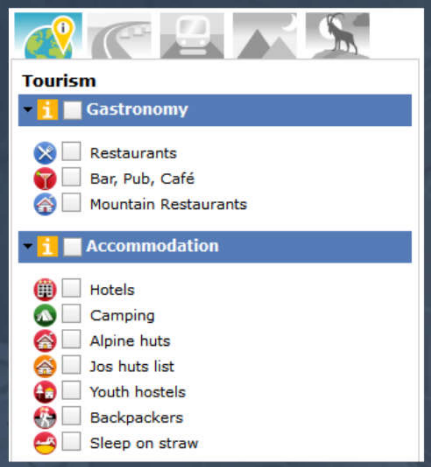
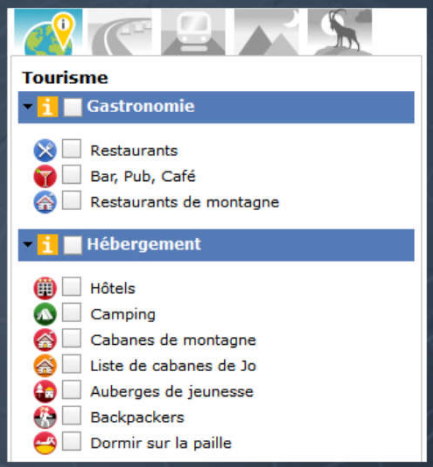
Multilingual

As many language as needed ...









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Information Query Capabilities

- Database content
- Formatting of fields, such as number of digits, date ...
- Concatenate strings, for example to create a URL
- Hyperlinks
- Images, image carousel
- On-the-fly cross section
- Highlight of objects (mouse-over the info)
- Highlight cables in tubes (electricity, fiber)
- Lookups: inline, JSON-Listen, from database
- on-the-fly overlay, for example parcels-zoning
- Query other layers than shown
- Query on WMTS layers
- Support of relationships
- Parcel ownership using SIX Terravis (11.5 cantons)
- Export query result to CSV

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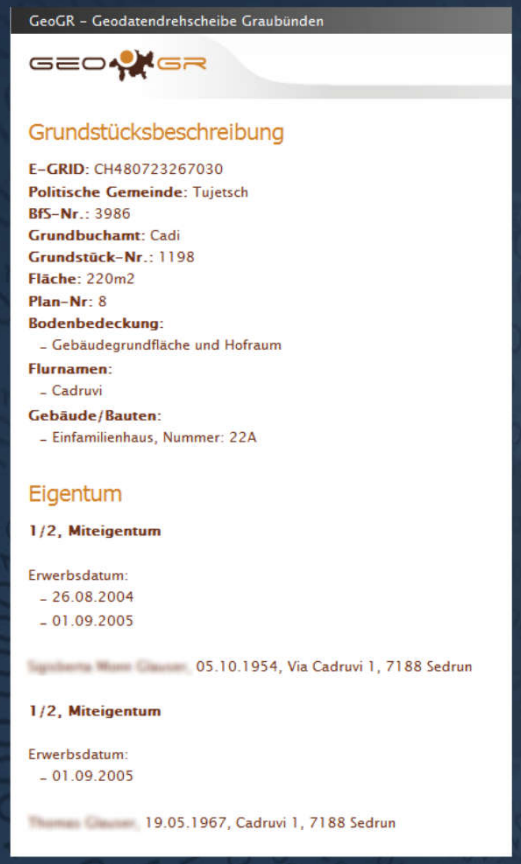
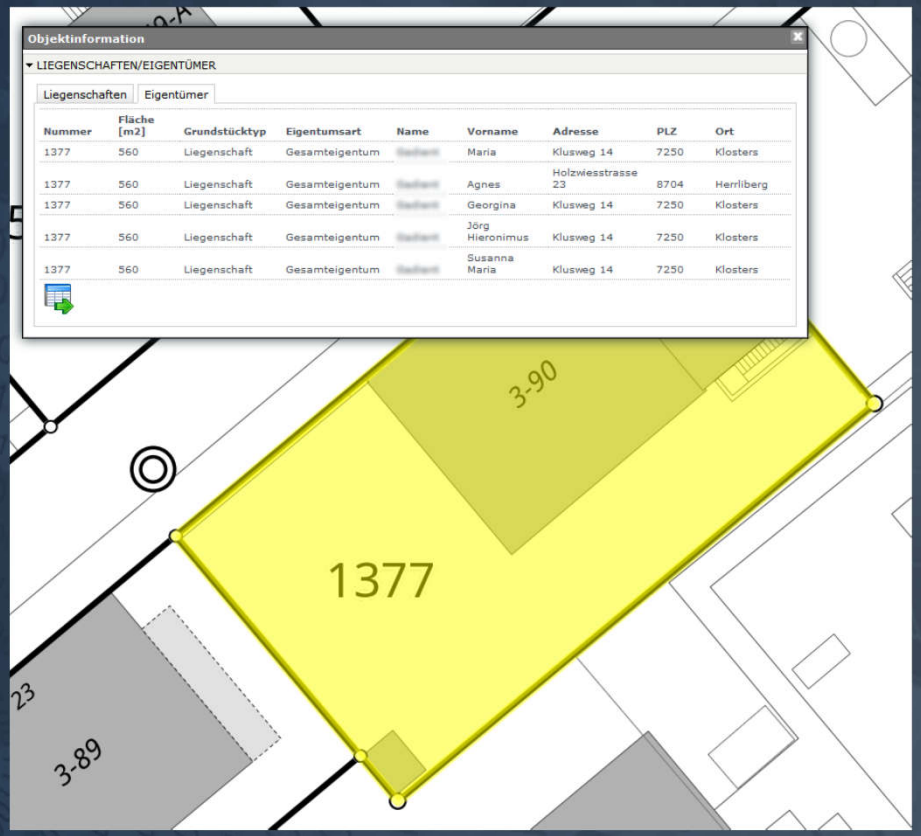
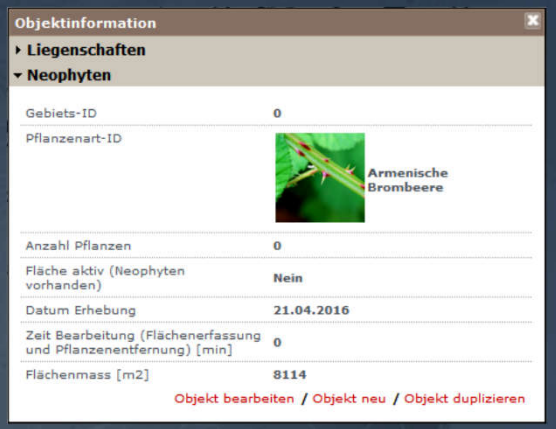
Information Query Examples

