

FileMaker Pro on the Web

FileMaker Pro is a relational database package for the Macintosh and the PC. It has a user-friendly interface and is a popular database program, especially with novice database users. FileMaker Pro is used by many of the departments at HMC. For example, the Humanities and Social Sciences Department uses a FileMaker Pro database to manage their advising records during the advising period. Many of the department secretaries use the Harvey Mudd Accounting Database (HMAD) developed by Academic Computing to track vendor information, account number and budget information, departmental expenditures, and inventory.

NEW FEATURES

A new version of FileMaker Pro was recently released for both the Macintosh and the PC. FileMaker Pro 4.0 has many new features including expanded Sort and Find options, new calculation functions, and the ability to import Excel spreadsheets directly into a database file. The most interesting new features relate to its new Internet and Web publishing support, however. New Internet features include GIF and JPEG support, export of database data to HTML tables, and email and URL support. Web publishing support consists of FileMaker Pro's ability to directly serve FileMaker Pro files to the Web using a built-in feature called the Web Companion.

THE WEB COMPANION

Previously, you needed a separate Web server and additional software (such as Lasso) to serve FileMaker Pro files over the Web. With the new version of FileMaker Pro, the FileMaker Pro application itself acts as the Web server. FileMaker Pro incorporates a built-in plug-in called the Web Companion which does the work of serving your database file over the Web. By first enabling the Web Companion plug-in and then configuring it you can publish your file over the Web using one of two options available: Instant Web Publishing and Custom Web Publishing.

INSTANT WEB PUBLISHING

With Instant Web Publishing you simply open your database file and enable Web Companion Sharing in the File Sharing dialog box. You can then launch a Web browser such as Netscape Navigator or Internet Explorer and go to the IP address of the machine that the database is running on. FileMaker Pro provides a default home page with a link to all of the databases that you are sharing via the Web Companion.

FileMaker Pro provides a Web interface to your database that allows users to view records in the database both as a single-record form and as a multi-record table. Users can browse, search, sort, edit, delete and add new records depending on what access privileges you have provided. Access privileges can be set by using FileMaker Pro's built-in password protection features. You can also specify which fields of your database will be published on the Web by designing layouts in FileMaker (continued on page 5)



Controlling Access to Your Web Pages



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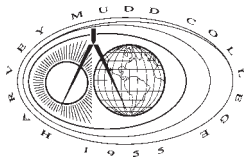
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There are many occasions where you may want to restrict access to the Web pages that you create. For example certain information might be appropriate only for the HMC community; a faculty member might want to disseminate information only to the students in his/her class; or you might want to give sensitive information to only a specific person.

In general there are two ways to limit access to Web pages. In the first method access is controlled through the use of a password that the user must enter before they can see the page. In the second method pages or whole directories can only be accessed from certain connection locations, i.e. from machines with an IP address in a certain domain or even from a single machine only.

Access control is implemented in different ways depending on the Web server software running on the server. In some cases the author of the Web pages can have personal control over access to his/her pages; in other cases the webmaster must configure the server. In this article we will discuss the options for access control on some of the Web servers at HMC.

ACCESS CONTROL ON ORION

Orion's Web server is used primarily by students for their home pages. Students can create Web pages by running the command `make_www` in their home directory. This command creates a subdirectory called `www-home` in the users's home directory. The subdirectory has the appropriate file permissions for the Web server to be able to access files in the directory. Files in this

subdirectory are thus accessible over the Web at the URL `http://www3.hmc.edu/~username/`.

Orion's Web server is running Apache server software. This software supports user-configurable access control. Students can control access to their Web pages both by connection location and by password.

Connection location access control is provided by creating a special file called a `.htaccess` file. The file is placed in the directory you want to protect and protects all subdirectories in that directory as well. Commands in the file specify the domains or IP addresses that can have access to your pages.

Password protection is accomplished by creating a password file using the `htpasswd` command. Details on both of these methods can be found in *Orion's* Web documentation library at `http://www3.hmc.edu/docs/www/`.

ACCESS CONTROL ON THUBAN

Thuban's Web server runs OSU Web server software and is used by a variety of groups including faculty, staff, and college organizations. Faculty and staff can use their home directories to create home pages in much the same way that students can use their home directories on *Orion*.

Running the command `@AC_COM:MAKE_WWW` creates a directory called `www-home` where users can store files they want to make accessible over the Web. The Web pages can be accessed at the URL `http://www2.hmc.edu/~username/`.

Users cannot currently control access to their Web pages themselves. Changes must be made by the webmaster for *Thuban's* Web server, Roger Wiechman. Users who are interested in changing access to their Web pages on *Thuban* should contact Roger at Roger_Wiechman@hmc.edu.

