



Foundation User Conference 2014
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Introduction to MS Query

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What We'll Cover

- Enabling Database connections through Microsoft Excel
- Brief overview of Database Structure – defining tables and fields.
- Accessing the data stored in the SQL Database via the MS Query Tool.
- Creating Simple Maintenance Item lists.
- Queries against items with UDFs attached
- Setting Criteria on queries to include/exclude selected items.
- Returning and formatting data in Microsoft Excel.
- Use of Tables and Auto-Filter options in Excel
- Overview of commonly accessed tables in Foundation's database for items stored in
- Job Cost and General Ledger History

Preface: A brief explanation of database structure and queries:

(From Searchsqlserver.com)

http://searchsqlserver.techtarget.com/sDefinition/0,,sid87_gci212885,00.html

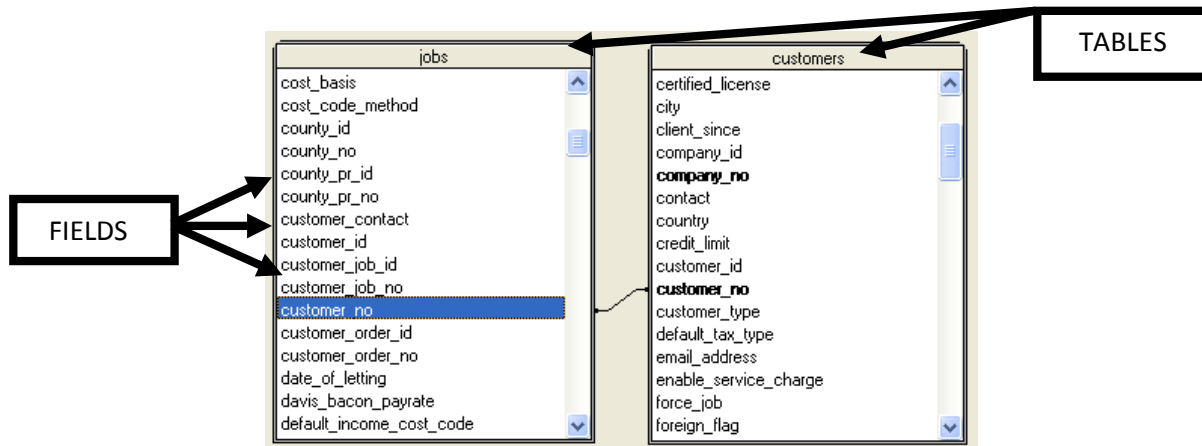
“Definition- A relational [database](#) is a collection of [data](#) items organized as a set of formally-described tables from which data can be accessed or reassembled in many different ways without having to reorganize the database tables. The relational database was invented by E. F. Codd at IBM in 1970.

The standard user and application program interface to a relational database is the *structured query language (SQL)*. SQL statements are used both for interactive queries for information from a relational database and for gathering data for reports.

In addition to being relatively easy to create and access, a relational database has the important advantage of being easy to extend. After the original database creation, a new data category can be added without requiring that all existing applications be modified.

A relational database is a set of tables containing data fitted into predefined categories. Each table (which is sometimes called a *relation*) contains one or more data categories in columns. Each row contains a unique instance of data for the categories defined by the columns.”

A quick preview of how FOUNDATION’s Job table *relates* to the Customer table:



The Job table houses most of the fields on the Job Maintenance window. The Customer table houses the information from the Customer Maintenance window. Individual tables relate to each other by common fields within the tables. If you have a Job Record in Foundation, chances are you have a customer attached to that Job Number. Foundation’s database uses the field named **customer_no** to join these two tables. This way, we can access the Job table, and then pull in all associated information (fields) stored in the Customer table.

We will see more examples later, but each individual table stores minimal data related to other tables to reduce database size and overhead. The **customer_no** (customer number) is stored in the Job table, but the customer name, address, contact information, etc. is not. The specific

customer details are stored in the Customer table. The link between the two tables joins the information together when it is queried from the source.

(From www.About.com.)

<http://databases.about.com/od/specificproducts/a/whatisadatabase.htm>

“Queries are the primary mechanism for retrieving information from a database and consist of questions presented to the database in a predefined format.”

There is a lot of good reading on the subject from beginning to advanced topics on these websites.

Actually locating the correct tables and fields in any database takes time and patience. The easiest queries to write access a single table. These are typically queries against maintenance type records (employee files, job files, vendor files). Some queries require calculations to sum amounts or return minimum or maximum values from a particular table (timecard history, job history). Other queries require the linking of multiple tables in order to return the desired information (job budgets/change orders/costs/income).

We will visit many of these options and show some of the more readily accessed tables in the following lessons.

Excel Resources on the Web:

Mr. Excel – An excellent forum. Many Google searches return topics answered in these forums.

<http://www.mrexcel.com/forum/index.php>

Contextures – A well-organized menu of Excel tips and tricks.

<http://www.contextures.com/tiptech.html>

Microsoft Office Online – A good resource. (Some may find this site difficult to navigate/search.)

<http://office.microsoft.com/en-us/excel/FX100646961033.aspx>

University of Wisconsin – A well-documented source with many screen shots.

<http://www.uwec.edu/help/excel03.htm>

Allen Wyatt's Excel Tips – Nicely formatted for different versions of Excel.

<http://exceltips.vitalnews.com/>

WikiHow – User Edited “how to” site (start your search with “excel”).

<http://www.wikihow.com>

Ozgrid.com

<http://www.ozgrid.com/Excel/>

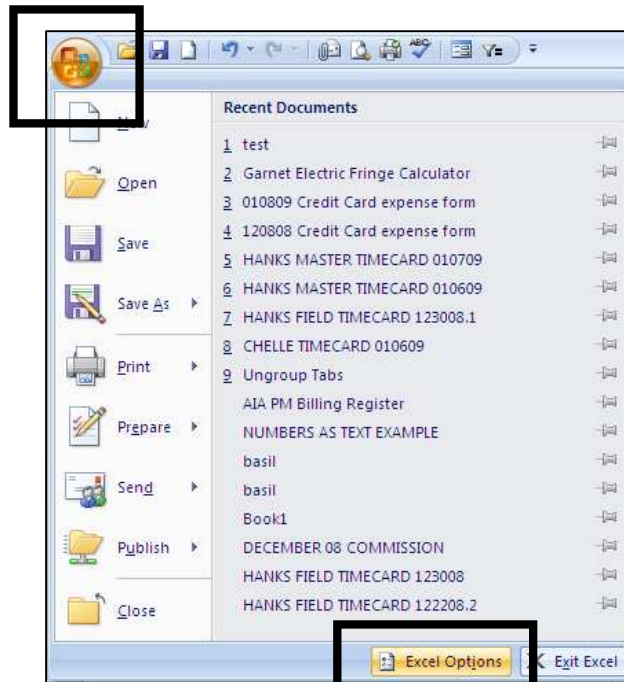
Google– Everything I learned, I learned with the help of Google. Search for what you are looking for and you will find most of the answers with Google’s help. Many searches return data from the sites listed above. I find it easier to start searching with Google as opposed to visiting a specific website.