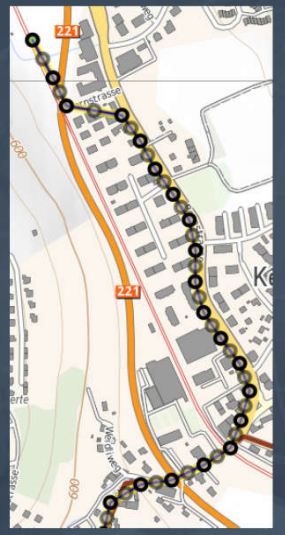


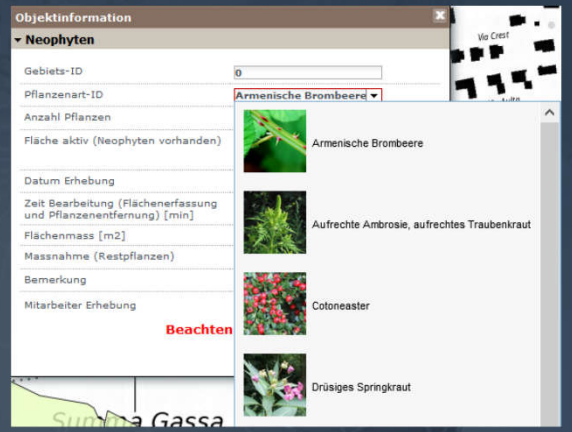


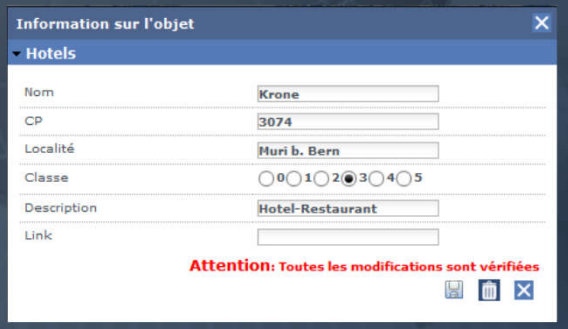


Editing

- Database content
- Only attributes, only geometry, both, delete yes/no
- Geometry type: GeoJSON or WMS (!)
- Geometry: *add node / move node / delete node / snap*
- Point to point or freehand digitizing
- Duplicate objects
- Author based (no editing on defined authors)
- Mandatory attributes: drop down lists, radio buttons
- drop down lists with images
- Default values
- Upload of images with GPS support
- GPX upload
- DXF-import for backdrop
- CSV/XLS import
- Clip to existing objects
- Multiple geometries in one layer (points, lines, areas)







