4D Transporter®

Reference Guide
Windows and Mac OS Versions

4D Transporter Reference Guide
Version 6.0 for Windows® and Mac™ OS

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1 Introduction

About 4D Transporter

version 6.0.1

4D Transporter is a 4D utility program that ships with 4th Dimension, 4D First and 4D Server version 6.0 or higher. Use 4D Transporter to move a database developed on one platform for use on the other platform.

4D Transporter 6.0.1

4D Transporter performs the following functions:

• When transporting a database from Macintosh to Windows, it splits the data and resource forks of Macintosh 4D databases files, as well as other related files or documents so they can be used on Windows.

• When transporting a database from Windows to Macintosh, it merges the data and resource files of Windows 4D databases, as well as other related files or documents so they can be used on Macintosh.

When transporting from Macintosh to Windows, it optionally enforces the DOS conventions for filenames where the 8 by 3 character limit for the length of filenames applies.

Why transporting is necessary

When you create a 4D database on Macintosh, the program creates a folder that contains two files: the structure file and the data file. For example, if you 2 create a Customers database, you obtain a folder named Customers*ƒ* that contains the files Customers (structure file) and Customers.data (data file).

When you create a 4D database on Windows, the program creates a directory that contains three files: the structure file, the resource file, and the data file. If, for instance, you create a Customers database, you create a directory named Customers that contains the files Customers.4DB (structure file), Customers.RSR (resource file) and Customers.4DD (data file).

This difference in file organization between the platforms is due to an important difference between the operating system file managers of Macintosh and Windows (the part of the OS that handles your files and documents on your disks).

On Macintosh, any file can be composed of two parts called forks: the data fork and the resource fork. On Windows, all files are composed of only one part.

The data fork of a Macintosh file is logically equivalent to a Windows file or any other operating system file (UNIX for instance). Macintosh file resource forks are used to store resources.

A resource is a piece of data intended to be easily localizable or modifiable. This was the original purpose of the Macintosh designers: to be able to localize a Macintosh application from one language to another (for example, from English to French or Spanish) without having to rebuild the whole application. Resources can contain data such as lists of strings, icons, pictures and so on. Resources are also used to store dialog boxes, menus, and so on. For example, because Maintosh applications store the text of menu items as resources, you can fix misspellings in menu items without having to rebuild the whole application.

In addition, resources have been used for other kinds of data. Unlike the data fork which is a simple series of bytes (i.e., characters of a Text document), the resource fork of a Macintosh file is by nature a structured stream of bytes: it contains the resources and a map that gives access to these resources.

Because the concept of resource fork does not exist on Windows, if you copy a Macintosh file that has both a data fork and a resource fork, only the data fork will be copied or recognized on the Windows platform.

Note: Consequently, there is no Windows version of 4D Transporter simply because such a hypothetical version would not be able to deal with resource forks on Windows.

When working with an application that runs on both Macintosh and Windows, it is therefore necessary to take this issue into account if the documents managed by this application use both the data and resource forks of the documents when running on Macintosh.

This applies to 4th Dimension. On Macintosh, 4th Dimension uses both the data and resource forks of the structure and data files of your databases.

If you copy your Macintosh 4D database files to your PC directly, the Windows version of 4th Dimension would not be able to work with these files because important information located in the resource fork(s) of the file(s) would be missing.

4D Transporter is the utility program you use to transport databases from Macintosh to Windows and vice-versa. When transporting from Macintosh to Windows, it splits the two forks of a Macintosh file into two files that you can copy and open on Windows. When transporting from Windows to Macintosh it performs the reverse operation — merging the structure and resource files.

The data fork of a 4D database structure file stores the definitions of all the objects you create in the Design environment. This includes your layouts, your scripts and procedures, your custom menus, and so on.

The resource fork of a 4D database structure file is used for storing resources (such as the string containing the path to the data file). The resource fork is also used for storing the old model 68K-based Macintosh 4D Extensions you may use in a database. Many 4D developers also store lists of strings, pictures, and so on that are used in the database.

Note: Both the data and resource forks of a Macintosh 4D database structure file can contain several hundred kilobytes or even several megabytes of information.

