

4D Customizer Plus™

Reference Manual
Windows® and Mac™ OS Versions



4D Customizer Plus

Version 2003 for Mac™ OS and Windows®

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Preface

4D Customizer Plus Version 2003 is an application that lets you set general parameters for 4D applications (version 2003 and later) and their environments—plug-ins, development tools, network components, and database. Using 4D Customizer Plus is not mandatory, it provides solutions for developers who may want to manipulate specific aspects of their work environment.

About this Manual

This manual presents 4D Customizer Plus and describes how to customize 4D environment files and applications.

Windows®/Mac™ OS This manual explains using 4D Customizer Plus on both the Windows and MacOS platforms. Although the concepts and functions of both versions of 4D Customizer Plus are nearly identical, the manual addresses any differences where necessary.

The screen shots in this manual are generally taken from the Windows version. The MacOS version of a screen is presented when it contains major differences.

Chapter Descriptions

This manual is divided into the following chapters:

- Chapter 1, “About 4D Customizer Plus,” provides an overview of the application.
- Chapter 2, “Customization Strategy,” explains how to customize files and applications of the 4th Dimension environment.
- Chapter 3, “Using 4D Customizer Plus,” describes basic operations that will allow you to customize files.

- Chapter 4, “Customizing 4D Applications,” describes the parameter groups involved in customizing a 4D application.
- Chapter 5, “Customizing a Preferences File,” describes the parameter groups involved in customizing Preferences file settings on Windows.
- Chapter 6, “Customizing a Database,” describes the parameter groups involved in customizing a database structure file.
- Chapter 7, “Customizing the TCP Network Component,” describes the parameter groups involved in customizing TCP network component.

Conventions

This manual uses certain conventions to help you understand the material.

The following explanatory notes are used:

Note Text emphasized like this provides annotations and shortcuts that will help you use 4th Dimension more productively.

4D Server Throughout the manual, 4th Dimension and 4D Server/4D Client are referred to simply as 4th Dimension. Differences between the operation of the two products are explained in 4D Server notes, which provide information about using 4D Server/4D Client. This information is provided only when the operation of 4D Server/4D Client differs from that of 4th Dimension.

Notes like this alert you to important pieces of information and alert you to situations where data might be lost.

1

About 4D Customizer Plus

4D Customizer Plus 2003 is an application enabling you to set general parameters of 4D applications (4th Dimension, 4D Runtime, 4D Server and 4D Client), version 2003 and later, and their environments—plugins, development tools, TCP/IP network component preferences, and database. 4D Customizer Plus has the same platform and operating system requirements as 4th Dimension applications.

Using 4D Customizer Plus is not mandatory—it provides solutions for developers who may want to manipulate specific aspects of their work environment.

From a developer standpoint, 4D Customizer Plus is a beneficial tool, allowing developers to optimize memory management, restrict the use of a data file to a specific structure file, adapt an application to the characteristics of the operating system on which it is executed, and localize 4D applications in order to run it on, for example, Arabic or Japanese operating systems.

Developers can provide their clients with 4D Customizer Plus, who will then be able to optimize the use of their database, whether it is compiled or interpreted, in relation to their software and hardware environment.

Users will appreciate the ability to customize interface elements such as window locations and dimensions, keyboard shortcuts, and the form appearance.

Applications and Files

4D Customizer Plus allows you to customize the following applications and files:

- 4D single-user applications: 4th Dimension, 4D Engine, interpreted 4D Runtime, 4D Runtime Classic,
- 4D multi-user applications: 4D Server, 4D Client,
- 4D application preference files and executables on Windows,
- 4D database structure files (interpreted or compiled)
- Compiled databases integrated in a 4D Engine, also called executables,
- 4D database data files,
- Network configuration files (TCP.opt),
- Plug-ins located in the MAC4DX and WIN4DX folders (4D Draw),
- Applications that belong to 4th Dimension environment (4D Insider, 4D Tools, 4D Backup, etc.).

Parameters that can be customized in 4D environment applications are described in their respective manuals.

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Customization Strategy

4D Customizer Plus lets you customize 4D environment files and applications.

Some customizable files and applications are used jointly. For example, when using a 4D database, you simultaneously use a structure file, a data file, a 4D application and its preferences file.

You will also notice that some parameters can be customized in a structure file, in a 4D application and in the application preferences file. For instance:

- Parameter groups such as Keys, Window (screen), and Preferences can be set in a structure file or in an application file.
- Main memory for Microsoft Windows can be set in the following parameter groups: 4D application preferences, Structure file preferences and Main memory of the 4D application preferences file.

When the same parameter group exists in several applications or files that are being used jointly, only one of the settings is taken into account.

The order of priority is:

1. Preferences file
2. Structure file
3. 4D application

Note For some parameters that can be customized in database structure files, the setting will only be taken into account when the structure is merged with a 4D Engine (Stack size and Windows Main memory).

**General Example: Keys
Parameter Group**

- ▶ To apply the Keys parameter group settings to all the databases located on your machine:
Set all 4D applications used on this machine and leave the structure file parameters unchanged.
- ▶ To apply the Keys parameter group settings to specific databases:
Apply the settings to the structure files of these databases.

**Isolated case: Windows
Main Memory
Parameters**

Main memory for 4D applications under Windows (4D, 4D Server, 4D Client...) can be done in different locations using different tools. Each application can be customized directly or the settings can be stored in their related Preferences files. This can be done using the 4th Dimension Object Properties dialog box or 4D Customizer Plus.

Note If the main memory is set in both the Preferences file and the application, the information stored in the Preferences file will override the application settings.

- ▶ To apply the main memory setting to all 4D applications and databases located on your machine:
Set this parameter group in the Preferences files of the applications located on the machine.
- ▶ To apply the main memory setting to an executable to be run on any platform:
Set the structure file or engine file that will be used for the creation of the executable.

Note If the destination machine contains a preference file named 4D Engine Preferences 2003.RSR where the Memory parameter group is active, the latter must be taken into account. You can modify it using 4D Customizer Plus or delete it and launch the new executable so that the latter's values are used.

- ▶ To apply the main memory setting to all databases used in a specific 4D application:
Set only the specific 4D application and ensure that the Memory parameter group of its related preference file is disabled.

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Using 4D Customizer Plus

This chapter describes basic operations that will allow you to customize files.

Correct Configuration

4D Customizer Plus Files

Under Windows, the 4D Customizer Plus folder includes mandatory and optional files:

Mandatory Files	Optional Files
4D Customizer Plus.exe	4D Customizer Plus.hlp
4D Customizer Plus.rsr	4D Customizer Plus.gid
Asifont.fon	4D Customizer Plus.cnt
ASINTPPC.DLL	
Asiport.rsr	

4D Customizer Plus.hlp and 4D Customizer Plus.cnt provide on-line help when available. 4D Customizer Plus.gid is created by the Windows operating system when 4D Customizer Plus on-line help is launched for the first time.

Customizing an Application or a File

Under Windows, 4D Customizer Plus can open files or applications as long as the two following rules are respected:

- (1) File “groups” (indicated in the table below) are located at the same level in the same directory
- (2) They have the same prefix:

	Windows	Macintosh
Structure file (Interpreted)	DataBase.4DB	Base or Base.4DB
	DataBase.rsr	

	Windows	Macintosh
Compiled Structure File	DataBase.4DC	Base (or Base.comp)
	DataBase.rsr	
Executable	DataBase.4DC	Base (or Base.comp)
	DataBase.EXE	
	DataBase.rsr	
Data file	DataBase.4DD	Base.data or Base.4DD
	DataBase.4DR ¹	
Application	Appli.EXE	Appli
	Appli.rsr	
Preferences file ²	xx Preferences 2003.RSR	xx Preferences 2003
Plug-ins	PlugIns.4DX	PlugIns
	PlugIns.rsr	
Network component ³	TCP.opt	TCP.opt

1. The .4DR file is created by 4D applications and contains information specific to the data file, such as the WEDD folder, the log file pathname or information related to backup operation.

2. The preference files for 4D applications can be customized under Windows only. They are located in the active 4D folder of your machine. The location of the 4D folder depends on your operating system. For a detailed information, refer to the *4D Installation Guide*.