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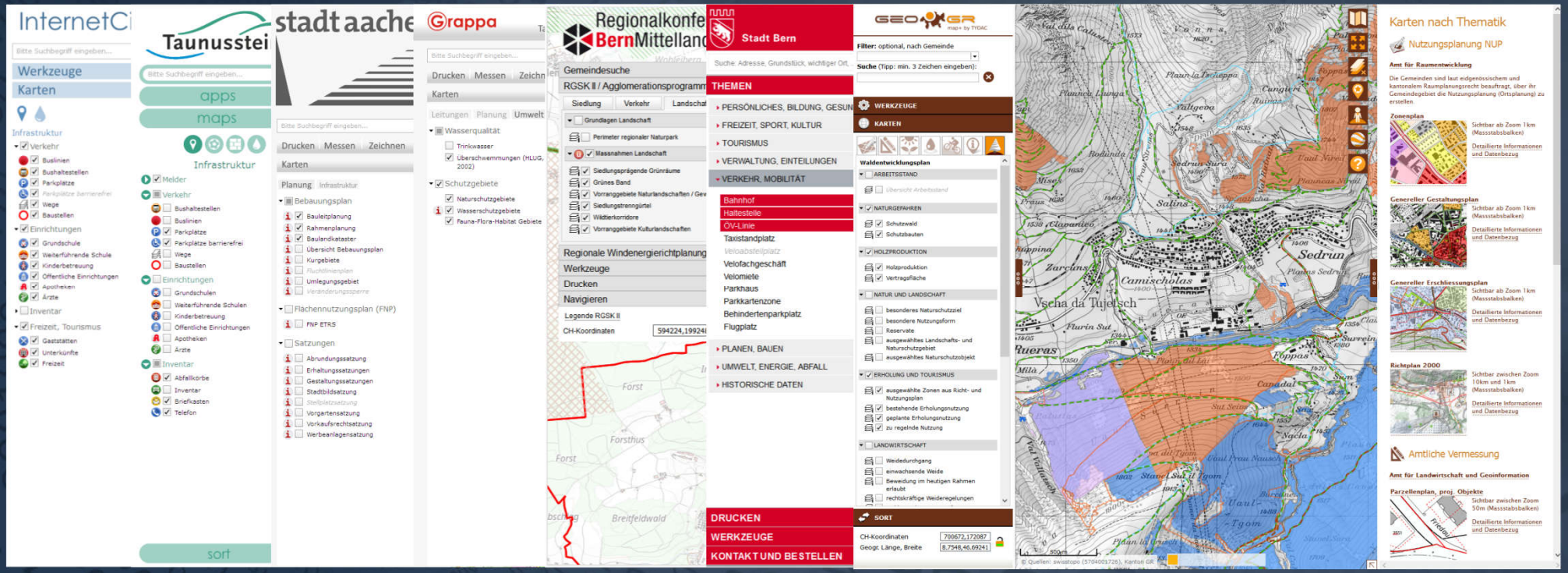
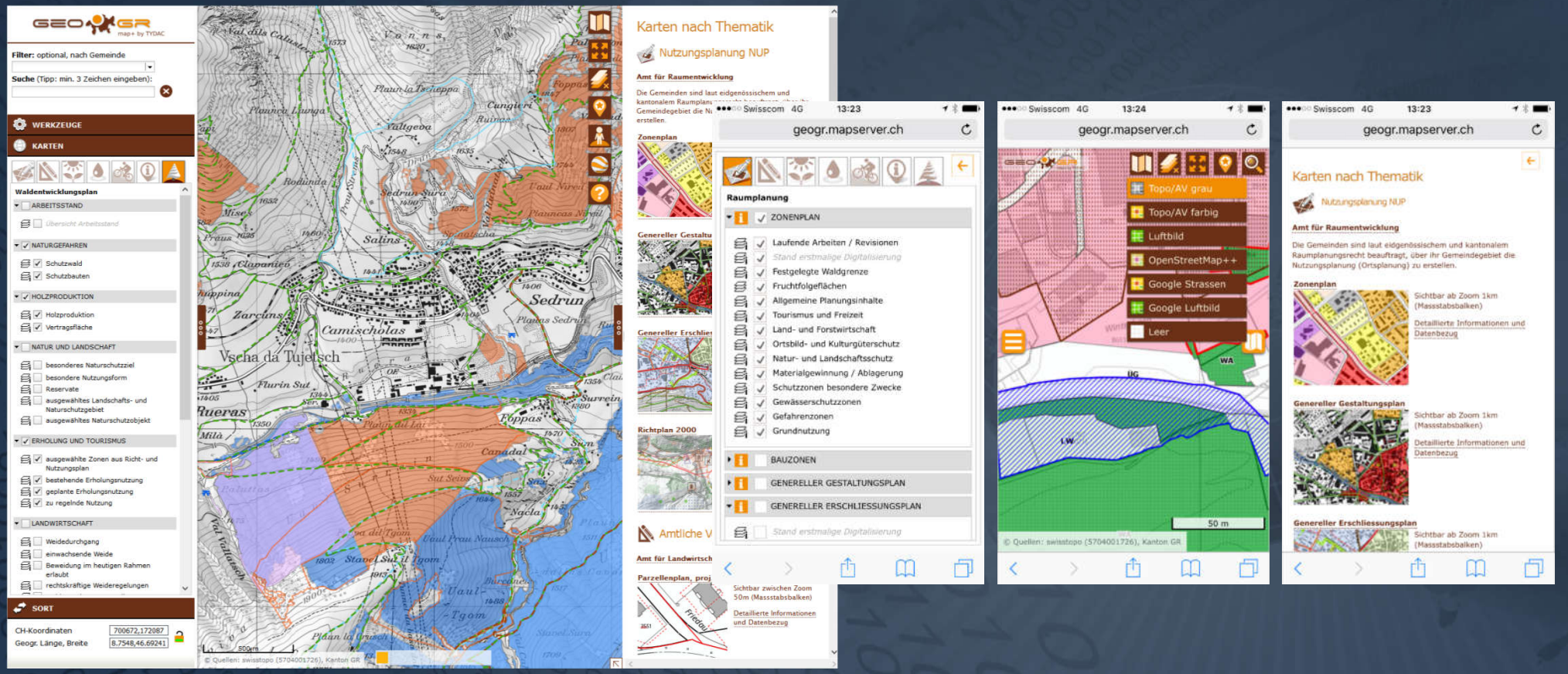
User Interface