The data fork of a 4D database data file holds all the records, internal address tables, indexes, and so on. The resource fork of a 4D database data file is generally empty but may contain some resources. If, for instance, you use Customizer Plus to associate a data file to a structure file, this is done internally by adding an identical WEDD resource into the resource forks of both files.

Note: The data fork of a Macintosh 4D database data file may contain up to several gigabytes of data. Its resource fork is usually empty or very small.

What 4D Transporter does

What 4D Transporter does is simple:

• When you transport a database from Macintosh to Windows, it copies the data and resource forks of a Macintosh file into two separate files that can be copied and used in Windows.
• If you transport a database from Windows, it copies the file and its related resource file (if it exists) into one Macintosh file whose data fork contains the file and resource fork the related resource file.

4D Transporter performs the transport of a Macintosh 4D database as follows:

• The data fork of the structure file is copied into a .4DB file. This file is called the database structure file on Windows.
• The resource fork of the structure file is copied into a .RSR file. This file is called to the database resource file on Windows.
• The data fork of the data file is copied into a .4DD file. This file is called the database data file on Windows.
• The resource fork of the data file (if not empty) is copied into a .4DR file. This file is called the database data resource file on Windows.

In the Customers example, transporting the Macintosh database to Windows would create the files Customers.4DB and Customers.RSR from the Customers file and the files Customers.4DD (and possibly Customers.4DR) from the Customers.data file.

4D Transporter performs the transport of a Windows 4D database as follows:

• It merges the .4DB and .RSR files of the Windows database into one file that becomes the database structure file of the Macintosh database.
• It merges the .4DD (and possibly .4DR) files of the Windows database into one file that becomes the database data file of the Macintosh database.

In the Customers example above, transporting the Windows database to Macintosh creates the Customers file from Customers.4DB and Customers.RSR and the file Customers.data from Customers.4DD (and possibly Customers.4DR).

The two operations are symmetric: databases can be created and/or modified on one platform, then transported to the other platform multiple times. The platform-independent technology of 4th Dimension does the rest. No matter which platform you are using, 4th Dimension stores all your objects and records in such a way so they can be read on both platforms. In addition, the Windows version allows you to use the Macintosh resources present in your database.

When working on Macintosh, records added or modified in a database are written in the data file using the Macintosh format (Motorola byte ordering).

When working on Windows, records added or modified in a database are written in the data file using the Windows format (Intel byte ordering).

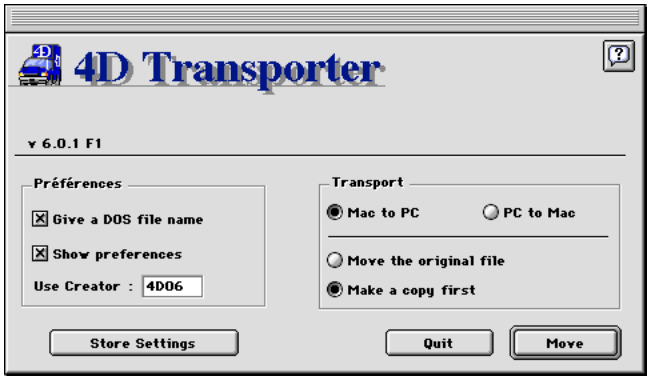
Note: Design objects are always written using the Macintosh format (Motorola byte ordering). If a database is used for some time on both Macintosh and Windows, your data file will have a mixed set of Macintosh and Windows "native" records. This is the way it is intended: both the Macintosh and Windows versions are designed to work transparently with records written on either platform.

4D Transporter does not change the internal format of your files, it does not perform any kind of internal conversion of data: it only splits forks of Macintosh files or merges Windows files.

If you want to force a data file to be fully Macintosh or Windows native, use 4D Tools. Compact the data file or repair by tags. As explained above, performing such an operation is not necessary but can eliminate useless byte-swapping operations (whose overhead is hardly perceptible) when running exclusively on one platform.

2 Using 4D Transporter

Double-click on the 4D Transporter icon to display the 4D Transporter window:



You can use 4D Transporter in three ways:

• Launch 4D Transporter, choose your transporting options, choose the file you want to transport, and perform the transporting operation.

