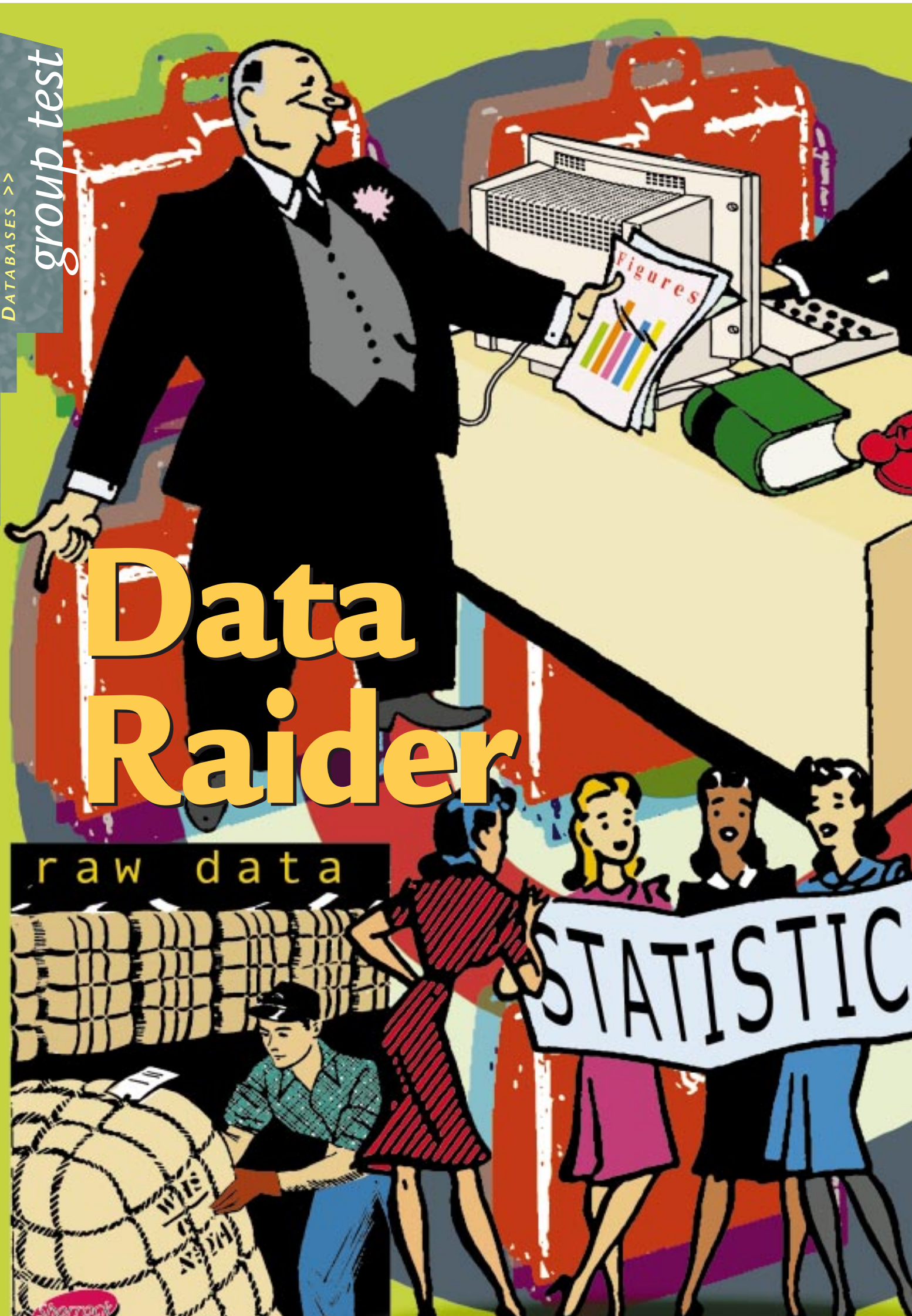
# Data Raider




## What's the best data manager for your needs? Tim Anderson gets to grips with the leading contenders in the Windows database market.

Everyone needs to manage data, whether it is an address book, a CD collection, or the invoices, stock and order records that are essential to running a business. Even entry-level PCs can handle huge amounts of data but choosing the right software to manage it is tricky. This group test looks at the main contenders in the Windows database market. It is an area dominated by Microsoft Access, thanks to the commanding market share of Office.

**The database world** is changing, though, and the use of all-purpose Windows databases is diminishing. A typical PC will access addresses and contact information through a PIM (personal information manager), a contact manager, or a Groupware product like Lotus Notes, Novell GroupWise or Microsoft Exchange. Corporate data is likely to be on a server running software from the likes of IBM and Oracle. For both home and business users, sharing data on the web has become important, using both the internet and local intranets. The ability to connect to diverse sources of data and to share your own data with others, is more important than ever. All this means that today's database manager must be truly flexible; able to operate in the old way as an all-in-one solution, or to fit in as a component in a wider data-management strategy.

**We have looked at** all the aspects, including form design, programmability, integration with other applications such as word processors and spreadsheets, and web features. Ease of use is another factor, particularly as relational database managers are notoriously difficult for novice users. The packages vary in how far you can get without programming, which is an important point for those who, reasonably enough, do not want to become IT specialists merely to manage their club's membership records. The key is to find the right match between the task, the tools, and the skills available.