Enabling Data Connections in Excel

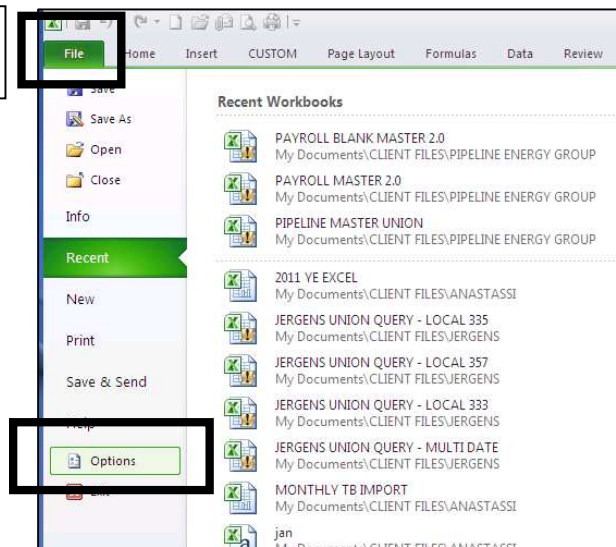
With the release of Excel 2007, heightened security settings have been enabled as a default. Before performing a query, you will need to change a few settings in order to pull data into Excel Worksheets.

In Excel 2007 Click on the Office button in the upper left hand corner and select **Excel Options** in the lower right-hand corner. If you are using Excel 2010, click on the File button in the upper left-hand corner and select **Options**.

Excel 2007



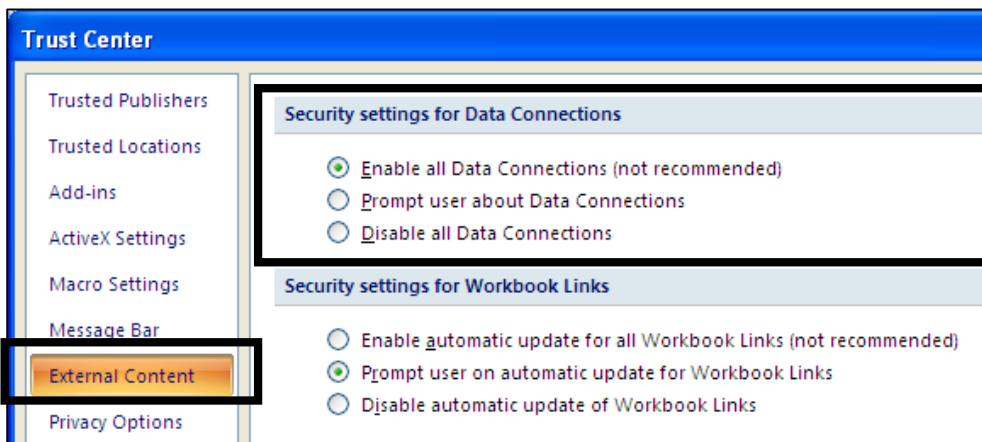
Excel 2010



Click on **Trust Center** in the left-hand column, then click **Trust Center Settings...** in the lower-right hand corner.



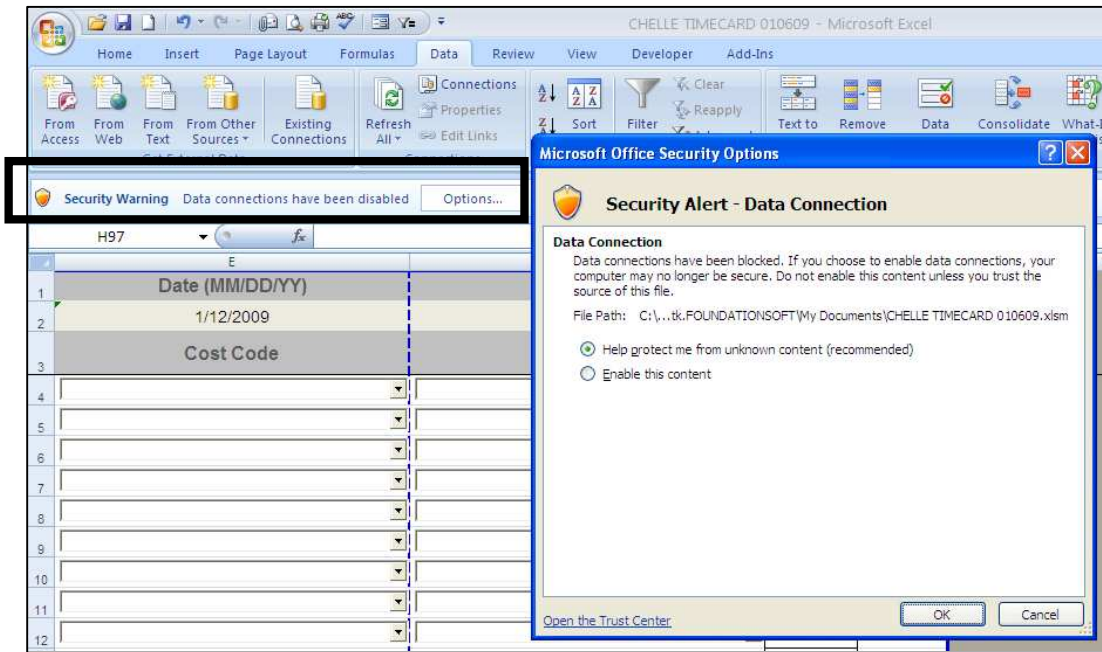
Click on **External Content** in the left-hand column.



Select the Security Setting appropriate for the level of confidence you have in the users of the Excel application.

- If you choose “Disable all Data Connections,” please close the book, turn off your computer, and we thank you for attending.

- If you select “Prompt user about Data Connections,” **every time** you open a workbook with a query, Excel will warn you with the following:



- The last option is to “Enable all Data Connections.” This is the best choice **IF** you trust the source of all Excel files in your office. If you are busy downloading Excel files off the internet, or opening Excel Files that came as attachments on emails from complete strangers, this option may not be the best for you.

Sample Report / Lesson 1

Employee Phone List

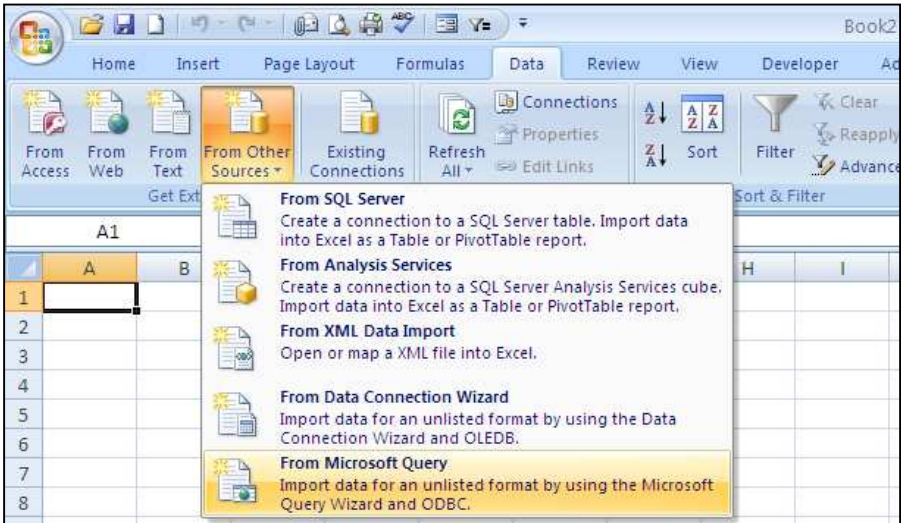
Tasks: Accessing data through MS Query
 Formatting queried data in Excel
 Editing Queries
 Sorting data within MS Query

