Hdb2Win

Database Program Release 2.4.0 (May 2015)

Application PaleoTax Service Release 13
Application PalCol Service Release 5

This file describes modifications compared to program release 2.3.2.
Please compare also to documentations on older program versions.

Introduction

Version 2.4 took much time to become published. New and more strict operation systems, the possibility of virtualisations of various operating systems, and the increasing requests by users have slowed down the speed of publishing a new version. Hdb2Win and PaleoTax became during the last ten years more and more complex and any modification bears the risk to bring improvements on hand, but introduce programme errors on the other. At least this version is tested were profoundly and should run stable and without problems.

Hdb2Win

- The new version is better adapted to newer versions of Windows®. It is also better adapted to virtualisations of a Windows guest system on any host system (e.g. Unix®, Mac OS®). To communicate with the host system hard disk through shared folders, an internal network communication is established which does not work as a normal drive: a high demand of data may provoke a time out error resulting in file read errors. It seems that the Windows internal file caching does not recognise shared folders as a physical drive. Moreover, the shell execution command of Windows (to open for instance a PDF file with your preferred viewer) often fails to open the corresponding application and sometimes results in a loss of the net work bridge.
  To handle all these problems, in the new Hdb2Win version, the file caching is improved, large files are taken in smaller portions, an application list can be set up, and image files are optionally copied to the local guest drive before displaying them. Users who work with native systems (this will be majority) do not need to change anything and the work with Hdb2Win will not be slower with the new version. Users who have installed Hdb2Win on a guest system that runs as virtualisation on a different host system, should see the options below.
- The management of variables is more critical; the creation of a variable which name already exists is not any more understood as a re-definition; it causes an error. Forms and programs were adapted.
- Long names are supported throughout the whole system. For reasons of compatibility, it is highly recommend to restrict the lengths of file names of DBF (and so also DB2 and FRM) files to eight characters.
- PaleoTax does not exist anymore as the only application since the option to create own application was improved. The PaleoTax option in the main menu is therefore now called *Application library*.
- XML export is possible.
- Various small changes and improvements.

Installation

You will download only one file – hdb240xx.exe – that contains the installation program and all the files you need to work with Hdb2Win and applications (xx stands for the built). This file includes the data-base program, the structures of the applications PaleoTax SR13 and PalCol SR5, and the supporting programs PaleoTax/Graph and PaleoTax/Map. Start the installation program – hdb240xx.exe. You probably should have administrator rights to do so. If you want to work with the application PaleoTax you should at least install „PaleoTax / Database (Hdb2Win)" and „PaleoTax Structure Files". Documen-tation files will not be installed; please download them separately from the documentation page (http://www.paleotax.de/pvn10.htm). A previously installed version does not require un-installation. If you want to do so, use the functionality of the operating system (Start / Control / Programs) uninstalling „Hdb2Win 2.3.2". Uninstall removes only the program, but not configuration files stored in 'c:\Users\<username>\AppData\Roaming\Hdb2Win'. Uninstall does not remove you databases. The installation of PaleoTax Service Release 13 (PalCol SR 5) requires the installation of Hdb2Win 2.4 before, but PaleoTax SR 13 databases can be opened with Hdb2Win 2.3 (even if there is no reason to do so).

Options

The amount of options is increasing with every new version because users are requesting for multiple changes, new features and new options. Because I do not know whether other users agree with these changes, these extras are programmed but are switched off per default. Users like when the front-end of programmes, so the appearance to the user, should change as little as possible from version to version. It can be therefore important to read this chapter since it can be that there is a feature installed that you always have desired.

For the options saved in the HDB2WIN.DAT see the Manual provided for version 2.1 and the documentation files on later versions. Here, only new settings are reported. The current number refers to the functions SSYS and GSYS of the interpreter which have access to this values and is shown in the "Extended Options" function in brackets, as well as the INI TO command in the DB2 configuration files. The name of the setting has the form "Module : Name". The module name corresponds to the file card in the "Extended Options" function (see for details below the list).

108 Edit (Form) : BetterDeleteInfo	Gives a more clear information whether a record is deleted or not.
109 Defines : UserDataPath	Default data path. This will be usually a path within your area in Documents and Settings or Users.
110 File : CopyImage	Amount in MB from which on images are copied to local disk (ignored if zero). This values is only interesting for virtualisations and if you experience problems („Image read error"). If the value is zero (default setting), image files are never copied into the local drive. A value different from zero corresponds to the file size in MB from which on the image file is copied to the root of the local drive (usually C:\) under the temporary name $TEMP. If you experience problems, set the value for instance to 20 and lower it stepwise until it works. Please note that this values has nothing to do with 81 Interconnect : ShowMaxGraphMB.
111 Forms : Document Directory	Path from that previously documents were imported.
112 Table : Font type	Font number from the font table for the Browser.
113 Interpreter : Font size	Font size of the text in the interpreter source code window.
114 Interpreter : Font name	Font name of the text in the interpreter source code window.

