- TileGen –
An open source Software for applying cartographic Generalisation to Tile-Base Mapping

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0. Structure of the presentation

1. Motivation

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3. TileGen - Concept

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1. Motivation

source: en.wikipedia.org/wiki/Web_2.0
1. Motivation – Web Generalisation Services

'WebGen 2.0'

2. Facts & Terms

Web 2.0 applications

LOCAL DATABASE

GIS CLIENT / BROWSER

REGISTRY

INTERNET

WPS

GENERALISATION WEB-SERVICES

status-quo  needed developments

Upload own processes

Static requests for available processes
2. Facts & Terms

tile

tile-based mapping system

tile-based

tile-based map

renderer

tile-based mapping

cartographic parameter

Web 2.0

automatic rendering

Mapnik
What is a tile-based mapping system?

2. Multiple image tiles are used to virtualize a single map view.

3. Image tiles are accessible using a discrete addressing scheme.

4. Tiles are sent to client with minimal processing – as much as possible is done ahead of time.

(cf. Sample & Ioup 2010)
Tasks to set up a tile-based mapping system

1st: organize geospatial data (prepare a tile-based map) → primary language: GIS (SQL, shapefile, ...)

2nd: define cartographic parameters (prepare ...) → primary language: XML

3rd: initialize automatic rendering (generate ...) → primary language: Python

4th: build a mapping framework (display ...) → primary language: JavaScript

5th: add mash-ups, interaction, statistics, etc. (refine ...) → primary language: JavaScript

3. TileGen – The Concept

1. Graphical User Interface, for visual:
   - definition of cartographic parameters
   - evaluation of (carto-) graphic quality (readability & legibility)
   - semantic selection and classification (schematic transformations)

2. Automatic Topological Evaluation

3. Test and Define Spatial Transformations

4. Export WPS-Execute-Parameters for automatic processing
4. TileGen - Implementation

TileGen – An open source software for applying cartographic generalisation to tile-based mapping

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Ralf Klammer
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Styling and Information retrieval


- Define cartographic parameters
- Read XML-file
- Immediate preview
- Evaluate topographic constraints
Spatial Transformation

Evaluate result of processing

Select feature type

Execute web generalization service
5. Conclusion

- proof-of-concept implementation

- general feasibility of concept demonstrated

- visual feedback supports definition of cartographic parameters

- WebGen-WPS applicable, but should be developed to:
  → enable Web2.0 communication structure
  → good to have also evaluation processes
5. Outlook

- implement export & automatic processing
- outsource topologic evaluation to WebGen
- implement as online-tool
- further experiments on client-applications
Other Web2.0 Applications???

JavaScript-frameworks build with D3.js, Leaflet.js & TopoJSON

For example...scale dependent simplification
“Whether for good or bad, online mapping is currently in a tile-based era and will likely be so for the foreseeable future”

Michael P. Peterson (2012)

The Tile-Based Mapping Transition in Cartography.