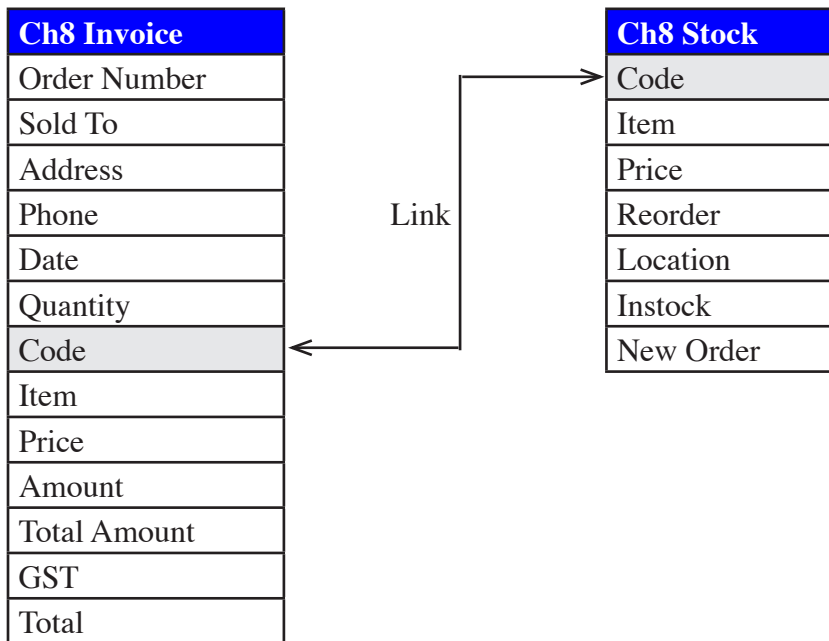


Relational Databases

In the last chapter you imported data from one database to another. However, once the data was imported it could not be automatically updated. This needed to be done manually or by using the RELOOKUP command. This process is fine for placing items in an invoice, but there are times you need to be able to link files more fully.

As database systems become more involved it is advantageous to split the system up into smaller files and to have these files 'hot linked' which means that when data is updated in a MASTER file, the data in any RELATED files is also updated.

A RELATIONAL DATABASE such as FileMaker Pro allows you to "hot link" files. You can set up a relational database system so that if records are added or deleted from a MASTER file, those records are also added or deleted from any RELATED files. You can also use fields from RELATED files in the layouts of the MASTER file. This can reduce the need to have the same fields in different files. For example, in the last chapter your file structure was:



Notice that the fields CODE, ITEM and PRICE are present in both database files. This means that the same data is being stored more than once. It would be much more efficient if the CH8 INVOICE file simply used the fields from the CH8 STOCK file.

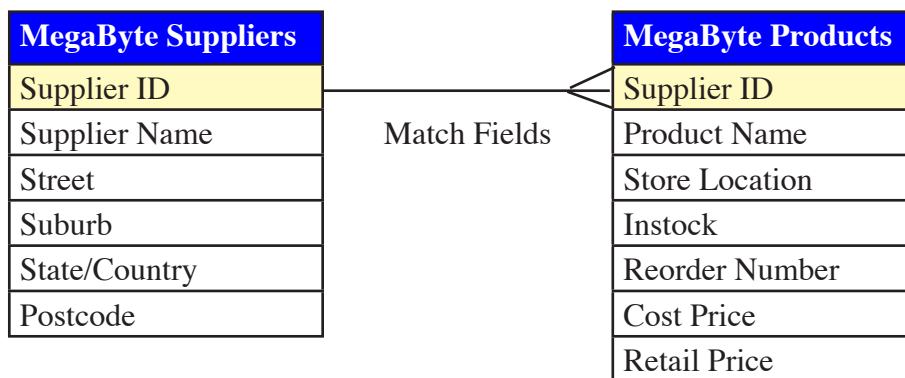
The CODE field would need to be present in both files as it is the link between the two files. One field from each file always has to be used to create a relationship. These fields are called MATCH fields. They do not have to have the same name, but they must be of the same FIELD TYPE and contain exactly the same data.

Creating a Relational Database System

To demonstrate the creation of a relational database system we will create a simple system for a company the sells computer products. It obtains its products from a variety of suppliers. We will use two files:

- MEGABYTE SUPPLIERS which lists the names and addresses of the suppliers of the computer products.
- MEGABYTE PRODUCTS which lists the product name, the cost and retail price, the store location of the product, how many items are in stock and the minimum number of items there should be before a reorder is made.

The following diagram summarises the file structure of the database system



The first step in creating a relational database system is to decide what files are required and how they will be linked. Notice that the line indicating the MATCH FIELDS (SUPPLIER ID) which will be used to link to two files has three lines at one end. In this case the one supplier can provide MANY products, but each product comes from ONE supplier. This ONE TO MANY relationship is the most common setup for a relational database system. The MASTER file can be the one side or the many side. In this case the MEGABYTE SUPPLIERS file will be the MASTER file (the ONE side) and the MEGABYTE PRODUCTS file the RELATED file (the MANY side).

Loading the Prepared Files

Two files have been prepared for you, a simple invoice and a stock list. Your task will be to complete the invoice by obtaining data from the stock list.

