

The Pedigree Database Utility

The Pedigree Database Utility is provided to manage the databases used by PediTree or Pedigree for DOS. Initially designed to deal with errors that cannot be corrected by PediTree (or Pedigree), it has been enhanced to provide additional facilities that may be useful. Here is a quick summary:-

1. Making a back-up copy of a database.
2. Database reorganization, to remove the unused space that accumulates in Pedigree Software's databases after a lot of data entry and editing.
3. Creating a copy of a database as one of a different size-type, for example, NAME.PED to NAME.PDG.
4. Database repair, when PediTree cannot open a database, or experiences difficulties in Check DB or GEDCOM export.

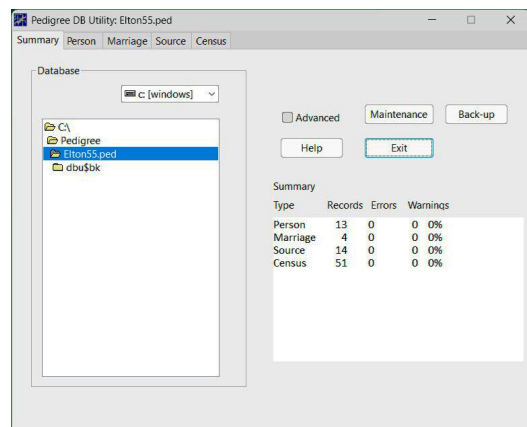
This document exists to explain what the four tasks can do for you, either on your own, or in conjunction with other knowledgeable users. The utility can be obtained from PUGWeb as a download that can then be installed and available on your own machine.

History

The Database Utility was first written in March 2005. A number of updates have been made since then, fixing issues and adding facilities. The most recent update was version 2.6.1 of 08 Jun 2026.

Starting Up

The first step is to start up the Utility, to display the main SUMMARY page. On the left is a box, like that used in PediTree, to enable you to locate the chosen database to start the operation of the Utility. The result should be an outline display of the chosen database with a summary of the record-types (PERSON, MARRIAGE etc), the number of records, any errors and warnings. Finally, a percentage of the storage used by each record-type. This may show two numbers in each case: the current value, including unused space and a lower figure that could be obtained by reorganizing the database, to be described later.



If all is well so far, the top line of the display will have several tabs designated for pages of SUMMARY and the record-types in use (PERSON, MARRIAGE etc). A click on the other tabs show further details of a chosen record-type, here for the Person page. This display has a list of the RIN ¹ for each record; a click on this produces a small display of the information in the chosen RIN. Further details of these pages will be explained when we come to the business of dealing with errors or warnings. See the picture overleaf.

¹A Record Identity Number

Pedigree Database Utility

Back on the SUMMARY page (by a click on its Tab), you can see several buttons: HELP (for further information); EXIT (to leave the Utility); MAINTENANCE and BACK-UP. Both of these will be explained later.

The small check-box **ADVANCED** can be ticked to enhance the information in other tabs, if desired. Most likely this will be if database repair is involved.

Making a Back-up Copy

Why make a copy of a Pedigree Database? There are several reasons for doing this. You may already export the information in your database as a GEDCOM file, perhaps to import it into another program, send it elsewhere or keep it safely. That's good for keeping our family information, but what about the database that holds it, or your computer? A well-known writer had a **FIRST LAW OF COMPUTING** saying (among other things) **DATA DOESN'T REALLY EXIST UNLESS YOU HAVE TWO COPIES OF IT**. A failure in the database or your computer, perhaps caused by a sudden loss of power, could leave you in some difficulty. Given a good back-up, you could restore your current database intact; that could be very useful. The Database Utility now has a way of making this easy.

