



# Digital Historical Maps

Report from WP 3

## The DHM Homepage and Prototype System

Final version 2

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Appendix 4: Production of Linked Overview Maps (CD-ROM 1)

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# 1 The DHM homepage – WP 3

## 1.1 Scope

The purpose of this workpackage, together with WP4, is to provide access via the Internet to a limited map set, e.g. existing maps and act-text of an area. The project will develop a prototype user interface based on the specifications produced in WP2. The results of the work will be evaluated in three phases (WP9). After each evaluation phase necessary modifications will be made to the prototype.

The work, utilising specifications produced in WP2, will result in a functioning prototype for distribution via the Internet. The prototype will contain an interface meeting the functionality specifications already developed.

### ***Tasks:***

Provide access to a limited set of cartographic information via the Internet  
Develop a user interface.

Contracted description of the workpackage, see Appendix 1.

## 1.2 Accomplishment

The contracted time schedule for WP 4 was month 9 - 23 of the project.

From the contract only the prototype system, that is the functionality for searching, presenting and ordering of images from the archives, was to be included in this workpackage. The establishment and maintenance of the homepage was to be an activity in WP 8. In the beginning of the project that was also the state of things, but after the first prototype was launched in February 2000, the work has been integrated. This report will therefore describe the entire homepage of the DHM homepage, the prototype system included.

The work with the homepage resulted in a first version in April 1999. Work with the prototype started in May 1999. The first prototype was launched on schedule in February 2000. After evaluation work started for further development. The second version to evaluate was launched in January 2001, about half a year delayed. After that only some minor adjustments have been made.

From summer 2000 the development work has been made by the NLS.

# 2 Description of the Homepage

## 2.1 Systems Overview

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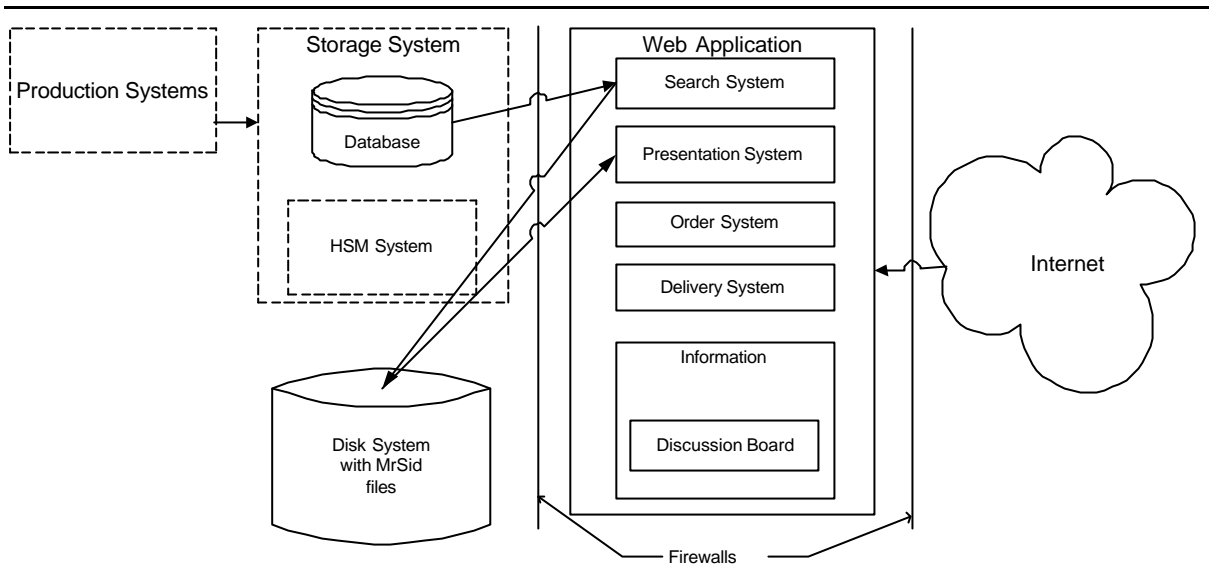
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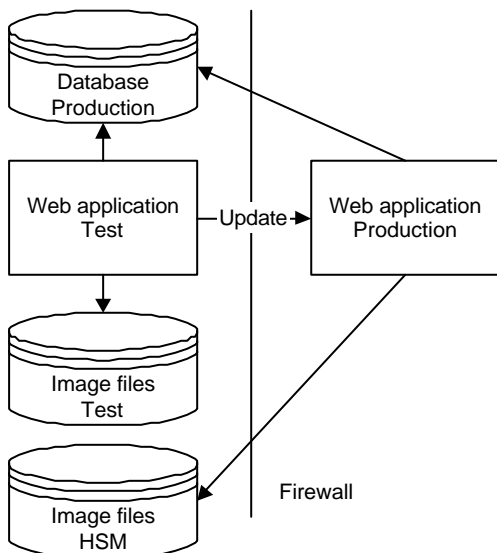


## 2.1.1 Site Map

For an overview of the web application, see the site map, appendix 3

## 2.1.2 Test and production environment

Overview:



Development and test of new functionality is made in the test environment inside the firewall.

## 2.1.3 Database

The web application uses the same database as the original storage. The database can be reached from outside only through the application.

Communication with the database is implemented as scripts (PHP4) towards views (OracleView) towards the database.