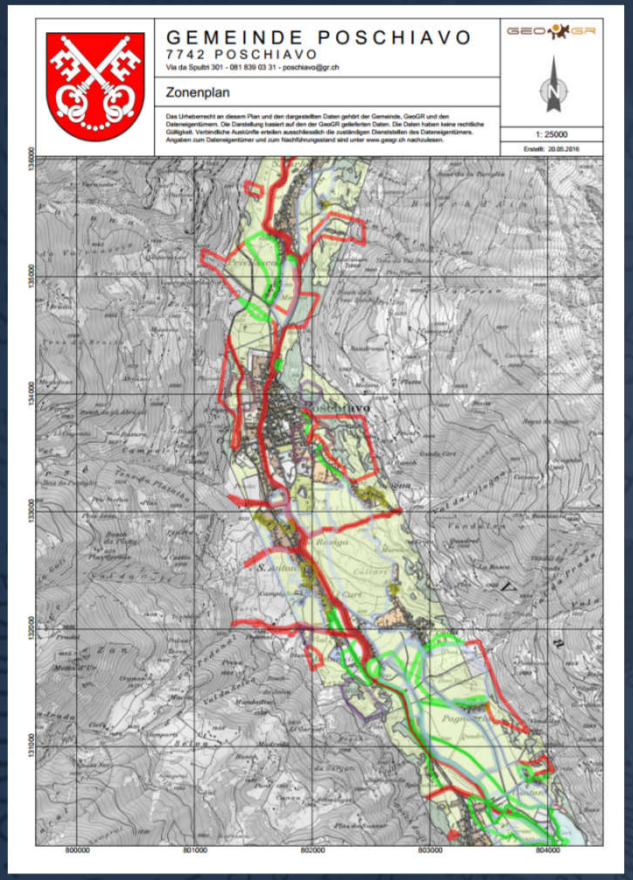
- Via Templates (CSS3, HTML) - almost anything you can imagine
- Wide choice of predefined graphic elements

