

FileMaker

Robust Platform Technology



Highlights

FileMaker Pro and FileMaker Server

- *FileMaker Pro application hosted in FileMaker Server to provide multi-user support*
- *Scalable and highly reliable*

Integrated Web publishing

- *Instant web publishing allows browser access of FileMaker application screens*
- *PHP API*
- *XML and XSLT server side processing*

External system integration

- *ODBC, JDBC, SQL, XML/XSLT*

Robust security

- *Integrated Microsoft Active Directory support / Single Sign On (SSO)*
- *Application, table, record and field level security*

Visual programming environment

- *Powerful point-and-click environment*
- *Applications built by defining tables, data, relationships, and scripts*

Powerful reporting

- *Reports designed using drag-and-drop designer, and supported with specialized data types and scripting*
- *We have implemented hundreds of complex custom reports*

► Facility Wizard Software applications are built and deployed using FileMaker Pro and FileMaker Server, a robust, high-performance development and deployment platform from FileMaker, Inc.. The FileMaker suite of products is a superior technology for the development, rollout and support of software for workgroup-sized user teams with the ability to scale and extend applications to a virtually unlimited number of web-browser-based users requiring a targeted subset of functionality.

This document will cover in detail the technological agility and sophistication of the FileMaker platform to demonstrate how Facility Wizard Software has leveraged this unique platform to build software solutions that are truly simple, powerful and flexible. This will include an overview of the following features of the FileMaker platform:

- Flexible, rapid deployment options and scalability
- Standards based data integration with other systems
- Robust security features including Active Directory / SSO support
- Rapid interface development and report generation
- Low Total Cost of Ownership (TCO)
- Available Facility Wizard FileMaker support services

Why FileMaker

One of the key differentiators of the FileMaker platform is that it provides an integrated user interface, business logic designer, and back end database. This integration of components allows for rapid deployment and tailoring of solutions at a low relative cost. Our software products are able to be deployed and custom-suited in a fraction of the time and cost of comparably functioning applications. This is an important factor during both initial deployment as well as over the life of products when business needs, the user base or deployment requirements change.

FileMaker's unique feature set allows Facility Wizard Software unmatched agility in responding to the changing needs of business software solutions. Our systems are built by leveraging the FileMaker platform's specialty of performance and productivity. With this we have built powerful, scalable applications that reach out to your entire organization and can easily integrate with enterprise systems.

Platform Deployment Overview

The basic components of the FileMaker platform consist of FileMaker Pro client and FileMaker Server which operate in the standard client/server database model. FileMaker Server provides multi-user support by providing integrated user interface presentation, business logic, and database.

Each FileMaker Pro client application allows users to access data from the server. The same client software is used for the application interface as well as all database creation and editing functions (depending on user security access levels) including the screen layouts, application logic, report creation and database schema.

FileMaker Server is utilized to seamlessly allow access for hundreds of users on networked computers. The computers can be connected across your organization's local and wide-area networks, Intranet, and Extranet. FileMaker applications executing in FileMaker Server are extremely reliable and high performance.

FileMaker Server also allows the application to be developed and changed in a development mode within the client application using FileMaker Pro's integrated visual programming environment. Most changes to the application can be made while the software service is running and available to all users, thus eliminating downtime for nearly all database maintenance operations and modifications.

FileMaker Server includes a FileMaker Server Console that provides for administration of the FileMaker data server, which runs as a component service. This provides administrators with visibility and control of actively connected users, hosted FileMaker data files (the highest level components of the deployed FileMaker Pro application), automated data backups and other server settings.