## Contents



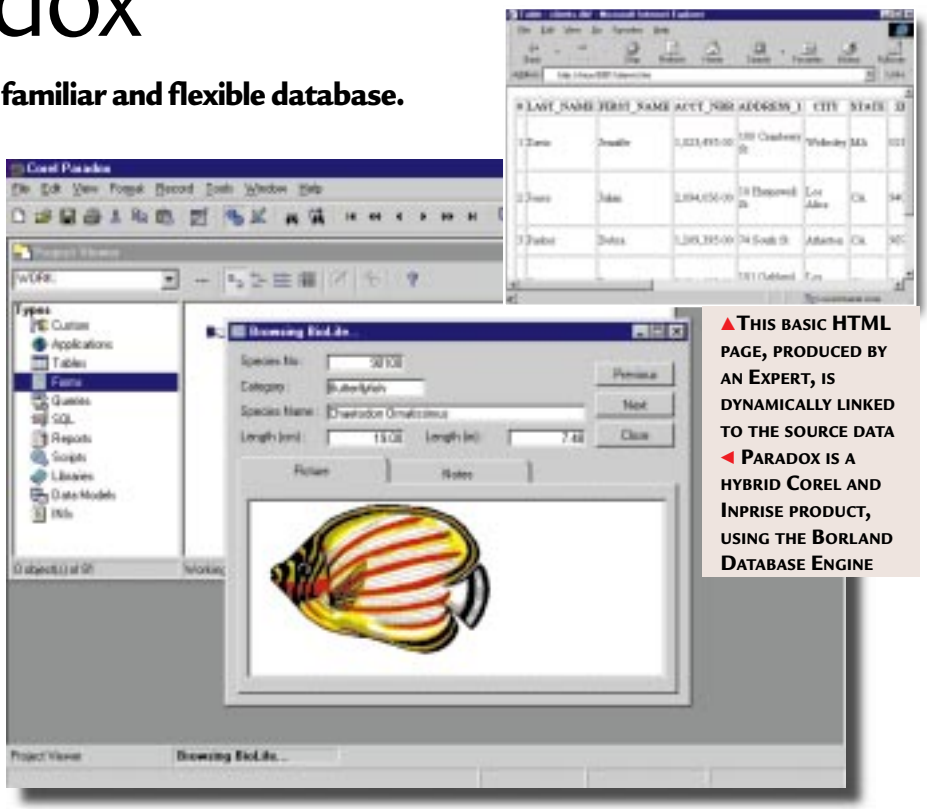
## Ratings

★★★★★ **Buy while stocks last**
★★★★ **Great buy**
★★★ **Good buy**
★★ **Shop around**
★ **Not recommended**

Illustration by Paul Shorrock

# Corel Paradox

**A new level of sophistication for a familiar and flexible database.**



▲ THIS BASIC HTML PAGE, PRODUCED BY AN EXPERT, IS DYNAMICALLY LINKED TO THE SOURCE DATA
◀ PARADOX IS A HYBRID COREL AND INPRISE PRODUCT, USING THE BORLAND DATABASE ENGINE

It is hard to think of Paradox as a Corel application. For most of its life, Paradox belonged to Borland, which produced both DOS and Windows versions. Strictly, it is now a joint venture, with Inprise remaining responsible for the database engine and Corel handling other development aspects. That means Paradox uses the Borland Database Engine (BDE) also found in Visual dBase and other Inprise products. The advantage for Corel is that it provides a high-end database for the Professional version of WordPerfect suite.

**Paradox is close to** Microsoft Access in its aims. It is intended for end-users and developers, and to work either as a standalone database manager or as a client for server databases. There are also links to other WordPerfect suite applications and a range of web features to enable both static and dynamic internet publishing. This is a huge scope and makes Paradox an ambitious and sophisticated product. The BDE is more than adequate to drive Paradox so the key question is how successfully it balances the requirements of developers and database novices.

**The answer is** that Paradox scores highly on flexibility and power but is bewildering for novices. A typical Office suite user might choose File/New to create a new database. Paradox offers a perplexing range of options, beginning with Data Model, Form, Library and Query. Scrolling down to Table makes a good choice and a Table Expert kicks in with a range of templates for both personal and business use. Paradox opens the table in a grid view ready for data entry and a Form Expert will create a record-by-record layout. You would expect the Table Structure option on the View menu to let you add a field but in fact you need the Restructure option on the Utilities submenu of the Tools menu. Each field can have one of 17 field types, and to add a new field you need to click on an existing one and press Insert — hardly intuitive.

**Paradox makes** a poor choice for bundling in an Office suite but as a high-end developers' database manager it looks much better. The Paradox native data format is fully-featured, with enforced referential integrity, encryption, security and table-level validation. The form designer is sophisticated and the ObjectPal scripting language well suited to most data management and processing tasks. New in Paradox 8 is a range of web publishing options, the most interesting being the integrated Corel Web Server. While it lacks the simplicity of FileMaker's instant web publishing, it is easier to work with in that the web server lets you add your own web pages alongside those generated by Paradox to handle data access. As part of a corporate intranet, Paradox could provide dynamic database access with relatively little pain.

**A problem for** Paradox is that database developers have many other options available to them and, while powerful, the ObjectPal language is unique to Paradox and less useful in other contexts than standards like Java. This means Paradox is unlikely to have a bright future, even in the development world.

## CASE STUDY Paradox

***"Paradox serves my needs** as an interactive tool for industry-standard dBase files as well as the more flexible and powerful Paradox files. Its Query by Example is very powerful. The ability to build referential integrity and other restraints into the table design means that these restraints always apply. You can get pretty far without writing any code and you only need to add code to modify the default behaviour. The report generator is very powerful but I miss the ability to visually highlight multiple rows of a table and cut, copy and paste. Also, if you have a 10,000-record table and want to split it into two 5,000 record tables, you have to write code to do it."*

BILL SPARROW

## PCW DETAILS

★★★

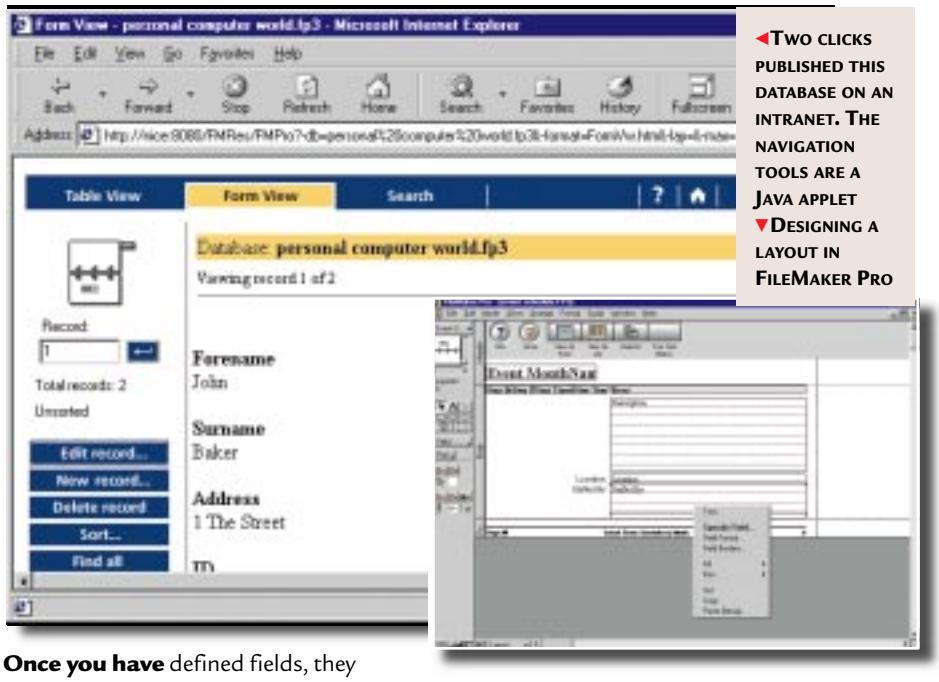
**Price** *£76.38 (£65 ex VAT)*
**Contact** *Corel 0800 973189*
**www.corel.com**
**System Requirements** *Window 95 or NT 4.0, 16Mb RAM*
**Good Points** *Powerful and flexible. Easy web publishing. Strong connectivity through the Borland Database Engine.*
**Bad Points** *Too complex for novices. Proprietary programming language. Confusing interface.*
**Conclusion** *Needs a lot of work to match Access in usability.*