	A	B	C	D	E	F
1	Employee Number	Last Name	middle_initial	First Name	Phone Number	
2	182	ARBillingsguy	D	Brad	(555) 555-5443	
3	132	Bi-Weekly	B	Prorate	(928) 374-9888	
4	130	Chambers	G	Environ	(222) 222-2222	
5	112	Clear	C	Donald	(216) 264-6717	
6	CONV	conversion	D	conversion	(346) 534-6665	
7	121	Davis	W	Bacon	(234) 343-2444	
8	131	Detailer	A	California	(332) 878-1234	
9	119	Detroit	O	NonResident	(445) 533-3221	
10	134	Earnings	B	No Tax	(222) 233-4545	
11	222	EMPLOYEE	D	TEST	(222) 222-2112	
12	106	Engineer Prorated	D	Dennis	(330) 236-1879	
13	129	Hernandez	A	Jose		
14	124	Hernandez	L	Jim	(330) 220-7373	
15	125	Hernandez	J	Cesar	(330) 445-6689	
16	126	Hernandez	P	Alvaro	(330) 445-3408	
17	127	Hernandez	G	Miguel	(216) 555-4334	
18	185	Hrmanager		Tim		
19	109	Kent		Dan	(216) 769-3160	
20	110	Kern		Scott	(440) 238-5620	
21	115	Kern	T	Scott	(216) 926-9902	
22	120	Lives Det Works	N	Other		
23	116	Makeuptax	Q	Johnny		
24	180	New Jersey	O	Resident		
25	179	New York	O	Resident		
26	133	New York	O	Resident	(333) 333-3330	
27	128	o	G	Efran		
28	183	PayrollAdmin		Molly		
29	181	PClerk	A	Bill		
30	123	Premiere		Caulking	(330) 220-8383	
31	103	President	E	John	(330) 225-5186	
32	1	Public	Q	John		

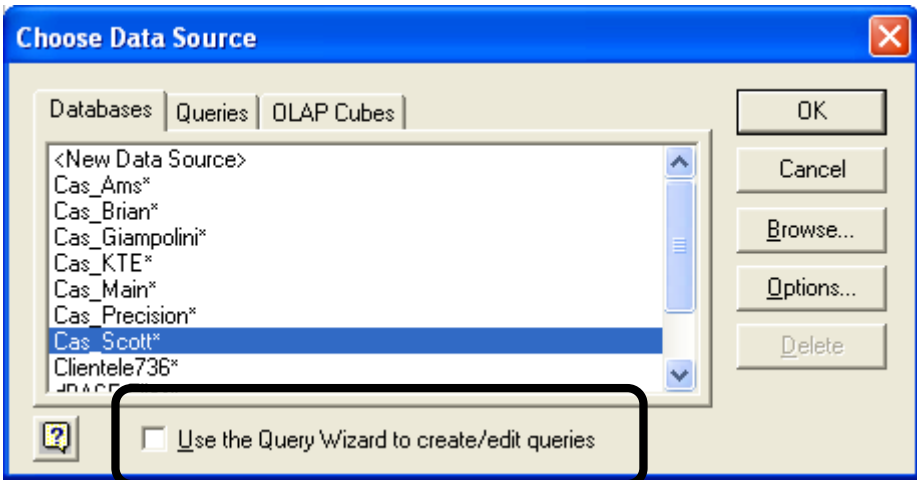
Lesson 1: Accessing Queries through Microsoft Excel

1. Click on the “Data” tab on the Ribbon, and select **Get External Data Group > From Other Sources > From Microsoft Query**.

For those of you still using Excel 2003 or earlier, from the main toolbar select: **Data > Get External Data > New Database Query**.



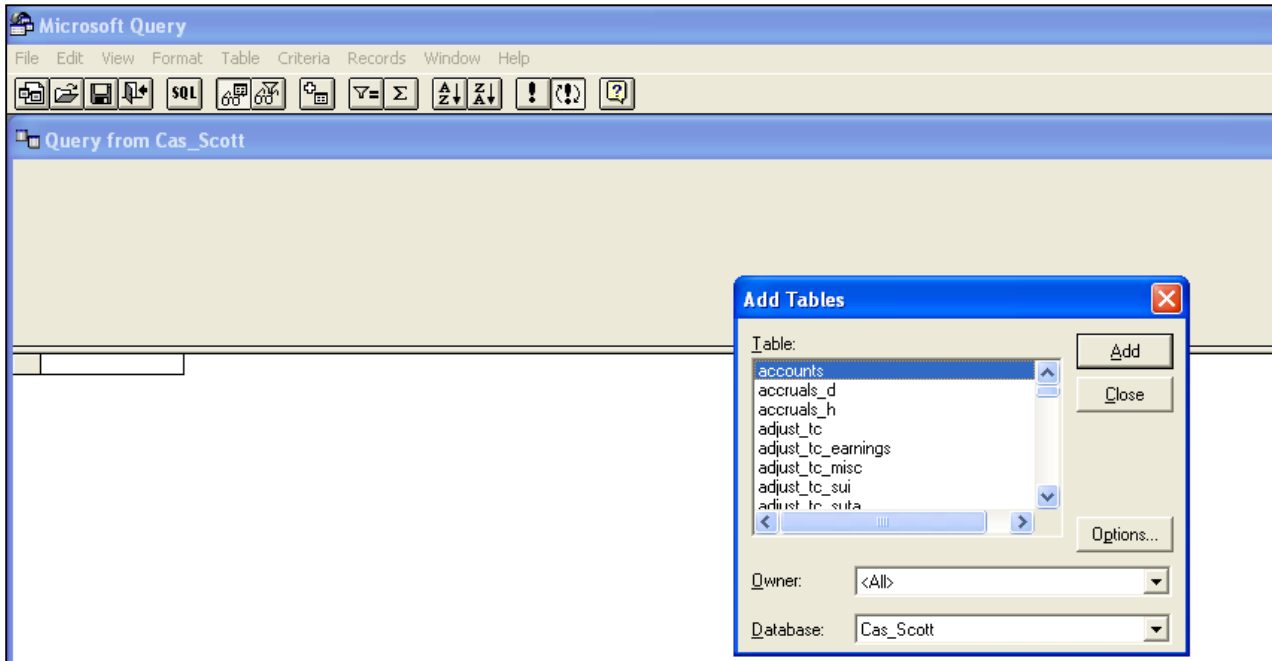
2. Select the Database that you want to query. This should be the primary database that houses the information for Foundation Software. Uncheck the option to *Use the Query Wizard to create/edit queries*. Once the Database is selected, click “OK” in the upper right-hand corner.