ACCESS CONTROL ON WWW4.HMC.EDU
WWW4.HMC.EDU is the HMC Courseware Server. It is a WebStar server which runs on a Macintosh computer. The server is used primarily by faculty to create Web pages for their courses and supports several specialized programs for forms, dynamic Web pages, and conferencing, among others.

There are actually two separate courseware servers running on different ports on the server. The first, www4.hmc.edu, is restricted to access by computers at the Claremont Colleges only. The second, www4.hmc.edu:8000, permits worldwide access. By choosing which server to use, faculty members can easily restrict access to their pages to members of the Claremont Colleges only. Details on using the Courseware Servers can be found at their home pages at <http://www4.hmc.edu/> and <http://www4.hmc.edu:8000/>.

Users can also create password-protected pages by using one of the programs on the server called NetCloak. NetCloak uses special commands which are added to your Web pages that can require users to enter a password before they can see your pages. For more information on using NetCloak check the documentation available on the Courseware Server home page at <http://www4.hmc.edu/> and in the NetCloak User's Guide at <http://www4.hmc.edu/NCUsersGuide/contents.html>. 🐾

ditor's Notes

The semester is drawing to a close and our thoughts begin to turn to summer projects. Just in case you needed some new ideas we thought we'd describe some new tools that are available, as well as some tools that have been around for a while, but that might not be so familiar.

The first tool is the new version of FileMaker Pro, a database package for the Macintosh and PC. This version has several new features, including the ability to serve database files directly over the Web. Another Web-related tool is the ability to control access to Web pages. We describe how to add location-based or password-based access control to your Web pages on the main Web servers maintained by Academic Computing.

Adobe Acrobat and the PDF file format are another tool you might want to explore further. In addition to being used as a way to distribute documents that contain scientific and mathematical notation over the Web, PDF is also being used by many organizations to distribute documentation via other media, for example on CD-ROM or by email.

Finally, if you are a Eudora user be sure to check out this month's *Tricks&Tips*. We guarantee you will find it useful.

—Elizabeth Hodas

Occasional Downtime is published bimonthly by the Academic Computing Department at Harvey Mudd College. It is also available in a variety of formats on the HMC Web Server. Comments and questions can be directed to downtime@hmc.edu.

File Types & Formats



Most of the time you don't need to worry about a file's type when you're working with computers. But every once in a while you'll find yourself in a situation where it's useful to understand a little about file types and how they work.

Want to dance?

But first, what do we mean when we talk about file types? In simple terms: Files typically store data; different applications use different file formats to represent the data. The file type indicates how the data is formatted. For example, a word processing application such as Microsoft Word will use certain codes to represent a table or bold text. Another word processing program such as WordPerfect might use different codes to represent the same elements. In order for an application to open a file in a particular file format it must either understand and be able to interpret the codes in the file or have translators which allow it to translate the other format into something it understands.

In the PC, Unix, and VMS world, file types are usually indicated by the extension used in the filename. For example, the extension .txt indicates a text file, .ps indicates a postscript file, and .wav indicates a WAV sound file. On the Macintosh, the file type is determined by a pair of hidden 4-letter codes maintained by the system. These codes also determine the file's icon, which is the visual indicator of its type.

On the Mac and the PC you can usually just double-click on a file's icon to open it

in the appropriate application. If you don't have the application that was used to create the document this will probably not work. Documents received as email attachments

often generate a call to the Help Desk due to this file type problem. The document was created in an application that the user doesn't have so when he/she tries to open it they get an error message. The answer to this problem is to first launch an application that might have translators that will allow it to convert the file. Then open the file from within the application (i.e. select Open from the File menu). Microsoft Word, for example, has many translators which allow it to open files created in other word processors or in previous versions of Word.

This will only work if the application has the appropriate translators, of course. Not all applications can open all file types, nor would you expect them to. For example, the application GraphicConverter for the Macintosh can open many different graphics file types, but you wouldn't expect it to be able to open a sound file or word processing file.