3. The TCP.opt file is located:

- Either in the active 4D folder (see above),
- Either in the directory of 4D applications installed on the machine.

Before starting customizing, it is wise to keep a copy of the file groups (indicated above). You can then reuse previous settings by copying backup files.

Running 4D Customizer Plus

Installing 4D Customizer Plus to your disk does not require any special handling. The software is automatically copied to your disk, in the 4D/Tools directory, if you selected standard installation.

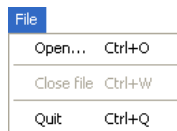
If you selected customized installation, verify that 4D Customizer Plus is selected in the 4D Installer (“Tools” category).

- ▶ To launch 4D Customizer Plus:
 - Double-click the 4D Customizer Plus icon (4D Customizer Plus.exe under Windows),
or
Select the 4D Customizer Plus icon and then select **Open** in the File menu.
- The 4D Customizer Plus window is displayed.



File Menu

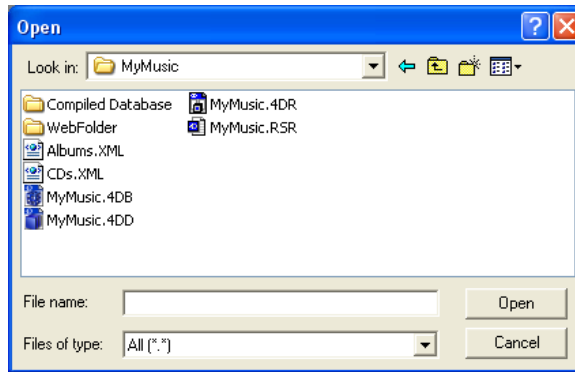
The File menu allows you to open the files you want to customize, to close them, and to Quit 4D Customizer Plus.



Opening a File

- ▶ To open a file
 - 1 Select **Open** in the File menu.

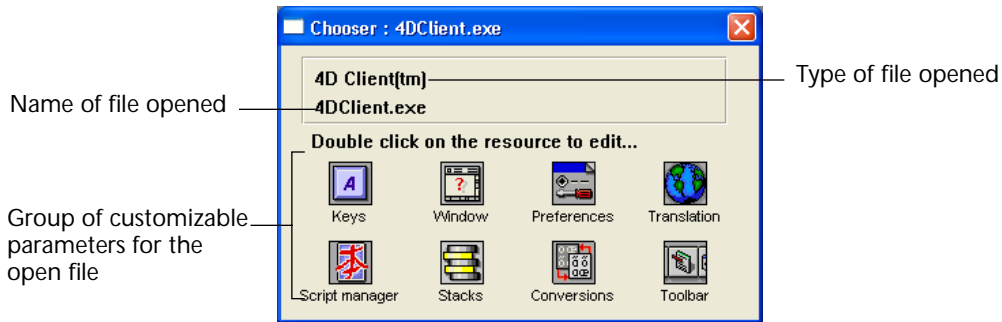
A standard Open File dialog box (for your operating system) is displayed:



- 2 Select the file to open (for example, 4th Dimension, 4D Runtime, 4D Client or even an executable database “MyBase.exe”, then click the Open button.

Note You can also directly open documents by using drag-and-drop with files onto the application icon (MacOS), or onto the application window (Windows).

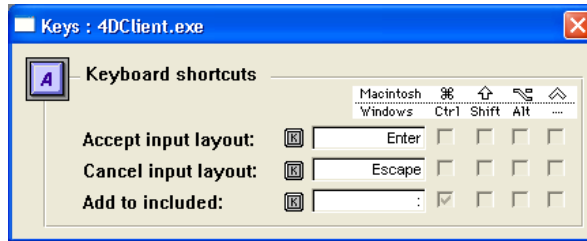
The windows for setting selected file parameters appears:



The main window displays the type and the name of the opened file as well as parameter groups as icons. The icons displayed vary depending on the file that is currently open.

Note You can up to 10 files simultaneously; each one is displayed in its own window.

To see the content of a group of parameters, double-click its icon. A new dialog box will appear, for example:



To close this dialog box, select the **Close Window** command in the **Edit** menu or click the window's close box.

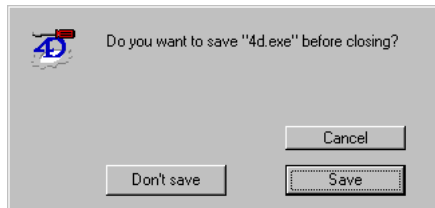
Note You can open and work simultaneously with several groups of parameters; each one is displayed in its own dialog box.

Closing a File

The **Close file** command in the **File** menu closes open parameter groups dialog boxes as well as the main window of the selected file.

Note You may also use the **System** menu case under **Windows** or the close window box in the main window under **MacOS**.

4D Customizer Plus allows you, if you have modified at least one parameter, to save your modifications.



- If you click **Save**, all modifications are globally saved.
- If you click **Don't save**, all modifications are canceled (the original file is left unchanged).
- If you click **Cancel**, the **Close file** command is canceled.

Note Some dialog boxes trigger an immediate modification of the opened file (for example, **Choose localization** in the **Translation** window). You are informed once you make the modification.

Quitting the Program To close the 4D Customizer Plus application, choose the Quit command in the File menu. Before quitting, 4D Customizer Plus closes all parameter groups and open main windows. If you made any modifications in any of the windows, the program will ask you to save them.

Note Under MacOS X, the File menu does not contain the Quit command. This menu command is located in the application menu (4D Customizer Plus).

Edit Menu The standard commands in this menu will not be described in this section.

The Close Window command allows you to close a parameter group window.

Options Menu

Open Related Files This command is enabled when you open a structure or data file.

This menu command allows you to automatically open the main window of related files. Related files are the files used simultaneously with opened files. This command is enabled when you open a structure or data file:

Open file	Open related file	Conditions
structure file	data file	The pathname of the data file created by 4D and saved in the structure file exists and is valid. or The two files are placed in the same directory and have the same prefix (structure.data file name under MacOS).
data file	structure file	The two files are placed in the same directory and have the same prefix (name of data file without .data under MacOS)

About 4D Customizer Plus

This dialog box identifies the 4D Customizer Plus version currently used. It can be displayed from:

- the Apple menu under MacOS 9.x
- the application menu (4D Customizer Plus) under MacOS X
- the Help menu under Windows.

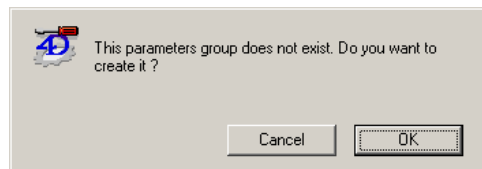
Note You can view the version of a 4D Customizer Plus application without opening it by calling Properties... (under Windows) or Read information (under MacOS), once you have selected the application icon.

Handling parameter groups

General information Parameter groups, such as Keys, Windows and Preferences, are always present together. If you create or delete any of these groups, the two others will be created or deleted as well.

Creating

A dimmed icon indicates that the parameter group does not exist. To create it, double-click its icon; a dialog box appears asking you to confirm this action:



Deleting

A created parameter group can be deleted at any time. To delete a parameter group, double-click its icon while pressing the Alt key (Option under MacOS). The icon is then dimmed and the parameter group is deleted.

Modifying

To open the parameter group customizing window, double-click its icon. Make any necessary changes and then close the window (either using the close box or the Close window command in the Edit menu). The Save alert will be displayed when you close the file's main window or quit 4D Customizer Plus.

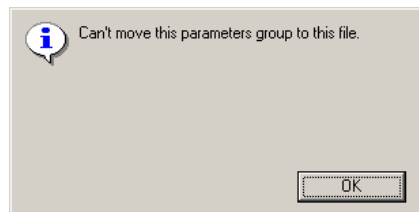
Note If you enter an erroneous value in an entry area, 4D Customizer Plus will beep either during entry or once you exit the area (by holding the **Tab** key or clicking in another area).
If the entered value is greater than the maximum authorized value, 4D Customizer Plus replaces it with the maximum authorized value during entry. If the value is less than the minimum authorized value, 4D Customizer Plus replaces it with the minimum authorized value once you leave the area.