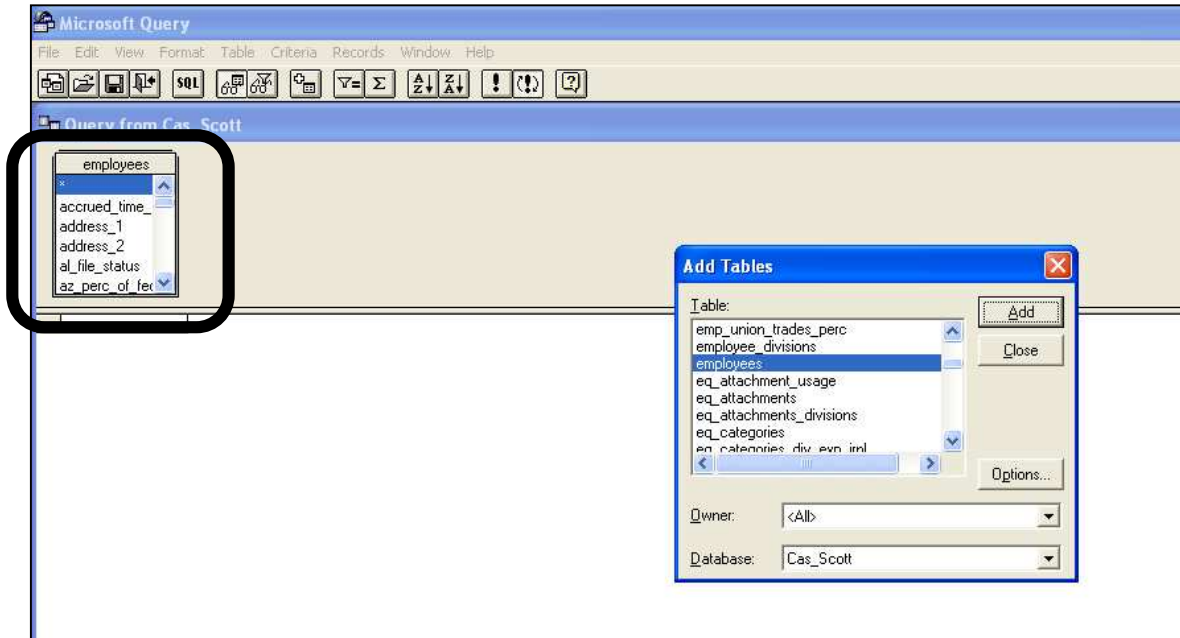
3. On the SQL Server Login window, enter your dba login and password (or your FOUNDATION user ID and password).



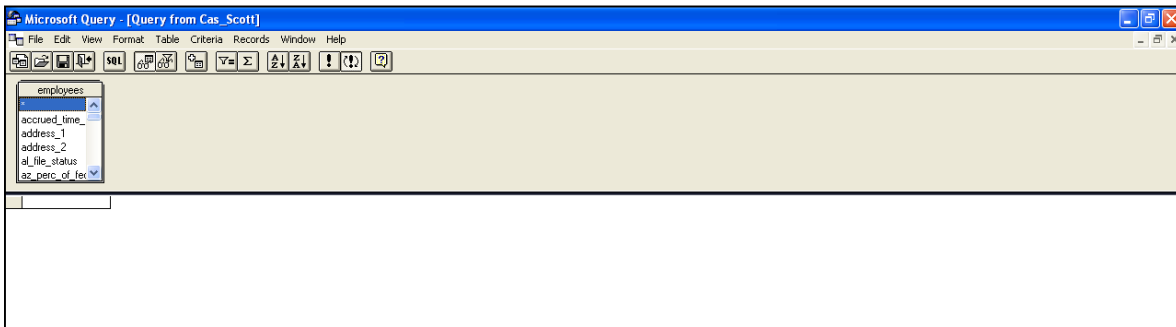
You have now accessed the Microsoft Query function. This is where we will build the queries, by selecting the appropriate tables and fields. Once the selection process is complete we will then return the data to Excel.

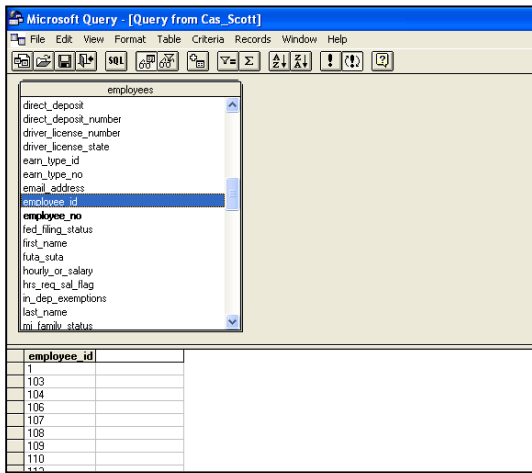
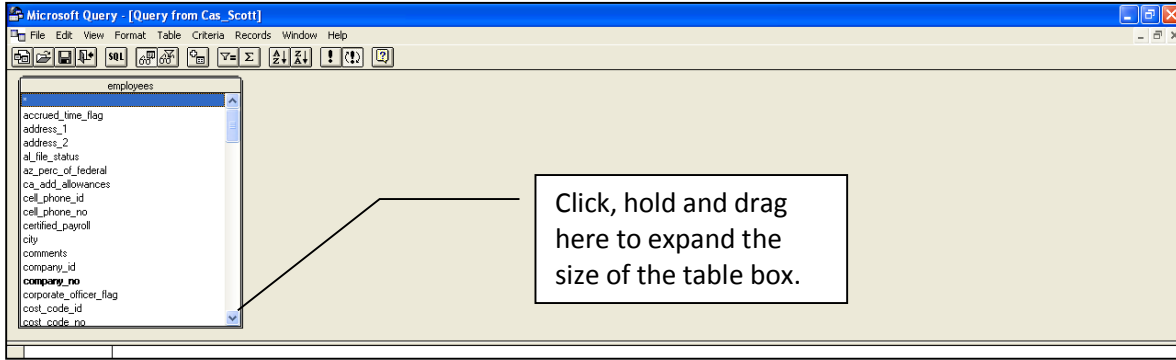


- For this first example, we will access the employee table. Scroll down to the “**employees**” table. Highlight it, and click [Add]. You will notice that the table appears in the upper left-hand corner of the window. Click the [Close] button on the “Add Tables” dialog box.



- To see more of the fields within the table, click and hold on the separator line and drag the top portion of the window to make more room.





6. Scroll down within the table and locate the **employee_id** field. Double click on the field to add it to the preview window.

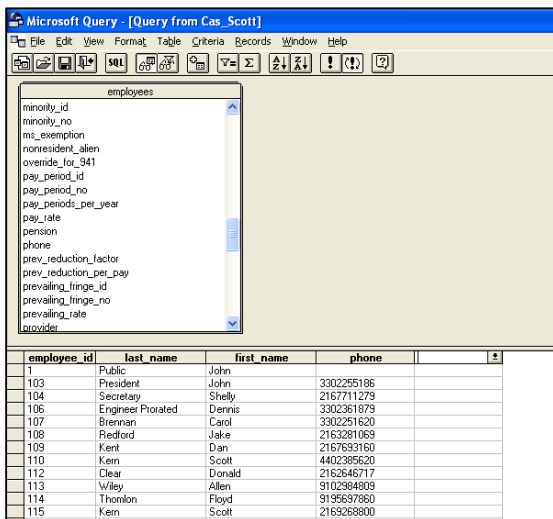
(You may also drag the item from the table box and drop it in the header area)

Continue adding the following fields from the **Employees** table:

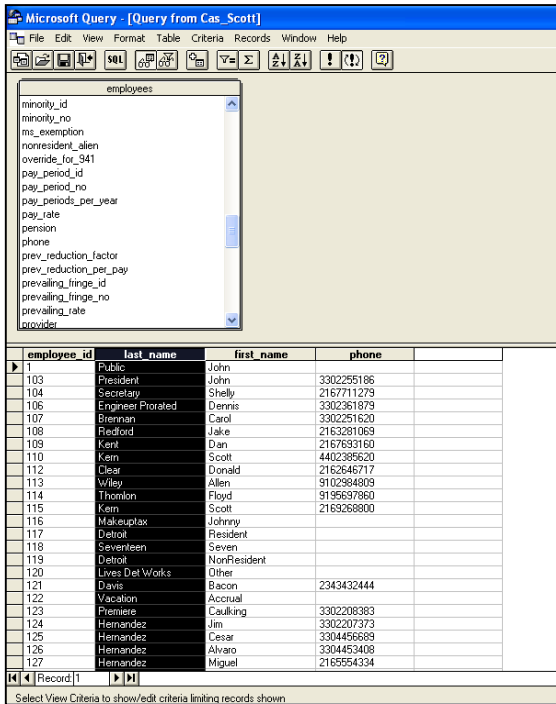
Last_name

First_name

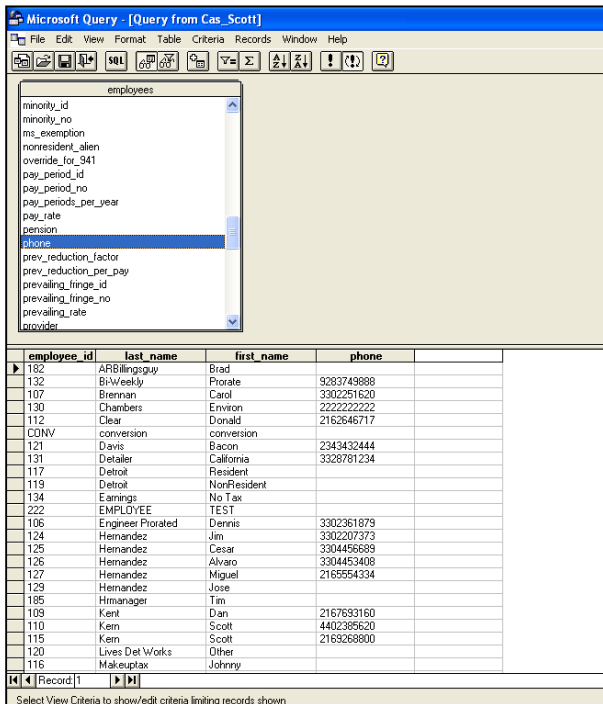
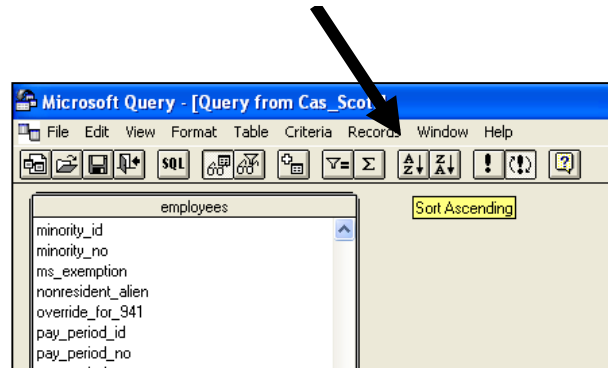
phone



The query window shows a preview of the data selected. This looks very close to the example cited in the beginning of the lesson.



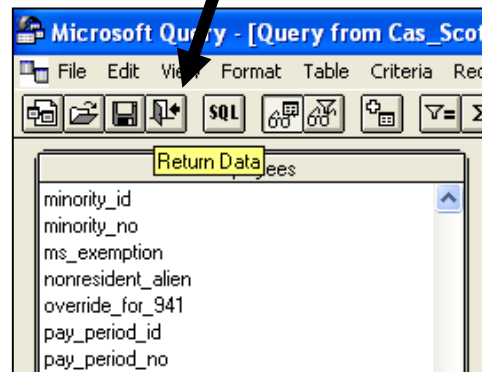
7. Sort the list by last name. Click on the **last_name** field in the lower preview pane to highlight the column and then click on the sort ascending button on the toolbar.



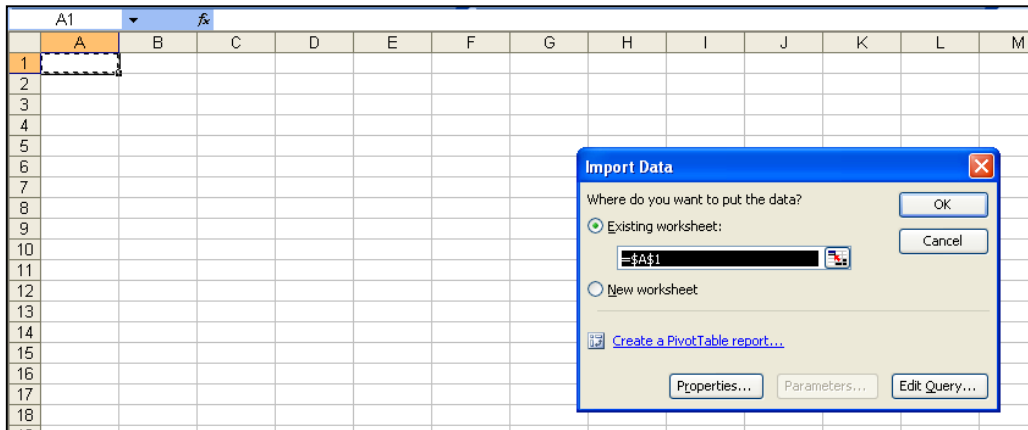
The last name is now sorted in ascending alphabetical order.

We are now ready to return the query to the excel spreadsheet.

8. Click the "Return Data" icon.



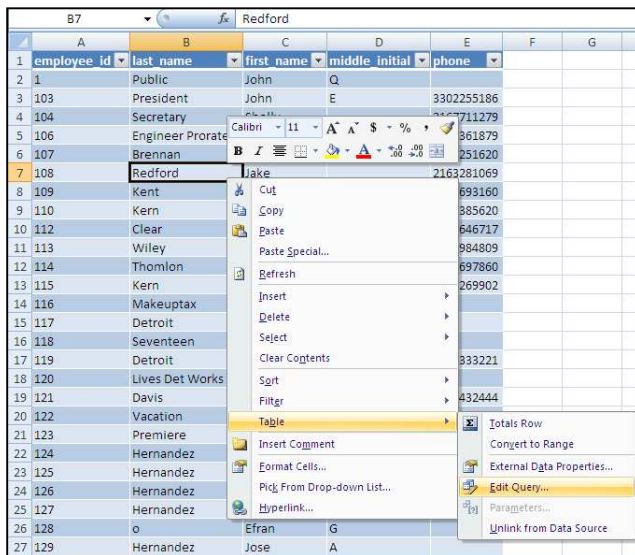
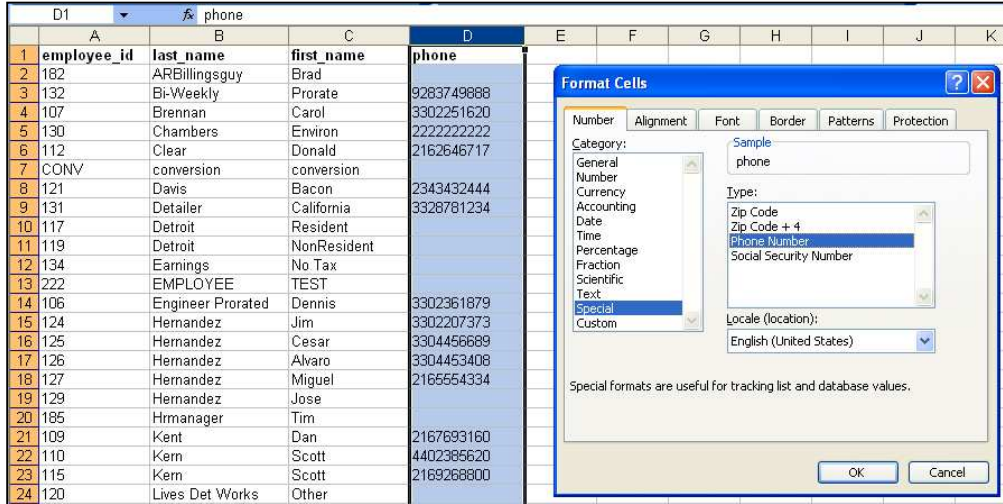
- Excel will now ask where you want to return the data on the spreadsheet. In most cases, you will want to start the data in cell A1. Click [OK] to accept the selection.