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### 2.1.4 Security and Backup

There is no backup on the application on the external webserver. Incremental backup on the test environment once a day and a total backup once a week.

The external web application is protected by a firewall towards the Internet. If the application in spite of this outer firewall is hacked and destroyed a new version always can be replicated from inside the main firewall of the NLS. The information is also located inside this firewall.

### 2.1.5 Availability

#### Specified Access times

#### Prototype

Search in database

–predefined search

< 10 sec

–free text search

< 20 sec

Presentation of image file on Internet (10 Mb connection)

Presentation of image file on Internet (56 K modem connection)

The system is available 24 hours a day.

Allowed interruptions:

08.00-16.00 < 1 hour, 99% of time

16.00-08.00 < 1 hour, 90% of time

Performance test, see appendix 2

## 2.2 Homepage Contents

### 2.2.1 Multilingual functions

The homepage is available in four different languages, English, Danish, German and Swedish. To make it possible to chose between the different versions, a link to the start page is placed on all pages.

### 2.2.2 Information Pages

The contents in the different versions differ in parts. The difference is caused by two reasons: The first is an assessment of what can be of interest for people in the different language areas, information of local interest may of this reason only be available in this language. The second reason is the problem to find corresponding translations of special expressions without making far-reaching explanations. Naturally this can be developed and increased in a future production system.

**Following information areas are common to all language versions**

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- **The Archives** (Om Arkivet, Die Archive and Om Arkiven respectively), containing information on the archives from each organisation. The most significant information from the country concerned has as a rule been highlighted, at the sacrifice of descriptions of archives from other countries. Therefore a more detailed information is available for the domestic interested parties. The English version covers all material, but it is possible to get more information on the material if the user visits the part of the homepage specific to one Danish, German or Swedish language. For example the Danish material is described in greater detail in the English and Danish part of the web than in the German and the Swedish.
- **The Project** - information on the project. This part is more detailed described in the English version and has only an overall description in Danish, German and Swedish. A reference to the English version however is located in the other versions for visitors interested.
- **Forum** – contains links to the discussion board and the project reports. The information is reachable from all parts of the homepage. Reports are only in English.
- **Historical Maps Prototype System** – Moves the visitor to the map search prototype.
- **DHM Home** – Leads to the start page of the web site.

### Within the prototype

- **How to search** – Help pages introducing the visitor how to use the search system. The help pages are opened in a new window and therefore are possible to use and read at the same time as searching.
- **Download sample** – A sample from each country is possible to download, free of charge.
- **Home DHM Prototype** – Links the visitor to the start page of the prototype to make a new search.
- **DHM Home** – Link to the start page of the web site.

### Unique for certain language versions are

- **Historien visar sig – (Swedish)** – A collection of examples showing for Sweden interesting areas where historical maps have contributed to understanding of settlement, changes in the environment and archaeological finding-places. This part is in Swedish only.
- **Om Sognekort – (Danish)** - Gives a more detailed information on the Danish material for Danish visitors. In Danish only.
- **Understanding the material – (English and Swedish)** - Gives help to interpret the historical material. This part is available in English and Swedish, in connection with the prototype. The Swedish part is more detailed and also contains a word list explaining older Swedish expressions and measures.

For a comprehensive view of the structure in the different parts of the web site, see the site map in appendix 3.

### 2.2.3 Search Functions

The search system contents of two integrated parts, one geographic search and one register based search function.

The geographic search is built up of linked pictures made from raster data from participating organisations. A software developed in the project together with ArcInfo was used when generating the pictures. For construction of map images, see appendix 4 and the enclosed CD-ROM.

As the images are not geo-referred, the geographic search is restricted to the most detailed level possible to find in both the register and in the original geographic data. In Denmark and Sweden this restricts the geographic search to the parish level, while in Germany it is possible to reach the village level.

The register search is using the administrative division in the country to make it as easy as possible for a user not familiar with the archives structure. The listboxes only present areas where it is possible to find images to view.

The integration between geographic and register search implies that the map and the contents in the listbox correspond.

The search result is presented in a list with linked filenames.

The functionality is mainly solved using HTML on the page, combined with communication with the database via PHP-scripts. For further information on technique used, see appendix 6

### 2.2.4 Presentation Functions

After have chosen a link to desired image the image is presented in a window together with metadata about the image. To present the image, MrSid Image Server is used. Default the Java functionality is used, but it is possible to alter between Java, Plugin or neither of them. No adjustments have been made to the original functionality in this prototype.

MrSid technically is founded on Pearl-scripts. Depending on the variant the user marks, the desired functionality calls up the corresponding scripts. For example a Pearl-script calls for the Java functionality when marking the Java link. The Pearl scripts interact with HTML-code for design of the page.

### 2.2.5 Order Functions

The order form in the prototype is activated by pressing the order button in the image presentation window. After the presumed customer has filled in the required information and actively accepted the licence agreement, an E-mail is sent to a simulated customers desk for further treatment. The functionality is solved by using a standard system, WebMail from BitShop. In a future production system this naturally will be implemented in the environment of the organisation concerned.

Resulting e-mail from this function, see appendix 5

(By using WebMail the user does not need to be connected to any E-mail system, but only to the Internet)

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The E-mail produced in the prototype system is only for to show the functionality. The visitor only gets a return message saying that nothing will be delivered and that no information will be saved.

