

Excel 2003, MS Access 2003, FileMaker Pro 8

Which One Should I Use?

This document is intended to show a comparison of Excel, Access, and FileMaker along with general guidelines to help you decide when to use one versus the other. Excel is a spreadsheet software application while Access and FileMaker Pro are Relational Database Management System (RDBMS) applications. Although they are two different types of applications, they provide a similar base functionality for managing data. So how do you know if Excel will meet your needs or if you need to use a RDBMS such as Access or FileMaker Pro? The following questions should be considered when deciding this:

1.) Do you need to manage relational data?

If your data can be stored in a single entity (spreadsheet or table), then the data is considered non-relational. All required fields must be stored in that one spreadsheet or table. Non-relational data can be stored in either Excel or in a RDBMS such as Access or FileMaker Pro. If your data needs to be stored in more than one entity, then a Relational Database Management System (RDBMS) is needed. A RDBMS has at least two related tables which are linked by one or more fields. This link ensures that you can enter a value in one table only if there is a corresponding entry in the other table. For example, data about students might be stored in a table called Student_Information. This table would contain Student_ID, First_Name, Last_Name, Address, Phone_Number, Birth_Date, and SSN. Another **related** table called Student_Grades would contain the grades for students. This table would contain Student_ID, Class, and Grade. These two tables would be **related and linked** by the Student_ID.

2.) Will you have multiple users updating the data?

If more than one user will need to be in the data updating it at the same time (this is called concurrent users), then a RDBMS such as Access or FileMaker Pro should be used. Excel does not support multi-user access.

3.) Do you have a large amount of data to manage?

If you have a large amount of data to manage, then a RDBMS such as Access or FileMaker Pro should be used. Not only can you store huge amounts of data in these databases (see below comparison table), but you can manage the data more easily too. Excel 2003 has a limitation of 65,536 rows of data. But really do you want to wade thru this many rows in a spreadsheet? If you have more than 15,000 rows then it is probably a good idea to use Access or FileMaker Pro.

- 4.) Want to run complex queries and reports? Need complex forms for data entry? Or need complex data entry edit checks?

If you have complex queries to run for selecting and reporting on data or complex forms for data entry that have complex data entry validation, then Access or FileMaker Pro is a better choice for this.

So then once you decide that RDBMS such as Access or FileMaker Pro is needed, then how do you decide which one to use? The major differences between the two are:

- 1.) FileMaker Pro is cross platform meaning it will work on a PC and a Mac. Access is PC compatible only; it will not work on a Mac.
- 2.) FileMaker Pro in general is considered more user friendly and intuitive than MS. MS Access requires a little more database knowledge to get started from a development standpoint and so has a slightly higher learning curve. Of course, these statements are subjective and it is really an individual user preference which is more user friendly. However, the ease of use of FileMaker Pro does come at a cost – that being it is more difficult to implement advanced functionality in FileMaker Pro compared to Access. FileMaker Pro uses ScriptMaker for its development environment which is less powerful compared to Access' Visual Basic for Applications (VBA) development environment. Also, Access gives you direct access to SQL queries.
- 3.) **FileMaker Pro** – FileMaker Pro can support up to 5 concurrent users on a database. If more than 5 concurrent user access is required, then FileMaker recommends the use of FileMaker Server which can support 250 concurrent users per database. The FileMaker Server sole purpose is to host databases. To use any of the hosted FileMaker Server databases, each person (client) must still have a copy of FileMaker Pro installed on their computer.

MS Access - Although Access can support up to 255 concurrent users on a database, if you expect the application will need to accommodate 20 or more users then you probably want to use SQL Server or SQL Server 2000 Desktop Engine (MSDE 2000) for performance reasons. SQL Server and MSDE 2000 are client/server database engines. Each client that accesses the database engine will need a valid license for MS Access.

The comparison table on the following pages provides information on commonly used features of the products. You can use this to get more details on the functionality of each product.

In summary, when deciding which application to use, you will want to determine if a spreadsheet will suffice or if a RDMS is needed. If an RDBMS is needed, you can use the comparison table to help you decide which product will best meet the requirements. The goal is to pick the solution that will best meet the user needs and create the best solution for them.

