——— Digital Geodetic Archive ———

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——— Outline ———

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• Technical description
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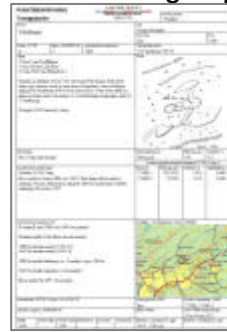   • Point lists

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——— Background ———

• Lantmäteriet (The National Land Survey of Sweden) is responsible for the geodetic archive covering information about all national geodetic points.
• The analogue archive kept information about different point types separately, even though some physical points was identical.
• Most of the analogue point information was in the form of point descriptions.
    • Co-ordinates and height values was in analogue text lists.

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——— Analogue point description ———

The text information consists of e.g.:
• Point identity
• Classification
• Annotation, i.e. if the point is identical as another point type.

The pictures are:
• Point sketch
• Map

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**—— The origin of the
Digital Geodetic Archive (DGA) ——**

• To merge the data union between the different point types.
• Simplify the work with the Geodetic Archive.
• Users will be able to search information using Internet.

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——— Content of DGA ———

The DGA consists of e.g.
• 3 800 modern triangulation points of good quality
• 1 000 other triangulation points of less quality
• 9 600 GPS points
• 50 000 modern height benchmarks
• *23 000 gravity points (not yet)*
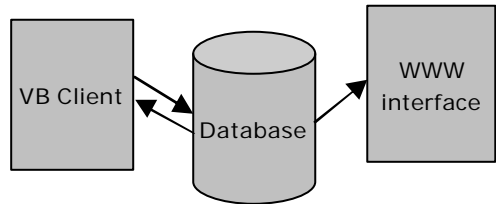
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Digitalization process

The point descriptions had to be digitalized.

Tests with OCR-scanning were made, but the result was not acceptable.

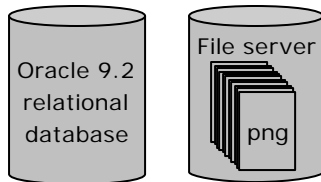•All text information was entered manually.
•The sketch picture were scanned.

System structure

The DGA system consists of three main parts:

VB Client — Database — WWW interface

Technical description

•The information in the database is stored in an Oracle 9.2 relational database.
•The sketch pictures are stored as *.png-files on a side-by-side file server.

Oracle 9.2 relational database

File server
png

One physical point - several point types

•One physical point can be several different types of points, i.e. a GPS point can also be a height benchmark.
•The physical points have one unique main identifier.
•Some information are related to the physical point and some are related to the point type.
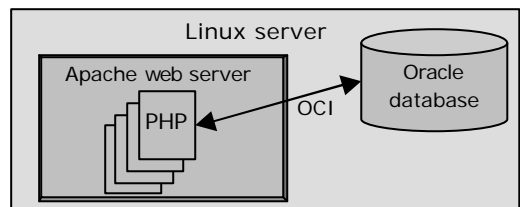

The VB client

A program written in Visual Basic 6:
•The tool for updating and adding information.
•Used by internal archive staff.
•Possibility to work with maps for plotting points graphically.

Technical description

The WWW interface is the main technique to access the information in the DGA.

Linux server
Apache web server
PHP
OCI
Oracle database

Products

The different types of products that can be accessed from the WWW interface are:
- Point descriptions for triangulation points and GPS points.
- Point descriptions for height benchmarks.
- Co-ordinate lists with triangulation points and GPS points.
- Height lists with height benchmarks.

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Products

The point descriptions can be accessed both graphically by a clickable map and by filling out a HTML form.

The lists can only be composed by filling out a HTML form.

In all cases SQL is used to get the result.

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Point descriptions

An Adobe PDF file composed on-the-fly by a PHP-script with all information matching the request.

Two different types of forms:
- Triangulation and GPS points
- Height benchmarks

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Point lists

The point lists are a convenient way to get an overview of which points are available in a specific area.

The lists are presented in text files and the format of the file is important, as the file are supposed to be read by other programs.

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Point lists

An example of a point list:

The file format is fixed, e.g. header and signals.

```
KFIL                      2006-10-05 15:59:12
DGA-urval     3 punkter
Utsökning på punktnummer.
Definitiva (aktualitet = 1) eller preliminära (aktualitet = 0)
xy-koordinater.
Projekt i ATTRIBUT = det projekt som koordinaterna beräknats i.
/
SYSTEM RT 90 2.5 gon V 0:-15
/
ATTRIBUT      >Aktualitet >Klass >Projekt >
/
POINTS
127730        6685491.386      1569627.010  >1>A>3RT      >
1277490       6688580.440      1572105.820  >1>B>RIX95    >
1278390       6691935.092      1565168.306  >1>B>RIX95    >
/
STOP
```

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Thanks for your attention!

More information can be obtained from:
- www.lantmateriet.se/geodesi

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