

GIS on Linux4All: Live CD

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Abstract

The paper describes results and plans of new Live CD project. Live CD is boot able CD-ROM with operating system and installed and configured programs. It is ready to use as full installed system directly after boot from CD-ROM drive. There is more than one hundred distributions of Live CD. We can say that there is only one targeted to the GIS users. That Live CD is called GIS-KNOPPIX. That Live CD can be used for education, research, testing, etc. But there are two aspects that made our decision to do not use that Live CD in the Czech Republic. Last distribution of the CD is not for free of charge at this time and the CD works with data mainly for the USA.

Our goal is to develop Live CD with configured GIS tools and with sample data from the Czech Republic to be closer to our potential users. Our potential users are different students. Mainly from high schools, but also from long-life education sphere.

Live CD “GIS on Linux4All” (based on Live CD Linux4All (<http://www.linux4all.de/livecd>) – Fedora Core 2 Based) should show that there are available GIS tools distributed as Open Source ready for main GIS tasks. The users should be able to learn how to use that tools. We would like to prepare (or use existing) tutorials for that Live CD.

We hope that Live CD “GIS on Linux4All” will be used in many institutions, because it will be available for free and users can learn useful GIS tools without installing and configuring them. We would like to use it for our full time and part time students as a platform for their self-teaching activities.

The Live CD should include following GIS tools: UMN MapServer, MapLab for UMN MapServer, GRASS 5.3 and GRASS 5.7, Quantum GIS, Thuban, JUMP, PostGIS, GPS Drive, GPS Man and possibly other tools.

Background

At the beginning we have to describe how came the idea of the project to our mind. It was not quick process, it comes quite slowly. In the autumn of the 2003 came new wave of thinking to the institute of geoinformatics. Before that period we have used open source software only rarely. We used GIS open source software for “playing” only, but not for serious work. We worked with GRASS and UMN MapServer a little. After the autumn 2003 some of us have completely moved to the OS Linux (thanks to Michal and Pavel) and we have started using the open source as a platform for our day work.

In these days first projects based on open source have fired up. They have been related to the current teaching of some subjects. For example it was GVSB_View project in the subject of Java programming or it was project that moves subject called “Software for GIS II” from close source (and commercial) software to the open source (and free) software.

Nowadays in a lot of study subjects is used open source software and other teachers are thinking about using open source for teaching. The main reason is (but i only suggest, you have to ask them) that they would like to give a chance to our students to do not use cracked software. Common student have not got enough money to buy a licence for GIS software (of course there is some commercial software free of charge for students, but usually you have to apply for a grant or do any other non popular things). When student would like to do his homework lessons, he (or she) has to either come to our laboratory (where the licensed software is available) or use cracked software.

Well, if a teacher think it the way such as: I will prepare my exercises to suit for example GRASS system, because my students can use it free of charge: we can say that it is not so easy. Some of the software are not available for common OS (Windows) or it is very difficult to install them on it. That reason was one of our impulses for GIS on Linux4All.

Another impulse came from second level of education. We are cooperating with some high schools and they are thinking about GIS. But the software is expensive, data are not available, etc.

Nowadays we are using open source quite often and once somebody made a question: “What we are giving to open source community? We only use the products and do not give in back any to it”. That was another impulse.

That were the reasons in a short review. Let us show you list of project’s goals described in a different way than in the abstract of the paper:

- Give the set of open source software to our students in one compact form
- Give the tutorial data and set of tools to high schools in one compact form
- Prepare set of useful tutorials for used software
- Prepare data from the Czech Republic available free of charge
- Advertise open source GIS tools
- Advertise OS Linux

Software for GIS

We do not want to advertise open source tools in this paper, because it is not allowed, but let us show you list of tools with short description.

Software name	Description
GRASS 5.3, 5.7	Tool for GIS analysis, 2.5D, 3D, 4D modelling. Two different versions.
Quantum GIS	Tool for data visualisation and simple analysis
Thuban	Tool for data visualisation and simple analysis
JUMP	Tool for data visualisation, analysis and editing
UMN MapServer	Tool for data publishing in WWW environment
MapLab	Tool for managing UMN MapServer
PostGIS	Tool for managing geodata in RDBMS
GPS Drive, GPS Man	Tools for managing GPS equipment and data from it

Table 1: List of used software

The list is not complete and if the capacity of the CD-ROM (or we are thinking about DVD) can hold any other software we would like to install it on the Live CD.

Tutorials and geodata

To use any software you have to learn it. Quite common way is to use tutorial and we

decided to teach our students in that way. The Live CD should consist of tutorials for each software. We would like to demonstrate how the software works on common GIS tasks.

We would like to use existing tutorials and if they are not present we would like to develop them. The tutorials will be in Czech language (an may be in English language also), because our students have their study language Czech.

Another point of view about tutorial's localisation to the national (or cultural) environment comes from the used geodata. Czech student should analyse data from the Czech Republic, but it is quite difficult, because in the Czech Republic you have to pay for a data (even if they have been created by state (public) organisation). From that reason we would like to use data from different sources:

- Measured by our students
- Measured by students from other Czech universities
- From state and private organisations (we would like to ask them to give some sample data for the Live CD)

Current state and development plans

The project has started at the beginning of the October 2004. The development team consists of paper authors.

At the beginning of the **December 2004** we have developed 3rd build of the Live CD GIS on Linux4All. It is based on Live CD Linux4All (<http://www.linux4all.de/livecd>). The CD is not available for public yet. The following **list of features** gives you short information how CD looks at that time:

- OS: Linux Fedora Core 2
- XWindow managers: WindowMaker, IceWM
- GIS tools installed and configured: GRASS 5.3, GRASS 5.7, JUMP 1.1.1, QGIS 0.5, Thuban, UMN MapServer 4.2.3
- GIS tools installed: PostGIS, NVIZ for GRASS, MapLab
- Tutorials: Not yet installed
- Data: North Moravia for GRASS, Czech Republic (Regions, Towns, Roads) in ESRI Shape file

Our plan schedule:

- January 2005: Configure NVIZ fro GRASS, configure MapLab, Install two tutorials for GRASS and one for JUMP, Upgrade from GRASS 5.3 to GRASS 5.4.
- March 2005: Configure PostGIS, Install GPS Drive and GPS Man, Install tutorial for UMN MapServer, QGIS and Thuban
- April 2005: Publish 1st alpha version of the Live CD on the WWW

Summary

The paper gives short description of the project GIS on Linux4All. It describes main tasks and purposes for the project. If you want to contribute you are most welcome. We need help in many ways: get data, prepare data, create tutorials, test CD, test tutorials, support by grant to pay developers, etc.

If you want to contribute or use it, please visit project page at <http://gisak.vsb.cz/livecd/>. There will be published tutorials, ISO images fro CD, data, information about development stage, etc.

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