• Drag and Drop file(s) onto the 4D Transporter application icon, choose your transporting options, and perform the transporting operation.

• Store your transporting options on disk once, drag and drop file(s) onto the 4D Transporter application icon, and have the transporting operation performed automatically.

This section describes the different options of the 4D Transporter window.

Give a DOS File Name

The name of a database is limited to 31 characters on both Macintosh and Windows. However, on Windows, you may work with a volume where filenames are subjected to the 8 by 3 character DOS limit. The **Give a DOS File Name** option (selected by default) tells 4D Transporter to enforce this rule and modify filenames when transporting files from Macintosh to Windows.

The table below shows examples of resulting Windows database structure file names with the option selected and deselected:

Macintosh Name	Windows Name with option not selected	Windows Name with option not selected
Ultimate Invoicing DB	Ultimate_Invoicing_DB	LTMTNVCN.4DB
My Best DB, so far!	My_Best_DB,_so_far!.4DB	MBSTDBSF.4DB

In both cases, characters such as space, /, *, and so forth are replaced by underscores. If the DOS naming convention is enforced, all characters other than consonants are eliminated and, if after this operation, the name is too long, it is truncated to 8 characters.

4th Dimension is able to work with transported databases no matter which option is selected. Enforcing the DOS naming convention is useful only on when other Windows applications (that do not support long filenames) may access the files.

Show Preferences

This option tells 4D Transporter to display its window when you launch the application or drag and drop files onto its icon. This is the default option. If you deselect this option, 4D Transporter will no longer display its window when you drag and drop files onto its icon; it will instead perform the transport operation immediately using the transporting options stored on the disk.

Note: If Show Preferences is deselected, you no longer have access to the 4D Transporter window. To get it back, press the Option key while launching 4D Transporter.

Store settings button

If you change some options and want those options to be used automatically the next time you use of 4D Transporter, click this button. Storing your options and deselecting the Show Preferences option allows to you to transport files quickly: 4D Transporter does the transport operations immediately and then quits.

Transport: Mac to PC

Choose this option to transport files from Macintosh to Windows.

Transport: PC to Mac

Choose this option to transport files from Windows to Macintosh.

Transport: Move the original file or Make a copy first

By default, the option Make a copy first is selected. If Make a copy first is selected, 4D Transporter creates a folder named FolderPC if you transport files from Macintosh to Windows, or Folder Mac if you transport files from PC to Macintosh. It then copies the split or merged files into this folder. If you drag and drop multiple files, the folder is created at the same level as the first file. If a folder with the same name already exists, 4D Transporter creates a folder named FolderPC.2 or Folder Mac.2 and so on.

If you select **Move the original file**, 4D Transporter does not create any folder and splits or merges the file(s). If you use this option, 4D Transporter will not save your original file. Therefore, 4D Transporter will prompt you to confirm this selection:

Note: If you made a mistake you can recover the original files by doing the reverse transport operation.

Once you have chosen your transport options, click the **Move** button to perform the operation.

You can change the transport options as many times as you want and move as many files as you want. When you are done, click **Quit**.

Tip: Drag and drop, storing your transport options, and hiding the 4D Transporter window lets you automate the transporting process. If you transport databases in both directions or use different options often, make several copies of 4D Transporter and configure each copy the appropriate way.

Creator

This area defines the Creator that will be applied to a document when it is transported from Windows to Mac OS. On the Macintosh, the Creator defines the application file with which the file can be used.

4D06 is the default creator for 4D Version 6.

• If you want to transport Version 3 files in order to use them on the Macintosh, enter 4D05 in the Creator area.

• If you want to transport 4D First Version 6 files in order to use them on the Macintosh, enter 4DF6 in the Creator area.

The table below shows the correspondence between Macintosh and Windows files established by 4D Transporter.