# FileMaker Pro


**Cross-platform use and simplicity from a common-sense database manager.**

If you want to share data with Apple Macintosh users, FileMaker is the clear choice. It originated on the Mac but is available in a Windows version. The two have closely-matched features and mixed Windows-Mac applications work well. FileMaker has the feel of a Mac application and has been designed with usability as its top priority.

**To create a** FileMaker database, you can choose a template or start from scratch. You choose your fields from a list that includes text, number, date and calculation fields. You are not required to state what sort of numbers you want to store, how long a text field may be, or what indexes you require. Text fields can be up to 64,000 characters so there is no distinction between a character and a memo field. Indexing is automatic and FileMaker indexes each word in a text field. You can specify options like pop-up lists of values, and the ability to look-up data from another file.




◀TWO CLICKS PUBLISHED THIS DATABASE ON AN INTRANET. THE NAVIGATION TOOLS ARE A JAVA APPLET

▼DESIGNING A LAYOUT IN FILEMAKER PRO

**Once you have** defined fields, they appear on a form, called a layout. You can then add drawing objects, specify formatting and add buttons. To create a new form you add a second layout. Query-by-form is automatically included, providing an intuitive way to find records. Buttons are linked either to built-in actions, or to scripts created using a ScriptMaker tool. FileMaker now allows you to set up relationships and to include linked data on a layout. Reports and mail merge are layouts in FileMaker, with tools available from the tool panel.

**FileMaker has a built-in** web server. To publish a database to the internet you check the Web Companion plug-in and choose an option on the sharing dialog for the database. Browsers can then navigate to the web address of the machine where FileMaker is located and see the layouts appear in slightly simplified form in their browser. Java is used for parts of the online layout. You can customise the design of the web view but it leads you into a mire of technical scripting that is best avoided.

**You would expect** FileMaker's design options to be limiting but it is so well thought out that mildly sophisticated solutions can be created and even large databases perform well. It is a better product than Lotus Approach, its closest equivalent. Developer and server versions are available, the latter giving better performance on a network. FileMaker's weak point is that it cannot communicate easily with other applications. To mail-merge from Word, you would have to export the data to a format Word could understand. FileMaker Pro 4.1, currently in late beta, adds support for ODBC but only for import. There is no way to insert or update data in the ODBC data source and still no ODBC driver to allow other applications to read a FileMaker database. It is time FileMaker became a proper Windows citizen.

## CASE STUDY
### FileMaker Pro

***"I've been using** FileMaker for various things since Version 2. We're currently running a mixed ten-user network of Macs and Windows 95 accessing a copy of NT Server. The reason we first got into FileMaker Pro is that it is so easy to knock together whatever we need to do. It saves us a lot of time. We use it for all manner of bits and pieces, from contacts files (but with built-in passing of messages about incoming calls, creating/faxing/filing of correspondence and so on) through to a mini mail order system. Its ease of use can be something of a double-edged sword, though. It's easy to underestimate just how much you can do with Filemaker because the approach is so simple. People who prefer command lines will assume that it can't do things when in fact it can. We could do with TAPI compliance to use with the phone cards in the PCs, the ability to copy scripts between files and some way of using it directly with our main accounts system, Access Accounting. That last point is supposed to be addressed with 4.1 and ODBC."*

TIM LEIGHTON-BOYCE,
NEW DEAL SKATES UK

## PCW DETAILS

★★★★

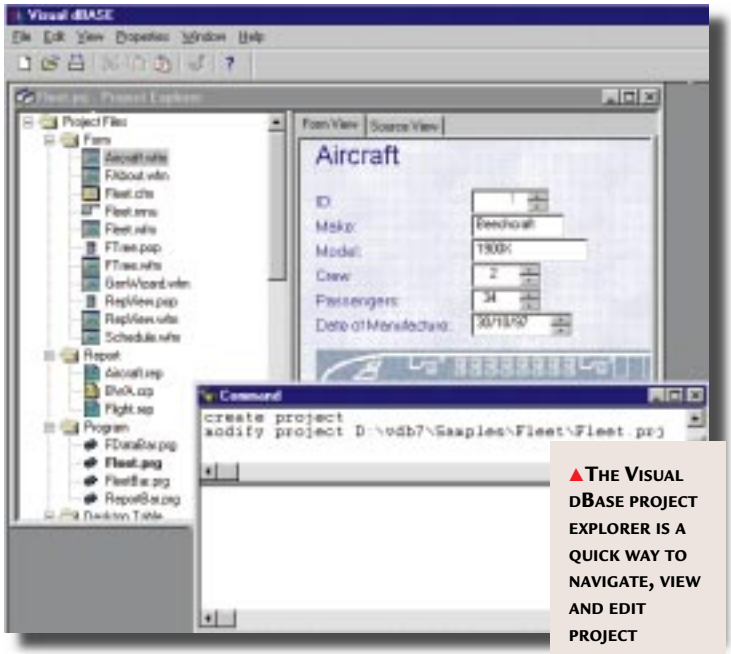
**Price** *£198.58 (£169 ex VAT)*
**Contact** *FileMaker 0845 6039100*
**www.filemaker.co.uk**
**System Requirements** *Windows 3.1 or higher, 8Mb RAM. Web features need Windows 95, 98 or NT.*
**Good Points** *Ease of use. Cross-platform with the Mac. Instant web publishing.*
**Bad Points** *Cannot read FileMaker data from other applications. Web publishing is difficult to enhance. No easy route up, once the limits have been reached.*
**Conclusion** *It lives in its own world, but this is the best database manager for non-specialists.*

# Inprise Visual dBase 7.01

**Powerful and elegant, this is a database for the developer.**

When you purchase Visual dBase you are buying into a family of Inprise products. At the core is the Borland Database Engine (BDE), shared by dBase, Delphi and Corel Paradox, and is also used as an add-on to the JBuilder Java product. Its closest equivalent is Microsoft's JET database engine, found in Access, Visual Basic and Microsoft Office, although Visual FoxPro does not use JET. The BDE has three elements. It is able to manage dBase and Paradox data through built-in drivers. Via the SQL Links add-on, you can also install native drivers for server databases such as Oracle. At last, you can access data through ODBC drivers. A database administrator lets you set up data sources that can be used from any other BDE application.