Depending on the “ordered” information origin E-mails are sent to the following respectively:

- For Danish material an E-mail is generated to [ptk@kms.dk](mailto:ptk@kms.dk)
- For German material an E-mail is generated to [zoelitz@mail.uni-greifswald.de](mailto:zoelitz@mail.uni-greifswald.de)
- For Swedish material an E-mail is generated to [stefan.gustafsson@lm.se](mailto:stefan.gustafsson@lm.se)

### 2.2.6 Delivery Functions

Delivery of original files is considered to be made on CD-ROM, direct copied from the storage system in the regular delivery routine of the organisation concerned.

Converted files might in the future be downloaded direct from the application.

The prototype system only includes the functionality to download one example file from each country. This functionality can easily be increased to comprise all compressed files.

The application allows the visitors to download one map from Denmark, Germany and Sweden respectively, free of charge.

Before downloading the order form must be filled in. Submitting the order form trigger off the download process and sending of an E-mail to infomaster.

The download functionality is only available for Internet Explorer users. Depending on browser used, the following must be regarded.

#### **For Internet Explorer users:**

- By rightclicking the mouse on the image and choosing “save goal as” the user is prompted with the “save as” window. The user can then choose where to save the file.
- If the user have installed the MrSid Browser Plug-in or the MrSid Stand Alone Viewer, the image will be automatically loaded in the IE window. The file can then be saved by the save-options using the menu appeared when rightclicking the mouse on the image.
- If the user not have the MrSid Browser Plug-in or the MrSid Stand Alone Viewer installed, he will be prompted with the save as window to choose where to save the file.

#### **For Netscape users:**

I the current system the download functionality is not safely functioning. Netscape does not recognise the MrSid format and downloads it directly to the browser, resulting in just nonsense letters. The user does not have the opportunity to save the file.

### 2.2.7 Discussion Board

The discussion board is using a freeware, the Discus discussion board program, developed by DiscusWare, LLC of Holland, Michigan, USA.

**INFO2000 PROGRAMME***Form INF3***WORKPACKAGE DESCRIPTION****for WORKPACKAGE N°: 3**

*Title:* Technology — Access provision

*Lead partner for this WP:* ESRI

*Start month:* 9

*End month:* 23

***Initial state, work already done, preconditions for starting tasks, end result expected:***

The purpose of this workpackage, together with WP4, is to provide access via the Internet to a limited map set, e.g. existing maps and acttext of an area. The project will develop a prototype user interface based on the specifications produced in WP2. The results of the work will be evaluated in three phases (WP9). After each evaluation phase necessary modifications will be made to the prototype.

The work, utilising specifications produced in WP2, will result in a functioning prototype for distribution via the Internet. The prototype will contain an interface meeting the functionality specifications already developed.

***Tasks:***

Provide access to a limited set of cartographic information via the Internet

Develop a user interface.

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*Technical 5 mm, Marketing 1 mm*

## Test of Performance

A rough test on systems performance of the prototype system has been carried through.

### Test equipment

#### A

PC

RAM: 458 Mb

CPU: 448 Mhz

10 Mb Internet connection in Gävle, The test took place in Örebro connected to Gävle by LM-net (256 Kb).

#### B

PC

RAM: 64 Mb

CPU: 133 Mb

56 Kb Modem

#### C

PC

RAM:

CPU:

ISDN 64 Kb

The results mentioned only indicates the system's performance, other equipment, communication technique and load on the net will change the figures.

Activity/Time (sec)	A	B	C
<b><i>Search by using listboxes or search map.</i></b> Time for presenting a result list from activating the database search from listbox or map statement	1 (D)-7 (S)	8 (S)	
<b><i>Presentation of image file</i></b> Starting of the Java applet from clicking on the image name Image size set to 800x600	2-6 10	13 55	
<b>Order</b> The order form appears from clicking on the order button in the image window.	1		
<b><i>Download of compressed file</i></b> Example file from Sweden (7,5 Mb) Example file from Denmark (1,2 Mb)	4 m 30 s	25 m 5 m 40 s	

**Free text search (Denmark and Sweden, equipment A) (*Yet only in test environment*)**

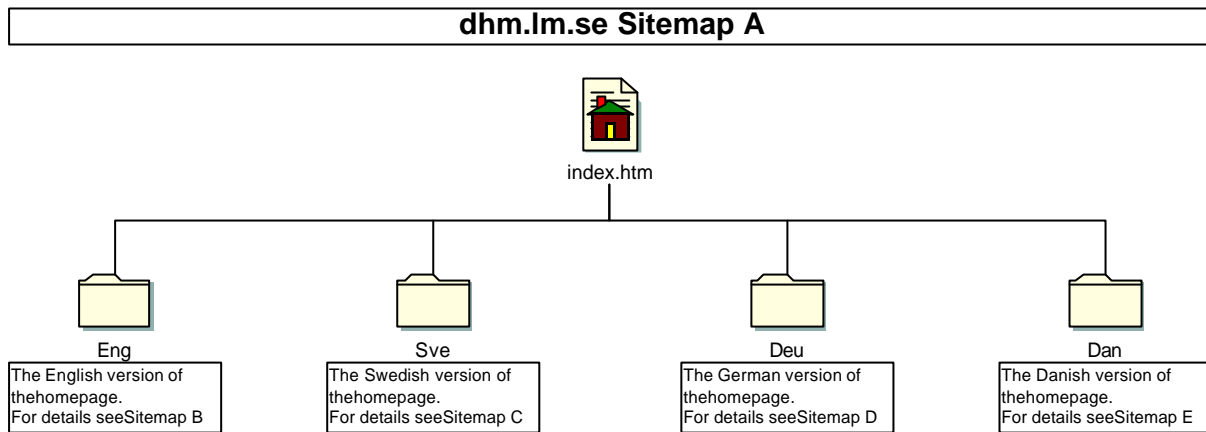
Time for search is highly depending on the search criterion. The search functionality is implemented by using wild-cards, which makes it possible to give only one letter if wanted. If, for example, an “a “ is stated, all villages (Sweden) or parishes (Denmark) beginning with a are listed. If the search is qualified by using more letters, the search time will decrease.