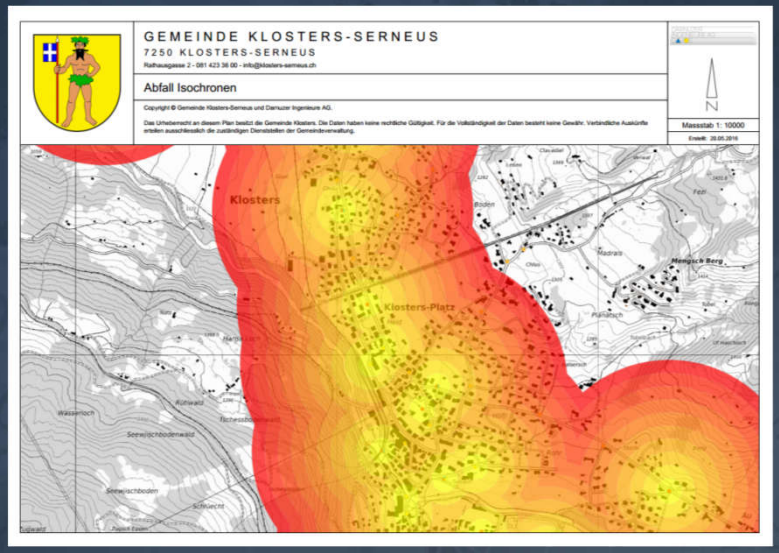


User Interface - Desktop & Mobile



PDF Layouts

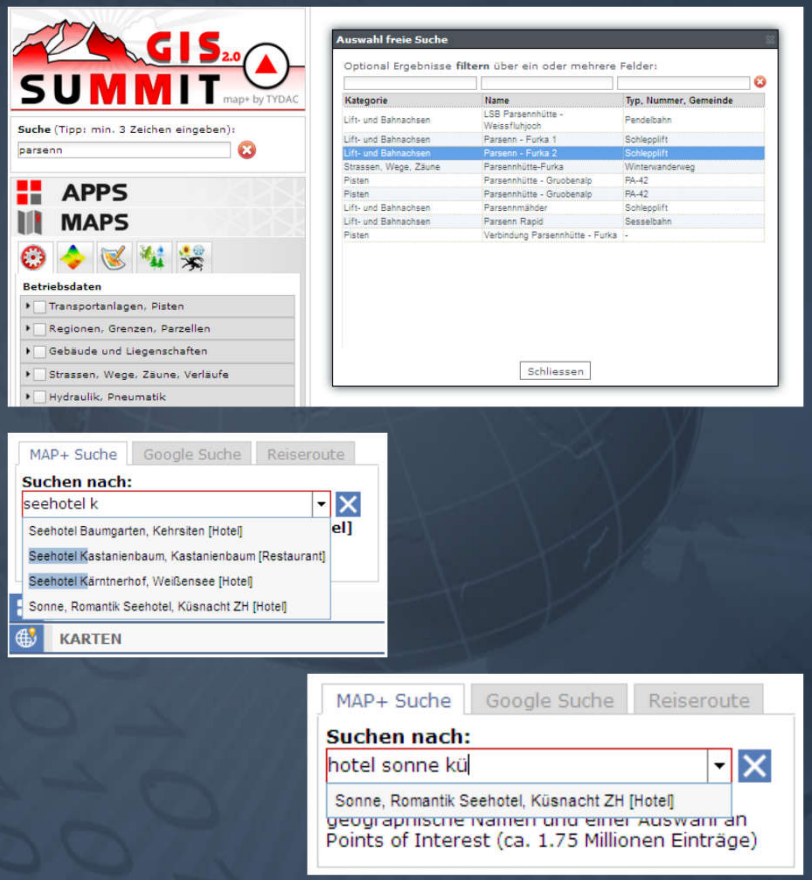

GEMEINDE POSCHIAVO
7742 POSCHIAVO
Zonenplan
1: 25000


GEMEINDE KLOSTERS-SERNEUS
7250 KLOSTERS-SERNEUS
Abfall Isochronen
Klosters
Klosters-Platz

Werkleitungsplan Abwasser
Bahnhofstrasse
Planen und Bauen

Search / Routing

- Simple one parameter search on a search DB:
  - Normally you'd need three columns: category, name, type or commune
  - List of matching results when typing three characters or one number
  - List is sortable and can be filtered on any column
- Categorized search
  - As above, with an optional category
  - Applicable for example if you have many municipality
- Search using Apache Lucene Solr Search Engine
  - Extremely powerful Open Source Enterprise Level Search-Engine
  - Search in databases, text files, documents etc.
  - full-text search, spatial search (location aware), hit highlighting, real-time indexing, dynamic clustering, database integration ...
  - Is for example used by Instagram, Netflix, Disney, Apple, eBay etc.
  - Experience with mapplus.ch: almost *real-time* answers on millions of records
  - Our aim: *better than Google* ☺
- Google search integration
- Google routing integration