Moving

It is possible, and often useful, to copy parameter groups from one file to another.

- ▶ To copy a group:
 - 1 Open the source and destination files.
 - 2 Select the icon that corresponds to the group you want to copy and drag it to the destination window.
 - 3 Drag and drop the icon in the destination window.

The settings of the source file are then copied in the destination file.
- If the parameter group of the destination file is not dimmed, it is created, otherwise it is replaced.
- Moving a parameter group is only authorized when the destination file contains the same group of parameters (dimmed icon or not).
- If you attempt to copy a parameter group in a destination file that cannot support this type of parameter group, the following alert is displayed:



- Notes**
- If you copy the “Preferences” parameter group of a 4D application to another 4D application, the value of the Display flush window (see [the section “Display Flush Window” on page 24](#)) will not be recopied. The original value of the target file is kept.
 - The “Translation” parameter group (see [page 28](#)) cannot be copied from a 4D application to another.
-

4

Customizing 4D Applications

The 4D application customizing window in 4D Customizer Plus can contain up to eight different icons under Windows and nine under MacOS, each one customizing a specific aspect of your 4D application. These parameter groups are:

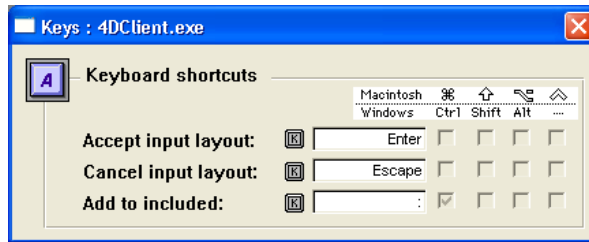
- **Keys:** Lets you modify default keyboard shortcuts to accept, cancel, modify, and add records.
- **Window:** Controls the location and dimensions of the main window in the Custom Menus and User environments.
- **Preferences:** Lets you modify the main process stack size, the beach ball appearance, the choice of print job type, and the real precision.
- **Translation:** Lets you modify the language used to display commands and to localize 4th Dimension in relation to the current operating system.
- **Script Manager:** Lets you fix certain parameters when running 4th Dimension on Script Manager.
- **Stacks:** Lets you set the stack sizes for the eight basic processes.
- **Conversions:** Lets you adapt 4D application internal ASCII tables to a specific Windows system.
- **Toolbar:** Lets you set the toolbar status at the 4D application startup.
- **Memory:** Lets you optimize the memory allocation of a 4D application. This parameter group is available only on the Macintosh.

Keys

Customizable using: 4D single-user applications, 4D Client, structure files, and executables.

Usage: This parameter group allows modifying hotkeys of three basic 4th Dimension operations.

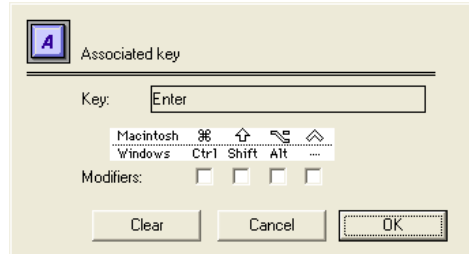
Default settings of these hotkeys vary depending on the platform and language used.



► To change a keyboard hotkey, follow these steps:

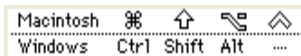
- 1 Click the  icon.

The Associated key dialog box appears:



This dialog box allows you to specify an associated key as well as one or more special keys called *Modifiers*.

Also, 4D Customizer Plus offers the following hotkeys so that your databases may function indifferently on these two platforms:



Note The Command key (MacOS) corresponds to the Ctrl key on the PC. The Control key for Macintosh (⌘) is replaced by a right mouse click under Windows.

- 2 Press the new keyboard equivalent and any modifier key.

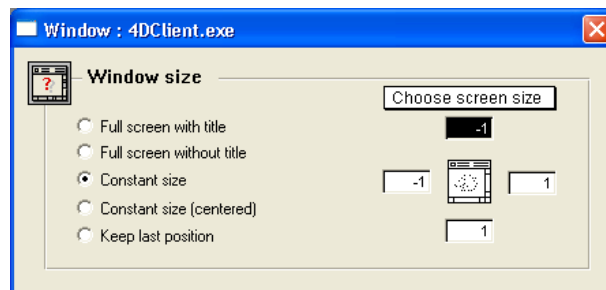
The used modifiers are checked, the Key area indicating the associated key.

- Click the Erase button if you do not want any hotkeys associated to an action.
- Click the Cancel button to exit the dialog box without validating your changes or click OK to validate them.

Window

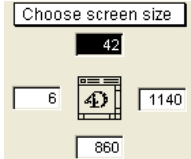
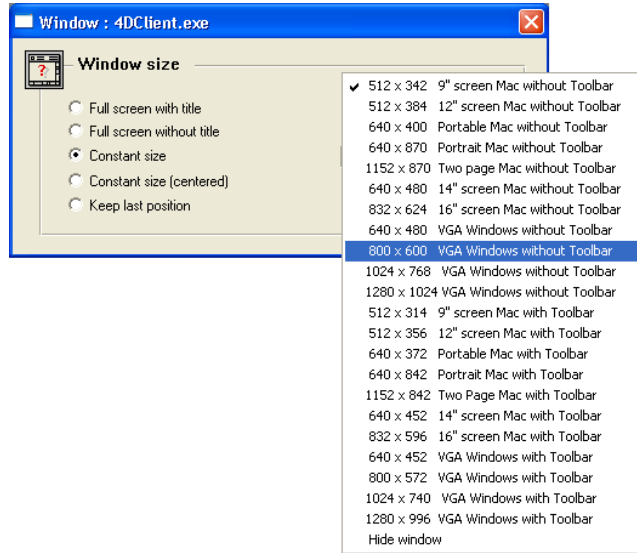
Customizable using: 4D single-user applications, 4D Client, structure files, and executables.

Usage: This parameter group allows modifying size and location of the main window of your database in the User and Custom menus environments.



- The left half of the window allows you to select your display choice:
 - Full screen with title: Opens a window equal to the size of the screen of the computer in use, and includes a title bar.
 - Full screen without title: Same as above without a title bar (the title bar is hidden behind the menu bar).
 - Constant size: Keeps the window a constant size no matter what the computer on which the program is used. The size can be set either with the pop-up menu or the coordinate boxes.
 - Constant size (centered): Same as above, but centers the window instead of using an absolute placement based on the coordinate values.
 - Keep last position: Opens the window using its previous location and size.

The right side of the window lets you enter or select window coordinates, depending on the display selected, using the Choose screen size pop-up menu.



Once you select an element from the Choose screen size menu, the coordinate areas of your window are automatically filled and the pop-up menu displays the “Choose screen size” option again.

If your database contains a toolbar, select an element “with toolbar” so that the window is displayed under the toolbar. Otherwise, the top of the window will be covered by the toolbar.

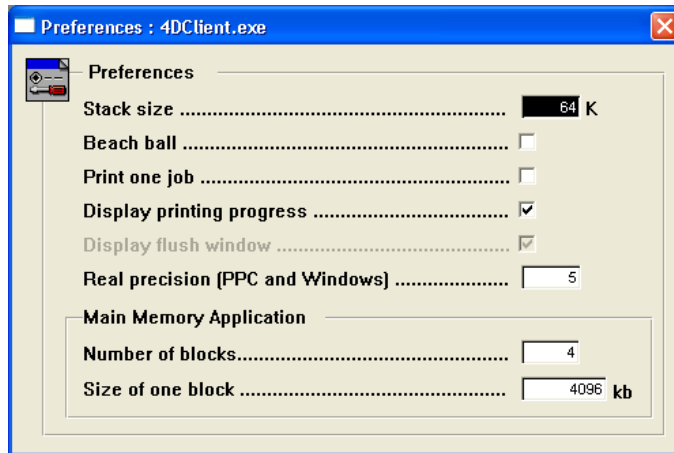
The main window can be hidden in the User and Custom menus environment (splash screen) by selecting Hide Window in the pop-up menu.