Congratulations, some of you have completed your first query! Then reality sets in.

employee id	last name	first name	middle initial	phone
1	Public	John	Q	
103	President	John	E	3302255186
104	Secretary	Shelly		2167711279
106	Engineer Prorated	Dennis	D	3302361879
107	Brennan	Carol	A	3302251620
108	Redford	Jake		2163281069
109	Kent	Dan		2167693160
110	Kern	Scott		4402385620
112	Clear	Donald	C	2162646717
113	Wiley	Allen	E	9102984809
114	Thomlon	Floyd	L	9195697860
115	Kern	Scott	T	2169269902

Say you want to format the “phone” column as a phone number (###) ###-####. Most would think this is as simple as a right-click on the column and choosing the appropriate format. Since queries are dynamic data that may be changed in the software application (FOUNDATION), the data is “refreshed” every time the excel file is opened. When this happens, the data tends to “float” in the cell, and the columns do not maintain the selected formatting.



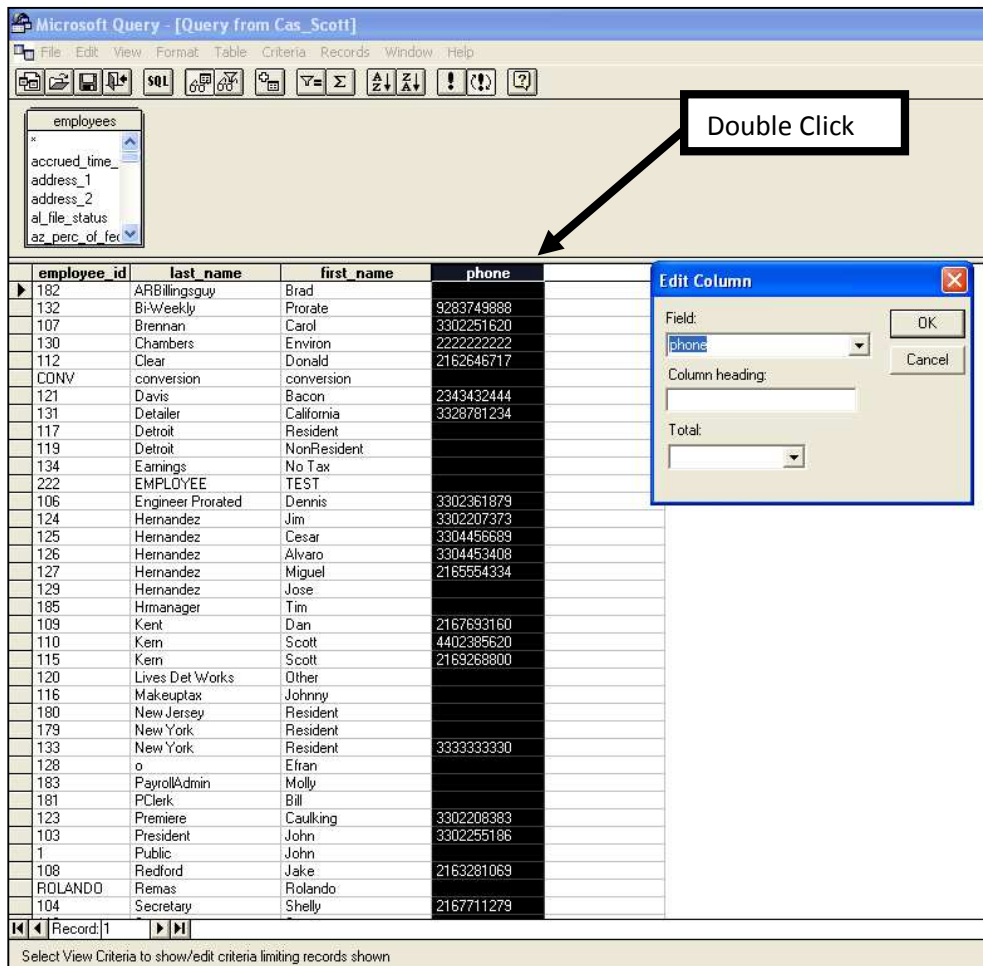
Editing a Query

1. Right click in an area where there is data in the spreadsheet and select “Table” then “Edit Query.”

In Excel 2003, right-click and select “Edit Query.”

Note: if you click in a blank cell (ie: cell F20, you will not have the option to “Edit Query,” as you are not on a section of the spreadsheet that has data returned from

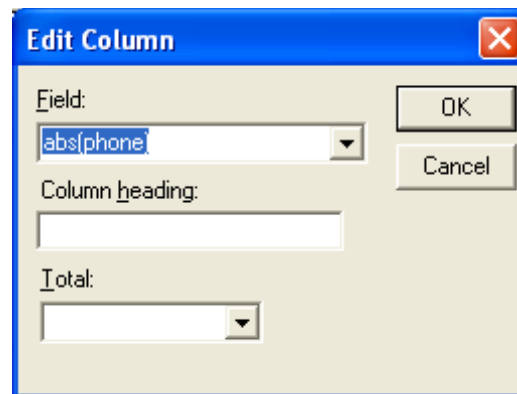
The cells are alternating colors of blue, and an Auto-Filter is automatically enabled when the data is returned to the spreadsheet.



We are now returned to the Query editing mode.

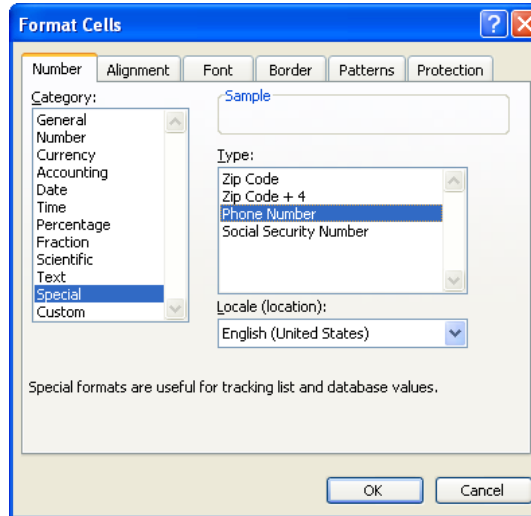
2. Double click the header of the *phone* column to access the Edit Column box.
3. In the *Field...* ummm field, type the following: `abs(phone)`

This will return the absolute value of the data to the spreadsheet. Click [OK] and return the data to Excel.



	A	B	C	D	E	F
10	117	Detroit	Resident			
11	119	Detroit	NonResident			
12	134	Earnings	No Tax			
13	222	EMPLOYEE	TEST			
14	106	Engineer Prorated	Dennis	3302361879		
15	124	Hernandez	Jim	3302207373		
16	125	Hernandez	Cesar	3304456689		
17	126	Hernandez	Alvaro	3304453406		
18	127	Hernandez	Miguel	2165554334		
19	129	Hernandez	Jose			
20	185	Hrmanager	Tim			
21	109	Kent	Dan	2167693160		
22	110	Kern	Scott	4402395620		
23	115	Kern	Scott	2169268800		
24	120	Lives Det Works	Other			
25	116	Makeuptax	Johnny			
26	180	New Jersey	Resident			
27	179	New York	Resident			
28	133	New York	Resident	3333333330		
29	128	o	Efran			
30	183	PayrollAdmin	Molly			
31	181	PClerk	Bill			
32	123	Premiere	Caulking	3302208383		
33	103	President	John	3302255186		
34	1	Public	John			
35	108	Redford	Jake	2163281069		
36	ROLANDO	Remas	Rolando			
37	104	Secretary	Shelly	2167711279		
38	118	Seventeen	Seven			
39	ANDY	Taylor	Andy			
40	114	Thomlon	Floyd	9195697860		
41	122	Vacation	Arnrial			

Initially the data looks the same, but now when you format the column for a phone number, the formatting will stay.



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
10	117	Detroit	Resident														
11	119	Detroit	NonResident														
12	134	Earnings	No Tax														
13	222	EMPLOYEE	TEST														
14	106	Engineer Prorated	Dennis	(330) 236-1879													
15	124	Hernandez	Jim	(330) 220-7373													
16	125	Hernandez	Cesar	(330) 445-6689													
17	126	Hernandez	Alvaro	(330) 445-3406													
18	127	Hernandez	Miguel	(216) 555-4334													
19	129	Hernandez	Jose														
20	185	Hrmanager	Tim														
21	109	Kent	Dan	(216) 769-3160													
22	110	Kern	Scott	(440) 239-5620													
23	115	Kern	Scott	(216) 926-8800													
24	120	Lives Det Works	Other														
25	116	Makeuptax	Johnny														
26	180	New Jersey	Resident														
27	179	New York	Resident														
28	133	New York	Resident	(333) 333-3330													
29	128	o	Efran														
30	183	PayrollAdmin	Molly														
31	181	PClerk	Bill														
32	123	Premiere	Caulking	(330) 220-8383													
33	103	President	John	(330) 225-5186													
34	1	Public	John														
35	108	Redford	Jake	(216) 328-1069													
36	ROLANDO	Remas	Rolando														
37	104	Secretary	Shelly	(216) 771-1279													

We are almost ready to save this file, but first we must define a number of properties to ensure the file opens and refreshes automatically.

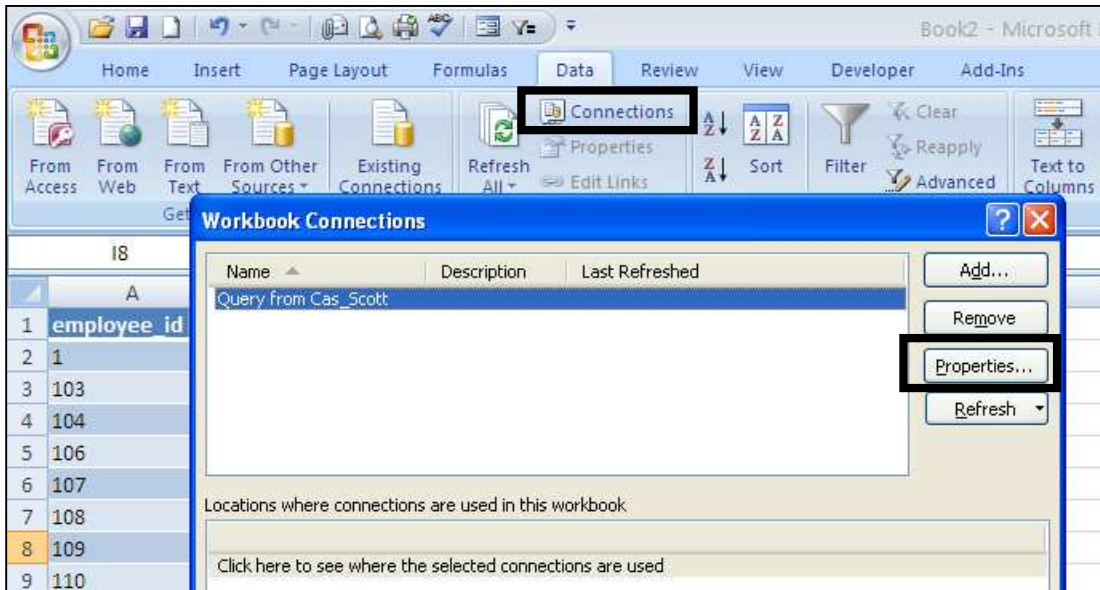
Sample Report/Lesson 2

Employee Phone List

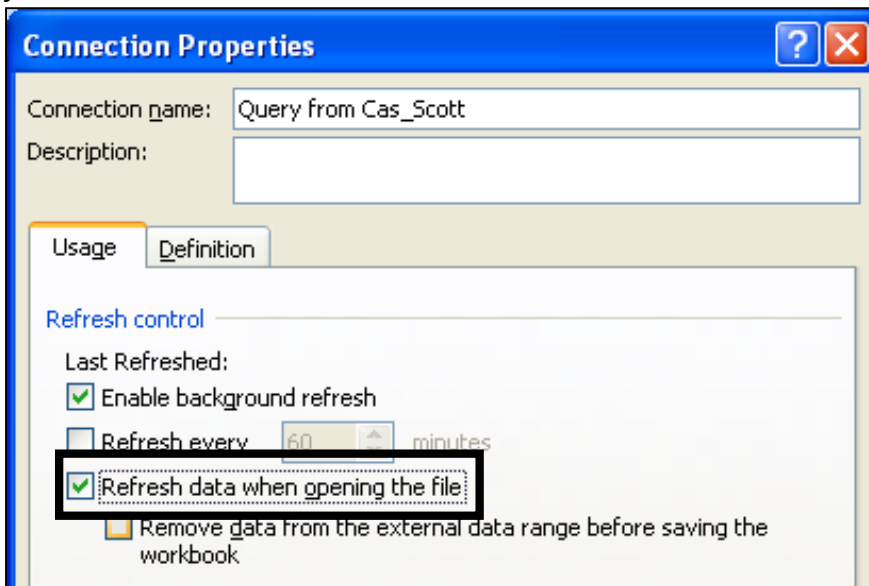
Tasks: Saving Password in MS Query
Enabling Automatic Refresh

	A	B	C	D	E	F
1	Employee Number	Last Name	middle_initial	First Name	Phone Number	
2	182	ARBillingsguy	D	Brad	(555) 555-5443	
3	132	Bi-Weekly	B	Prorate	(928) 374-9888	
4	130	Chambers	G	Environ	(222) 222-2222	
5	112	Clear	C	Donald	(216) 264-6717	
6	CONV	conversion	D	conversion	(346) 534-6665	
7	121	Davis	W	Bacon	(234) 343-2444	
8	131	Detailer	A	California	(332) 878-1234	
9	119	Detroit	O	NonResident	(445) 533-3221	
10	134	Earnings	B	No Tax	(222) 233-4545	
11	222	EMPLOYEE	D	TEST	(222) 222-2112	
12	106	Engineer Prorated	D	Dennis	(330) 236-1879	
13	129	Hernandez	A	Jose		
14	124	Hernandez	L	Jim	(330) 220-7373	
15	125	Hernandez	J	Cesar	(330) 445-6689	
16	126	Hernandez	P	Alvaro	(330) 445-3408	
17	127	Hernandez	G	Miguel	(216) 555-4334	
18	185	Hrmanager		Tim		
19	109	Kent		Dan	(216) 769-3160	
20	110	Kern		Scott	(440) 238-5620	
21	115	Kern	T	Scott	(216) 926-9902	
22	120	Lives Det Works	N	Other		
23	116	Makeuptax	Q	Johnny		
24	180	New Jersey	O	Resident		
25	179	New York	O	Resident		
26	133	New York	O	Resident	(333) 333-3330	
27	128	o	G	Efran		
28	183	PayrollAdmin		Molly		
29	181	PClerk	A	Bill		
30	123	Premiere		Caulking	(330) 220-8383	
31	103	President	E	John	(330) 225-5186	
32	1	Public	O	John		

