

Creating a GIS based learning tool for the Faculty of Forest & Environment at the HNE Eberswalde

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What do we have now?

- Adjusted shapefiles
- Data we have:
 - Position of trees
 - Knowledge on Tree species

Further objectives → with benefits

- Database to store / access tree data
 - Central storage
 - Security
 - Scalability
 - Data integrity
- Implementation with GIS
 - Ease of access
 - Analysis
 - Visualization

1 Planning

- Analysis of application needs
- Software investigation
- Logical analysis and relational model

2 Implementation

- Database
- Database frontend
- GIS Software

③ Testing

- Whole Software suite
- Solving Problems
- Beta testing (students)

④ Documentation

- Software
- Database

Development and implementation of database and software was done after the guidelines in the book of Uwe Klug, *Datenbankanwendungen entwerfen und Programmieren*

Overall needs

- Cost effectiveness
- Robustness
- Documentation
- Ease of use and portability

Database Management System

- PostgreSQL, *The worlds most advanced opensource database*
 - Object relational DBMS
- Features:
 - ANSI-SQL 92 standard
 - Most of SQL:2008 standard
 - Security scheme
 - POSTGIS, *Spatial extension*
 - PgAdmin3, *A PostgreSQL administration tool*
 - Procedural languages (R, php, java, ...)
 - Interfaces to external API's (ODBC, .NET, java, perl ...)

Database frontend

- DaDaBiK, *The database interface Creator*
 - Webbased frontend to the DB
 - Typical look and feel of php web application

- Features:
 - Eases queries to the DB
 - Displays images
 - Advanced control on accessing the DB

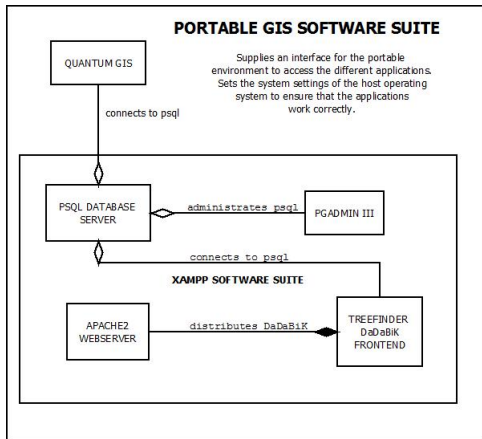
GIS - solution

- QuantumGIS, *Open source Geographic Information System*
- Features
 - Vector / raster data
 - Connection to POSTGIS tables
 - Powerful plugin system to load extensions

PortableGIS, *Opensource GIS from USB stick*

- Fully functional portable GIS suite
- Including PostgreSQL and Quantum GIS
- Database frontend running on Webserver

Results - Implementation II



Online documentation

- PostgreSQL, - *server administration guide*
- QGIS, *Documentation website*
- PortableGIS, *Website*
- PgAdmin3, *Documentation website*
- DaDaBiK, *Documentation website*

Project report

- Data structure
- Software usage
- Database documentation
 - Main information
 - Structure
 - Security setup

Results - Database model

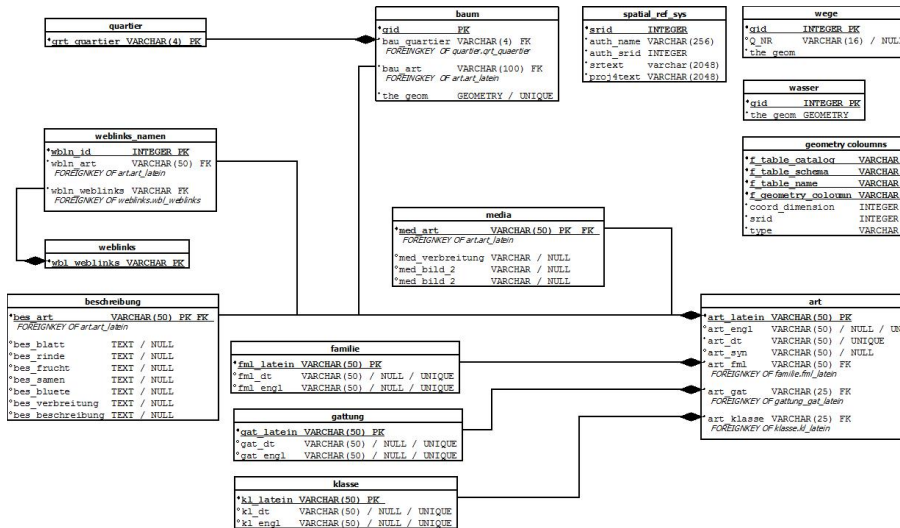


Table: Operating Systems running Portable GIS

Operating System	working / supported
Win 7 Home 32 Bit	yes
Win 7 Professional 32 Bit	yes
Win 7 Professional 64 Bit	yes
Win Vista Home Premium 64 Bit	unstable
Win XP	not supported
Any UNIX like system	not supported

Known Issues

- Portable GIS needs administrator account
- Apache2 fails if Port 80 is blocked (Skype)
- Firewall configurations

Project Implementation

- Central / decentral approach
- Security issues

Outlook

- Data collection (GPS)
- Database maintenance
- Integrated web application

Thank you for the attention ...

Any questions ?

→ Please ask !!!

Printed media

Klug, Uwe. *Datenbankanwendungen entwerfen und Programmieren*. Herdecke, 2008, 2008.

Internet resources

DaDaBiK. *Documentation website*. Internet. Apr. 2011. URL: <http://www.dadabik.org/>.

PgAdmin3. *A PostgreSQL administration tool*. Internet. Apr. 2011. URL: <http://www.pgadmin.org/>.

— *Documentation website*. Internet. Apr. 2011. URL: <http://www.pgadmin.org/docs/>.

PortableGIS. *Opensource GIS from USB stick*. Internet. Apr. 2011. URL:

<http://www.archaeogeek.com/blog/portable-gis/>.

References II

- PortableGIS. *Website*. Internet. Apr. 2011. URL: <http://www.archaeogeek.com/blog/portable-gis/>.
- POSTGIS. *Spatial extension*. Internet. Apr. 2011. URL: <http://postgis.refractions.net/>.
- PostgreSQL. - *server administration guide*. Internet. Apr. 2011. URL: <http://www.postgresql.org/files/documentation/books/pghandbuch/html/admin.html>.
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- QGIS. *Documentation website*. Internet. Apr. 2011. URL: <http://www.qgis.org/en/documentation.html>.
- QuantumGIS. *Open source Geographic Information System*. Internet. Apr. 2011. URL: <http://www.qgis.org/>.