When hiding the main window, window management is done through programming.

Preferences

Customizable using: 4D single-user applications, 4D Client, structure files, and executables.

Usage: This parameter group allows modifying various options, such as stack size, beach ball appearance, choice of print display, etc.



Stack Size

This option allows you to specify how much memory is allocated to the stack when the program is launched. Each time you call a method from within a method (subroutine), all passed parameters, local variables, and 4th Dimension commands in the calling method are placed in the stack. Increasing this value will increase the number of method or form call levels that can be reached.

Note When this parameter is defined in a structure file, it is only taken into account when the structure file is used to create an executable. In this case, this parameter has priority over the same parameter set in the 4D Engine. This parameter's only purpose is the creation of an executable, its setting has no effect on structure file use.

The number of nested subroutines that can be called is limited only by the available space in the stack. If you receive "Stack is full" errors during method execution, you might consider increasing the stack size. It is recommended that you increment the stack size 4K at a time.

Beach Ball

- *Option selected:* the 4th Dimension application manages animation of a cursor that is displayed while the user waits for an action to be executed (beach ball under Windows, wheel under MacOS). You can visibly distinguish between action execution phases and rest phases. Once the cursor disappears, you are once again able to execute another action.
- *Option deselected:* the 4th Dimension application does not manage cursor animation; execution time is slightly faster. However, you will not be able to visibly distinguish execution periods from rest periods.

Print One Job

- *Option selected:* the 4th Dimension application blocks the export peripheral during PRINT SELECTION. Thus, should a document contain several pages, no page unfamiliar to the edited document can cut in. This option saves a considerable amount of time. However, the printer is not available to other users during edits.
- *Option deselected:* the 4th Dimension application does not block the export peripheral, document pages are printed one by one, printing may be slowed by another user.

Note It is advisable to disable this option when you are printing documents whose print time appears too long (amount of time from form method execution for each page to print) in reference to the TimeOut of the printer used.

Display Printing Progress

This option allows you to choose whether or not the progress dialog box is displayed during printing.

Display Flush Window

(4th Dimension and 4D Server applications only)

Once this parameter is selected, the 4D application will display a window once data has been flushed, in other words, once that data cache has been written to disk. This operation momentarily blocks user actions and the are visually notified that an operation is in progress.

-
- Notes*
- This parameter has immediate effect in a 4D application. If you cancel saving modifications in the open application, the modifications of this parameter are still saved.
 - If you copy the “Preferences” parameter group of a 4D application to another 4D application, the value of this parameter will not be recopied, the original value of the target file will be kept.
-

Real Precision**(PPC and Windows)**

This option allows you to set the number of insignificant digits (digits that will not be taken into account when a real number is displayed on the screen), starting from the right. By default, this value is set to 5 for Windows and PowerPC.

- **Display of real numbers**

Originally, 4th Dimension handled real numbers using the standard 10-byte data type provided by the operating system of 68K-based Macintoshes. Consequently, real values stored in the data file on disk are saved using this format. Since floating point arithmetic is performed under Windows using the 8 byte format, 4th Dimension internally converts the values from 10 bytes to 8 bytes, and vice versa. Therefore, if you load a record under Windows, and if the record contains real values that have been saved by a 68K based Macintosh, it is possible to lose some precision (from 19 to 15 significant digits).

Using 4D Customizer Plus version 6.7, you can set the number of digits to be skipped when simplifying the display of real numbers. The default settings are five digits under Windows and Power Macintosh.

Main memory application (Windows)

Definition: The main memory manages the memory allocation of: process stack, all the Structure elements (forms, methods, lists, etc.), variables, current selection, named selections, sets, plug-ins and transactions.

The amount of the Windows main memory equals the block size multiplied by the number of blocks.

Using Windows main memory: the memory blocks are dynamically allocated to the Windows main memory in relation to 4D's requirements.

4th Dimension allocates blocks of memory depending on its requirements. Also, you can set a number of memory blocks that will only be used in case of high activity.

This dynamic mechanism lets you avoid using virtual memory which would degrade drastically performance. It allows you to use simultaneously other Windows applications, leaving free memory for the system.

Settings

■ *Number of blocks*

This parameter allows you to set the maximum number of memory blocks that 4D is authorized to load when necessary. This parameter will not authorize any value less than 2.

■ *Size of a block*

This parameter allows defining the size of a memory block. The size of a block is set by default to 4096 KB.

Example: the main memory is made of 5 blocks of 1 MB each. A 2.5 MB picture variable will need 2 or 3 blocks according the free blocks in the previously loaded blocks.

In 4D applications (4D, 4D Client, 4D Server...) the main memory can be set in different type of files through different ways.

Each application can be customized directly or the settings can be stored in their related Preferences files. This can be done using the 4th Dimension Object Properties tab or 4D Customizer Plus.

Note If the main memory is set in both the Preferences file and the application, the information stored in the Preferences file will override the application settings.

■ How to customize the main memory in the Preferences file (Windows only)

4D applications store their preferences in the following Preferences file:

Applications	Windows Preferences file
4D, 4D Server, 4D Client, 4D Tools	4D Preferences 2003.RSR
4D Runtime, 4D Runtime Classic	4D Runtime Preferences 2003.RSR
Application merged with 4D Engine	4D Engine Preferences 2003.RSR

These Preferences files are located in your machine's active 4D folder (the location of the active 4D folder depends on your operating system— for a detailed information, refer to the 4D *Installation Guide* manual).

You can customize the main memory at the Preferences file level using either the 4th Dimension Object Properties dialog box or 4D Customizer Plus.

- If you set the main memory through the 4th Dimension Object Properties dialog box, the settings will be stored either in the Preferences file (if it does contain a memory resource), or in the application itself. Use 4D Customizer Plus to verify that the Preferences file contains a memory resource.
- If you set the main memory using 4D Customizer Plus, open the Preferences file from the target application (see table above), double-click the “Main Memory” icon and change the parameters. Even though the application has been already customized with 4D Customizer Plus, the settings stored in the Preferences file override the ones stored in the application itself.

IMPORTANT: If you customize the main memory in the Preferences file, the changes will be applied to all applications using this same Preferences file.

- How to customize the main memory in the application

To set the main memory in the application itself, you must make sure that there are no main memory settings already stored in the Preferences file (you can delete this file).

Then, open the application with 4D Customizer Plus, double-click the Preferences icon and set the main memory parameters.

Any changes made after on the main memory settings through the application Object Properties tab or through 4D Customizer Plus, will be stored in the application itself.

IMPORTANT: If you customize the main memory in the application itself, your settings will be lost with each new version of the product.

- How to customize the main memory in the structure

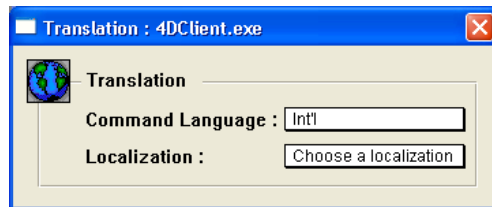
You can set the main memory in the structure file only in the case of a merged database with 4D Engine. The newly merged application will get the main memory settings from the structure file of the database. However, if later on the main memory also happens to be set in the Preferences file “4D Engine Preferences 2003.RSR”, these settings will override the application settings.

Translation

This parameter group is available for 4D applications.

Note This parameter group is not available for executables (structure + 4D Engine), but can be set in 4D Engine before the integration. The 4D Engine settings will apply to the executable.

Use the Translation dialog box to select the language that will be used for 4th Dimension commands and functions and for 4th Dimension itself. You may choose different languages for each. The language choices are limited to those included in the Customizer file.



- **Command language:** Determines the language used for 4th Dimension commands and functions in the various 4D application editors (for example, the Method editor, query by formula, etc.). Modifying this option causes the command sort table to be rebuilt when the customized 4D application is launched.
- **Localization:** Selecting a new system allows localizing the open 4D application.

Localizing causes a 4D application resource list to be replaced by the resources of the selected system. These resources are saved in the 4D kernel. They include System localization conventions (also called filters) that is, formats of numbers, dates, and money as well as stylesheets, fonts, etc.