	Windows file extensions	
	Data fork equivalent	**Resource fork equivalent**
Macintosh File		
4D Database structure file	.4DB	.RSR
4D Database data file	.4DD	.4DR (optional)
Proc.Ext	n/a	Proc.ESR
4D Plug-ins located in Mac4DX folder	.4DX	.RSR
Any Macintosh file	.DTA	.RSR (optional) (*)

(*) To open or drag and drop any type of file, press the Command key.

Note: To merge .4DB and .RSR Windows files into Macintosh structure files, drag only the .4DB to the 4D Transporter icon. The program will automatically include the .RSR into the operation if it is located at the same level. The same scheme applies to the files .4DD and .4DR and to the files .DTA and .RSR.

The following table summarizes Macintosh file types and Windows/DOS file extensions for the files and documents created by 4th Dimension.

File	**Macintosh File Type**	**Windows file extensions**
Structure file	BAS5	.4DB, .RSR
Compiled structure file	BASY	.4DC, .RSR
Data file	dat5	.4DD, .4DR (optional)
Data Segment	dax5	.4DS
Log File	4LOG	.4DL
ASCII files	TEXT	.TXT
4D Client Resource File	res	.RES
4D Client Local file	LOC4	.REX
Proc.Ext	PEXT	.ESR
4D Plug-in (MacOS)	4DPX	.4DX, .RSR
4D Plug-in (Windows)	n/a	.4DX

Other common 4D files

Hot Link file	4DHL	.4LK
Quick Report document	4DSE	.4QR
Labels document	4DET	.4LB
SAVE SET document	SETT	.4ST
SAVE VARIABLE document	VAR1	.4VR
User & Groups set	4DUG	.4UG
Pathname document	paTH	.PTH
ASCII Map document	FILT	.4FI
Apply forula document	EFRM	.4FR
Search document	RECH	.4DF
Formula document	TFRM	.TFR
Any file	n/a	.DTA (optional), .RSR (optional)

Structure file
A database structure file is created each time you create a new database. Under Windows, a resource file, "Name of database.RSR", is also created. This second file contains the Macintosh resources of the database.

Compiled Structure file
A compiled database structure file is created by 4D Compiler when you compile your database.

Data file
A data file is created each time you create a new database or press the Macintosh Option key or Windows ALT key while opening an existing database to create a new data file. Under Windows, a "Name of database.4DR" file is created by Customizer Plus if you create a WEDD resource. This second file contains the Macintosh resources of the data file.

Data Segment
A data segment file is created using the Split button in the Open Data File dialog box or the Data Segments menu command in the Design environment.

Log file
A Log file is created when you use the Log file command in the User environment File menu or use the corresponding 4D command.

ASCII file
Any text file created by 4D or text file created by other applications suitable for importing into 4D as ASCII text.

4D Client Resource file
A 4D Client resource file contains the Macintosh resources downloaded from the server by 4D Client. On the Macintosh it is located in the ACI folder and named “Name of database.res”. On Windows, it is located in the ACI folder which is located in the active Windows directory.

4D Client Local file
A 4D Client local file contains the 4D design objects downloaded from the server by 4D Client. On the Macintosh it is located in the ACI folder and named “Name of database.rex”. On Windows, it is located in the ACI folder which is located in the active Windows directory.

Proc.Ext
A Macintosh Proc.Ext file contains the 68K-based external packages, the PPC-based external packages (memory fragment), and their associated resources. Although this file is not used on Windows, it may exist if the database is served using 4D Server and must be located at the same level as the structure file of the database.

4D Plug-in (MacOS)
A 4D Macintosh plug-in is located in the Mac4DX folder (which is located at the same level as the structure file). In addition, under Windows, there is an associated file with the same name and the file extension.RSR. This second file contains the Macintosh resources of the 4D plug-in. Although these files are not used on Windows, they may exist if the database is served using 4D Server.

4D Plug-in (Windows)
A 4D Windows plug-in (DLL) is located in the Win4DX folder (which is located at the same level as the structure file). In addition, under Windows, there is an associated file with the same name and the file extension .RSR. This second file contains the Macintosh resources of the 4D extension. Although these files are not used on the Macintosh, they may exist if the database is served using 4D Server.

The table below shows the icon of the 4D files on both Windows and Macintosh (the text above each icon is the corresponding Macintosh file type):