

4D View: A Technical Overview



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4D View: Technical overview*

INTRODUCTION

4D View is a plug-in written for 4th Dimension and 4D Server. It is one of the productivity enhancement modules that provide developers with all the tools required for the development of their professional applications. 4D View offers the flexibility of a spreadsheet as well as a complete set of data display tools that enable, for instance, the programming of a dynamic input interface. 4D View is integrated within the 4th Dimension environment and interacts with the data in your database. This enables you to take full advantage of the power offered by the 4th Dimension interface while at the same time providing access to the specific functions of an advanced spreadsheet.

More than just a spreadsheet

A spreadsheet is an application that provides a grid of cells in which you can enter information, perform calculations, or display images. Within your 4th Dimension database, 4D View gives you the conventional features of a spreadsheet including the abilities to perform calculations, simulations, projections, analyses, and presentations specific to all types of spreadsheets.

Example: For payroll management, the database can hold the identity, address, and salary of a person, and the salary, with the associated sheet calculating the pay and various deductions. The end user is able to adapt the calculation sheet model to take into account changes in legislation.

A powerful data viewer tool

4D View is a data viewer plug-in, meaning that it has a range of advanced features that enable your data to be displayed in a variety of forms. 4D View extends the possibilities offered by the 4th Dimension list mode, as well as the included areas. This means that you can dynamically vary the data being displayed, use separating panes, or present multi-line texts in the same cell. With 4D View you can achieve a high quality interface, requiring only a limited amount of development time.

Example: With a loan calculation form, a drop-down list allows the length of the loan to be selected. An input area associated with a field in the database enables you to enter the amount, and the calculation formulas then give you the result.

Programming dynamic input interfaces

You can integrate into the 4D View documents a number of controls (buttons, check boxes, etc.) associated with variables, methods, or data from the database (display fields, add images, etc.).

* You are a 4D Calc and Area List Pro developer? Please refer to the technical document: **Migrating to 4D View** at <http://www.4d.com/products/4dview.html>.

I. 4D VIEW IN MORE DETAIL

1. A powerful spreadsheet

The bi-dimensional configuration of 4D View (i.e. a set of columns and lines) integrates into any of your 4D databases and allows you to create reports or to make rapid calculations. Formulas containing references to specific cells can be used for these calculations. If the data changes, the calculations are updated.

4D View allows you to enrich your calculation sheet with images and borders, and through the use of style sheets (different character fonts, colors, etc.). With these features, your presentations will become even more effective and professional. You can make use of the conventional functions of a spreadsheet to personalize your printing (page headers and footers, inserting the date and time, page numbers, etc.). In addition, parameters can be set for the repetition of lines and columns for printing.

	A	B	C	D	E	F	G
1							
2		Event Name	Last Name	Reference	Val		
3							
4		Nelly	ALP	AL01	50		
5				AL02	20		
6				AL03	150		
7				AL04	70		
8				AL05	100		
9		Mary	SMITH	AL01	20		
10				AL02	10		
11				AL03	200		
12				AL04	500		
13				AL05	100		
14		Jean	BAK	AL01	80		
15				AL02	50		
16				AL03	100		
17				AL04	200		
18				AL05	100		
19		Carly	WILSON	AL01	20		
20				AL02	10		
21				AL03	100		
22				AL04	100		
23				AL05	100		
24							
25							
26							
27							
28							
29							
30							

Presentation of a 4D View area.

2. A data viewer tool

4D View offers you a powerful list editor, which enables the insertion of scrolling areas into 4th Dimension forms, with no limit on the number of records. You can even associate a calculation sheet with each record in your database: the data of the sheet will be updated at the same time as the recording, thus minimizing risks of errors and saving you time.

Since the calculation sheet acts as a multiple field, you can insert as much data as you want. If you want to use the same document for several calculation sheets, all you have to do is create a model – with text, formulas or images – which will then be used for the application of the same calculations on each record in the database.

4D View can also be used in an external window as an independent application, while maintaining access to the 4th Dimension database. You can insert information from the database and use a formula to summarize it.