Another common situation where it's useful to know a little about file types is when you're surfing the Web. There are many different file types in use on the Web and in order for your Web browser to display them it needs to be configured to use the appropriate helper application or plug-in. For example if you want to be able to display and read a PDF file you'll need



the Acrobat Reader or Acrobat plug-in from Adobe. To view a MacroMedia Director file on the Web you'll need the Shockwave plug-in. The list can go on and on. 🐾

COMMON FILE FORMATS

ENCODING FORMATS

.uu uuencoded file
.hqx BinHex file

COMPRESSION FORMATS

.zip Zip compressed file
.gz GZIP compressed file
.sit StuffIt file
.sea Self-extracting archive
.Z Unix Compress file
.tar Unix tape archive file

GRAPHICS FILE TYPES

.pict PICT file
.tiff TIFF file
.gif GIF file
.jpg JPEG file

AUDIO FILE TYPES

.wav WAV file
.au Ulaw file
.midi MIDI file
.ra RealAudio file
.aiff AIFF file

VIDEO FILE TYPES

.mpeg MPEG file
.mov QuickTime video file
.avi AVI file

OTHER FILE TYPES

.txt Text file
.html HTML file
.rtf RTF (Rich Text Format) file
.pdf PDF file
.ps Postscript file
.eps Encapsulated postscript file
.exe PC executable file
.doc Word processing document
.ppt Powerpoint document
.xls Excel document
.fp3 FileMaker Pro document
.dcr MacroMedia Shockwave file

FileMaker Pro continued from page 1

Pro that include only the fields you want visible. If you have a relational database and want to use related fields on the Web you can add those related fields to your layout as well.

CUSTOM WEB PUBLISHING

Instant Web Publishing is a great way for the novice user to get their database on the Web. It requires no knowledge of HTML yet still provides users with full access to your database. The disadvantage is that you are limited to the interface provided by FileMaker Pro. If you want to customize your database on the Web in any way at all you must use the Custom Web Publishing feature.

Custom Web Publishing is a much more powerful way to publish your database on the Web. By using a combination of regular HTML tags and special CDML (Claris Dynamic Markup Language) tags you create format files which customize the appearance of your FileMaker Pro data on the Web. The CDML tags enable the HTML pages to interact with FileMaker Pro. Online documentation and several example databases are provided with FileMaker Pro. Unfortunately, the learning curve for learning to use the CDML tags is fairly high. If you are a novice FileMaker Pro user and not familiar with HTML then Instant Web Publishing would probably be a better choice.

AC FILEMAKER PRO WEB SERVER

Academic Computing currently has a test FileMaker Pro Web server running on a Power Macintosh 6100/66. If you are interested in experimenting with making a FileMaker Pro database accessible over the Web please contact Elizabeth_Hodas@hmc.edu. If there is demand for a college FileMaker Pro Web server, Academic Computing will consider making it more accessible (similar to the Macintosh WebStar Courseware Server, www4.hmc.edu). 🐾



Adobe Acrobat

Part I: The PDF format

PDF stands for Portable Document Format and was developed by Adobe Systems in the early 1990's as a way to address some of the problems inherent in publishing and distributing documents electronically. One of the main problems with distributing documents electronically among a group of people is that not everyone in the group will have the exact same computer setup, even at a small business or organization. For example, at Harvey Mudd College a user's computer system might consist of a dumb terminal, a Macintosh, a PC running Windows 95 or Windows NT, a UNIX workstation or some other type of workstation. Even among users with the same computer platform it is possible to have a wide variety of installed software and fonts.

This makes it very difficult to distribute an electronic document such as a word processing file to a large group of people. One solution is to only distribute plain-text documents, which can easily be sent by email. This is not optimal, however, since it eliminates all of the formatting, fonts, color, and graphics that make a document compelling and readable.

PDF was developed to address some of these problems. Adobe Acrobat, a software package developed by Adobe Systems, converts a document which was created in another program (such as Microsoft Word or Adobe Pagemaker) into a PDF document. The advantage of the PDF document is that it retains all of the fonts, formatting, layout and graphics of the original document. Users need only obtain the free Acrobat Reader program from Adobe to open the PDF document on their computer. Acrobat Reader is available for

most operating systems including Macintosh, Windows 95, Windows NT, Windows 3.1, LINUX, Solaris, and SunOS. (It is unfortunately not available for VMS). A PDF document can be sent by email, put on a Web site, or distributed on a floppy or CD-ROM.

THE ACROBAT READER

Reading an electronic document online is not always comfortable or easy. Small font sizes and the need to scroll around in a long document can be hard on the eyes and the wrist. Acrobat Reader, the program that you use to open and read a PDF document, has many features which make reading an electronic document more comfortable.

Bookmarks and page thumbnails make finding what you want easy in even a long document. Navigation buttons let you quickly go from page to page or jump to the beginning or end of the document.

Multiple zoom buttons allow you to quickly magnify the page to make reading small fonts easier. Acrobat Reader even supports the concept of articles within a document which make it easy to navigate through the columns of an article even when it is split up on different pages of the document.

PDF documents can even have hypertext links which when you click on them can take you to another section in the same PDF file, to another PDF document, or to a URL on the World Wide Web.