**To get the best** from the BDE it pays to use native drivers. There is a driver for Microsoft Access but this relies on JET already being installed and does not support all the features of Access databases. Like Microsoft, Inprise has extended the .DBF file format and made it incompatible with previous versions and incompatible with FoxPro, too, so sharing dBase data needs care. Inprise has recently announced the future direction of Visual dBase which is to be as a front-end tool for InterBase, the Inprise client-server database manager.




▲ **The Visual dBase project explorer is a quick way to navigate, view and edit project elements**

The dBase interface has several parts. The Navigator gives you a dBase-orientated view of a directory on your hard disk. The Project Explorer organises forms, reports, database tables and other elements into a unified project and the Command window gives a command-line interface to dBase as if you were still working in DOS. Each element, such as a form or report, has its own designer and there is a colour-coded source code editor and a full-featured debugger for checking your code. To use dBase, you might start by creating a new project. The project explorer then lets you add elements to it, for example, adding database tables, forms and reports. A tree view on the left shows all the parts of the project while a window on the right lets you view the current item. A right-click lets you open the item in its designer.

**An interesting aspect** of Visual dBase is the two-way tools. You can open a form or report either in a visual designer or as dBase code and switch seamlessly between the two. The language is fully object-oriented, although somewhat simplified in comparison to Java or C++. A great feature is its ability to create custom components, usually based on an existing dBase object. These can then be installed on a component palette for use in future projects. You can also use ActiveX controls. A web wizard lets you publish data to the web, either as a static report or by using CGI (see *Putting Data on the Web*, p227) to call into a Visual dBase application. Despite the wizard, this is not instant publishing but requires considerable coding effort.

**Visual dBase versus** Visual FoxPro is a hard call. VdBase has a tidier and more responsive interface. It is a little lighter on system resources and benefits from two-way editing, encryption of DBF tables and support for Paradox data. Visual FoxPro has much stronger COM features, better ODBC support, and its dedicated .DBF database engine remains exceptionally fast. The truth is that developers using either product are unlikely to switch now.

## Case Study
### Visual dBase

***"Visual dBase** is a serious programmer's tool. It will work equally with traditional desktop DBF and DB tables, and many client/server SQL systems. I use it as the interface to a server-hosted 600Mb multi-table InterBase database of technical information and it is nowhere near its limit. However, Visual dBase is still capable of producing a simple desktop application to manage the Xmas card list. There are no additional payments to distribute compiled executables. I do wish that the visual tools could be a little more tolerant of my programming errors. But nevertheless, when I clean up the code it is solid as a rock."*

Paul Franks

## PCW DETAILS

★★★★

**Price** *£292.58 (£249 ex VAT)*
**Contact** *Inprise 0118 932 0022*
www.inprise.com
**System Requirements** *Windows 95 or NT, 12Mb RAM.*
**Good Points** *Elegant, responsive interface. BDE gives database independence. Custom components promote code reuse.*
**Bad Points** *Yet another version of the .DBF standard. Weak COM support. Still requires a runtime library.*
**Conclusion** *For developers only, but this is the best dBase yet.*

# Lotus Approach 9

**Combines power and user-friendliness in a good value program.**


◀ YOU CAN DEFINE MACROS USING THIS POINT-AND-CLICK DIALOG, OR USE THE FULL LOTUSSCRIPT LANGUAGE TO CREATE SCRIPTS

▼ APPROACH APPLICATION USES TABBED LAYOUTS TO PRESENT DATA ENTRY FORMS AND REPORTS. THE TABS CAN BE HIDDEN FOR A MORE CONVENTIONAL WINDOWS LOOK




Lotus has given Approach a SmartSuite look-and-feel and added the LotusScript programming language but fundamentally it has not greatly changed. There are very few updates in SmartSuite Millenium, suggesting that Lotus is not investing much development in Approach at present. From the user's perspective, Approach looks like a single, large tabbed dialog. Instead of forms and reports appearing in separate windows, they each have a tab, making it easy to navigate. A toolbar has four key buttons — Browse, for viewing and editing the data; Design, for editing the current form or creating a new one (all the usual tools are available); New record; and Find, which lets you do a query-by-form: with this type of query, you enter values or wild-cards into the current form and Approach will find all the records which match those values. Even form letters, for performing a mail merge, appear as just another tab. It is all nice and easy and works well provided that the database is not too ambitious. Creating a database is simple, too. By default the format used is .DBF, compatible with dBase IV. You enter field definitions in a dialog, with options including validation formulae, serial number fields, default values and more. You can join tables using a graphical dialog but at this point you need to know a bit about relational databases. There are a few application templates and quite a number of table templates, the latter being less useful since they do not set up joins, which are the hardest part of database design.

**A clever thing** about Approach is that although it works with standard .DBF tables, these have extra features when used with the program, thanks to a container file with an .APR extension. Provided that you only access the data through this file, all the extra features work. There is also an SQL assistant, a series of dialogs to help define a query on a server database through a PowerKey or ODBC, including a driver for Lotus Notes. For web data sharing, you can print from Approach as a jDoc to render the data in Java, but there is no easy way to publish dynamic data. Approach possesses a good combination of power and user-friendliness but there are problems. This makes it hard to recommend it for major projects. The tabbed interface is inflexible and limits you to only one way of implementing a database front-end. Some operations cause the form contents to flash as the screen is updated.

**There are extensive** ActiveX features, but there were several crashes when trying to insert controls onto a form. It looks as if Lotus intended to add the ability to host JavaBeans on an Approach form, as there is an intriguing reference to this in online help but it has not yet been implemented.

