

Getting Started with External SQL Sources in FileMaker v9

FMUG

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What we will cover

- What tools you need to implement ESS
- How to implement the ESS feature in your database
- Best practices for using the Data Warehouse
- Tips and gotchas

What we will not cover

- Live configuration of odbc drivers
- Connecting to any external source other than the Data Warehouse

So What's New?

- Persistent real-time odbc connection to source system
- Data import not required!
- If you're hosting the database with FileMaker Server, only the server machine requires odbc driver installation

Why do I care?

- External data no longer stored in local system
 - Data integrity preserved
 - Data privacy more manageable, provided:
 - Credentials are not stored
 - Credentials are not shared

ESS vs. Web Viewer

If the desired data is available via a web application, consider using a Web Viewer object where possible instead of ESS.

Reasoning:

- You are looking up an individual record and not a batch
- You don't want to require a lot of users to have Warehouse accounts and authenticate to the Warehouse every session when all they need is directory information
- Leverage existing reports and applications
- Spare yourself the added design effort and connection overhead

What you will need

- FileMaker v9
 - Pro, if you are the sole user of the database
 - Server, if you are sharing your database with other users
- A user account for the Data Warehouse for every user who needs to access Warehouse data
- ODBC drivers
 - On the user machine running FileMaker Pro if the database is not shared
 - On the machine running FileMaker Server if it's a shared database

The Tools

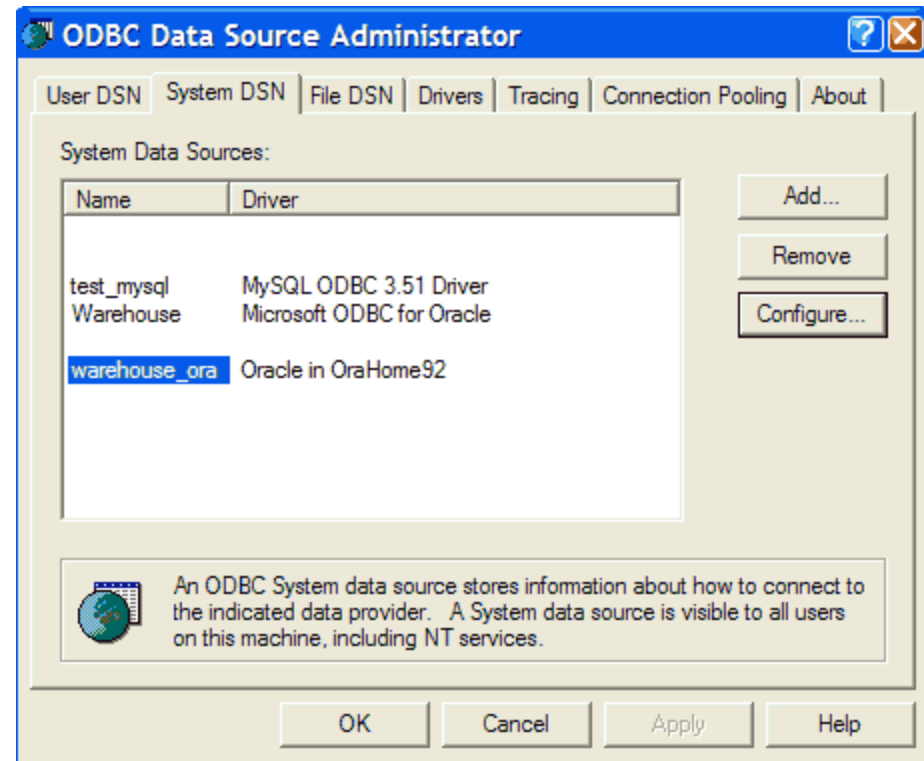
- FileMaker v9:
<http://web.mit.edu/is/products/vsIs/mitfmpro/>
- Request a Warehouse account for each user:
<http://web.mit.edu/ist/warehouse/access.html>
- Oracle drivers:
 - Mac (Actual Technologies):
<http://web.mit.edu/software/mac.html>
 - Windows (Oracle 9i):
<http://web.mit.edu/software/win.html>

ODBC Drivers

- Where do you install the drivers?
 - If you are hosting the database on FileMaker Server 9, then install the appropriate platform driver on the server machine
 - If you are *not* sharing the database with FileMaker Server, and there is a sole user
 - Install the appropriate platform driver on the machine of the sole user running FileMaker 9
 - Do not share databases peer-to-peer

Configuring ODBC Drivers - Windows

- If you are currently using Brio to connect to the Warehouse, your driver and DSN are already set up
- If you are not already using the Warehouse:
 - Download Oracle 9i installer: <http://web.mit.edu/software/win.html>
 - Oracle 9i client installation instructions: <http://itinfo.mit.edu/article.php?id=6466>
- Start > Settings > Control Panel > Administrative Tools > Data Sources (ODBC)



Configuring ODBC Drivers - Mac

- If you are currently using Brio via Citrix, then your drivers and DSN are not set up
- Download v2.7 or higher drivers from Actual Technologies web site, and license key linked from <http://web.mit.edu/software/mac.html>
- Open the package and run the installer
- Applications > Utilities > ODBC Administrator
 - You must create a System DSN, not a User DSN

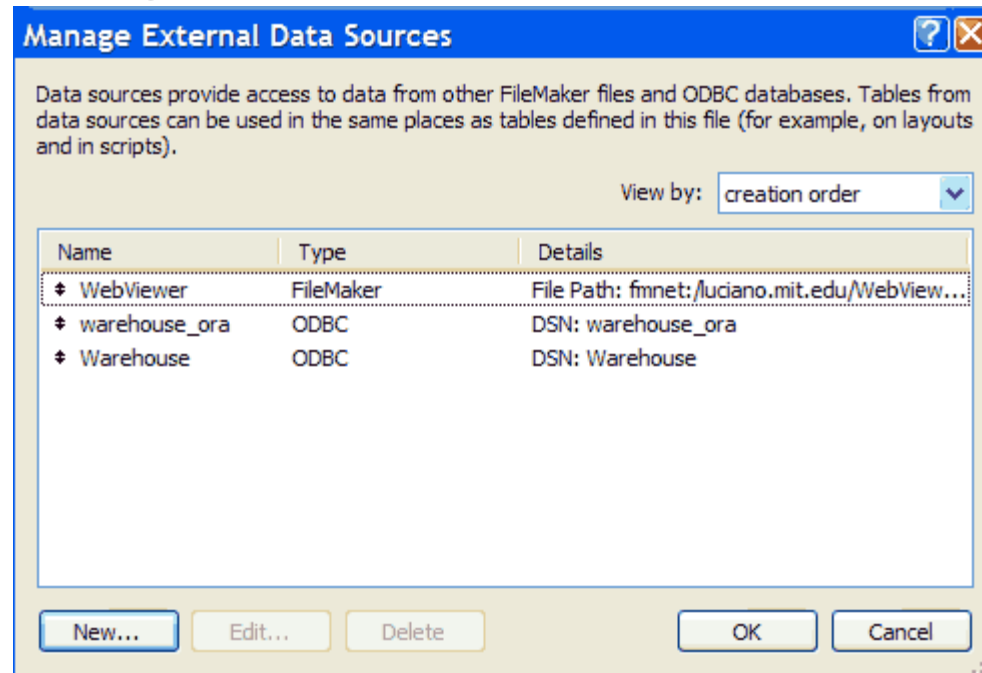
About the ESS Feature

- What ESS is not:
 - A way to store SQL queries
 - All sql is passed invisibly to the user
 - ESS is available only through your relationship diagram, not in import script steps or menu items
- What ESS is:
 - Access to external data within the familiar FileMaker construct of tables, layouts, and Finds

Defining an External Data Source

Within FileMaker:

- Go to File > Manage > External Data Sources
- Click New



Specifying Authentication

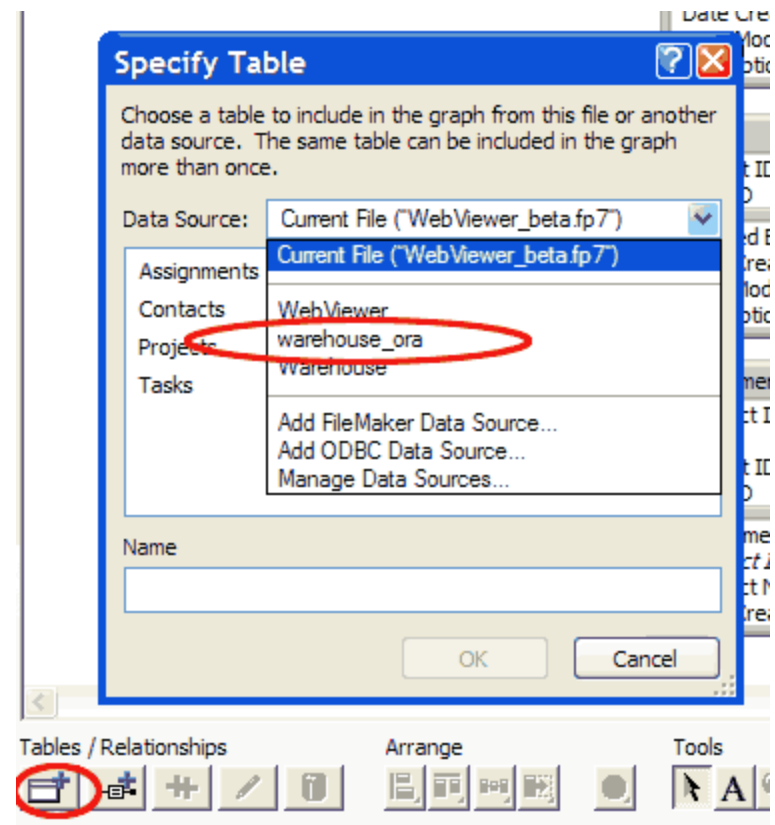
- In the Edit Data Source dialog box, select ODBC for Type
- Click Specify and select the appropriate DSN you created in your ODBC administrator
- Be sure to require users to be prompted for their Warehouse credentials
- **Do NOT store a user account that applies to all users**
 - Storing credentials invalidates the security implemented at the Warehouse level by granting a single user's access to all FileMaker users on your system
- Include Views in Filter by Type

The screenshot shows the 'Edit Data Source' dialog box with the following details:

- Name:** warehouse_ora
- Type:** FileMaker (unselected), ODBC (selected)
- DSN:** warehouse_ora (with a 'Specify...' button)
- Authentication:**
 - Prompt user for user name and password (circled in red)
 - Specify user name and password (applies to all users)
- User name:** (empty text field with 'Specify...' button)
- Password:** (empty text field with 'Specify...' button)
- Filter tables:**
 - Catalog name: (empty text field)
 - Schema name: (empty text field)
 - Table name: (empty text field)
 - Filter by Type:
 - Tables
 - Views
 - System tables
- Buttons:** OK, Cancel

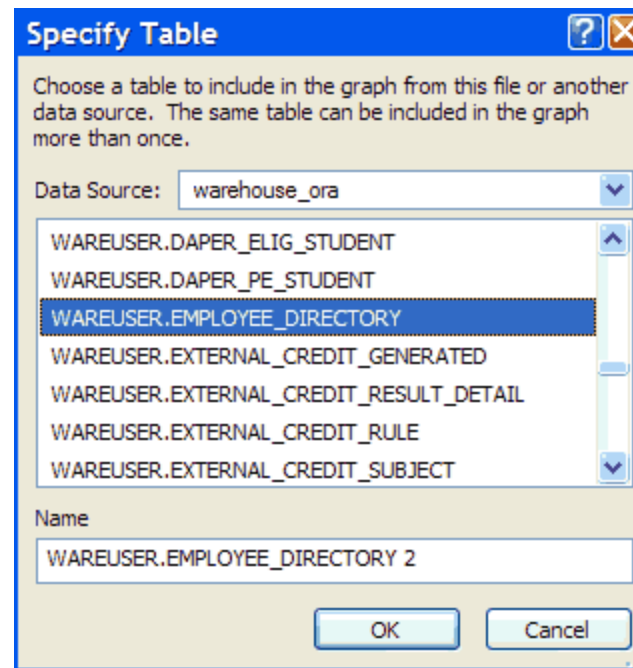
Adding A Warehouse TO

- Go to File > Manage > Database, and select Relationships tab
- Click the Add TO button, just like you would to add a FileMaker table occurrence
- In the Data Source drop-down list, select:
 - The appropriate DSN if it's already been defined OR
 - Add ODBC Data Source



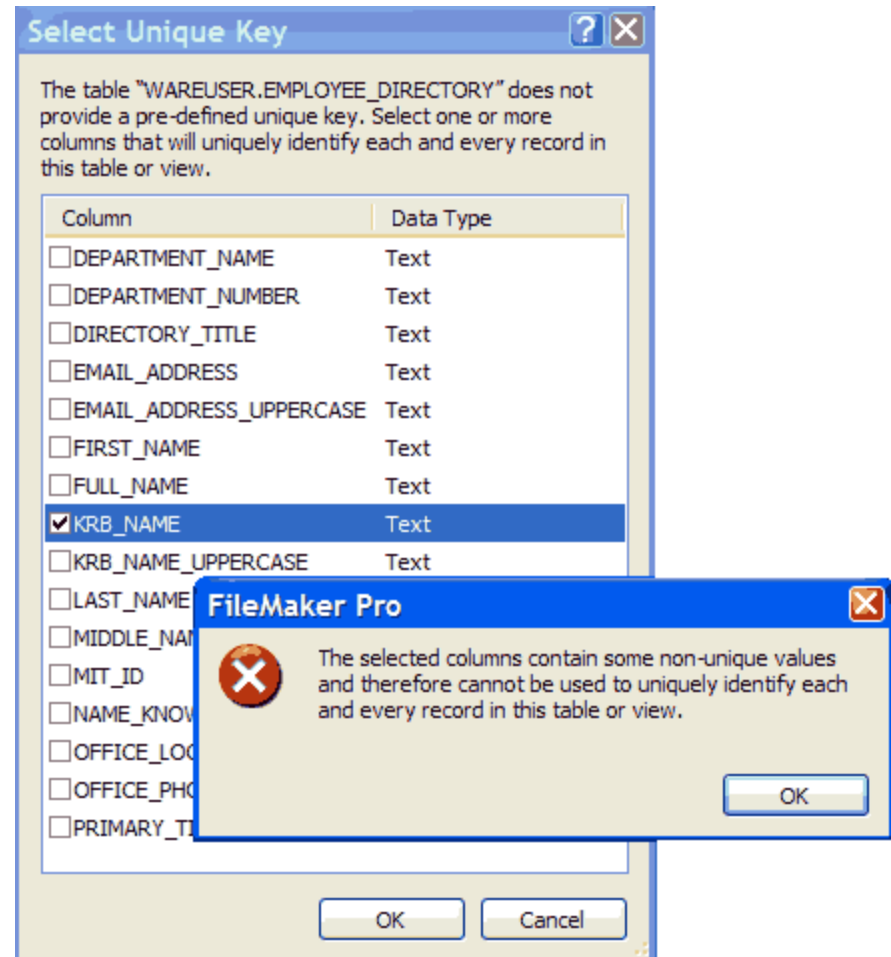
Selecting an ESS Table

- A list of Warehouse tables and views will appear, based on your Warehouse access
- Select the desired table/view and click OK.



Choosing Your Key Field

- A list of all the table's fields will appear and you will be prompted to select a key field.
- If your chosen field is rejected, try another or select two to create a key of the combined fields



What happens next?

- A shadow table is created in your FileMaker database, mirroring the external Warehouse table
- An “all fields” layout is created for that table
- You may create relationships and drag ESS fields onto layouts, just as you would with a FileMaker table
- You may perform Finds on ESS data using FileMaker conventions; you don’t have to know SQL
- You may define unstored “supplemental fields” on the shadow table

Tips

- Set your file to open to a layout that does not have any ESS fields
 - This will avoid forcing all users to authenticate until they really need ESS data
- “Delete” unnecessary fields from your shadow table. You can always synchronize if you need some of those fields later

Know the Warehouse

- Carefully review the Warehouse table information at http://web.mit.edu/warehouse/metadata/stars/all_stars.html and http://web.mit.edu/warehouse/metadata/tables/all_tables.html
- Be aware that “similar” tables have different information and different levels of sensitivity. Request only the access you need and use the appropriate table(s).

Know the Data

Look at the data itself, particularly if you are joining it to local data.

- Join fields: though a field may have been rejected as a key field, you may still use it as a join field, but be warned:
 - If there is a null value in the join field, you will not get any related data
 - If there are duplicate values in the join field, you may get incorrect data
 - Make sure your data value matches the Warehouse value exactly, including case

Gotchas

- Know your data!
 - If you use a join field that was rejected as a key field, be aware that performance may be slow or your join may fail in some cases
 - Your join may fail in some cases anyway if the data itself is bad
- Scrolling, sorting, or searching large ESS data sets
 - Search on indexed fields whenever possible (there may not be any)
 - Reduce your found set before sorting
 - Use FileMaker conventions for Finds
 - Avoid unnecessary scrolling through large recordsets; all the intervening records must be retrieved
- You can not base a value list on an ESS table

Resources

ESS Technical Brief:

http://www.filemaker.com/downloads/pdf/public_techbrief_ess_en.pdf

ESS Tutorial (Quicktime):

http://fmdl.filemaker.com/MISC/fmp9/external_sql_sources.mov

MIT Data Warehouse: <http://web.mit.edu/ist/warehouse/>

Odbc configuration how-to (MIT only):

https://web.mit.edu/ist/warehouse/mitonly/filemaker_warehouse.html