**Free text search**

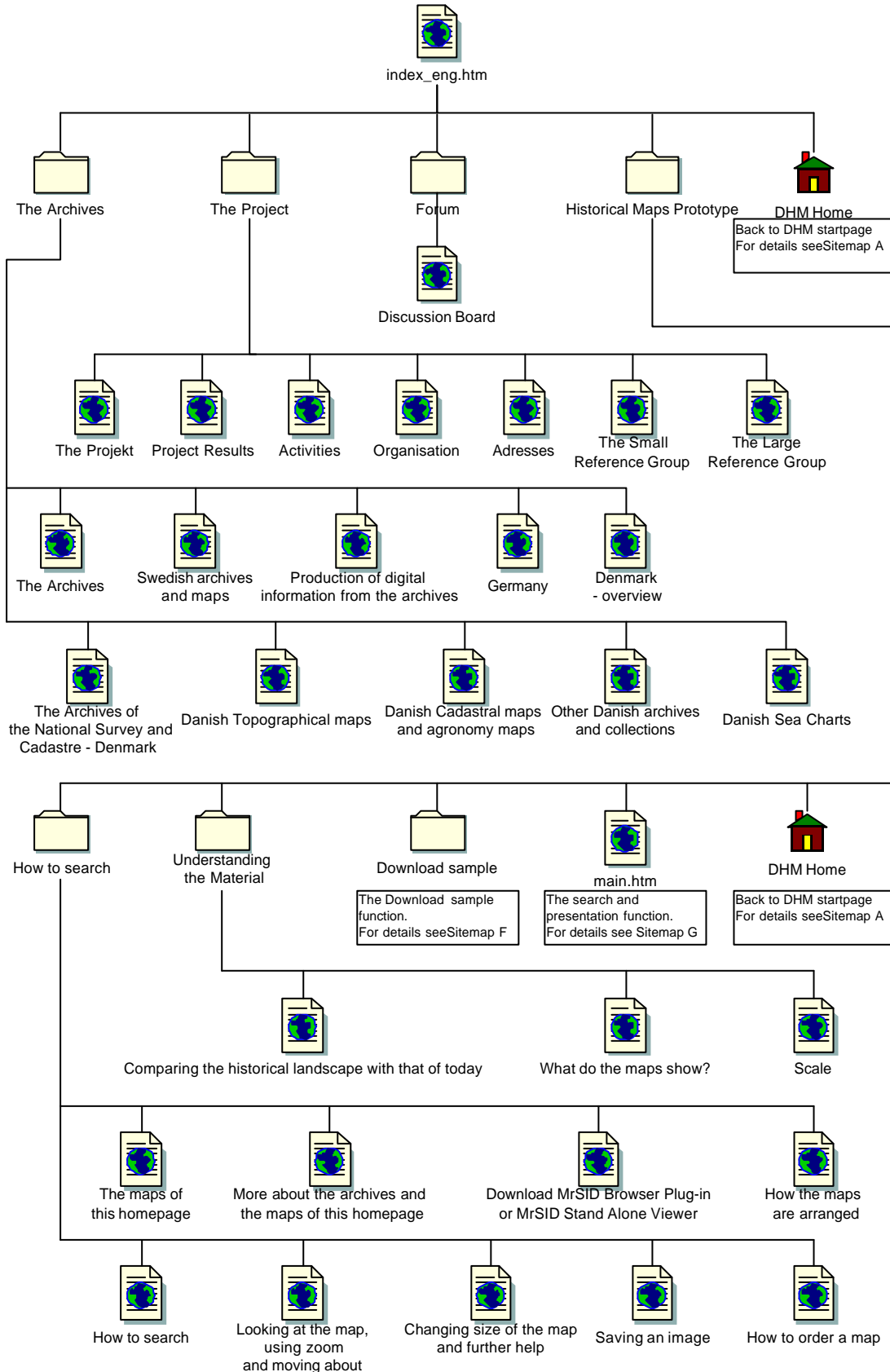
<u>Letter</u>	Number of files in result	Time for presentation of result (sec)
A	90	7
Ad	1	5
Adslev	1	4
Br	57	6
brovst	4	4
%	all	More than one minute

Due to the high search times using wildcard (%), this has been restricted. Only one wildcard can be used, and must be combined with at least one letter in a search criterion.