## CASE STUDY
### Lotus Approach 9

***"I use Approach** extensively as an analysis tool and for knocking up prototypes. I also use it to help clean up data, where its ability to read all sorts of sources and show them side by side is a great advantage. I am not a programmer, so the ease of use and facility to create macros without learning a heap of techno syntax is a great help to me. It is extremely good for what it does and it is very cheap!"*

JERRY STOCKBRIDGE

## PCW DETAILS

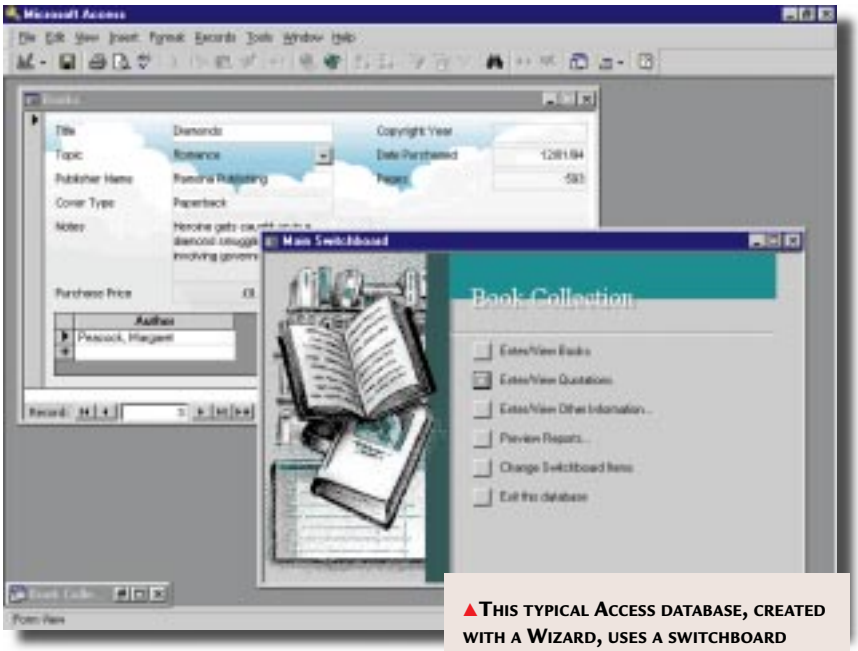
★★★

**Price** *£45.83 (£39 ex VAT)*
**Contact** *Lotus 01784 455 445*
**www.lotus.co.uk**
**System Requirements** *Windows 95 or NT, 16Mb RAM.*
**Good Points** *Uses standard file formats. Easy, tabbed, interface. Adds strong features to .dbf tables.*
**Bad Points** *Inflexible design. Proprietary index format. Screen flashes during updates.*
**Conclusion** *Good value, but not suitable for advanced projects.*

# Microsoft Access 97

**A complex product that still turns beginners into wizards.**

The basic design of Access has not changed since it was first released in 1992. It is an elegant design that has worn well. It uses a database container, a single file that stores not only your data but also the forms, reports and program code that enables you to make use of the data. There is a tab for tables, queries, forms, reports, macros and modules. To create a new element, you first select the tab, then click the New button. For existing elements you can choose Open or Design. Another important feature is the numerous wizards. For example, if you choose to create a new form, you are offered a choice of wizards to create a form automatically based on your chosen options. There is a range of templates for common database tables such as customers, products and expenses, or for personal tables like recipes, plants, books and photographs.




▲ THIS TYPICAL ACCESS DATABASE, CREATED WITH A WIZARD, USES A SWITCHBOARD FORM AS A MENU TO REACH OTHER FORMS AND REPORTS

**Access was designed** to use SQL, and the product mimics the features of a server database. For example, you can define users and groups and set permissions at various levels. It is nevertheless a file-sharing database (see *Database Tiers,* p227) and not suited to use on large networks. You can overcome this limitation by connecting to a server database through ODBC. There is rich support for developers, with Visual Basic for Applications built in and a runtime version available for licence-free distribution.

**This is a highly** complex product that hides its difficulty behind an array of wizards and tools that allow novices to achieve a lot without programming. It should come with a health warning that if you do run into problems there is a mountain of learning to do before you will be able to solve them. Links to the rest of Office are good and the native .MDB data format is widely used by other applications. The query builder is superb and lets you switch seamlessly between SQL code and a visual designer.

**The main problems** with Access, complexity aside, are the several different and incompatible versions of the MDB data format and the fact that the default application style, based on a switchboard form giving access to multiple overlapping windows of data, is neither the best nor the easiest to use. In skilled hands, both these issues can be overcome. This is a powerful and complete product that has won its market share on quality, not just by virtue of being within Office.

**What's new in Access 2000?** The forthcoming Access is fully integrated with SQL Server. You have always been able to attach SQL tables to an Access database, but Access 2000 connects via OLE DB without using JET, its internal database engine. Access also has new tools to manage SQL Server databases, and a cut-down SQL Server will come in the box . Another major new feature is the ability to create and edit Data Access Pages — essentially an HTML version of an Access form. This makes it easy to put live data connections on a corporate intranet. Data Access Pages use ActiveX controls, so this is mainly a technology for Internet Explorer and intranets rather than the worldwide web.

## CASE STUDY
### Access 97

***"Access provides** a user-friendly but powerful development environment for rapid prototyping. I like the data-bound objects such as list controls, graphs, forms and reports, the query grid which makes it possible to easily design and manage very complex queries, and the handling of external data sources as if they were native. Support for OCX components is a tad flaky and I would like VBA language extensions to handle printing, email and common dialog issues. At the moment, Windows API functions have to be used."*