Integrated Web Publishing

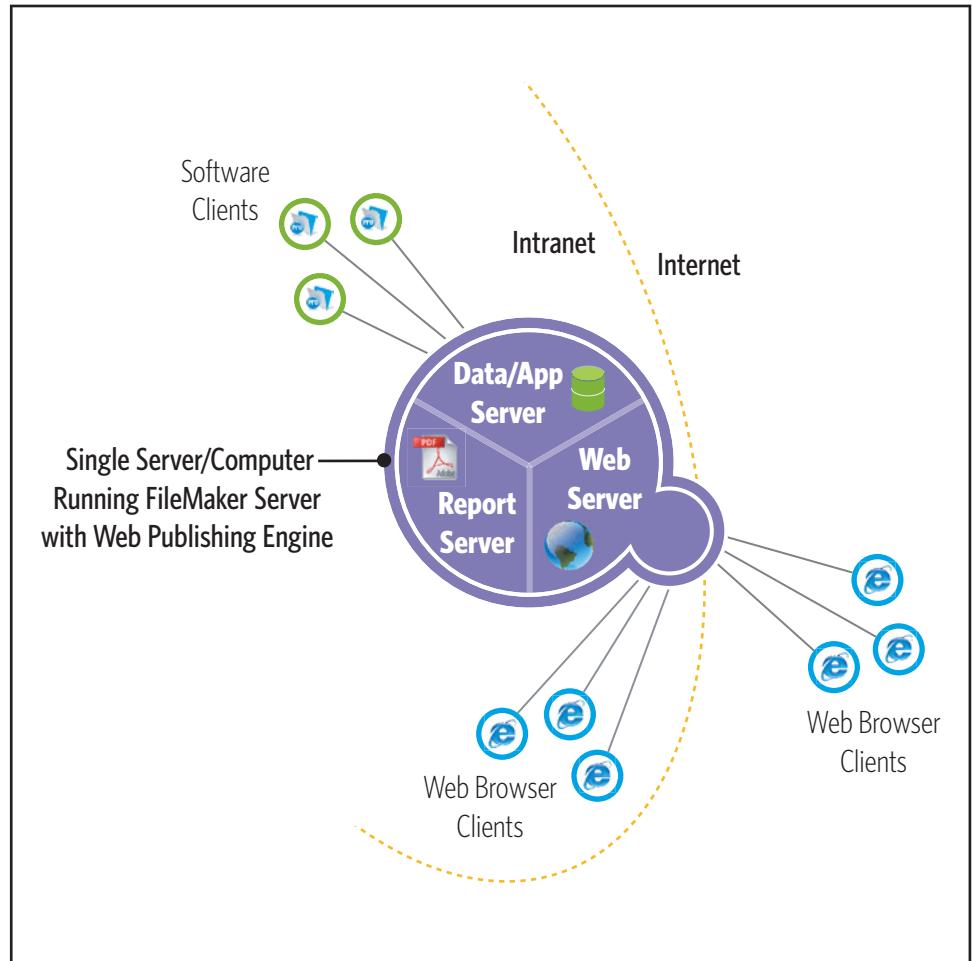
Among FileMaker's many capabilities is the ability to easily develop and deploy web-based applications to allow users to access these applications using a web browser. FileMaker's integrated web publishing support requires FileMaker Server Advanced, a version of FileMaker Server that, in addition to all FileMaker Server functionality, allows creating and publishing web pages that can interface with FileMaker data and functionality. To provide this web publishing functionality, FileMaker Server Advanced works in combination with Microsoft IIS (Internet Information Services).

FileMaker Server Advanced provides three different methods of support for web browser accessed applications, all of which can read and write the application's data and execute its functionality:

- Instant web publishing – the screens designed using the Layout Designer can be automatically converted to HTML for browser access using CSS technology

- PHP API (Application Programming Interface) – for creating PHP web applications using this powerful programming language.
- XML output with XSLT server side processing.

FileMaker Platform Network Deployment Overview



Simple Deployment

At the highest level, FileMaker Pro applications are made-up of FileMaker files. Each file contains its own set of screens and reports, tables, data, relationships, and scripts, with the files tied-together through relationships. The total application is simply the set of physical files that contain it.

This simple high-level model of how FileMaker Pro applications are built allows a FileMaker application to be easily deployed and upgraded:

- Installing a complete application is simply a matter of copying the files to a directory.

- Individual files may also be copied, overwriting the previous version of the file, allowing just a portion of the overall application to be upgraded. As long as the inter-file relationships and scripts-calls have not been changed, the new file can just replace the old file, and the application will keep working.

In addition to the ability to simply deploy an application or portion of its application through its files, an application that is running within FileMaker Server can be changed while it is hosted and executing. This is particularly useful for making minor changes such as development updates or tweaking functionality.

This simple deployment model yields significant time and cost savings when performing iterative tailoring of an application. Furthermore, an iterative implementation process requires a rapid development tool such as FileMaker to enable an efficient response to changing needs. At Facility Wizard Software, we use exactly such a development process for tailoring our products to your unique needs – Our spiral process relies on deploying the in-progress application, and then getting user feedback and quickly developing and deploying follow-on changes based on that user experience. This process repeats these steps until the customer's requirements are completely and accurately implemented, ensuring maximum usability and performance. The FileMaker platform enables us to efficiently develop, implement and tailor our applications in this manner.

Tools and Add-Ins

There are many third-party add-ins for FileMaker. These are easily installed within a FileMaker application, and can perform tasks such as file management, graphing and charting, interfaces with specialized equipment such as barcode scanners, and so on. Facility Wizard's application products use several of these plug-ins, for example, interfacing with an email server, drawing schedule Gantt charts, and other application support functions.