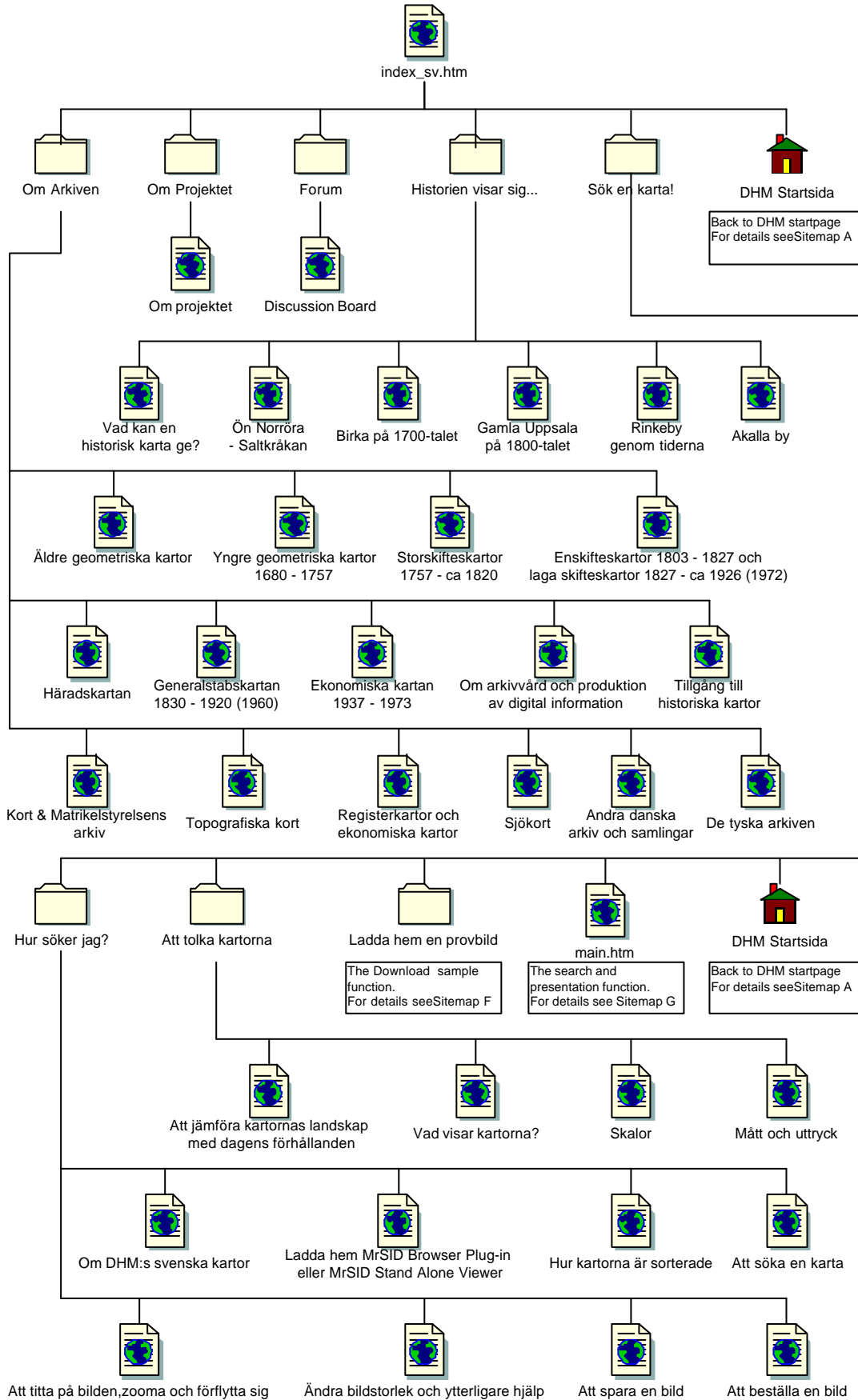
# Site Map



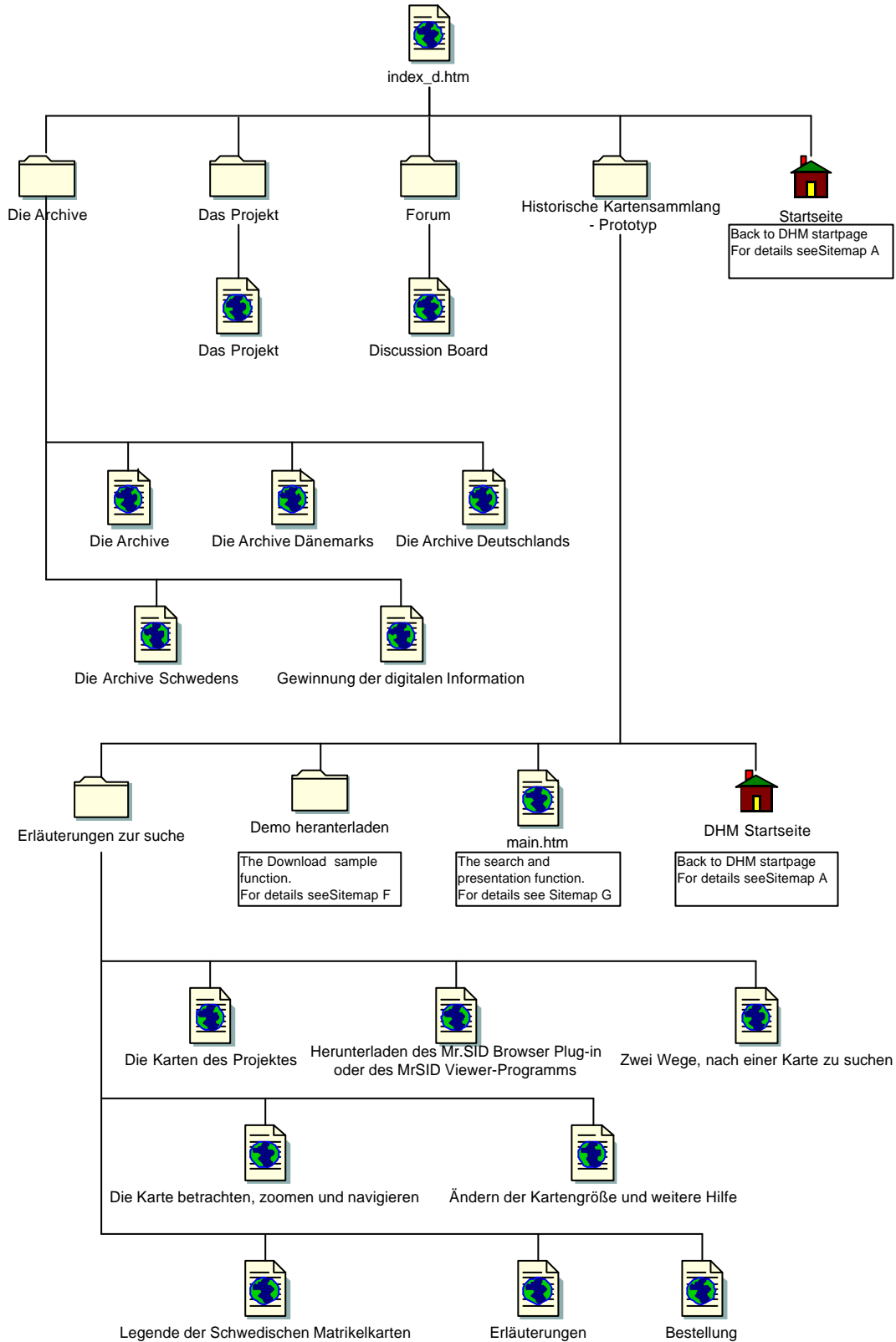
**dhm.lm.se Sitemap B**



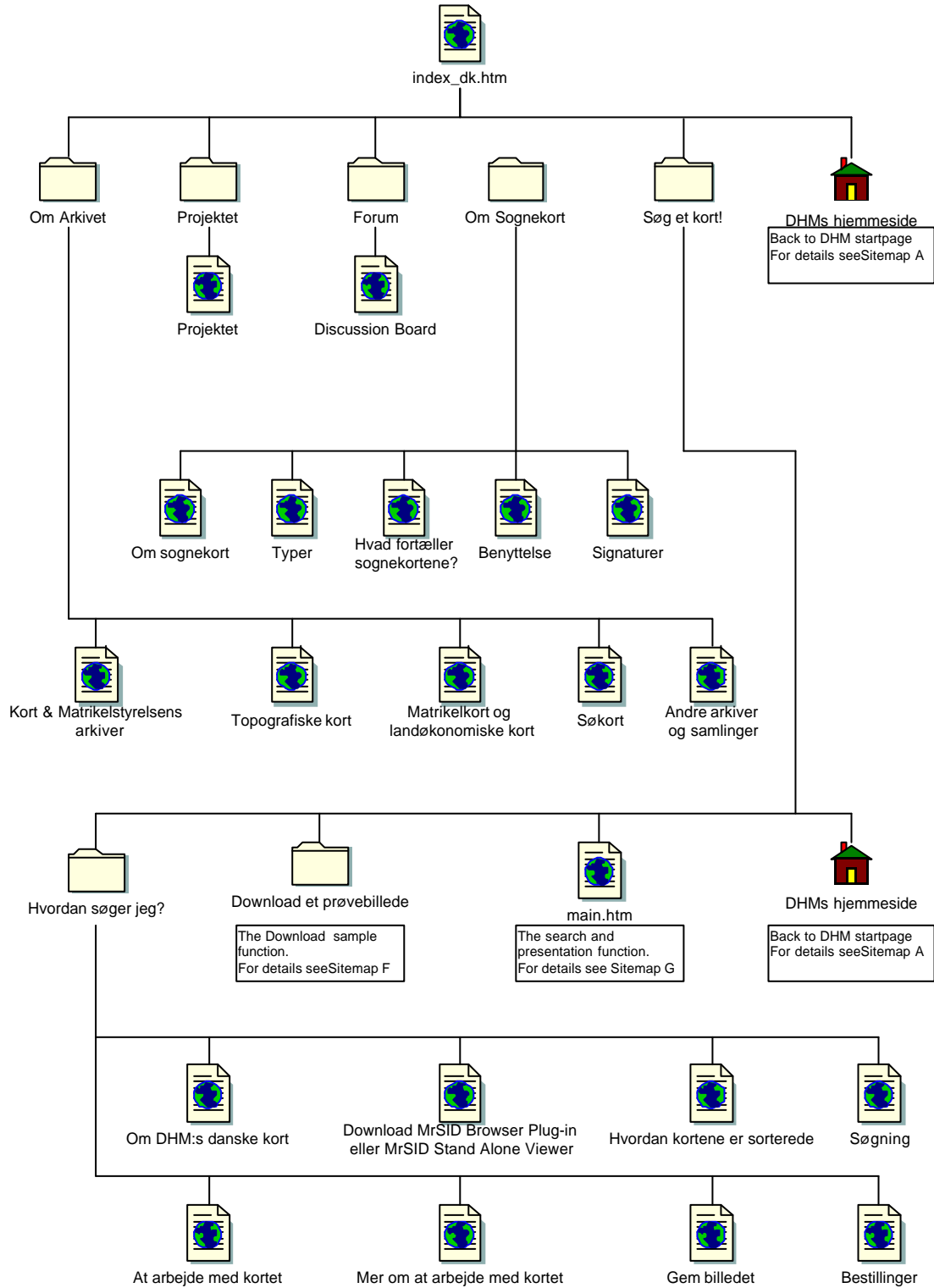