MUSA KHAN
MANAGEMENT CONSULTANT

## PCW DETAILS

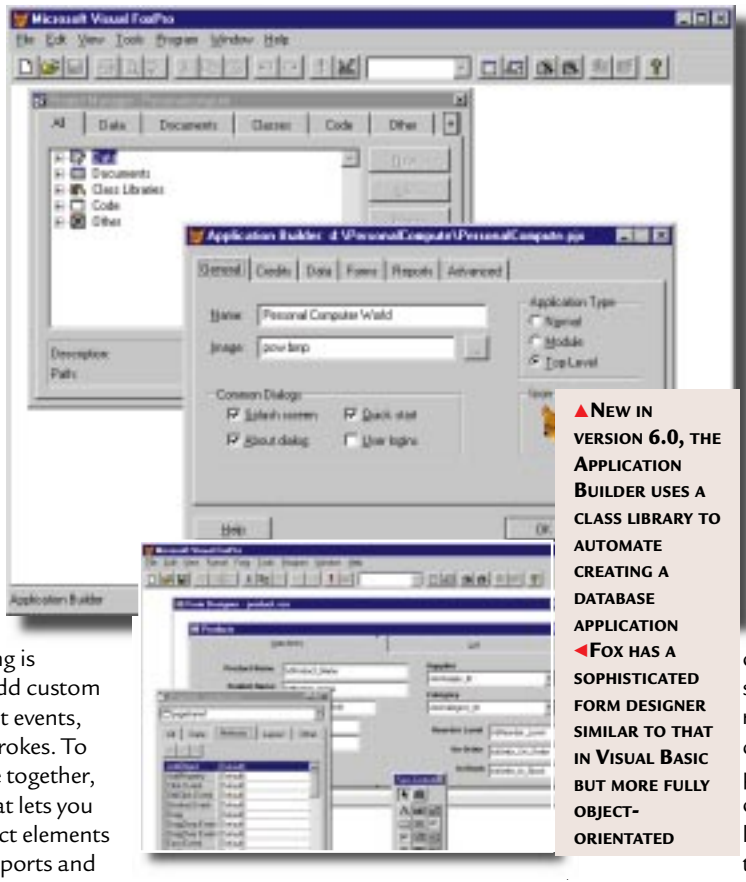
★★★★★

**Price** *£351.32 (£299 ex VAT), or bundled with Microsoft Office Professional.*
**Contact** *Microsoft 0345 002000*
**www.eu.microsoft.com**
**System Requirements** *Windows 95 or NT, 16Mb RAM.*
**Good Points** *Beginners can get real work done with Access. Lots of advanced features. Developer edition provides free runtime licence.*
**Bad Points** *A complex product. Bewildering once it runs out of wizards. Depends on COM, which can cause strange errors. Default applications are awkward to use.*
**Conclusion** *An ambitious product that appeals to a range of people, from novice to expert.*

# Microsoft Visual FoxPro 6.0 I

**Fast data handling and a powerful tool in the right hands.**

Since version 5.0, FoxPro has been bundled with Visual Studio as a developer product. There are wizards for creating tables, building queries, forms and reports, and mail-merge to Word, but FoxPro is not designed as an interactive tool. Its aim is to create applications, custom solutions that can be used by others who may not even realise they are using FoxPro. To work with FoxPro, you begin by defining a database. Once tables and fields are defined, you can create database forms. The form designer provides a rich set of tools including ActiveX controls if required. Everything is programmable, so you can add custom code for hundreds of different events, such as button clicks or keystrokes. To bring all your forms and code together, there is a project manager that lets you easily navigate between project elements and add new ones, such as reports and menus. When you are done, you can build the project into an application that runs within FoxPro or standalone with a runtime library.



▲ NEW IN VERSION 6.0, THE APPLICATION BUILDER USES A CLASS LIBRARY TO AUTOMATE CREATING A DATABASE APPLICATION
◀ FOX HAS A SOPHISTICATED FORM DESIGNER SIMILAR TO THAT IN VISUAL BASIC BUT MORE FULLY OBJECT-ORIENTATED

**The universality** of FoxPro is compromised because Microsoft has extended the format, adding a container file. This gives features like table-level validation, enforced referential integrity, and triggers, code that executes automatically when records are inserted. Only FoxPro can properly read this extended data format, although an ODBC driver is provided. Alternatively, you can still work with old-style data. The original dBase language has also been greatly extended and is now unique to FoxPro, including full object orientation. Developers can save time by building up a library of reusable FoxPro objects. FoxPro also works well with remote data, and you can easily migrate from native FoxPro format to a client-server setup.

***The result is that Fox developers will continue to do great things...***

**New features** in version 6.0 of FoxPro include a class library called an application framework, along with an application wizard to get you started. The language itself has been improved, and a component gallery makes it easier to manage and reuse objects and ActiveX controls. For web publishing, you can either use a wizard to generate static data, or build a FoxPro database server to be called from a web page to deliver dynamic data. You can also create Active Documents, forms that can run inside Internet Explorer like an ActiveX control.

**FoxPro has no** lack of power, but there are some irritations. The report writer and menu designer have not been properly brought into the object model. The language has no strong typing and no equivalent to Visual Basic's Option Explicit, which can cause errors. What is harder to fix is the steep learning curve, the huge runtime library, and the fact that FoxPro falls between the interactive products like Access and tighter developer tools like Delphi, PowerBuilder or even Visual Basic. The result is that Fox developers will continue to do great things with their chosen tool, and wonder why no-one else bothers.

## CASE STUDY
### Visual FoxPro

*"**I grew up on** previous versions of Fox. Developers prefer the Object Orientated Programming capabilities of FoxPro – Visual Basic doesn't have inheritance — as well as the fast data handling. The ability to use SQL to build an updatable view has opened up many new vistas. Most developers build or acquire a framework that allows projects to be completed in a fraction of the time that structured programs took. I'd like to see faster screen handling and a better editor."*

GERRY HUGHES

## PCW DETAILS

★★★★

**Price** *£468.83 (£399 ex VAT)*
**Contact** *Microsoft 0345 002000*
**www.eu.microsoft.com**
**System Requirements** *Windows 95 or NT, 16Mb RAM.*
**Good Points** *Fast data processing. Powerful object model and language. Good connectivity to server data.*
**Bad Points** *Steep learning curve. Unique data format and language. Huge runtime library.*
**Conclusion** *Not for beginners, but performs well in expert hands.*

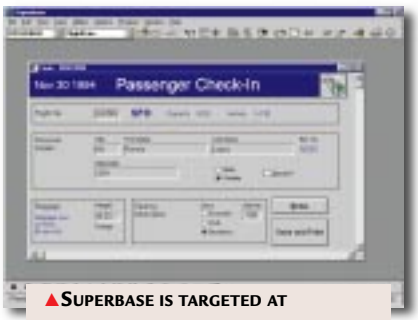
# Exploring other options

**The big boys aren't the only ones producing usable database software.**

The number of products in the Windows database market has if anything diminished over the last few years, with smaller vendors finding it tough to keep up with the industry giants, particularly with the dominance of Microsoft's Office suite. Nevertheless, there are still other options.