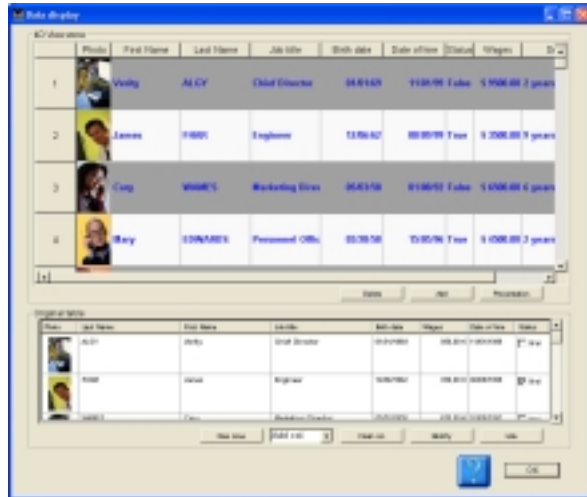






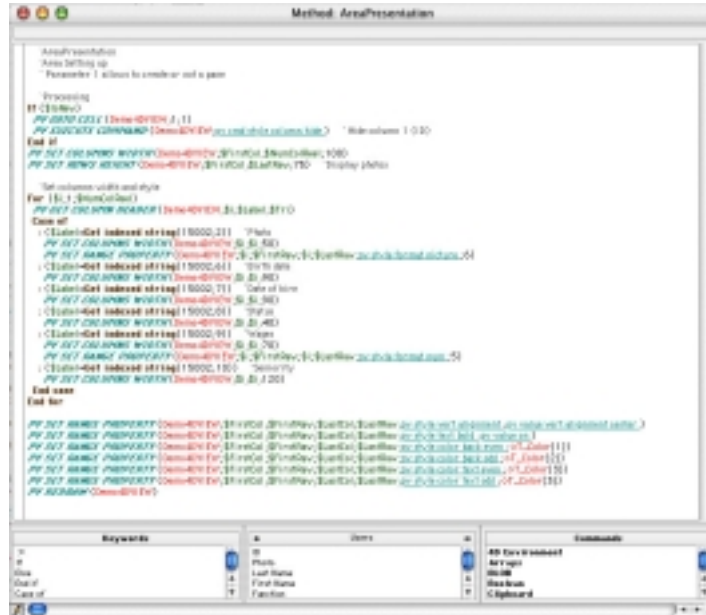
Photo	First Name	Last Name	Job title	Birth date	Date of hire	Salary	Wages
	Vicky	Al Cyr	Chief Executive	04/01/67	11/01/98	12000.00	2 years
	James	1980	Engineer	11/06/62	08/01/98	7000.00	3 years
	Craig	WIMBLS	Marketing Exec	05/01/58	01/06/92	6500.00	4 years
	Mary	12345678	Personnel Off.	03/08/50	03/05/96	5000.00	3 years

Data display in a 4D View area.

3. A comprehensive language

Through the programming language of 4D View, you can control the actions of menus, change cell styles or formulas, act in the selection, or even disable parts of the interfacing for specific uses. You can directly modify the content of your lists by making changes directly in the 4D View list or area, or by using drop-down menus, with complete control over the data input. The operations are fast and the control objects (scroll bars, buttons, etc.) comply with the interface. The data can be transferred to 4D View using the 4th Dimension arrays or the field numbers. The language allows you to use the horizontal scroll bars, automatic resizing and formatting of columns, copying to the Clipboard, drag and drop, etc. Combined with the interface capability and functional power of 4th Dimension, the 4D View programming language allows to manage fully personalized calculation sheets and gives you total control of areas and documents (menus, display, related data, etc.).

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Method editor presenting 4D View code.

4. 4D View and 4th Dimension

4D View directly processes the information held in your database, with no re-entry of data necessary. You can define a dynamic link between the arrays or fields of 4th Dimension and 4D View. 4D View allows, without any programming, the establishing of a connection between a cell and a field or a variable, or between a column and a field or an array. Once this connection has been declared, there is interdependence between the cell or the column and the field, and the variable or the array. During the creation of the link, the current selection has an influence on the cells: when you refer to the values held in the database, you can save a great deal of time as any change in this database is immediately sent to your calculation sheet and vice versa. You can create applications that will perform calculations, budget forecasts, or simulations.

The interactions between 4th Dimension and 4D View are not, however, restricted to data: 4D View can handle all 4th Dimension commands, functions, and methods.

5. Objects accessible through programming

A complete set of commands and constants answers all of your professional development expectations. The commands enable you to:

- Manipulate cells, columns, and lines in any way you choose.
- Control the drag-and-drop within a single 4D View area or between two 4D View areas.
- Intercept the various types of events detected by a 4D View area.
- Construct your own error manager.
- Manage the 4D View commands accessible from menus or palettes, etc.

In addition, 4D View adds routines to the 4th Dimension language that allow you to automate certain manual tasks. By means of the 4D View commands, you can:

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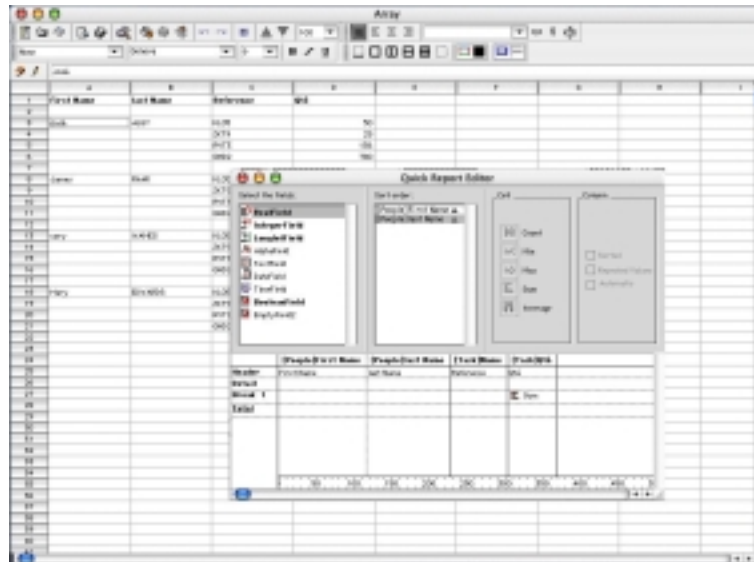
- Open and save documents.
- Define document page headers and footers.
- Set the display and input attributes.
- Work with calculation formulas, images, fields, etc.

Finally, you can view, from a method, the status of a menu or a command.

The flexibility offered by 4D View lets you work on large volumes of data as the memory required for the work is dynamically allocated and only the data to display is loaded to the memory.

II. 4D VIEW FEATURES OVERVIEW

1. A callback option on events, errors, commands, and control by calling 4D methods: This mechanism enables you to execute 4D methods whenever certain events occur, for instance, when a right or left click occurs, or upon data input, validation, loading the cell, cancellation, etc. You can react to the actions of a user by memorizing the layout and the width of columns and the sort orders, and then creating a form that is identical every time it is used.



Result of a Quick Report Editor request in a 4D View area.

2. Direct link with the 4th Dimension Quick Report Editor: In a 4D View area you can view the results of a request entered in the 4th Dimension Quick Report Editor.

3. Separation between windows and panes: To enable you to view several parts of the same document on your screen, you can, by means of a simple drag-and-drop, vertically and/or horizontally divide the spreadsheet area into several sub-windows. The number of panes is unlimited. Use this function when you wish to simultaneously enter, modify, or view parts of the spreadsheet located in different locations within the same 4D View document.

4. Dynamic links between the database and cells: You can link as many columns and lines as you want.

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- Possibility of locking access to 4D variables, commands and methods, and much more!

III. COMPATIBILITY AND CERTIFICATION OF 4D VIEW WITH THE 4D PRODUCT LINE:

4D View 6.8 works as of 4D version 6.8.

For details of the printers, refer to the 4D certification grid.

Mac

Certified Mac OS 9.1, 9.2.x, 10.1 and above

Compatible: Mac OS 9, 9.2

PC

Certified Windows 98 SE, 2000, Me, XP

Compatible: 98, NT4 SP6