dhm.lm.se Sitemap C



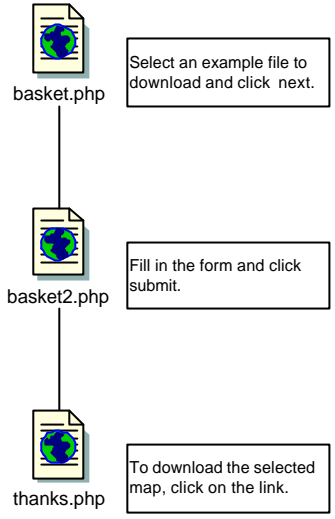
**dhm.lm.se Sitemap D**



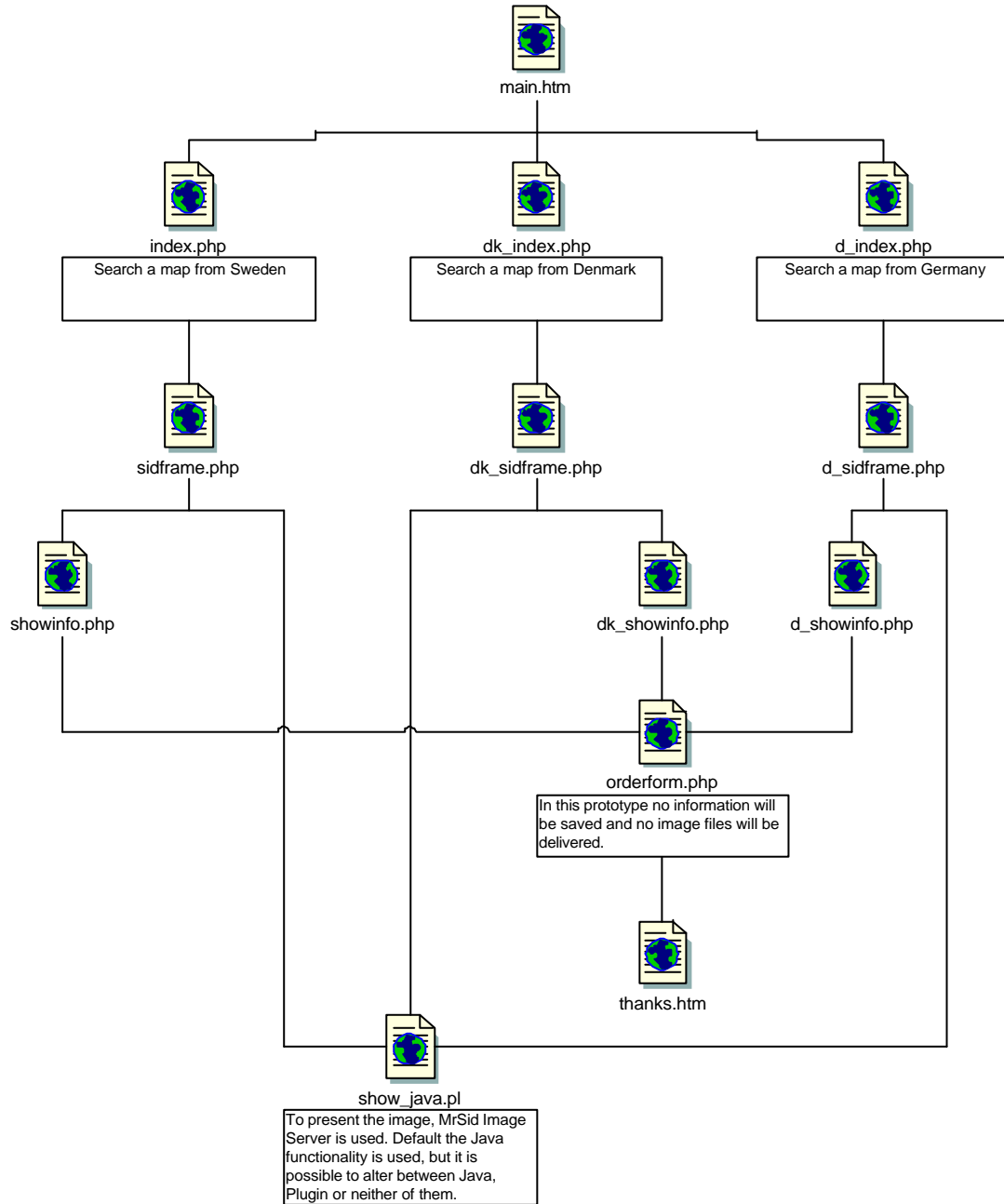
**dhm.lm.se Sitemap E**



**dhm.lm.se Sitemap F**



**dhm.lm.se Sitemap G 2001-03-15**



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## Production of Linked Overview Maps

### Manual

(The version on the CD-ROM is in Swedish)

## ArcView

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### Avenue

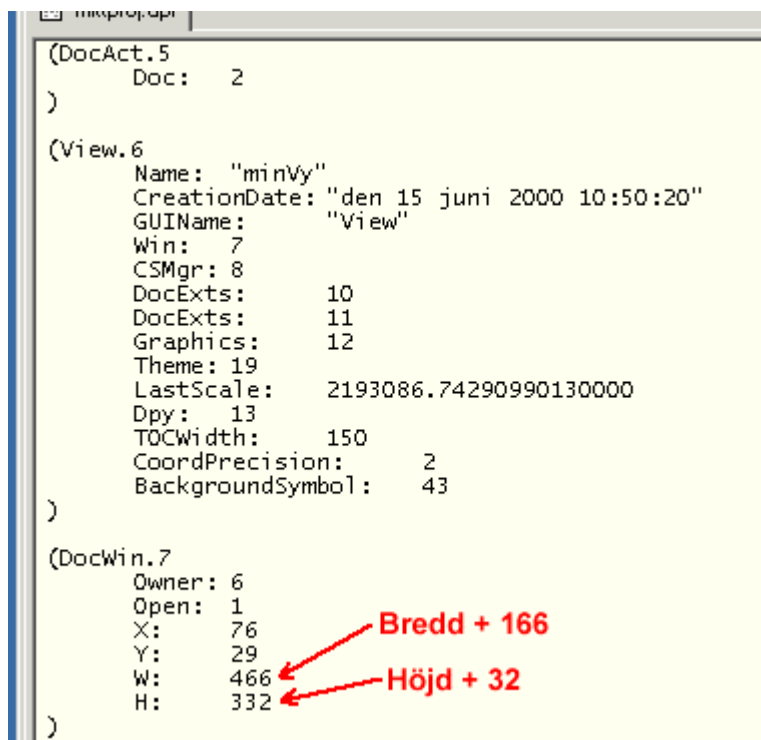
Three avenue-scripts are included in the ArcView project (dhmdata.apr). These scripts are “self-documenting”.

#### To change the size of a view in ArcView

Dhmdata.apr contains a view, sized 300x300 pixels.

Open the project file in a text editor, then search for the name of the view (in the example "minVy"). You then find a view definition called "View.n", direct followed by "DocWin.m", check that Owner is the same number as "View.n".

If so, change H: and W: to wanted numbers as the picture shows:



```
(DocAct.5
  Doc: 2
)
(View.6
  Name: "minVy"
  CreationDate: "den 15 juni 2000 10:50:20"
  GUIName: "view"
  Win: 7
  CSMgr: 8
  DocExts: 10
  DocExts: 11
  Graphics: 12
  Theme: 19
  LastScale: 2193086.74290990130000
  Dpy: 13
  TOCWidth: 150
  CoordPrecision: 2
  BackgroundSymbol: 43
)
(DocWin.7
  Owner: 6
  Open: 1
  X: 76
  Y: 29
  W: 466
  H: 332
)
```

## av2area

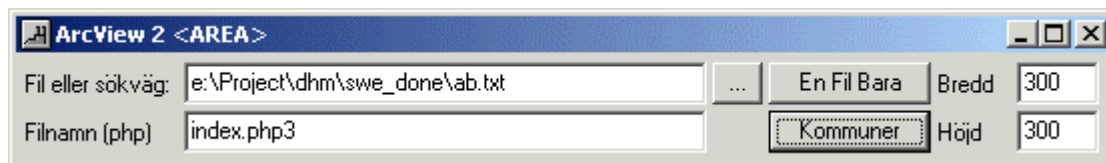
**av2area** is a program for creating area files used in the DHM project.

The program implies that the .txt and .wmf files generated by the avenue-scripts are located in the same catalogue.

Push the "[...]"-button to chose e single .txt file to convert.

Pushing the "kommuner"-button the program will create area files for all files in the search path matching the criterion 0000.txt to 9999.txt.

State file name to generate area files for the three participating countries (index.php3 for Sweden, dk\_index.php3 for Denmark and d\_index.php3 for Germany).



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## Confirmation E-mail by Order

The following person has downloaded a map from [www.dhm.lm.se](http://www.dhm.lm.se)

Name: Stefan Gustafsson  
City: GÄVLE  
Zip/Postal code: 801 82  
Country: Sweden  
Email: stefan.gustafsson@lm.se

WebMail (c) 1995-1997 BitShop : <http://www.bitshop.com>

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## Technique and Programming

The DHM website is developed using different programming languages to give a proper design of the user interface and to give the application dynamic functions. HTML is used in the visible parts of the application. To give further possibilities than possible in HTML, Photoshop is used for creation of images. The design of the application is mainly created in Dreamweaver.

For functionality in DHM, the script language PHP has been used to enable the dynamic aspects of the application. PHP together with SQL are used to access and communicate with the database. PHP runs in the server. Java scripts are used in some parts of the information pages to open new windows at a certain size. Furthermore, Java scripts are used to improve the dynamical functionality of the site. Mainly this technique is used for error management and to give the user feedback when the user place an order, makes a free text search etc. Java scripts are also used when searching to create some of the navigating functionality. The Java scripts run on the client.

For documentation on the construction of the prototype system, see the enclosed CD-ROM 2