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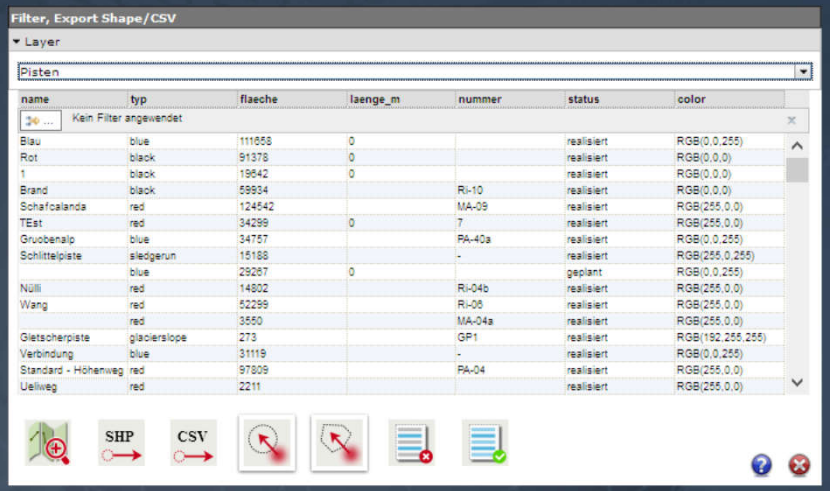
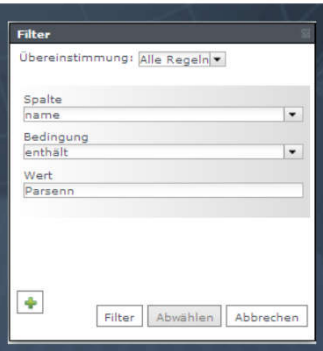
Selection and Export

- Selection:
  - Whole table
  - Ability to restrict the area of selection, for example with very large datasets one can select only from a certain zoom level
  - Geographic selection using a polygon or a circle
  - Combined selection database query-geographic
  - Manual selection in the table
  - Show selected objects in the map function
- Export:
  - Currently ESRI Shape and CSV
  - As we use OGR this can easily be extended with formats like SQLite, MapInfo TAB etc.





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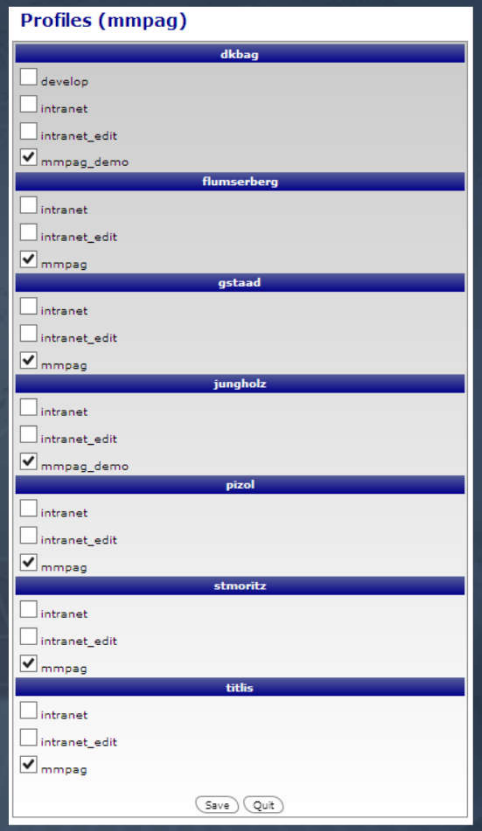
User Access Control (UAC)

- Simple UAC
  - Configurable via Web-GUI
  - User and Roles
  - Profiles allow the configuration of almost anything of MAP+ to a user, including GUI
- Complex UAC via Drupal CMS
- *Single Sign on* support



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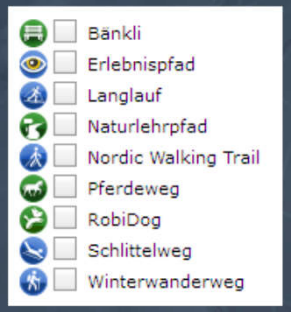
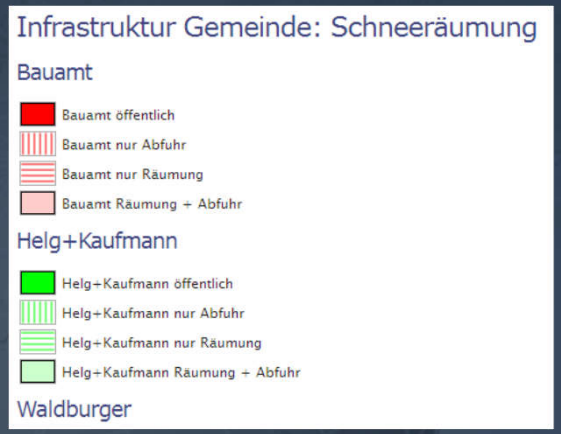
MAP+ Configuration: All in JSON (ASCII-Files)