Microsoft Terminal Services and Citrix Presentation Server Support

A FileMaker application hosted on FileMaker Server can also be accessed across an organization's Intranet using Microsoft Terminal Services or Citrix Presentation Server. Either of these presentation layers provide secure and high performance access to the FileMaker application using its native user interface. Many of our customers take advantage of these methods of accessing our software within their own network infrastructure or by utilizing our ASP hosting services.

External System Integration

At Facility Wizard Software, many of our customers have had our software products integrated with their other software systems and databases. The external systems that we have successfully integrated with include financial systems, Supply Chain Management, Human Resources, time-tracking systems, and many others; the database platforms we have successfully interfaced with include Oracle, SQL Server, MySQL, and others.

Standards Based Data Exchange

To support integration with other systems, FileMaker Pro provides these industry standard interface technologies:

- *ODBC – Open DataBase Connectivity* – standardized, language independent, database access method that allows access to data regardless of the database system in which the data resides.
- *JDBC – Java DataBase Connectivity* – similar to ODBC, utilized for database systems implemented in the Java language, or that have an access layer implemented in Java.
- *SQL – Structured Query Language* – the standardized query language for accessing database information. SQL is used to access data using ODBC or JDBC.
- *XML – Extensible Markup Language* – the standardized format for transmitting information between software applications. XML is typically stored as readable text in text files. XML utilizes tags similar to HTML.
- *XSLT – Extensible Stylesheet Language Transformation* – an XML-based language for the transformation of XML data to readable formats

Microsoft Excel Integration

The FileMaker client application has many built in features to easily read, write and exchange data with Microsoft Excel. These features include:

- Any list, screen or report within FileMaker can be automatically saved as an Excel file as easily as printing
- Native Excel files (.xls) can be opened directly within The FileMaker client with options for automatic field creation based on data
- Generation of Excel files from XML output can be used to create complex spreadsheet reports with specialized formatting and summaries

Robust and Flexible Platform Security

Protecting your application against unauthorized access is critical. FileMaker Pro provides complete, robust security. FileMaker provides this through its own *accounts* and *privilege sets*, or alternatively through Server External Authentication, such as Microsoft Active Directory, allowing Single Sign On (SSO) access.

With the flexible security options with FileMaker, access can be restricted at virtually any level of the software application or schema, including:

- The overall application
- Individual FileMaker files
- Individual data tables, records, and fields.
- Functions such as creating and running specific reports
- Exporting data
- Individual menu commands
- FileMaker Pro developer capabilities, i.e., the Layout and Script Designer, etc.

Microsoft Active Directory Integration and Single Sign On (SSO)

User accounts and passwords which allow access to FileMaker can be checked internally by FileMaker Pro or externally by using operating system (OS) level accounts. In a Microsoft Windows environment these are Active Directory accounts. Accounts can reside locally on the FileMaker Server computer or on a domain controller elsewhere on the network. To authenticate and authorize access, accounts have a group name that must match a group privilege within the Facility Wizard Software application. This enables IT managers to manage user access to our applications from a central, familiar location. Open Directory on Mac OSX is supported in a similar manner.

Server External Authentication supports Single Sign On for the simplification of user credential management. SSO allows users to be authenticated (logged in) once and have their credentials passed to other SSO-capable applications. This is a benefit not only to IT staff but the end users as well.

Note1: Source: Server External Authentication Guide, ©2005 FileMaker Inc.

Secure Sockets Layer (SSL)

In addition, FileMaker Pro provides optional 128 bit SSL (Secure Socket Layer) encryption. This further reinforces FileMaker's security capabilities by allowing extremely secure network data transmission.

At Facility Wizard Software, we have developed sophisticated security for our applications using the above capabilities. These have included multiple user roles with differing permissions for accessing various parts of an application, and SSO using Active Directory.

Rapid Development and Report Creation Environment

Visual Programming Environment

FileMaker Pro includes an award-winning fully integrated visual programming environment. The complete application is developed within FileMaker Pro, including screens, data and data relationships, scripts and reports. The parts of this simple yet powerful point-and-click system include:

- Layout Designer, for implementing the screens that are used for accessing the application's data. The Layout Designer is also used to create reports.
To setup a screen design, FileMaker Pro also provides a Layout Wizard. This can be used to pre-select the data fields to place on a screen, and specify the general layout strategy. Aesthetic themes denoting color schemes and formatting can also be applied.
- Database Designer, for defining tables, data fields and types, and relationships. The supported field types include:
 - ▶ Text – Up to 2 GB of text per field.
 - ▶ Number – Up to 800 digits, positive or negative
 - ▶ Date – 1/1/0001 to 12/31/4000
 - ▶ Time, Timestamp – Hours, minutes, and seconds
 - ▶ Microsoft Word or Excel file, PDF file, multimedia file)Container – Up to 4 GB per field containing an image or file (for example Microsoft Word or Excel file, PDF file, multimedia file)
- The database designer also allows definition of relationships, which are used to join separate tables and separate files. Complex FileMaker applications are usually made-up of multiple files.
- ScriptMaker, the script editor for creating the scripts that are used to automate an application's functions. Scripts can include complex logic including conditional tests and loops, and scripts can call one another, including across files. There are over 130 script steps which are selected and ordered using the visual interface.

At Facility Wizard Software, FileMaker Pro's integrated development environment is an important part of our success – these tools are key to our development process and our product development. They enable us to accomplish more in much less time.

Powerful Reporting

FileMaker Pro includes integrated, powerful reporting capabilities. Any complex reporting requirement can be met with FileMaker. Reports are designed using the Layout Designer, and are supported with specialized data types, relationships, and scripts.

Using the Layout Designer (and optionally the Layout Wizard), reports are constructed by dragging-and-dropping the required data fields onto the report. Layout parts are used to construct the reports with various types of headers, footers, and summaries. For more complex reports, report data can be aggregated and manipulated in separate tables, with the control and automation of these executions handled through scripting.

In addition to reports that are printed from layouts, FileMaker can also export reports to Microsoft Excel. Excel reports are particularly useful when you need to manipulate the data in an Excel spreadsheet, including performing "what-if" scenarios.

At Facility Wizard Software, we are experts at implementing FileMaker reports. There are over 75 standard reports in our off-the-shelf application products. In addition, we have developed hundreds of custom reports for our customers, utilizing all FileMaker reporting capabilities.

Adobe Acrobat PDF Report Output

Like many applications that have printing functionality, FileMaker Pro reports can be output as Adobe Acrobat PDF files. For FileMaker however this is particularly useful when the application is accessed over an organization's Intranet or Extranet. In these cases, which are facilitated by browser access or Citrix access, PDF output provides a portable report output format that can be created and downloaded across the Internet. These documents can be saved to the user's computer or sent to a printer on the user's local network.

Total Cost of Ownership (TCO) Comparison

The FileMaker Pro platform of products presents itself as a compelling alternative for today's information management challenges. FileMaker's value proposition addresses TCO on several key fronts:

- ▶ Initial software investment cost
- ▶ Software upgrade cost over time
- ▶ Time and resources required for initial installation and configuration
- ▶ Time and resources required for ongoing support
- ▶ Time and resources required for changes to application functionality based on business and/or user requirements

A detailed study of the TCO benefits of our software products is available at:
http://www.facilitywizard.com/downloads/tech_documents/FacilityWizard_TCO_ROI.pdf

A third party analysis of the cost benefits of FileMaker is shown on the following page.