Resource lists vary from system to system. You must, between two successive localizations, systematically apply international resources (Int'l) to your 4D application, which contains the most complete resources.

Note For structural reasons, you cannot copy a customized “Translation” parameter group from a 4D application to another 4D application.

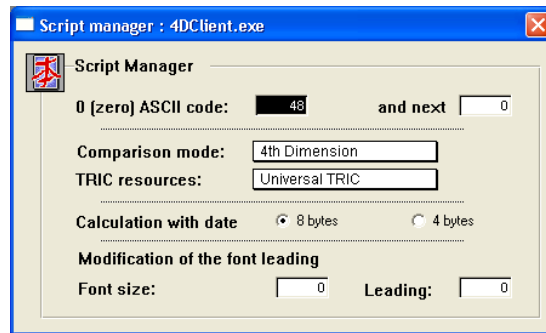
The Localization pop-up displays the default value, “Choose a localization”, even though you have specified a specific country.

Note Under MacOS, the Localization settings are applied under both MacOS 9.x and Mac OS X environments.

Script Manager

Customizable using: 4D applications and executables.

Usage: Script Manager manages writing non-roman characters (Japanese, Arabic, etc.). If you use 4th Dimension under Script Manager, you may need to modify certain parameters present in this window:



- **0 (Zero) ASCII code:** Specifies the ASCII code value of the character representing zero. The default value for the U.S. system is 48. This character can be different for other systems such as Arabic.
- **...and next:** The value of the next byte after zero. This parameter is used only if you are localizing for Arabic or Hebrew systems. In all other cases, set this parameter to 0.
- **Comparison mode:** Select whether or not accented characters will be considered as separate from non-accented ones in searches or sorts.
 - *4th Dimension:* uses the TRIC resource or, by default, the TRI# resource.
 - *System:* uses comparison routines and puts the ROM in capital letters (ignores the TRIC resource).
 - *German for V2.2:* comparison method used in German with dispositions for the “ß” character.
 - *Turkish:* comparison method used in Turkish.

- **TRIC resources:** The TRIC resource is present by default. Sorts are based on a table proposed by 4th Dimension (“e”, “é”, “è”, “ê”, “ê” are sorted separately; however, querying “é” will query “e”). This table varies depending on the language (special characters...). Once the TRIC resource is deleted, 4th Dimension rebuilds this table upon next launch.

Note Modifying TRIC resources causes 4D sort tables to be rebuilt and you databases to be automatically re-indexed.

- **Calculation with dates:** These radio buttons control how date calculations are performed. In the case of Farsi calendars, the calculation uses 4 bytes. In all other cases, 8 bytes are needed.
- **Modification of the font leading:** These parameters allow you to modify the font leading in relation to the font size for countries that use uppercase letters with accents, such as Sweden and other Scandinavian countries. It enables the accent to be printed correctly (Å, Ä, Ö).
For example, with a Swedish system, for a font between 0 and 6 points, the font leading will be raised 2 points. In the future, for each additional 6 point interval, the font leading will be raised 2 points.

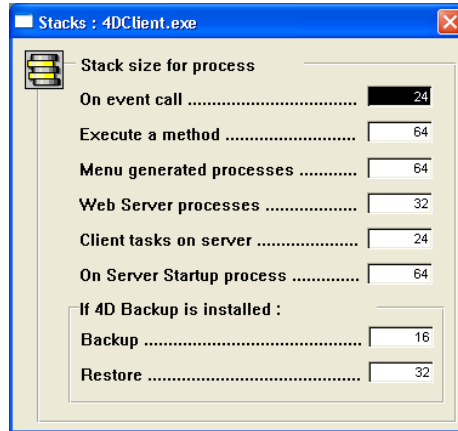
Note Modifying these parameters requires all fields to be resized.

These parameters must remain at 0 for the French and American versions.

Stacks

Customizable using: 4D applications.

Usage: this parameter group lets you modify the stack size for each of the eight processes present in a 4D application.



Note This parameter group cannot be set for an executable (structure + 4D Engine), but can be set in the 4D Engine before the merge. Its options will then be taken into account for the executable. Default values correspond to standard 4th Dimension usage. It is up to you to modify them according to your application. For more information on processes, refer to the 4th Dimension documentation.

- On event call: Event process.
- Execute a method: Process created when a method is executed and the New process box is selected.
- Menu generated process: Process associated with a menu command.
- Web server processes: Web server management process.
- Client tasks on server: Client processes on the server. This option is used to define the stack size for a client process on the server. It can also be used to define the stack default size of a stored procedure launched on the server by a client.
- On Server Startup process: On Server Startup Database Method management process.
- If 4D Backup is installed: Backup/Restore: Process created when using 4D Backup, the 4th Dimension backup plug-in.

Conversions

Customizable using: 4D applications and executables.

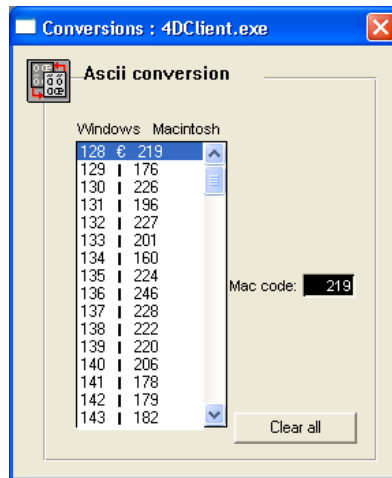
Usage: this parameter group allows you to adapt internal ASCII conversion tables of 4D applications to particular Windows systems.

For compatibility between Macintosh and Windows platforms, 4D applications still use the Macintosh ASCII table internally.

The Conversions parameter group allows you to adapt 4D internal conversion tables (based on an ANSI conversion) to a Windows system that uses another ASCII table (for example, the Greek version of Windows).

This parameter group is not created by default (the icon is dimmed). To create it, double-click the icon.

The following screen will appear:



- ▶ To change the equivalence of an ASCII code:
 - 1 Select the line you want to modify.
The current code is then displayed in the entry area—Windows code on the Macintosh, Macintosh code under Windows.
 - 2 Enter the new equivalence in this area.
The new equivalence will be taken into account when you select a new line.
You can set all the ASCII codes to zero by clicking the Clear all button.

When an ASCII code is set to zero and you close this parameter group, it will automatically be set to its standard equivalence (128 - 128) if that equivalence is not already used.

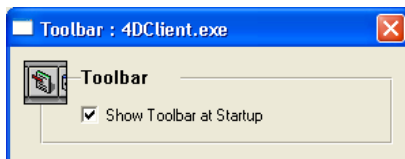
Note This parameter group is automatically created or replaced when the Localization parameter of the Translation parameter group is modified.

Toolbar

Customizable using: 4D applications (except 4D Server) and executables.

Usage: this parameter group allows you to define whether or not the toolbar is displayed when your 4th Dimension application is started.

This parameter group is not created by default (the icon is dimmed). To create it, double-click the icon. The following screen appears:



This setting takes effect only when your 4th Dimension is started. You can modify the toolbar display using the 4D language or the 4th Dimension Preferences dialog box.

Memory

Customizable using (MacOS only): 4D single-user applications, 4D Server and executables.

Usage: this parameter group allows you to optimize allocated memory management to 4D applications, up to 1 GB.

This parameter group has no effect once you enable the Use new memory allocation scheme in the Properties group of a structure file.

Note The Kernel memory setting is also called Main memory in other sections.

4D memory management under MacOS

Memory is divided into two parts when a database is opened.

The first part is allocated to the 4th Dimension kernel and is used to load code segments, variables, method, forms, as well as the current record. This part of the memory is necessary to 4th Dimension's functioning. This is the program kernel, or the Kernel memory.

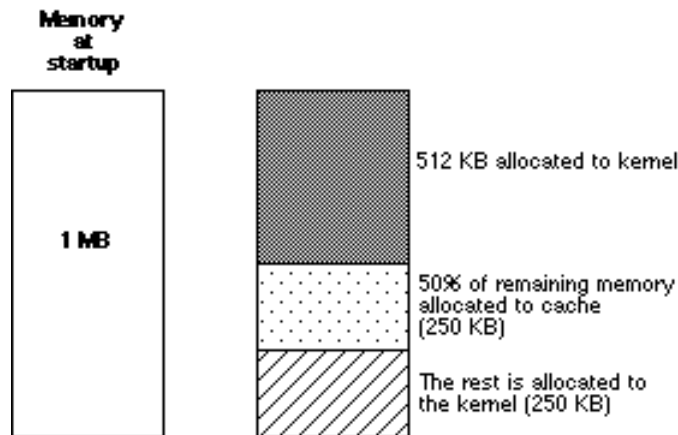
The second part of the memory is allocated to the 4th Dimension Cache memory. The cache memory allows keeping often used information in memory.

The cache memory keeps, when it is possible, record address tables, the records themselves, and the index tables. The efficiency of the cache memory is clear: for a file of 40,000 records containing an alphanumeric index, the first sort is executed in 20 seconds, the records having been loaded from disk. When you execute a second sort, it will take no more than 6 seconds.

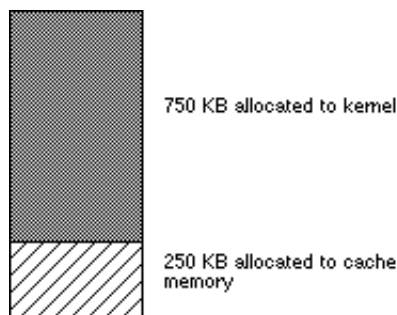
By default, 4th Dimension memory allocations are set in the following manner:

- 512 KB of memory is saved for the kernel memory.
- the rest of the memory allocated for 4th Dimension is separated in half: 50% is configured in cache memory. The remaining 50% is added to the 512 KB of reserved kernel memory.

For 1 MB of memory allocated to 4th Dimension, the configuration is as follows:



This configuration gives the following partition:



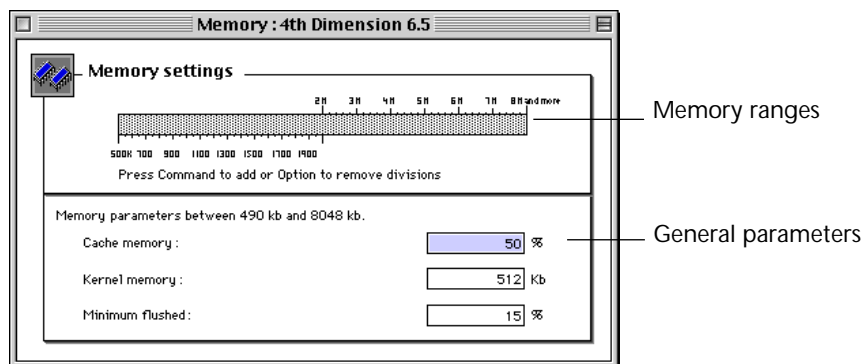
The choice of memory parameters must depend on the database used:

- If you have little memory and you use a large number of color pictures, you risk saturating the memory. You should reduce the amount of memory allocated to the cache.
- If you use records containing a large number of fields, subrecords, text fields, the size of a record may surpass the amount of memory available.
- If you have a large amount of memory for a database that does not contain pictures or cumbersome records, the standard parameters will most likely not be adapted.

In this case, you may increase the percentage of memory allocated to the cache memory. The cache memory will accelerate the functioning of your database.

Setting the cache memory

To set memory parameters, double-click the Memory icon. The following window is displayed:



The window is composed of two independent parts: an area defining general memory parameters and an area where you can define memory ranges.

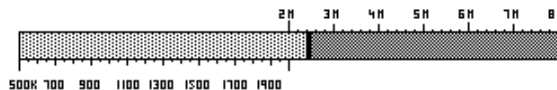
- **Cache memory (lower portion of the window):**
Determines the percentage of memory used for the data cache after the 4th Dimension kernel has been loaded. The minimum cache size is 16 percent and the maximum is 100 percent.
- **Kernel memory:**
This option sets the minimum amount of memory reserved for use by 4th Dimension's kernel routines. Increasing this can improve performance by reducing kernel segment swapping.

Reducing this parameter below 512K could result in severely reduced 4th Dimension performance.

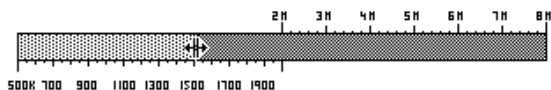
- **Minimum flushed:**
This parameter determines the minimum amount of data flushed from the data cache when it is full. Decreasing this amount causes more frequent but shorter interruptions to flush its cache. Increasing this amount causes less frequent but longer interruptions.
- **Memory Ranges:**
By default, 4th Dimension functions using the above settings. However, you can establish different parameter settings for different ranges of memory. For example, one set of parameters might be in effect if 4th Dimension is running with less than 8,000 KB of memory and set another memory configuration when 4th Dimension uses more than 8,000 KB.

The diagram displayed in the upper portion of the dialog box provides a scale with values from 500 KB to 8 MB and beyond.

To set a range, press the Command key and place the mouse pointer over the memory scale. The cursor changes into a pair of scissors. Once you click, a line is displayed that splits the memory scale into two ranges.



Additional ranges can be set to precisely adjust memory parameters depending on the memory allocated to 4D.



The range that has the light gray fill pattern is the selected range. The memory parameters shown in the lower portion of the Memory Settings dialog box apply to the selected range.

Once you have establish memory ranges, you can easily adjust their size: place the mouse pointer over the line of separation, click and move the marker. When you release the mouse button, the line is positioned in its new location.

To delete a partition, place the mouse pointer over the line of separation while holding the **Option** key. The cursor is changed into a "X". Clicking while holding the **Option** key deletes the partition.

Note If you have more than 8 MB of RAM available, the parameters defined for the higher range will apply the maximum memory (limited to 1 GB).

5

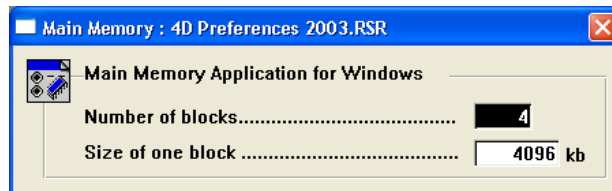
Customizing a Preferences File

The preference file customizing window (under Windows only) contains a single icon. It allows globally customizing usage of a 4D application, or an executable, on a machine.

Main Memory

Customizable using: 4D application preference files under Windows only.

Usage: this area allows you to set the amount of main memory to allocate to a 4D application once your database has been executed under Windows.

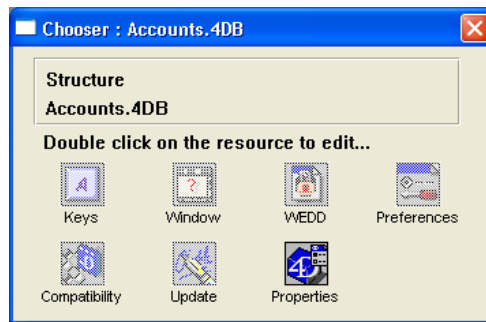


For more information, refer to [the paragraph](#) “Main memory application (Windows)” on page 25.

6

Customizing a Database

The database structure file customizing window contains seven icons.



The data file customizing window contains a single icon.

The parameter groups are:

- **Keys:** Allows you to modify the default keyboard shortcuts to accept, cancel, modify, and add records.
- **Window:** Controls the location and dimensions of the main window in the Custom Menus and User environments.
- **Preferences:** Allows you to modify the main process stack size, the appearance of the beach ball, the choice of the impression mode, and the real precision.
- **WEDD:** Allows you to associate a data file to a structure file.
- **Compatibility:** Allows you to keep the operating mode of some 4th Dimension V4 commands while using a 4th Dimension V5 or V6 application.
- **Update:** In client/server mode, enables you to trigger the update of the ".res" file when resources have been updated in the structure file.

- **Properties:** Allows modifying certain parameters accessible in the Preferences window of a 4th Dimension database (platform interface, cache memory, scheduler, TCP port for Web server).