Adobe has also developed an Acrobat plug-in which when used with a browser such as Netscape Navigator, allows you to view a PDF document within a browser

window. Acrobat Reader is distributed for free by Adobe Systems and is available for downloading from Adobe's Web site at <http://www.adobe.com/>. It has been installed on all of the lab machines in the Academic Computing computer labs.

WHO USES PDF?

With the explosion in popularity of the World Wide Web PDF has become a very popular way to distribute documents electronically. HTML is of course the most common way to make information available on the Web, but as a publishing medium it is severely limiting. Some advances have been made with extensions to HTML, but for many kinds of information it is simply not very suitable. It can also require a great deal of time and effort to convert already existing documentation into HTML. Many companies are therefore using Acrobat to distribute documentation on the Web. The IRS, for example, makes all of its tax forms available on the Web in PDF format. Researchers wanting to submit grant proposals to the National Science Foundation can submit them in PDF format over the Web. Even *Occasional Downtime* is distributed in PDF format on the Web.

Another problem with HTML is that while work is being done to extend its capabilities, it does not provide much support for text that includes mathematical and/or scientific notation. The only way to present formulas created in Microsoft Word's Equation Editor or in LaTeX for example, was to convert them into GIFs and incorporate them into the HTML as inline images. Microsoft Word and LaTeX documents can now easily be converted into PDF documents. At Harvey Mudd College several professors have begun distributing homework problems and solutions, class notes and other materials in PDF format on the Web. 🐾

Next issue: How to create a PDF document

Tricks & Tips

SELECTING MESSAGES IN EUDORA

Each row in a Eudora mailbox represents a message and is referred to as a *message summary*. There are several useful tricks to selecting one or more message summaries in a mailbox.

- ▼ Single-click on a message summary to select it.
- ▼ Single-click on a message summary and then hold down the Shift key and click on another summary to select both summaries and all of the summaries between them.
- ▼ To select "disjointed" message summaries (i.e. message summaries that are not one after another) hold down the Command key on the Macintosh or the Ctrl key on the PC while you select the summaries.
- ▼ To quickly select all of the messages from a particular person, hold down the Option key on the Macintosh or the Alt key on a PC and click on the sender's name in a message summary (i.e. click in the Who field of the message summary). The message summaries will be grouped together and selected.
- ▼ To quickly select all of the messages on a particular subject (including replies to a message) hold down the Option key on the Macintosh or the Alt key on a PC and click on the Subject field of a message. The messages will be grouped together and selected. This is a great way to quickly group together all of the messages that were sent back and forth on a particular topic and transfer them all at once to another mailbox.

Try these tricks out next time you need to sort through your Inbox and you will be amazed how much more quickly you can reduce the number of messages in your Inbox! 🐾

& Tricks

QUESTIONS *and* ANSWERS

Q: Someone sent me a Microsoft Word 97 document, but I only use Word 6.0 on my Macintosh. How can I open this file?

A: Microsoft recently released a converter which will allow users of Word 5.x and 6.x for the Macintosh to open documents created in Word 97 for Windows. This converter will also convert documents created in the new version of Word 98 for Macintosh. The converter can be downloaded from Microsoft's Web site at <http://www.microsoft.com/macoffice/prodinfo/office/coexist.htm>.

Q: I have a FileMaker Pro file that I'm designing. I would like to have a data entry aid on one of the fields that has a pop-up list of values for the field. I've looked everywhere in the Define Fields dialog box but can't find a place to define this data entry aid. How do I do it?

A: This type of data entry aid is not defined in the Define Fields/Entry Options dialog box, even though you can define several other data entry aids there. Pop-up lists like you describe are defined as part of your layout design.

First switch to Layout mode and select the field you want to create a pop-up list for. Then choose Field Format from the Format menu. In the dialog box select "Pop-up list using value list" for Style and then choose Define Value Lists. In the Define Value Lists dialog box type a name for the value list and then click Create. Then type the values you want to appear in the pop-up list.

You can reuse value lists for other fields. Value lists can save you a lot of time and help make your data more accurate and consistent.

Q: I have a chart in Excel and I want to replace the standard data markers with something different. Can I do this, and if so, how?

A: Excel provides several standard data markers consisting of various squares, circles, diamonds and triangles, but it's actually pretty easy to change them to something different.

First create your chart as you normally would (this trick works best with line charts). Copy the picture you want to use in place of the standard data marker to the Clipboard. (In most programs just select the picture by clicking on it, then choose Copy from the Edit menu.) Display the chart you are working on and select the data series whose data markers you want to replace by clicking on the series. Then choose Paste from the Edit menu. 🍦