Comparison Table

Criteria	Excel 2003	Access 2003	FileMaker Pro 8	Comments
Handles relational data	No	Yes	Yes	
Unique record identifier	Yes, this is the row and column identifier. For example, B17.	Yes, this is the primary key	Yes, this is the primary key	
Sort/filter data	Yes	Yes	Yes	
Run calculations to derive the data you want	Yes	Yes	Yes	
Charts	Yes	Yes	No, this feature is not available in version 8 but is a new feature available in 8.5	
Generate reports	Yes	Yes	Yes	
Use forms to add, change, delete, and navigate your data	Yes	Yes	Yes	
Mass produce address labels	Yes	Yes	Yes	
Connect to external databases	Yes	Yes	Yes	All 3 applications are ODBC (Open Database Connectivity) compliant.

Criteria	Excel 2003	Access 2003	FileMaker Pro 8	Comments
Import data from external databases and other file types (delimited text files)	Yes	Yes	Yes	
Multi-User concurrent access	No	Yes	Yes	
Data Validation	Yes	Yes	Yes	Both Access and FileMaker allow you to do complex edit checks on data entry. This is accomplished in Access when you define the fields in the table or via Event Triggers in the data entry forms. In FileMaker this is accomplished using Validation and Validated by calculation when you define the fields in the table.
Platform	PC only	PC only	PC and Mac	
Calculation Field stored in the database (or spreadsheet)	Yes	No	Yes	Calculations in FM are created as actual fields and stored in a table. In Access, calculations cannot be stored as a field but can be created in forms, queries, and reports but are lost when the form/query/report is closed.
ER Diagrams	n/a	Yes	Yes	ER diagram is the Entity Relationship diagram. This is a graphical diagram showing the tables (called entities), fields and the relationships between the tables.
Ease of Use/Learning Curve	Very Straight Forward to learn and	More difficult to set up at the beginning level. Higher learning	Less difficult to set up at the beginning level. Learning curve	While the Access learning curve is higher than FileMaker Pro, it is easier to implement advanced functionality in Access. This is because Access uses Visual Basic for

Criteria	Excel 2003	Access 2003	FileMaker Pro 8	Comments
	start using immediately. Small Learning Curve.	curve than FileMaker Pro because requires some knowledge of databases	is lower than Access.	Applications (VBA) for automation on the database. FileMaker Pro uses ScriptMaker, which is less powerful than VBA.
Training	Training classes available, additionally MS has free tutorials online.	Training classes available, additionally MS has free tutorials online.	Training classes available.	
Event Driven Programming	Yes	Yes	No, FM scripts are not event driven. But you obtain plug-ins that offer similar functionality. Some plug-ins are free while some must be purchased at an additional cost.	Macros and VBA code in Excel and Access are event driven meaning they are triggered by certain events such as the user opening a form. Having event triggers lets you automate your solution further than is possible in FM where the user needs to start a script for action to take place.
Querying/Finding	Yes	Yes, Access uses queries to find specific records.	Yes, FM uses Find Mode to select records.	

Criteria	Excel 2003	Access 2003	FileMaker Pro 8	Comments
Database Capacity	Excel 2003 has a row limit of 65,536 *	2 gigabyte per database	8 terabyte per database	* Although Excel has a row limit of 65k, do you really want to manage this many records in a spreadsheet? If you have more than 15k rows it is probably a good idea to use Access or FileMaker Pro.
Scalability	Supports 1 concurrent user	Supports up to 255 concurrent users. Users may experience less than optimal performance with 20 or more users. In which case you may want to consider using SQL Server or SQL Server 2000 Desktop Engine (MSDE 2000)	Supports up to 5 concurrent users. If you need more than 5 concurrent users, FileMaker recommends the use of FileMaker Server which can support 250 concurrent users.	Migrating an existing Access database solution to MSDE 2000 or SQL Server usually requires some modifications (re-write) to the application.
Web Publishing	Can share worksheet via web	Can share individual forms or reports, but not the entire database solution.	Can share the complete solution (entire database solution). Note, in the scripting environment,	

Criteria	Excel 2003	Access 2003	FileMaker Pro 8	Comments
			certain commands are not web-compatible such as open/close of database and printing.	
Security	Yes, can password protect a workbook	Yes, can restrict access at the database level	Yes, can restrict access at the database level or layout/field level or can limit the records seen based on login id.	