The Back-up

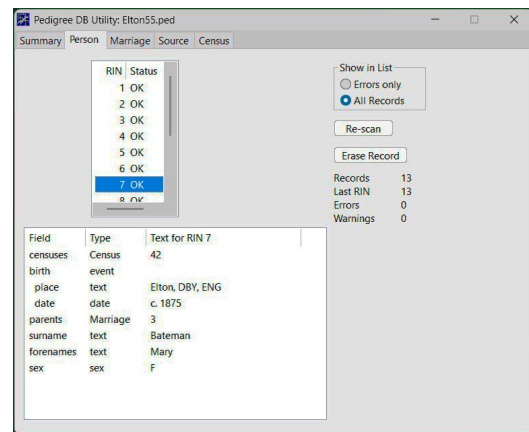
With your database open in the Utility, click on the **Back-up** button, to display the **BACKUP AND RESTORE** page.

The first time you use this, you need to choose a folder to hold the back-up copies. At the top-left, the name of this folder is displayed, initially as **C:\Pedigree**. This is not a good choice; there's too much information here. A click on the button at the end of this folder-name will enable you to select a folder or create a suitable empty new one. If you have a suitable one to use, fine, otherwise click on **NEW FOLDER** and name it (I use **BACKUP**). Click on the **SELECT FOLDER** button to return to the **BACKUP AND RESTORE** page, when the new folder will be shown.

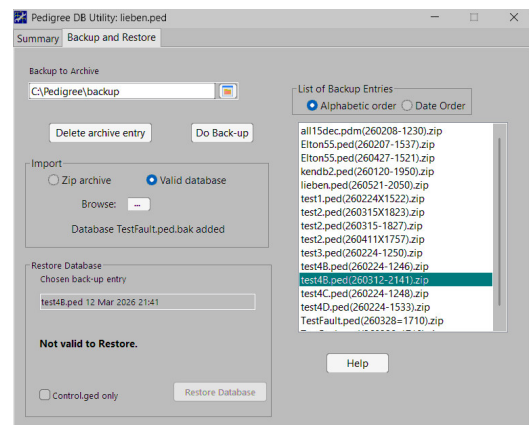
All you now need to do is click on the **Do Back-up** button to create your database copy. This will now be displayed in the list on the right, as a compressed ZIP archive. Its name will be that of your current database, followed by the date & time of creation, for example, **ELTON55.PED(260207-1537).ZIP**, where the date is 7 Feb 2026 and time 15:37. (The date & time in brackets are in the form as **yymmdd-hhmm**; year, month, day - hour, minute).

Exporting a Backup Copy

To export a back-up copy from the list, double-click on your choice to bring up a **SAVE ZIP BACKUP** display. You can then copy your choice to a suitable folder elsewhere, perhaps onto



Display of Person page



Pedigree Database Utility

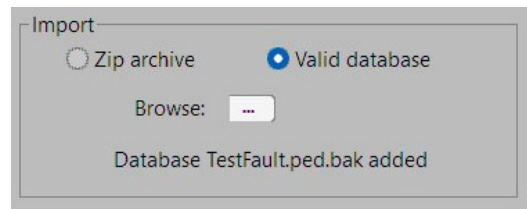
a USB stick or drive, thus having a safe place outside your computer.

Import

In the Backup and Restore page, you can import two types of data:

- A ZIP backup to be added to the list on the right. This list corresponds items in the current backup folder.
- A Valid Database as a ZIP copy of a Pedigree database, to be added to C:\Pedigree.

For your import, choose one of the radio buttons, then click on the Browse button. This will bring up an open dialogue for you to navigate to the item to be imported. This may be from your machine or perhaps from an email sent to you or from another device. Further details are given below.



Zip Backup

The purpose is to obtain a ZIP file of a Pedigree database, to add to those in the list shown on the right. This list corresponds to the current backup archive. It may be needed to help restore a faulty or missing database.

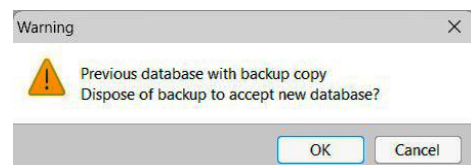
If your choice is correct, then it will be added to the list and a display will show ZIP FILE ADDED. However, if your choice matches an item already present in the list, the display will show ZIP FILE FAILED.

Valid Database

Here the idea is to install a valid database in folder C:\Pedigree, the normal folder for Pedigree databases. The import is a ZIP file that is unzipped into its location, ready for use. If all is well, then the display will show, for example, DATABASE PEER09.PDH ADDED. If not, the display may show NO DATABASE ADDED.

There's more to this process. If another valid database with the same name is imported, then action is taken to deal with it. The existing database is renamed as a backup copy, for example, peer09.pdh.bak, so the new copy can be installed. The resulting display will show DATABASE PEER09.PDH.BAK ADDED.

In the unlikely situation that yet another version is imported, then you will be asked if you want to proceed. Click on OK: the backup is removed, the current database replaced as the backup copy and the new database is installed. Click on CANCEL and no change happens.



Maintenance

If when running the Database Utility on a database there are no errors on the SUMMARY page, you can click on the **Maintenance** button to bring up the MAINTENANCE page. This page has two options: reorganizing the database or changing the database size. We'll deal with these in turn.

Pedigree Database Utility

When adding information to a database or editing information, the result may cause shuffling of the entries in the database, with some loss of free spaces. This is quite normal and generally of no effect in use. As mentioned on the SUMMARY page, two percentage numbers indicate that unused space is present. Also, as will be explained, dealing with repairs may also indicate unused space that needs to be corrected.

Reorganize

On the Maintenance page there is a REORGANIZE button; if this is enabled, then you can proceed. If not, there will be information in the PREVIOUS VERSION box that has to be removed first. Simply click on the **Purge** button; the information in the box will be removed and the REORGANIZE button is enabled.

Click on the **Reorganize** button. The process will follow the RIN sequence in each record-type to copy each data entry in turn to a new file. No un-used spaces will be left in place. On completion, information will appear in the PREVIOUS VERSION box about the completed process. An added folder, named DBU\$BK, holds the original files in case of need. The PURGE button is used to empty and delete this folder, as mentioned in the previous paragraph.

Following a Reorganize process, some further steps are needed:-

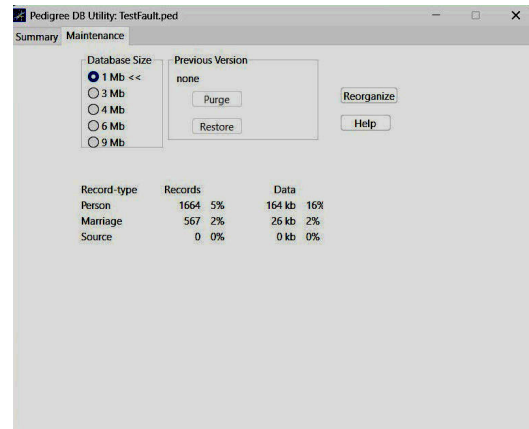
1. Return to the Summary page, then close the Utility.
2. Run PediTree and open the database just reorganized. It may report that some lists are out of step. If so, confirm their correction.
3. In PediTree, run File > CheckDB to test that all is well. If necessary, switch to Update mode and run File > CheckDB again to correct any omissions.
4. Close the database and PediTree.
5. If desired, re-run the Database Utility, go to Maintenance and **Purge** the PREVIOUS VERSION.

Here we have used the program PediTree, not Pedigree. This merits another section later on, to deal with the differences between the two programs.

Changing Database Size

On the MAINTENANCE page, the record-types listed have the number of records and the amount of data shown. On each line, the percentages indicate the amount of available space. It's usual that the Person record-type has the largest values, so will probably be the one to inform any change of the size-setting.

In the box top-left is the list of database-size settings. The current setting applies to all the record-types in use and is marked by <<. Your choice of size in this list may be constrained if it is above the existing size. Here are five real sample databases showing the Person record-type; two samples show more than one possible size.