## Superbase 3.5

Superbase 3.5 is the latest version of a famous British database manager which, in the days of the Atari ST, was the best around. After changing hands several times it is now in the hands of its own developers, who have just released version 3.5. This runs on 16-bit Windows, and the new version supports HTML export, the Euro symbol, and improved forms with split windows and the fashionable flat-look toolbars. Superbase is positioned as a developer's database, but its most important market is upgrades from its existing base of

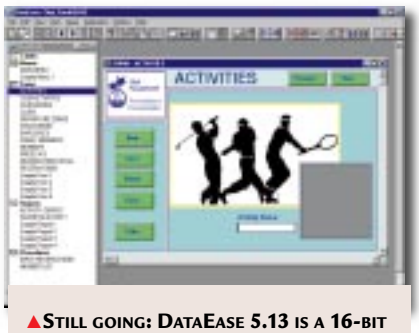



▲SUPERBASE IS TARGETED AT DEVELOPERS, BUT THERE IS NO SUPPORT FOR ACTIVEX CONTROLS

users. Future plans include a cross-platform version. The strength of Superbase is that it is lightweight, running well on modest hardware, and handles image libraries well. On the downside, it lacks polish, and needs a proper version for Windows 95 and NT if it is to attract new customers.

## DataEase

Windows snarled up DataEase, particularly as the company could not agree with its main worldwide distributors on whether to port the DOS version with DQL (DataEase Query Language) or create a new client-server system. In the end both were done, but too late to take a major slice of the Windows market. The products are still available and include DataEase 5.0, a 16-bit product with DQL compatibility, and DataEase Net Plus, which has developed into an interesting database-independent application builder with internet deployment options. There are

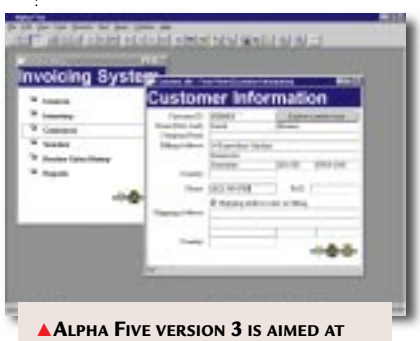



▲STILL GOING: DATAEASE 5.13 IS A 16-BIT PRODUCT SUPPORTING THE OLD SQL QUERY LANGUAGE

migration tools for existing DataEase DOS applications, but the upgrade path is not a smooth one.

## Alpha 5

This is a product aimed at the middle ground, being better suited to developers than end-users, but easier to use than the high-end database products. A nice feature is an RTF field type, allowing you to store formatted text in a standard compatible with the Windows clipboard. This is not a fully up-to-date product though, and lacks support for ActiveX controls,

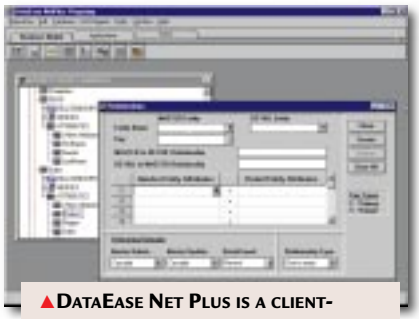



▲ALPHA FIVE VERSION 3 IS AIMED AT THE MIDDLE GROUND, BETWEEN END-USER AND HIGH-END DEVELOPER TOOLS

ActiveX automation, and ODBC. A new version 4.0 is coming shortly, but was not available in time to be evaluated for this survey.

## Specialist database tools

While the focus of this feature is on all-purpose database managers, there are many more specialist products that may fit a specific need better. For example, if it is contact details you are storing, there are a range of contact managers such as ACT, Goldmine or Tracker which have built-in features for handling contact history, reminders, meeting schedules and more. PIMs like Organizer and Outlook are ideal as everyday address books, and each of these can be linked to a back-end data store such as Lotus Notes or Microsoft Exchange as a corporate tool for managing messages, contacts and schedules. If it is accounting information, Sage, Quicken or Microsoft Money will be a better investment than trying to build your own system in Access or FileMaker. For managing free-form text or other



▲DATAEASE NET PLUS IS A CLIENT-SERVER DESIGN TOOL WHICH CONNECTS TO ANY ODBC DATA SOURCE

unstructured information, a system like AskSam, from AskSam Systems, is tailor-made for the job.

## PCW DETAILS

**Superbase 3.5**
**Price** *£387.75 (£330 ex VAT)*
**Contact** *SuperBase Developers 01223 365550* **www.superbase.com**

**DataEase 5/Net Plus**
**Price** *DataEase 5 £346.63 (£295 ex VAT); DataEase Net Plus £2291.25 (£1950 ex VAT)*
**Contact** *Sapphire 0171 539 0800* **www.dataease.co.uk**

**Alpha 5 v 3**
**Price** *£117.44 (£99.95 ex VAT)*
**Contact** *Alpha Software 01752 897100* **www.alphasoftware.com**

# Putting data on the web

**Undoubtedly a good idea; here's how to go about it.**

There are at least four good reasons for publishing data to the web. First, it publishes information to the widest possible audience. Second, it enables access to data from different computer platforms. Third, it centralises the database application so that you can fix bugs and update the program logic on the server. And fourth, everyone uses web browsers so you will have less training to do. Great idea, then; but how easy it is in practice depends on several factors. If you only have a dial-up connection and want to put data on your web site, you are limited to publishing static data. This works for smaller databases, and can be kept up-to-date by automating the export and upload process.The data will be read-only, and publishing large databases this way is not practical.

**Dynamic database publishing** lets users log-in, query and update live data. FileMaker Pro and Paradox achieve this by having a built-in web server. It is very effective for simple data access, but less useful when you want to integrate the data with a large, content-rich site.

**There are alternatives** like CGI (Common Gateway Scripts), Microsoft's Active Server Pages, or having a Java applet accessing data through JDBC (Java Database Connectivity). Check out tools to simplify developing these solutions like Microsoft's Visual InterDev, Allaire's Cold Fusion, haht software's hahtsite, and tools from Sybase and Inprise.