Microsoft, Oracle, MySQL, and FileMaker 3-Year TCO

	25 Clients	50 Clients	1000 Clients
Database License Acquisition Costs			
FileMaker Development Solution (includes 10 FMPA copies)	\$7,875	\$13,550	\$201,380
Microsoft SQL Server 2005 Enterprise Edition	\$13,969	\$28,506	\$570,120
Oracle Database Standard Edition 10g	\$15,000	\$30,000	\$600,000
MySQL	\$0	\$0	\$0
Development Environment (ten copies)			
FileMaker Development Solution (included above)	\$0	\$0	\$0
Microsoft Visual Studio .NET 2003 Professional Edition	\$7,990	\$7,990	\$7,990
Oracle Internet Developer Suite (Java)	\$50,000	\$50,000	\$50,000
MySQL (used with IBM WebSphere Studio App. Dev.)	\$80,000	\$80,000	\$80,000
Development Cost (10 Programmers)			
FileMaker Development Solution	\$400,000	\$400,000	\$400,000
Microsoft Visual Studio .NET 2003 Professional Edition	\$900,000	\$900,000	\$900,000
Oracle Internet Developer Suite (Java)	\$1,035,000	\$1,035,000	\$1,035,000
MySQL (Java)	\$1,035,000	\$1,035,000	\$1,035,000
Two Application Upgrades (new releases)			
FileMaker Development Solution	\$80,000	\$80,000	\$80,000
Microsoft Visual Studio .NET 2003 Enterprise Architect	\$180,000	\$180,000	\$180,000
Oracle Internet Developer Suite (Java)	\$207,000	\$207,000	\$207,000
MySQL	\$207,000	\$207,000	\$207,000
Deployment Cost			
FileMaker Development Solution	\$6,300	\$11,000	\$16,000
Microsoft	\$5,500	\$11,000	\$16,500
Oracle	\$43,499	\$94,999	\$189,998
MySQL	\$15,000	\$20,000	\$25,000
DBA Cost			
FileMaker Development Solution	\$6,000	\$10,000	\$23,000
Microsoft SQL Server 2000	\$17,000	\$33,000	\$240,000
Oracle Database Standard Edition 10g	\$150,000	\$150,000	\$3,000,000
MySQL	\$20,000	\$40,000	\$500,000
Development Toolset Training			
FileMaker Development Solution	\$10,000	\$10,000	\$10,000
Microsoft Visual Studio .NET 2003 Professional Edition	\$64,000	\$64,000	\$64,000
Oracle Internet Developer Suite (Java)	\$32,000	\$32,000	\$32,000
IBM WebSphere Studio Application Developer	\$32,000	\$32,000	\$32,000
Two Platform Upgrades over Three Years			
FileMaker Development Solution	\$4,435	\$13,100	\$124,000
Microsoft	\$5,549	\$5,549	\$5,549
Oracle	\$1,500	\$3,000	\$30,000
MySQL	\$0	\$0	\$0
Support/Maintenance			
FileMaker Development Solution	\$3,600	\$6,600	\$26,400
Microsoft	\$6,000	\$12,000	\$48,000
Oracle	\$700	\$1,400	\$5,600
MySQL Network Silver	\$5,985	\$11,970	\$47,880
Total Cost of Development Platform Ownership			
FileMaker Development Solution	\$518,210	\$544,250	\$880,780
Microsoft	\$1,200,008	\$1,242,045	\$2,032,159
Oracle	\$1,534,699	\$1,603,399	\$5,149,598
MySQL	\$1,394,885	\$1,421,980	\$1,926,840

Source: Infostructure Associates. December 2005.

The Facility Wizard Difference

FileMaker, the technology platform that we utilize at Facility Wizard Software is both highly capable, and has a large dedicated customer and developer base. FileMaker includes both FileMaker Pro, and FileMaker Server for multi-user support, and provides a scalable, reliable, and high performance integrated development environment with robust reporting, web publishing, security, and integration tools. Years of experience and success have repeatedly demonstrated to us that FileMaker is an excellent choice for implementing highly usable and functional facility management and real estate administration applications.

FileMaker provides a complete and robust platform architecture. The combination of the technologies we have discussed in this paper provides excellent scalability to hundreds of users, and excellent flexibility in terms of user interface access (native user interface, browser). FileMaker applications can be accessed across an organization's Local and Wide-Area Network, as well as the Internet.

FileMaker Technical Support by Facility Wizard Software

At Facility Wizard Software we do not expect IT managers to become experts at managing or supporting FileMaker technology. Our support agreements allow us to be the front line of support for any issues from a user or technical standpoint. We will also handle all program maintenance and upgrades with as much or little involvement from your staff as you would like.

We boast that our software products will make the lives easier of the end users of our tools. We can proudly extend that to the IT staff that we have worked with over the years. The FileMaker platform is truly simple to set up and maintain while offering all the power, flexibility and integration necessary in today's corporate information technology environments.

About FileMaker Corporation

FileMaker Corporation is a fully owned subsidiary of Apple Computer and has been profitable every quarter since its creation. More than 10 million units of FileMaker software have been sold to small, medium and large business around the world. Customers include:

- 49 of the top 50 universities in the U.S.
- The top 250 U.S. school districts
- 70 of the Fortune 100 companies

About Facility Wizard Software

Facility Wizard Software develops and markets simple, powerful and flexible software tools and web-based solutions for facility management and real estate professionals.

The Facility Wizard family of software products is based on three fundamental principles. Our products are designed to be:

- SIMPLE. Making you feel comfortable with your software is our #1 priority. We never underestimate the importance of simplicity and usability.
- POWERFUL. Built for performance and productivity, with scalable tools and interfaces that reach out to your entire organization and integrate with enterprise applications.
- FLEXIBLE. Our standard products have all the core features you need and can be easily modified or custom-tailored to meet your current and changing requirements.

Available software solutions include asset maintenance and work order tracking, construction project and capital program management, and real estate lease administration. Facility Wizard Software is known for exceptional customer satisfaction.

Facility Wizard Software is a privately held corporation, with the home office in Chicago Illinois, and with branch offices in Ohio, Texas and California. The company has been in-business and profitable since 1992, and has served over 600 customers worldwide.



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