115 .. 118 Interpreter	Position and size of the form. No to be modified by the user.
119 Interpreter : Path	Last path of the interpreter source files.
120 Select : Font size	Font size of the selection from subordinated tables.
121 File : Global document directory	It is possible to give here a global directory for your documents. This option works only for the "Open document" function.
122 Interconnect : Image text lines	It is possible to display the figure caption of a image when looking at a list of images (this is the list that appear when clicking on "Illustrations" in any table (Localities, Specimens, etc.). The figure caption itself is recorded in the table Pictures. It depends on your own needs if you add to a figure a caption or not. Image text lines gives the number of lines that are reserved to display the image caption at the bottom of the image. The default value is zero (do not show any caption).
123 File : Last Create Path	The last directory were new tables were created.
124 Application : Com. line text font	Text font for the command line.
125 Application : Com. line text font size	Text font size for the command line.
126 Application : Com. line text w. font	Text font for the command line output window.
127 Application : Com. line text w. font size	Text font size for the command line output window.
128 Edit (Form) : Sets the form size ...	Depending on the screen size, the system always selects the largest possible form size (that is currently 1024x1280 pixel).

The function to modify these values is improved. You will find it still behind the button 'Extended Options' which is placed in Application library/Options/Tools. The function opens a edit form with several cards, each for every group (module) of options. The small number in brackets corresponds to the consecutive option number. Just modify the values and press F12 or click on Save. Be careful modifying values; do not pass the indicated ranges. The program does not check anything. Any catastrophic changes can be 'undone' by deleting the file HDB2WIN.DAT in the 'c:\Documents and Settings\ <username>\ Application data\Hdb2Win' folder (Windows XP) or 'c:\Users\<username>\AppData\ Roaming\Hdb2Win' folder (Windows 7/8).

Various changes

- The handling of folder names containing points is improved as far concerning the database; images in such folders are probably not properly shown (this an internal thing I cannot change).
- If an empty text is stored in a Memo field, the field value is deleted.
- Ctrl N is equivalent for the INS key if you want to insert a new record in an interconnected file immediately. The reason is that on some Apple® keyboards no INS key exists.
- The function SYMBOL is new. It can be used to request whether a variable or field name exists:
  ```
  ? symbol('fname')
  ```
- XML became a standard output format. It can be used like the LIST command in the command line and is also included in the application library output.

Virtualisations

If Hdb2Win is running in a virtual environment please take care for the following points: if you are working with large image files (> 5MB) set the option "110 File : CopyImage" to a value different from zero (see above). Consider to create a file programs.dat as described below under Applications.

Generally, Hdb2Win does not run slower when running in a virtualised Windows. We have compared Hdb2Win running native under Windows 8 and on a Windows XP installed as a virtual machine on the same computer. The Windows XP version was even a little bit faster.

Performance

Processor speed and the amount of main memory have meanwhile only a marginally influence on the general performance of the database system. Although the application reads all tables into the main memory when a database is opened (this is even in large databases rarely more than mere 100MB), there is still much communication with the hard disk – index files, access files, forms, frequency records, etc. Two performance tests are supplied with the database: the Prime Number Sieve (a file that is located in the Hdb2Win data directory) is a pure processor performance test and should reach a value of at least 100 (operations per millisecond). The status test (Reorganisation / Status) DBS in the section "Display Status" is a processor and memory bench mark test and should reach a value of 100. Currently sold average computers should anyway reach values five to ten times more than that.

If you feel that your database system is anyhow getting slow with the increasing amount of data, it is probably a better idea to install a Solid State Disk than to buy a faster computer. It is logical that the speed of the database system decreases automatically when its volume increases, but even large PaleoTax databases (with a "Base" size touching three millions) still perform well, even on computers with one GB of main memory and 1.6GHz processor speed.

Interpreter

Modified commands:
```
DEFINE      <name>,<type>,<owner|default>,<dimension|0>,<initial value>
```
The define command can be completed with an initial value, for instance
```
DEFINE      s1,c,default,0,'Hello, world'
OUT         s1
```
Hello, world

The dimension (default value is zero) is used to define fields. The initial index is always 1. Start values cannot define:
```
DEFINE      array,c,default,10
STOR        array,1,'Hello'
STOR        array,2,'World'
OUT         array[1]+', '+array[2]
```
Hello, World

New or previously not documented commands:
```
:onerror
```
This is a reserved label name. If an error occurred in the program, program execution is not interrupted but continued with the commands after this label. A newly occurring error is ignored; the program is terminated completely. The list of commands after this label should be short and correspond to an emergency exit. Most important is to adjust the current table. A number of PaleoTax programs are adapted and will be brought up to date with SR13.

The font and font size can be modified in the interpreter (Options). The size and the position of the window is kept. The pick-list shows only files that exist.

Applications

PaleoTax and PalCol are applications independent from the database program. Tables, forms, programs are external and do not form part of the database. So far two applications were included - PaleoTax and PalCol - and it seem that they were part of the program. But ever since it was possible to create new applications that may deal with complete different than palaeontological data. With the new version of the database system, the creation of own applications became easier and better documented. Please compare to the Hbd2Win Cook-book, a PDF file that describes how a new application can be created on your own. The big difference between well established, published applications and your own applications, is that the functionality of published applications is much higher since they come along with many programs e.g. reports, data analysis and catalogues.

Because PaleoTax and PalCol as applications are more detached from Hbd2Win, a general section on the functionality of all applications is separated here from the functionality of PaleoTax or PalCol.

- The file format of the application files (extension APP) is simplified. A 'cook book' for creating own applications is available as PDF from this version on. Keep in mind that any application is controlled by this application file. PaleoTax and PalCol are just two applications, but it is easy to create new applications that handle other problems (collection of beer cans, cooking recipes, favourite fantasy books).
- It is optionally possible to define a list of file extensions and the corresponding programs used to be open any document files (PDF, JPG, RTF). This file list can be set up to handle problems with virtualisations of Windows on a different host system. The file must be a plain text file named programs.dat and stored in the Hdb2Win application folder: 'c:\Documents and Settings\<username>\ Application data\Hdb2Win' (Windows XP) or 'c:\Users\<username>\AppData\ Roaming\Hdb2Win' (Windows 7). File format: file extension<tab>path and full program name, so for instance
  `PDF     C:\Programs\Foxit Reader\Foxit Reader.exe`
- The format style builder is completely revised and can be found in the Option/Tools area as 'Edit style sheets 2.0'.

PaleoTax

- Geographical co-ordinates can be exported into the LOC (Geocaching) format which can be imported in Google Earth[®]. This applies to localities, genera and species.
- There are more output options and some forms were modified. Programs should run more stable.
- There are two additional programs ("Catalogues etc."):
  "Plot localities of one country, time limited (GeoCache format)" – plots localities of a selected time span in the GeoCache format that can be imported by Google Earth[®].
  "PaleoTax/Count Species and Genera 1.0" – counts genera and species and lists species according to a filter defined by the user.
- The table PUBLICATIONS has an additional button that allows the rapid import of documents. This button is on the right hand side of the Document button.

Service Release

As always, it is recommended to make backup copies of your database before applying a Service Release, even if there is only a small amount of changes in the database sensu stricto. You will find the program SR13.PRF (for PaleoTax) in the folder 'c:\Documents and Settings\<username>\Documents\ Hdb2Win\SR13' (Windows XP) or 'c:\Users\<username>\Documents\Hdb2Win\SR13' (Windows 7/8). Load the file, start it, read carefully the instructions and answer properly the questions. See also the separate file SR13.PDF. User, who have installed Hdb2Win version 2.4.0 for the first time **do not need to do anything** since their structure is already on the level of PaleoTax SR13. The same applies to PalCol SR5. PaleoTax SR13 is the biggest modification ever since; far more than one hundred files are modified, mainly programs (PRF, LBA), but also database configuration files (DB2) and forms (FRM).

Additional Information

- The printed manual for Hdb2Win version 2.1 is still valid for PaleoTax versions 2.2 up to 2.4. There are not too many changes since then, and practical everything new is documented in the PDFs on following program versions. Read the manual. Check the F.A.Q. Both answer most questions. Send question to the list server so other users are informed about probable bugs and problems.
  The following documents were published after the printed manual:
  info220.pdf
  info221.pdf
  info222.pdf
  info23.pdf
  info231.pdf
  info232.pdf
  three different files describing the estimation of the database (analy_1.pdf, analy_2.pdf, analy_3.pdf).

- Advice, wishes and comments are always welcome, also if I cannot realise them on the spot. They are not forgotten, but sometimes they demand structural or conceptual changes. Some are impossible to realise. Thanks are going to Markus, Michael, and Noritoshi for pointing out problems.