Pedigree Database Utility

Sample	Extension	Size	Person		Data	
Sample 1	.ped	1 Mb	1664	5%	164 kb	10%
Sample 2	.pdg	3 Mb	30,781	94%	2787 kb	82%
Sample 2	.pdh	4 Mb	30,781	94%	2787 kb	66%
Sample 3	.pdh	4 Mb	16,995	52%	4363 kb	99%
Sample 3	.pdj	6 Mb	16,995	53%	4363 kb	69%
Sample 4	.pdm	9 Mb	22,327	68%	7464 kb	79%
Sample 5	.pdm	9 Mb	31,385	96%	9204 kb	98%

You will see that a change of size doesn't affect the record-type (Person) size, but only that of the Data.

To copy to a new database of a different size, first choose an appropriate size in the box top left. Be guided by the summary display below that shows the record-count and space occupied for each record-type. Note that the amount of space taken increases with the size chosen, so the percentage may be a better guide.

Having made your choice, click the **New Size** button on the MAINTENANCE page. A display will show the current parent folder (usually C:\Pedigree) and the new database name. This latter will be the existing name, to which a size-related extension will be added. For example, if your existing database is FOOBAR.PED and you are moving to the 3Mb size, then the new database will be FOOBAR.PDG. This new name must not already exist.

The displayed contents of the folder will show your existing database. You can look nearby to see if any other databases exist having the same name, but a different extension. If necessary, change the name and/or the folder (you cannot choose a different drive).

When satisfied, click **OK** (or **Cancel** to abandon the process). If your chosen folder & name already exist, then a message will tell you; clicking **OK** will return you to the folder display. Otherwise, the new database will be created, with a progress display as described for the reorganize process.

The new database will be fully reorganized and compacted. Running this process has no effect on your existing database, which remains unchanged.

Repair

The Pedigree Software programs Peditree or Pedigree can sometimes show some difficulties in their use, or you cannot open a particular database. The next step is to use this Utility and try to open the troublesome database. Usually, you can get the Summary page, perhaps with some errors and/or warnings shown. Alternatively, you may get the report 'Error FILE CONTROL.GED NOT COMPLETE', with no further information.

If it is obvious that some work is needed to resolve your difficulties, the first step is to make a back-up copy (see Making a Back-up Copy). This back-up copy is there to make sure that you can restore the database, if any accident in the work to be done causes some damage! Then there are four possible options to peruse:-

- Restore a previous back-up copy of your database. This may necessitate recent additions or changes to be repeated.
- Deal with the errors and/or warnings as needed.
- Replace a valid copy of file CONTROL.GED.
- Ask for help! If available, a back-up copy of the faulty database may be useful.

Let's deal with each of these options.

Restore Previous Version

This is an easy way to get a working version of the database, but can require a lot of work. You would have to repeat the changes made from the previous version to the one that has now failed. Do you now know what is involved? Did you keep all your notes? Only a very-recent previous version, and thus little work, would make this a practical method.

Here are the steps involved:-

1. With the faulty database on the Summary page, click the **Back-up button**.
2. On the Back-up and Restore page, locate the back-up of the previous database in the right-hand list and click on it. The display should show **Valid to Restore**. Click on the RESTORE DATABASE button.
3. Return to the Summary page, where the display should show details of the previous working database. Click on EXIT to close the Utility.

You can now run Peditree and set to on the work needed to restore missing or incorrect items up to date.

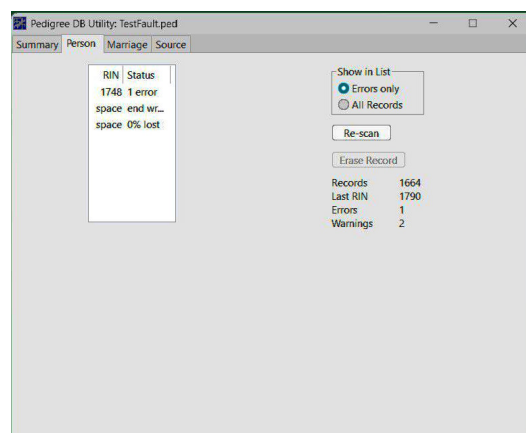
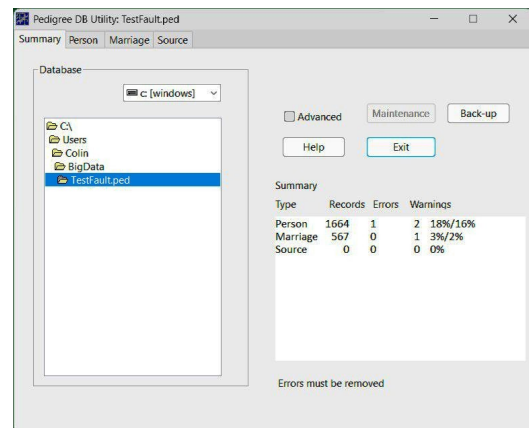
Deal with Errors and/or Warnings

The starting point here is the Summary page, where the record-types show errors and/or warnings. Initially, have the ADVANCED box not checked, then move to each record-type page to see the nature of the errors and warnings. If only warnings are shown, these are likely to be issues with space, easily corrected.

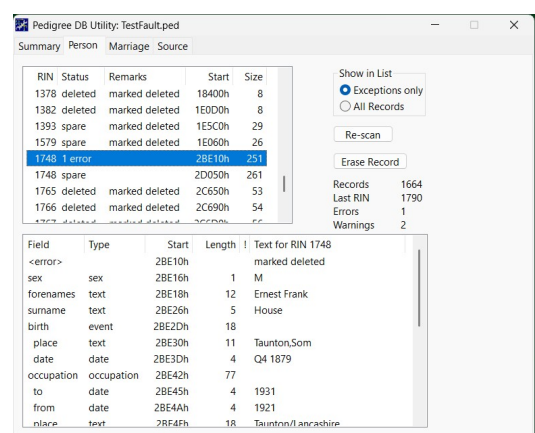
Pedigree Database Utility

If so, then using the Maintenance page to reorganize the database will do what is needed. But with errors present more work will be needed.

To demonstrate this, we'll use an example of a real fault that was dealt with fairly easily. The Summary page displayed here shows one error on the Person record and warnings on both Person and Marriage records. Going to the Person page, the small display on the left shows one error at RIN 1748 and two space warnings. We need more information about this error, so it's worth going back to the Summary page, check the **ADVANCED** box and return to the Person page.



Not Advanced



Advanced

Now there is an extended list on the left with more entries & details. Many of the entries have spare marked deleted that are the result of an edited entry being replaced with a more sizeable one. The Start column has a figure that is where the spare entry is to be found in the database. This is a figure in base-16 format, marked by the h at its end. If we scroll down to RIN 1748, that shows two entries for this RIN. A click on the line 1748 1 error produces a display below, which shows full details of that entry. You can scroll down to see the elements under headings FIELD, TYPE, START, LENGTH AND TEXT. The first line shows <error>...marked deleted. A similar click above on the line 1748 spare produces a similar display below, with the first line starting <error> missing. Scrolling down again shows two added dates near the bottom. That looks like an addition to this entry. We should keep this and lose the other.

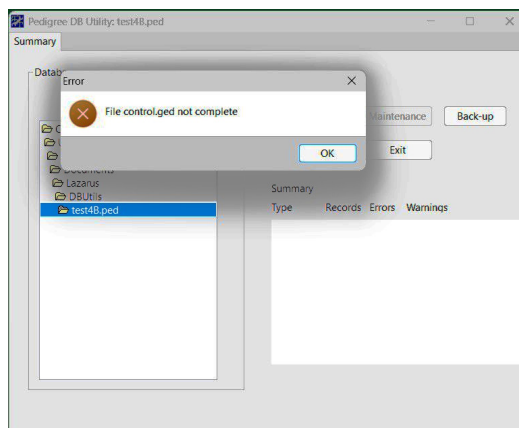
To do this, go back to the 1748 1 error entry, then click on the **Erase Record** button. A confirmation is shown; click on OK. This entry has now gone. Next, click on 1748 spare, then click on the **Use Record** button (renamed from the previous use). Again, a confirmation is shown; click on OK. Both 1748 entries are now absent. To check, click on **All Records** in the SHOW IN LIST box. Scroll down in the list on the left to find two 1748 entries, one marked OK. A click on that will produce the updated display below. The 1748 spare entry can be used to go back to the original data, but that is of no use to us at present.

The two warnings are still there, so we go back to the Summary page, from there to the Maintenance page. To remove the warnings, we will reorganize the database, by following the process under the heading for REORGANIZE. This completes this example.

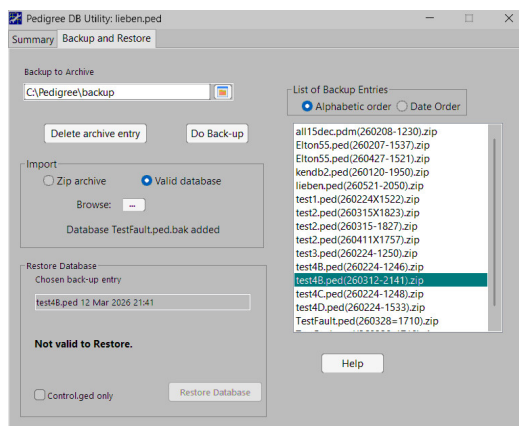
Replace a Faulty Control.ged File

This brings us trouble! We cannot proceed if the vital file CONTROL.GED is not complete. So we need a way to replace it. However, we can still do a backup of this faulty database before fixing the faulty file; who knows when it will be needed.

To do a repair, we need to pinch a copy of the CONTROL.GED file from another database. If you have a previous good back-up of this faulty database, that's the best option. If you have another good database, that too should be useful. Failing that you need one that matches the faulty database, having the same number of record-types. Is the faulty database based on the standard Elton55.ped database (with four types: Person, Marriage, Source & Census)? Whichever database chosen, you'll need a backup copy of it.



OK, we think we have suitable donor for the needed file, so we go to the BACKUP AND RESTORE page. There, click on **Control.ged only**, then click on your donor database in the list on the right. If the page shows **OK to restore file control.ged**, we can proceed. Click on the **Restore Database** button. If all is well, the button will be disabled and dimmed. Now return to the Summary page that shows a tidy result with no errors or warnings. This trial sample has three record-types. Exit this Utility, start PediTree and open the previously-faulty database.

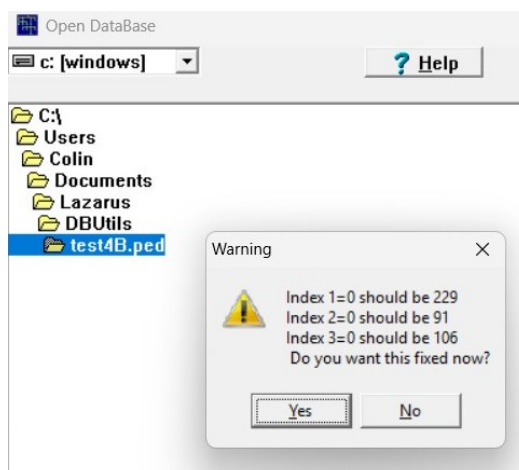


The first thing will be a warning about index numbering, because the new file CONTROL.GED will not know how many entries in indexed lists are correct. Because this is expected, the new file has its lists set to zero; PediTree can correct this for index lists, so we just click on the Yes button. Unfortunately, other lists end up with zero entries, so they have to be re-created.

The other thing is that you must run File > CheckDB to test that all is well. If necessary, switch to Update mode and run File > CheckDB again to correct any omissions. The sample database used for this repair example needed a number of links between elements to be replaced to achieve a correct database. This can be a troublesome repair process!

Asking for Help

The final answer? Fixing some of the things that go wrong can be tricky; at least not too often these days. There are several Pedigree users who can help, when asked through PUG-L. If you can use this



Utility, then it is easy to make a backup of

your troublesome database, then send a copy to be inspected; perhaps fixed and sent back to you.

Use PediTree or Pedigree?

Where PediTree has been used in this article, we need to mention the older program PEDIGREE FOR DOS. This is not so useful in dealing with a faulty database that has been repaired, as we have just been discussing.

For Windows 10 or later, Pedigree for DOS has to be run using a special tool called DOSBox. Details of how to do this are available at www.pugweb.org.uk/faq/dosbox. There are limits to the size of the databases that can be used and less capability to cope with errors.

If a faulty database has been fixed in this Utility, we've seen the steps used in PEDITREE to tidy up indexes and other things. No similar steps are available in Pedigree. For example, correcting lists or fixing links doesn't happen, nor are they all reported. There is a CHECK DATABASE feature, but this doesn't cover all these items.

Appendix — Details of a Database

Each Pedigree Database comprises a folder containing eight or more files. The folder is identified by a name and an extension, for example, Elton55.ped. There are five different extensions that identify the size limits of the database, as will be explained below.

The Files

For a basic folder containing eight files, the names are:-

control.ged Definitions for the Record-types – see below.

lists.dat Information about current lists.

Person.dat Data for personal records.

Person.ind Index to personal records.

Person.spc Information about the space available in the data file.

Marriage.dat Data for marriage records.

Marriage.ind Index to marriage records.

Marriage.spc Information about the space available in the data file.

This folder has two RECORD-TYPES: Person and Marriage. Up to seven record-types can be provided, with each record-type having its own three files: *.dat; *.ind & *.spc. The Elton55.ped database has four record-types, adding Source and Census to the Person and Marriage types. Any additions to these four must have names with different initial letters: not P, M, S or C.

Let's deal with the contents of the individual folder.

Control.ged

This file is structured like a GEDCOM file, but not exactly to the current format. It is read by Pedigree/PediTree on start-up and rewritten when closing the program. PediTree also re-writes it when no editing or other processing is active. This file is vital to the working of the database; any corruption prevents operation.

Contents

Details of record-types, with their detailed structure of named fields.

Details of Choice and Groups that are used in the record-types: Events; Occupations; Residence, etc.

Details of Picture scripts.

Names of Indexes or other lists, with details.

Details of Tables, Reports, Charts and Trees.

Various other settings and current values.

lists.dat

Details of all list elements, be they indexes, filled lists, Ancestors or Descendant Plans. Written when closing the database (or program); when opening the database, these details will restore these lists, without needing to re-build them.

Record-type Files

Each record-type has three files. We will take the PERSON record-type for this description; all other record-types are similar.

There is a limit of 32,767 records for each record-type; these are identified by a RECORD IDENTITY NUMBER (RIN), range 1...32,767.

In order to describe how these fields are used, we need to introduce some routine technical details: bits, bytes, Words and characters. The base of this arises from the way that Microsoft systems work. For Pedigree Software, originally the system used was called MS-DOS with so-called 16-bit working and floppy disks. Now we have Windows 11, 64-bit working, with mechanical or solid-state drives to manage large quantities of information. But the basic way that Pedigree Software works hasn't changed.

So the details: first the BIT, a single element that can be 0 or 1. Stack eight bits to make a BYTE, number-range 0...255 or up to 255 recognised characters. Put two bytes together to make a WORD with number-range 0...65,535. An odd characteristic here is the order of the two bytes: the first byte holds the low value, the second the higher value. For example, for the number 73, the two bytes would be 03 07.

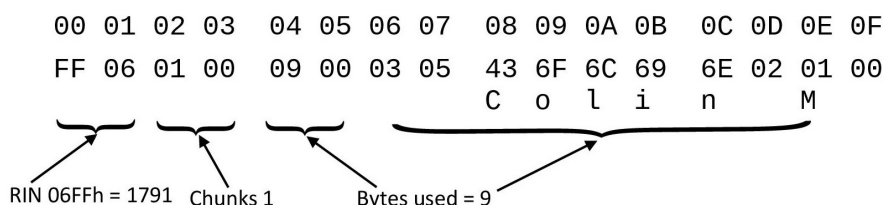
Pedigree Software uses one special element called a CHUNK. This always contains a multiple of 16 bytes. Affecting the Chunks, the five different extensions we have mentioned before apply to both Pedigree and PediTree and are as follows:-

Name	Extension	Chunk-size	Total size Mb	For Pedigree
standard	.ped	16 bytes	1	OK
large	.pdg	48 bytes	3	OK
huge	.pdh	64 bytes	4	OK
jumbo	.pdj	96 bytes	6	No
massive	.pdm	144 bytes	9	No

Person.dat

This file contains the information: names, dates, comments and so on. One record comprises one or more contiguous Chunks, enough to hold the data involved.

Here is a sample of one Chunk containing a forename (Colin) and the sex (M). The top row lists the 16 bytes in the Chunk; the second row show the three Words of the RIN, the number of Chunks and the number of bytes used in the data; following by bytes in the data. This includes identifiers for each entry (text: 03; choice: 02) and the number of characters in the text. The numbers here are in *hexadecimal* notation; the first row shows numbers 0...15 in decimal, 00h...0Fh in hexadecimal (the h indicates this format). The third row shows the characters in the data.



When entering or editing a record, it may be that the presently-used Chunks are now short of space. In this case, these Chunks are 'marked' as deleted and another space is allocated with extra Chunks as needed. The deleted Chunks have a marker in the second Word; this marker is in the left-most bit set to a 1. In the sample, this Word would become 01 80.

Person.ind

This is an index by RIN to the records in File Person.dat. The index has Words that contain the Chunk-number in File Person.dat; RIN 1 has the first Word in this index. Deleted records have the relevant Word set to FFFFh.

Person.spc

This file handles the free-space in file Person.dat. The first two Words mark free space beyond any allocated Chunks. The remainder of this file has two-Word entries marking deleted Chunks by location and size. When allocating new space in file Person.dat, this file is searched for a suitable space, if available.

Conclusion

The database described above was created when Pedigree for DOS was introduced in about 1988, using floppy disks for storage. Apart from adding 'large' and 'huge' versions, the details haven't changed.

Moving to Windows brought PediTree around 2002, with the same database, now working on hard disks. Further size-versions 'jumbo' and 'massive' were added, with no other changes. PediTree uses a separate file (db32.dll) to access the database; this was updated in 2011 to improve its security. Updating PediTree itself ended in 2019, partly because the Delphi development tool used to modify PediTree no longer worked in Windows7 or later.

The move to Windows brings a small difficulty in handling text in this database. If your database was working in Pedigree then moved to PediTree, most things were not affected – or so it seemed. But if, for example, you had written £500, PediTree now shows it as œ500. Other similar changes occur when accents are present. The reason is to do with CODE PAGES that determine how characters are stored in the database. For Pedigree for DOS, CP850; for PediTree Windows-1252 (for Western-European use). If you wish, use Wikipedia and search these codes to see how they are related.

Windows supports many different languages with their corresponding scripts; modern programs work with this in various ways. Your internet browser probably uses a text system called UTF-8, that may use one to four bytes for a particular text symbol. Current versions of the Delphi development tool uses UTF-16 with two or four bytes for every letter. Neither of these would work with our database.