# Database tiers

**There's more than one way to construct a database system.**

Even with simple systems, it helps to think of a database system as containing at least three elements:

- **the front-end** or client, with all the required forms, fields and menu options;
- **the database engine**, which does the work of querying the database and feeding back results to the client;.and
- **the data itself**, stored on disk in a format that the engine understands. A simple Access network would have the data on one machine, while each workstation ran its own copy of Access, reading the data across the network. This is called **file sharing**. There are several snags with this setup. Each workstation has to be powerful enough to run Access, lots of data has to be transferred across the network, and any change to the application means updating all the workstations individually. With a client-server system, the database engine is moved to the server. Network traffic is reduced, since only the results of queries need to be transferred. Client-server systems can support many more users than file-sharing applications.

**The next step** is to insert another tier into the system. The "middle tier" contains the logic of a database application. The client can now be very simple indeed and work well even over dial-up links. **Multi-tier systems** are more flexible and powerful, but more complex to develop.

# The jargon, explained

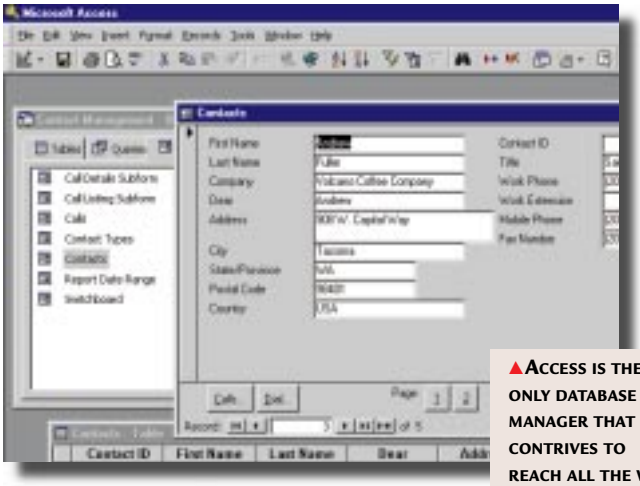
**When a record is really an entity. Or is it a row?**

Database vendors have spread a lot of confusion by using different words to describe the same things. In this group test we have used the same basic terminology throughout to make it easier to compare products.

- **A record** is a reference to one item in a table, for example a customer in a customer table. Records are sometimes called rows, because they are similar to rows in a spreadsheet table, or entities.
- **A field** is a single piece of information about a record. Fields are sometimes called properties or attributes.
- **A table** is a collection of records.
- **A database** is a collection of tables. For example, an order processing database might contain tables for orders, products and customers. Unfortunately Ashton-Tate, creator of dBase, called tables databases. Some products, including the current Lotus Approach, still do.
- **A query** specifies certain criteria with which you want to search the database. Queries can span more than one table. The results of a query look like a temporary table, and may be read-only or read-write. These results are sometimes called views, cursors, result sets, or recordsets.
- **SQL** stands for Structured Query Language. It is an industry-standard way of defining queries, and also sending commands to databases to create tables or delete records.
- **ODBC** stands for Open Database Connectivity. It lets applications query any database for which there is an ODBC driver. These are available for most databases, although the quality of drivers is variable.

# Editor's Choice

**Mature software that is the best all-round choice.**



▲ACCESS IS THE ONLY DATABASE MANAGER THAT CONTRIVES TO REACH ALL THE WAY FROM END-USERS TO DEVELOPERS

All the main products in this group test have been around for at least five years, and in some cases twice that long. In some respects the Windows database market looks tired, with few vendors wanting to take on Microsoft on its home ground, and putting their energy into cross-platform distributed database technology instead. This is mature software, and each one is more than able to deal with everyday data management. The most striking differences are in the area of ease of use, particularly for non-specialists, integration with other applications, and the ability to scale up to client-server or multi-tier systems accessible from the web or across different platforms.

**The outstanding** product in the group is **Microsoft Access**, and so is our **Editor's Choice**. It is approachable for beginners, and will scale a long way before running out of steam. The wizards are comprehensive, it has an outstanding query builder and good Office integration, and there are routes to client-server, web deployment, and distributed applications. But even Access has its dark side, and the industry has not yet produced a relational database that is easy and safe for novices. Nevertheless, this is the best all-round choice.

**If ease of use** is the priority, **FileMaker Pro** is **Highly Commended**. It succeeds in avoiding database jargon and providing a solid, understandable tool for data management. It offers instant web deployment which is fantastic if it meets your needs as-is, but is hard to extend and customise. FileMaker's weak point is poor integration with Windows. Visual dBase, Visual FoxPro and Paradox are better suited to developers than end-users. Visual dBase is nicer to use, but the Fox is more powerful. If pressed, I would point developers to Visual dBase, for the sake of its more elegant working environment. Serious developers should also look at other tools, including Visual Basic, Delphi and PowerBuilder.

## Table of features

| Product | Access 97 | Approach 9 | FileMaker Pro 4 | Paradox 8.0 | Visual dBase 7 | Visual FoxPro 6 |
|---|---|---|---|---|---|---|
| Contact | Microsoft | Lotus | Filemaker Inc | Corel | Inprise | Microsoft |
| Price ex VAT | £299.00 | £39.00 | £169.00 | £65 | £249.00 | £399.00 |
| URL | www.microsoft.com | www.lotus.co.uk | www.filemaker.co.uk | www.corel.com | www.inprise.com | www.microsoft.com |
| Telephone | 0345 002 000 | 01784 455445 | 0845 6039100 | 0800 973 189 | 0118 932 0022 | 0345 002 000 |
| Progamming Language | VB | LotusScript | ✗ | ObjectPal | xBase | xBase |
| BLOB support | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| OLE automation client | ✓ | ✓ | ✗ | ✓ | ✓ | ✓ |
| OLE automation server | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ |
| ActiveX client | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ |
| Referential integrity | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Stored procedures | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ |
| Transactions | ✓ | ✗ | ✗ | ✓ | ✓ | ✓ |
| Macro scripting | ✓ | ✓ | ✓ | ✗ | ✗ | ✓ |
| ODBC driver/client | ✓/✓ | ✗/✓ | ✗/✗ | ✓/✓ | ✓/✓ | ✓/✓ |
| Charts | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ |
| Report designer | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Query by form | ✓ | ✓ | ✓ | ✗ | ✗ | ✗ |
| Runtime version | ✓ | ✗ | ✓ | ✓ | ✓ | ✓ |
| Graphic fields | via OLE | ✓ | via OLE | ✓ | ✓ | via OLE |
| Counter fields | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ |
| Encrypted data | ✓ | ✗ | ✓ | ✓ | ✗ | ✗ |
| HTML Export | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Web server included | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ |