

EMAP - THE MAP DATABASE THAT JOINS GIS AND CARTOGRAPHY

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INTRODUCTION

Liber AB is based in Stockholm Sweden and has been using digital techniques for map production since early 1980's. Liber makes maps for schools and the consumer market as well as for other commercial companies. Products published include atlases, wall maps, road maps, bike maps and town plans.

Today, there is a demand for map databases that can be used both for printed and electronic map products. The aim is to have only one database that needs to be maintained and kept up to date.

Map design is very important in printed maps while focus is on information linked to map objects in electronic products. We needed a production system that could combine these two requirements. There are many production systems in the mapping and GIS field. These systems all have their pros and cons.

PRODUCTION SYSTEM

Adobe Illustrator (AI) is considered by many professionals, to be the easiest and most flexible design tool on the market in the graphic industry. On the other hand, AI lacks basic support for databases and GIS analyzing tools. However there is a plug-in called MAPublisher developed by Avenza Systems Inc that extends these capabilities into AI.

MAPublisher introduces the concept of "rule based cartography" in a design environment.

Map objects are linked to attributes in a database within AI. These attributes are translated into map design through so called Map Style Sheets. A map style sheet connects an attribute with AI design elements like graphic formats, symbols and text formats. We call this new map database: eMap.

Liber has chosen this method for its mapping production in the future. This implies that map databases in our existing CAD and GIS environments have to be migrated into AI/MAPublisher. This migration is done in an automatic process, using FME (Feature Manipulation Engine), a GIS data translator developed by Safe Software Inc. Data is controlled, manipulated and enhanced to fit into the AI environment. Point symbols, roads, hydrography, etc. are automatically tagged, creating a cartographic GIS where map objects are attributed with eg name and sovereignty.

Using MAPublisher, content, selections, scales, projections and design can be varied in a number of ways. Grids, graticules and name index can also be created. A knockout function can mask line features covered by text. The most common CAD/GIS formats can be imported/exported in/out of MAPublisher. MAPublisher also has tools for geo-referencing, and some typical GIS functionality, such as handling POI, join and buffer. Output is generated as GeoPDF files that can be used both for printed maps and electronic production using Flash. GeoPDF files can be read and analyzed in Adobe Reader.

RASTER

Many of our maps have satellite imagery, hill-shading or ocean relief as a background. Using Adobe Photoshop (PS) with another plug-in from Avenza called Geographic Imager, we have a very flexible raster mapping system, which adds geospatial tools such as geo-referencing, transformation, projection, tiling and mosaicing into PS.

MAPDATABASES

Liber has migrated the following major databases into AI/MAPublisher and PS/Geographic Imager:

- Small scale databases for making thematic maps of the world, continents and different regions.
- The World 1:30M
- Continent Overviews: Europe 1:15M, Africa, America, Asia and Australia 1:25M, Arctic and Antarctica 1:40M.
- Continent Reference: Europe 1:4M, Africa, America, Asia and Australia 1:10M, Arctic and Antarctica 1:20M. Some areas exist in larger scales.
- Nordic region 1:650'.
- Swedish town plans 1:30'/1:50'.
- Greater Stockholm 1:10'.

The text layers are in Swedish at this point, but we are working on making them multilingual. We have digital files in several languages that are waiting to be integrated with our new databases.

ELECTRONIC SOLUTIONS

The export to GeoPDF's is also a starting point for mobile solutions in smartphones and surf plates. We are currently examining the market for supplying map data for these kinds of devices.

The use of whiteboards is increasing rapidly in schools. Electronic wall maps would seem to be a natural successor to our printed wall maps. Our new databases are perfectly suited to this kind of production.

ABSTRACT

The combination of Adobe Illustrator with Avenza MAPublisher and Adobe Photoshop with Avenza Geographic Imager, provides us with a very flexible and competitive map design and production system. Add Safe Software FME and you have a complete system for data import, manipulation and export to almost all existing mapping- and GIS-systems.