The Keys, Window, Preferences parameter groups are not created by default (the icon is dimmed) when a structure file is opened.

The WEDD parameter group is not created by default (the icon is dimmed) when a structure file or data file is opened.

Customizing a Structure File

Keys, Window, and Preferences

The settings of the Keys and Window parameter groups in a structure file take priority over 4D applications settings.

The parameter settings of the Preferences group in a structure file do not systematically take priority over the 4D applications settings. Stack size and Windows main memory will only be used for merging with a 4D Engine.

For more information on these parameters, refer to the Keys, Window, and Preferences sections in the chapter “Customizing 4D Applications” on page 19.

WEDD

Customizable using: structure files, data files, and executables.

Usage: the WEDD parameter allows you to associate a structure file with a data file.

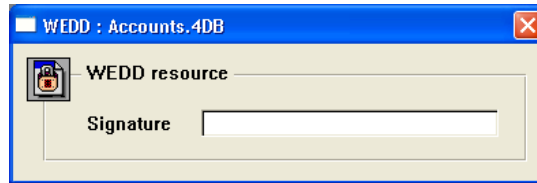
A structure file containing a WEDD parameter can only be opened with a data file containing an identical WEDD parameter and *vice versa*.

As such, you can forbid use of an outdated or incompatible data file. By default, this parameter is not set in structure and data files.

Here are several examples of use:

- **Old data:** You are maintaining old data files for archival purposes and do not want someone to access these files accidentally.
- **Old Structure:** You have modified the structure of your database (added fields or files) and want to prevent someone with an old structure file from accessing your data file.

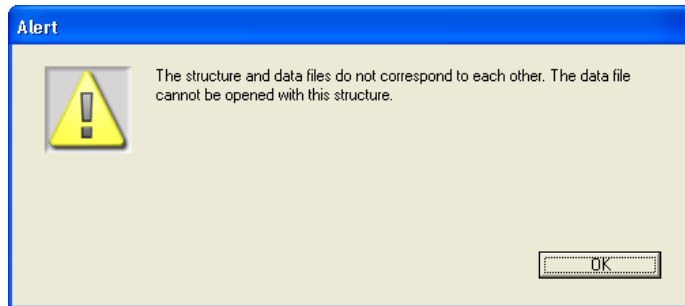
- **Multiple Databases:** You are working with several different databases and want to ensure that you do not accidentally open a data file that does not belong to a particular structure.
- ▶ To set a WEDD parameter value:
 - 1 Double-click the WEDD icon.
 - 2 Enter the desired value in the “Signature” area.



You can enter any type of value.

- 3 Close the window.

Once you try to open a data file that does not have the same signature as the structure file, the following message appears:



Compatibility

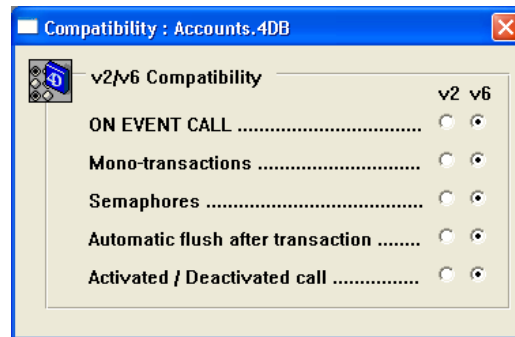
Customizable using: structure files and executables.

Usage: this parameter group allows you to use a structure file created in 4th Dimension version 4 with 4th Dimension version 6. Certain specific version 4 functions are kept; you can progressively migrate version 4 or version 6 functions as required by changes made in your programming.

The behavior of certain routines has changed between version 4 and version 6 of 4th Dimension. 4th Dimension version 4 worked exclusively on the Macintosh platform. This resource only concerns Macintosh version 4 databases converted to version 6. The Compatibility resource allows you to set these routines in such a way that you can determine how they are to be used. For example, you can opt to keep the version 4 environment for an element of a version 6 database during testing. 4th Dimension version 6 will simulate version 4 for this element.

Note This feature, although kept for compatibility reasons, is highly discouraged. We recommend that you adapt your databases so that they benefit from the current version 4D and its functions. This group of parameters will be deleted in future versions of the program.

Once you double-click the Compatibility icon, the following window appears:



Note By default, the radio buttons are set to the V4 option in a converted database.

■ ON EVENT CALL

In 4D version 4, the notion of an interprocess variable does not exist. If you request V4 compatibility, 4D will then, once the structure is used, share old global variables of your event management process with the main process.

In version 6, the event management processes are completely separated, which requires using interprocess variables so that there can be communication between the process that manages the event and the process from where the event came.

- **Mono-transactions**

In the version 4 option, not passing a parameter to the START TRANSACTION command locks access to data.

In the version 6 option, access to data is no locked to other uses in these conditions. We would advise using this option if you wish to make your applications evolve.

- **Semaphores**

In the version 4 option, a semaphore is bound by the following rules:

- a semaphore set to TRUE in a process is TRUE for this process and for all other processes.
- a semaphore set to TRUE in a process can be cleared by any other process.

In the version 6 option, the semaphore is bound by the following rules:

- once a semaphore is set to TRUE by a process, it will always return FALSE for that process.
- a semaphore set to TRUE by a process can only be cleared by that process.

- **Automatic flush after transaction**

In the version 4 option, a flush to disk is automatically executed at the end of a transaction. In the version 6 option, the cache is not automatically flushed to disk at the end of a transaction.

- **Activated/Deactivated**

In the version 4 option, activation cycles are not called. In the version 6 option, the Activated and Deactivated cycles are available.

Update

Customizable using: structure files.

Usage: this parameter allows you to trigger the update of the “.res” file located in the 4D folder of the client machine, when the client connects to the server.

Note The “MyBase.res” file contains a copy of resources of the structure file saved on the server (STR#, PICT).

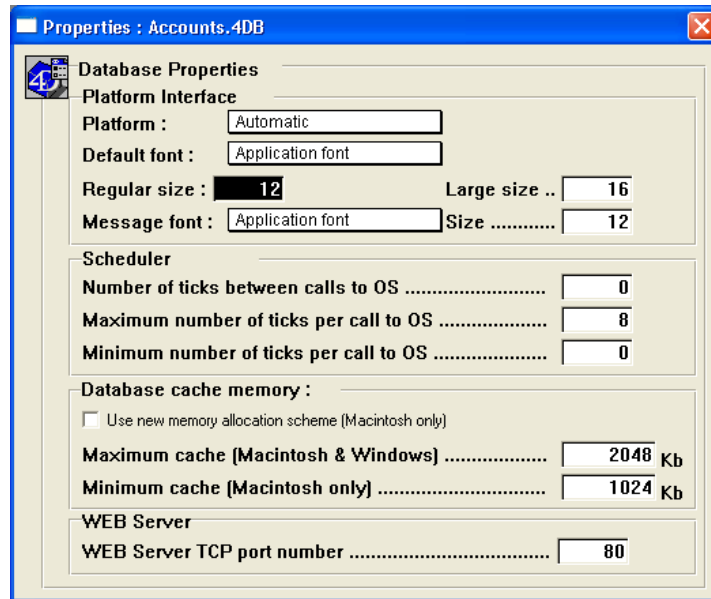
Depending on if the structure file was created by 4th Dimension, 4D Server, or even modified with 4D Insider, the Update resource icon, is activated or not.

This parameter modifies the value of the 4D4D resource saved in the structure file. During the first connection of 4D Client, the MyBase.res file is created in the 4D directory of the client machine. At each connection, 4D Client makes sure that these two resources are identical; if they are not, it triggers the update of the MyBase.res file.

Properties

Customizable using: structure files and executables.

Usage: this parameter group allows you to customize some of the preferences that are also available in the 4th Dimension or 4D Client Preferences dialog box in the Design environment.



Platform Interface

- **Platform:** this option allows you to modify the appearance of all forms of the structure file used. The selected platform interface only affects the manner in which the forms or objects are displayed on the screen.