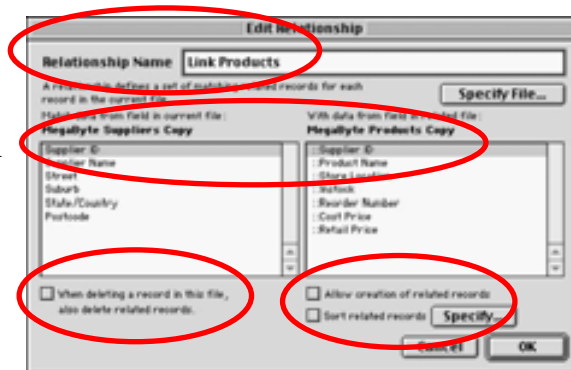
- 1 Load FileMaker Pro, click on OPEN AN EXISTING FILE and select OK. Or close the current file and select OPEN from the FILE menu.
- 2 Access the FMP SUPPORT FILES and open the CHAPTER 9 folder
- 3 Load the file: MEGABYTE PRODUCTS

- 4 The file must now be saved in your STORAGE folder. Display the FILE menu and select SAVE A COPY AS.
- 5 Access your STORAGE folder and save the file under the name:
MEGABYTE PRODUCTS COPY
- 6 Close the MEGABYTE PRODUCTS file. There is no need to open the copy of the file at this stage.
- 7 Select OPEN from the FILE menu, access the CHAPTER 9 folder of the FMP SUPPORT FILES again and load the MEGABYTE SUPPLIERS file.
- 8 Save a copy of the file (FILE menu) in your STORAGE folder under the name:
MEGABYTE SUPPLIERS COPY
- 9 Close the MEGABYTE SUPPLIERS file.
- 10 Open the MEGABYTE SUPPLIERS COPY file from your STORAGE folder.

Defining the Relationship

The MASTER file (MEGABYTE SUPPLIERS COPY) will be linked to the RELATED file (MEGABYTE PRODUCTS COPY). A relationship is required to do this.

- 1 Display the FILE menu and select DEFINE RELATIONSHIPS.
- 2 Select NEW, access your STORAGE folder, select the MEGABYTE PRODUCTS COPY file and select OPEN.
- 3 Call the relationship: LINK PRODUCTS and select the SUPPLIER ID field in both file frames. This is the MATCH field that links the two files.
- 4 At the bottom of the EDIT RELATIONSHIP dialogue box there are two vitally important check boxes, as well as a SORT option. You need to understand when to turn these options on. They are described at the top of the next page.



The Link Options

- (A) When deleting a record in this file, also delete related files.

This means if you delete a record in the SUPPLIERS file the records with the same SUPPLIER ID will be deleted from the PRODUCTS file. This is reasonable in this case as the suppliers make the products, if the company stops using a supplier then it will not have its products.

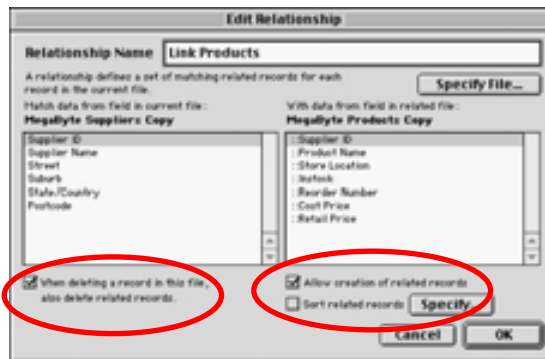
- (B) Allow creation of related records.

This means that if you add a new supplier a corresponding record will be added to the PRODUCTS file. Again, this is required in this case as a new supplier will have different products to the current suppliers. So if we add a new supplier we will want to add new products as well.

- (C) Sort

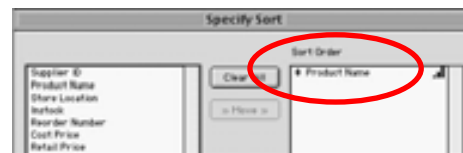
This allows you to display the records from the PRODUCTS in a specified order.

- 5 Click in the Delete Related Records and Allow Creation of Related Records check boxes.



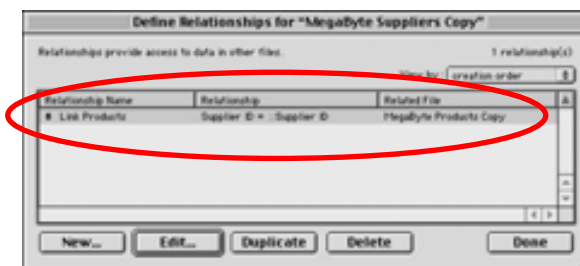
- 6 Click on the SORT RELATED FIELDS check box and the MEGABYTE PRODUCTS fields will be displayed.

- 7 Double click on the PRODUCT NAME field so that the records will be displayed in that order when they are placed in the MEGABYTE SUPPLIERS file.



- 8 Select OK to return to the EDIT RELATIONSHIPS dialog box.

- 9 Select OK to return to the DEFINE RELATIONSHIPS dialog box and the relationship should be displayed.



- 10 Select DONE to return to the layout.