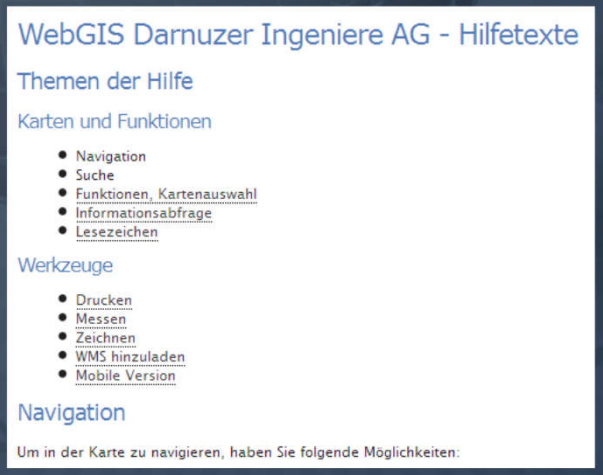
- All with a few configuration files:
  - Background maps: basemaps.conf
  - Layer control: lyrmgr.conf
  - Information query: maptips.conf
  - Editing: editing.conf
  - Apps: tools.conf
  - Disclaimers: disclaimer.conf
- PDF Print:
  - Options: printoptions.conf
  - Layer: print_lyr.conf. This has to be configured separately from the layer display itself, on purpose. As a screen is not a printer (scale handling)
  - Layouts: pdf_layout_xxx.conf, as many as you want
- Others:
  - Definition of snap-Layer for measurement and editing: snap.conf
  - Search: searchoptions.conf
  - List of external WMS: import_wms_list.json
- National Language Support (NLS):
  - Layers, Map Tips (Info), Editing, Legends, Tools, Disclaimers
  - As many languages as you want
- Preferred Editor: Sublime with Syntax Highlight / Checker

MAP+ Configuration: GUI Elements

- Elements in core directory, for all user roles (however, local cores as well supported)
- Templates:
  - Styling via CSS3
  - Images: GUI elements, layer manager
- Symbol sets:
  - Symbols for POIs
  - Vector graphics (SVG)
  - Library with more than 150 symbols
- Help files with NLS support
- Legends with NLS Support
  - Legends directly from WMS supported, for example UMN MapServer using Templates
  - Combined with HTML







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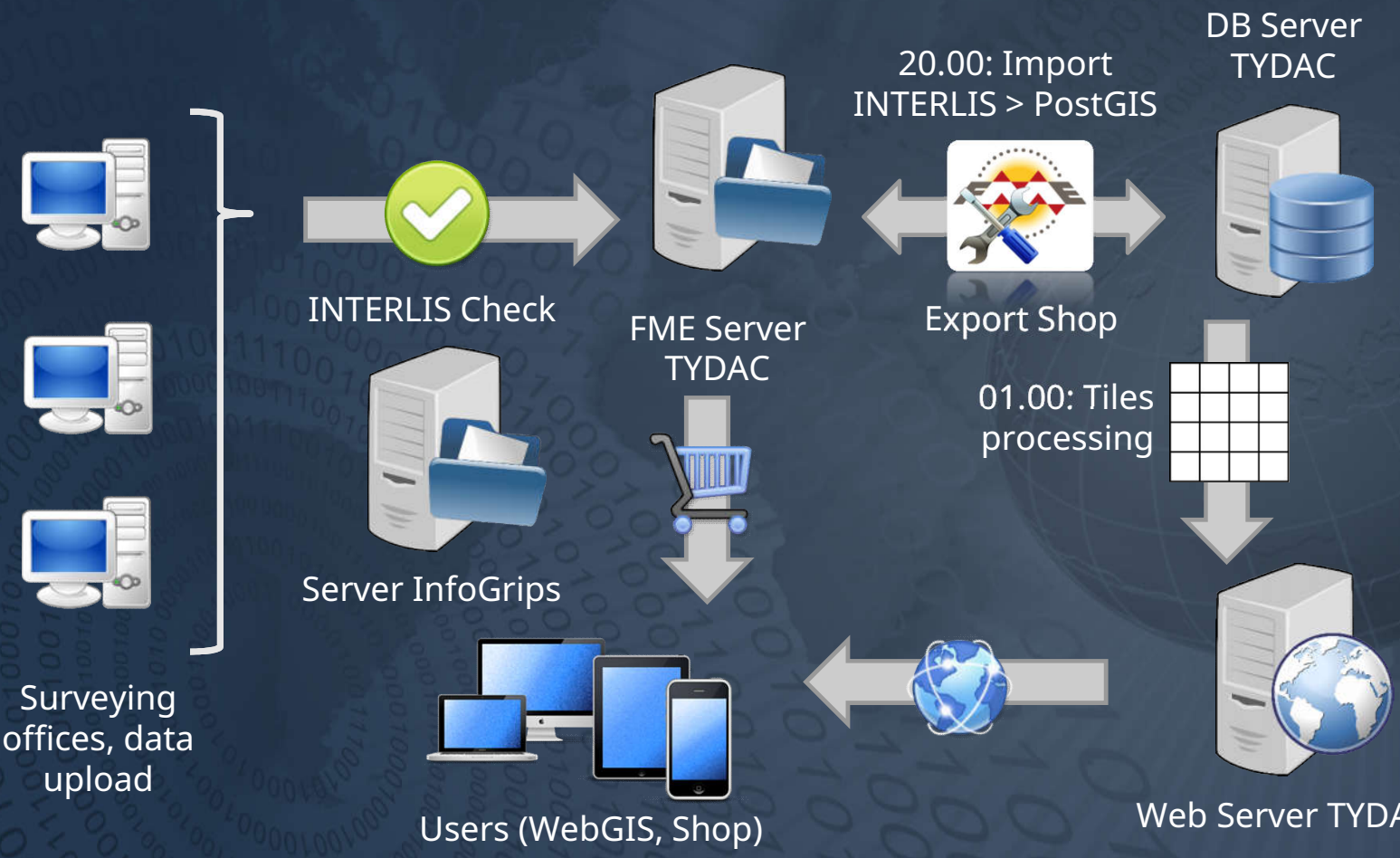
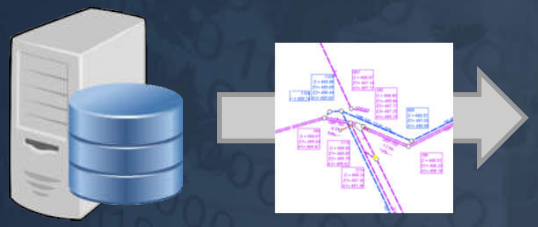
Example 1: GeoGR Workflow & Architecture



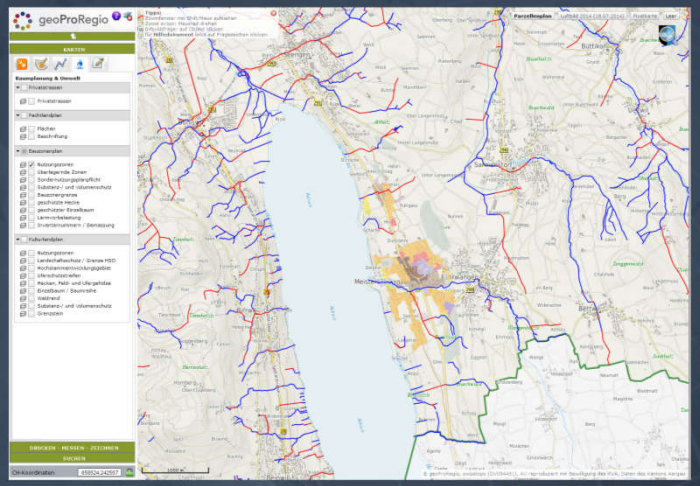
Example 2: Architecture geoProRegio

AIMS Server
Oracle DB
Layers Map 3D
Data RWB



UMN MapServer
WMTS Server
WMS Server
PostGIS, LINUX
Data canton
Data RWB

geoProRegio WebGIS



Users

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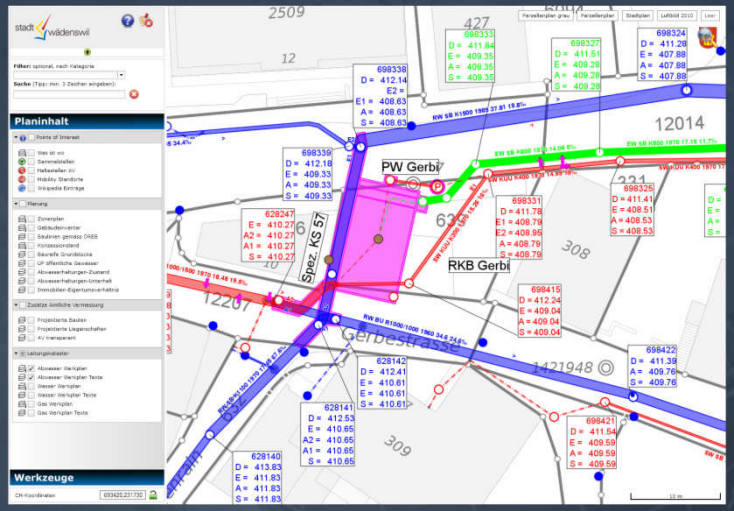
Example 3: Architecture EW Meilen / Wädenswil / Chur

AutoCAD Map 3D
internal use

FME
Oracle -> SQLite
ftp to TYDAC, daily

AIMS
UMN MapServer
TYDAC Hosting
Chur: internal IT

WebGIS



Users