Note You can also separately set the interface for each form or form object. For more information, refer to the “Customize form object appearance”, “Set platform interface”, and “Platform appearance and interface” paragraphs in the 4th Dimension *Design Reference* manual.

- **Default font:** this option allows you to set the font used in the structure as well as in the keyword area in the Method editor.

- **Message Font and font size:** these parameters allow you to specify the font and font size of characters used for messages.

Scheduler

This area allows you to modify the number of ticks between two calls from 4th Dimension to the operating system while running your database in interpreted mode.

Note For a detailed description of this parameter, refer to the *4D Design Mode* manual.

Cache Memory

These parameters allows you to define the allocated memory to the database cache memory, in other words, to the memory load of information concerning data files: records, record address tables and index tables. This information is progressively loaded into the cache memory as it is used.

Cache memory is an optimization element that allows the application to keep data that is frequently used in RAM. Access to information in cache memory is much faster than if the application had to access the disk.

For example, for a table containing 40,000 records containing an alphanumeric index, the first sort would take 20 seconds as the records would have to be loaded from disk. A second sort would only take 6 seconds.

- **Use the new memory allocation scheme under Macintosh:**
If this option is selected, 4D uses the memory allocated to the application to manage the main memory¹. Database cache memory then uses the available memory of the system (also called multi-finder memory).

If this option is not selected, 4D assigns parts of the memory allocated to it (cf. Read information) to the database cache memory and to the main memory. The re-partition between the two will be done using the Memory group parameter. The maximum cache and minimum cache values are not taken into account.

1. **Main memory:** refer to the section “Main memory application (Windows)” on page 25.

- **Maximum Cache and Minimum Cache (Macintosh):**
These parameters are used when the “Use new memory allocation scheme (Macintosh only)” option is selected. When opening the database, 4D tries to allocate a memory block of a size that corresponds to Maximum Cache value. If the available memory is insufficient, 4D will try values between the maximum cache and minimum cache values until it finds a cache size that matches the available space. If there is not enough system memory, 4th Dimension then uses a part of its allocated memory.
- **Maximum Cache (under Windows):** this parameter is used to set the cache memory allocated to a 4D application under Windows.

Note The entered values are rounded to the closest smaller 16 KB multiple.

If you have little live memory, you must set the cache memory and the main memory depending on database characteristics. The priorities should be:

- the cache memory for a simple structure file and a data file containing many records.
- the main memory for a complex structure file (many methods and forms).

Web Server

Web server TCP Port number: this parameter allows you to set the TCP port number that will be used when the database is published as a Web server. The default value is 80.

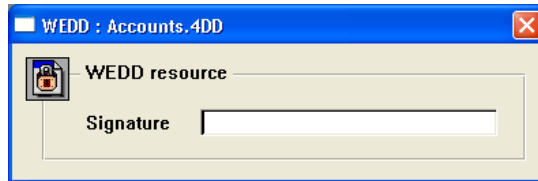
This parameter is useful for running several Web servers on the same machine. To do so, select different TCP ports for each Web server. This option also allows you to have the OS manage Web services on port 80, while 4th Dimension publishes a database using another port.

Customizing a Data File

WEDD

Customizable using: structure files, data files and executables.

Usage: this parameter group allows to lock assigning of a data file to a specific structure file, by forbidding the use of an outdated or incompatible data file.



The WEDD parameter group does not exist by default in a data file.

For more information, refer to the section "WEDD" on page 42.

7

Customizing the TCP Network Component

Preferences

This parameter group allows you to increase security of your data and to set access for exchanges between 4D Server and 4D Client based on the TCP/IP communication protocol.

By default, the TCP network components' preference file is placed in the active 4D folder of your computer. The actual location of the active 4D folder depends on your operating system. For a detailed information, refer to the *4D Installation Guide* manual.

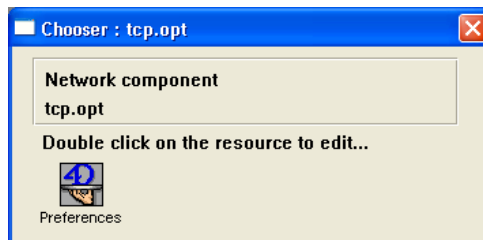
The TCP network components' preference file is named `tcp.opt`.

Note Upon launch, 4D Server and 4D Client verify that the preference file of the TCP network component exists:

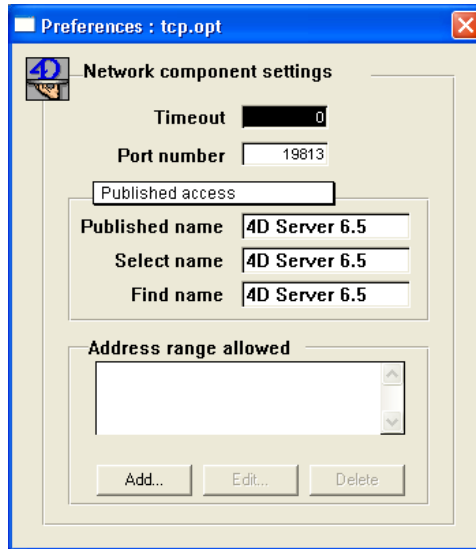
- (1) in the active 4D folder or
- (2) in the 4D application folder.

If this file does not exist, it is created in the active 4D folder.

The customized TCP network component dialog box only contains one parameter group:



When you double-click on the Preferences icon, the following dialog box is displayed:



Timeout

This parameter allows setting a period after which disconnection will be automatic if the server has not received a response from the client or vice versa. This time limit is expressed in seconds. By default, the value is set to 0 seconds: automatic disconnection is disabled. The Timeout value of the server must always be equal or greater than that of the client.

Note This option is taken into account only if you have selected the “Close Client Connection after XX mn if no response” in the 4D Preferences dialog box.

Port Number

The TCP port number must be specified, for the server as well as for the client. The client must have the same port number as the server to which it is connected.

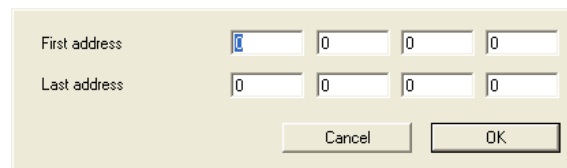
If you want to use several 4D applications on the same machine with the TCP protocol, you must associate a .OPT file and specify a different port number for each application. The original .OPT file must be removed from the active 4D folder of the machine and recopied in the folder of each application.

Publication	This menu allows you to set the connection option for client and server.
Manual access	<p>If this option is selected:</p> <ul style="list-style-type: none">■ For 4D Client, the 4D Server connection dialog box will not display the list of published servers. However, the user will still be able to enter the address of the server.■ For 4D Server, the server will not be published on the network.
Published access	<p>If this option is selected:</p> <ul style="list-style-type: none">■ For 4D Client, the 4D Server connection dialog box will display the list of published servers.■ For 4D Server, the server will be published on the network.
Published only	<p>If this option is selected:</p> <ul style="list-style-type: none">■ For 4D Client, the 4D Server connection dialog box will only authorize the selection of published servers. <p>For 4D Server, the server will be published on the network.</p>
Publish/Select/Find name	<p>These enterable areas allow you to modify the following parameters:</p> <ul style="list-style-type: none">■ Published name: this parameter, used by 4D Server, is used as a dynamic published named.■ Select name: this setting, used by 4D Client, corresponds to the published name of the server that 4D Client will display in the 4D Server connection window.■ Find name: when you use a pathname file to connect, and the server changed the published name, simply specify in this area the name of the publication of the server to which you are trying to connect. This name must be identical to the name of the pathname file.

Address range allowed The address range entry area allows you to set client address ranges for whom the connection will be allowed. Any client whose address appears within these ranges will be allowed to connect:



- ▶ To add an address range, check the **Add** box. The following dialog box will appear:



Enter the four numbers composing the first address of your TCP address range, enter those for the second and then click **OK**. The range will appear in the list area of the dialog box.

- ▶ To modify a range, select it from the list then check the **Edit...** box.
- ▶ To delete a range, select it from the list then check the **Delete** box.

Note If no range has been set (default option), all addressed are authorized.