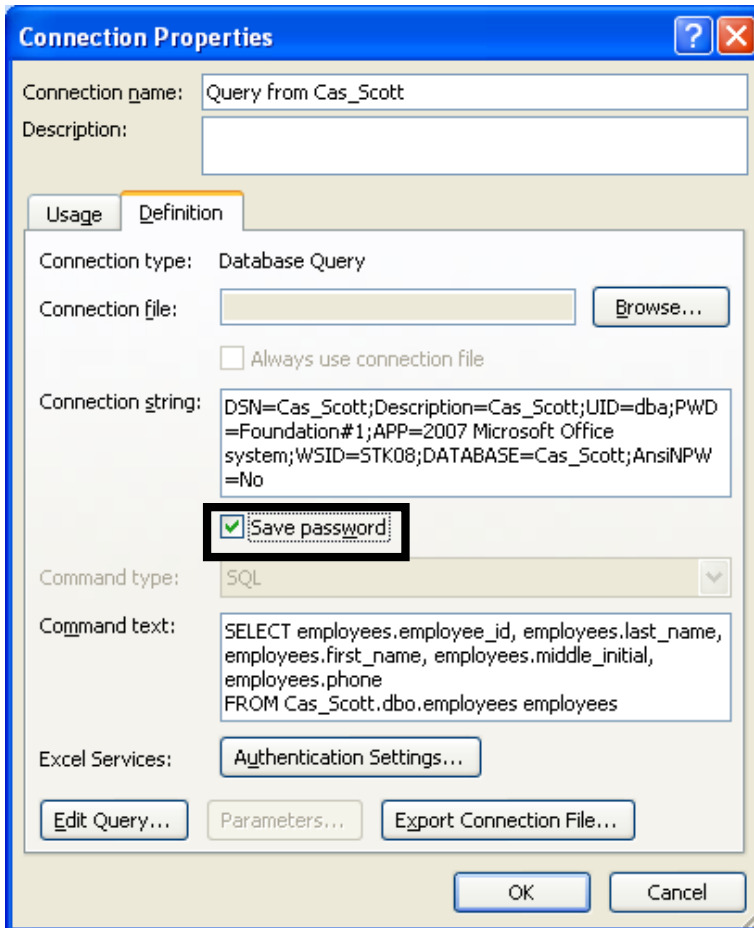
1. On the ribbon, select **"Data" tab > Connections > Properties**.



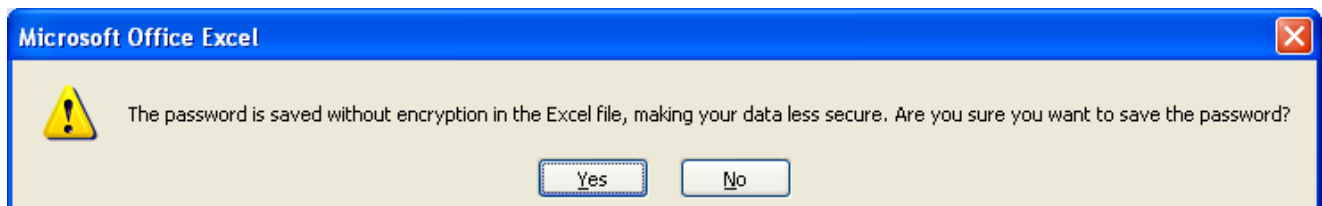
2. On the "Usage" tab of the Connection Properties window, select *Refresh data when opening file*.



3. Click on the “Definition” tab of the Connection Properties dialog box, and select *Save Password*.



4. You will receive a warning from Microsoft about saving passwords within the Excel file. Click [Yes] to close this dialog box (more on this later).



You may notice the screen “blink” for a second as it gathers the data from the Foundation SQL Database. More involved queries may display a message that Excel is gathering data.

Sample Report/Lesson 3

Employee Phone List

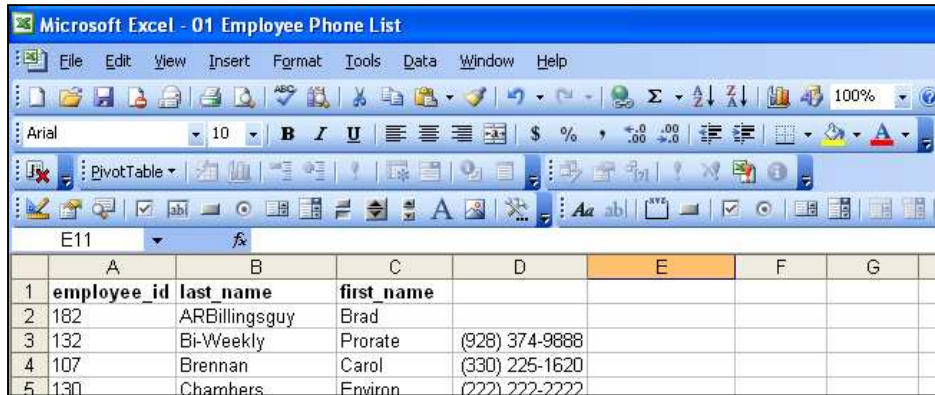
Tasks: Editing Column Headers in MS query
Adding fields to existing Query

	A	B	C	D	E	F
1	Employee Number	Last Name	middle_initial	First Name	Phone Number	
2	182	ARBillingsguy	D	Brad	(555) 555-5443	
3	132	Bi-Weekly	B	Prorate	(928) 374-9888	
4	130	Chambers	G	Environ	(222) 222-2222	
5	112	Clear	C	Donald	(216) 264-6717	
6	CONV	conversion	D	conversion	(346) 534-6665	
7	121	Davis	W	Bacon	(234) 343-2444	
8	131	Detailer	A	California	(332) 878-1234	
9	119	Detroit	O	NonResident	(445) 533-3221	
10	134	Earnings	B	No Tax	(222) 233-4545	
11	222	EMPLOYEE	D	TEST	(222) 222-2112	
12	106	Engineer Prorated	D	Dennis	(330) 236-1879	
13	129	Hernandez	A	Jose		
14	124	Hernandez	L	Jim	(330) 220-7373	
15	125	Hernandez	J	Cesar	(330) 445-6689	
16	126	Hernandez	P	Alvaro	(330) 445-3408	
17	127	Hernandez	G	Miguel	(216) 555-4334	
18	185	Hrmanager		Tim		
19	109	Kent		Dan	(216) 769-3160	
20	110	Kern		Scott	(440) 238-5620	
21	115	Kern	T	Scott	(216) 926-9902	
22	120	Lives Det Works	N	Other		
23	116	Makeuptax	Q	Johnny		
24	180	New Jersey	O	Resident		
25	179	New York	O	Resident		
26	133	New York	O	Resident	(333) 333-3330	
27	128	o	G	Efran		
28	183	PayrollAdmin		Molly		
29	181	PClerk	A	Bill		
30	123	Premiere		Caulking	(330) 220-8383	
31	103	President	E	John	(330) 225-5186	
32	1	Public	Q	John		

Editing column Headings:

We like the results, but we want to tweak some of the items to make the list look more presentable.

Notice the column headings:

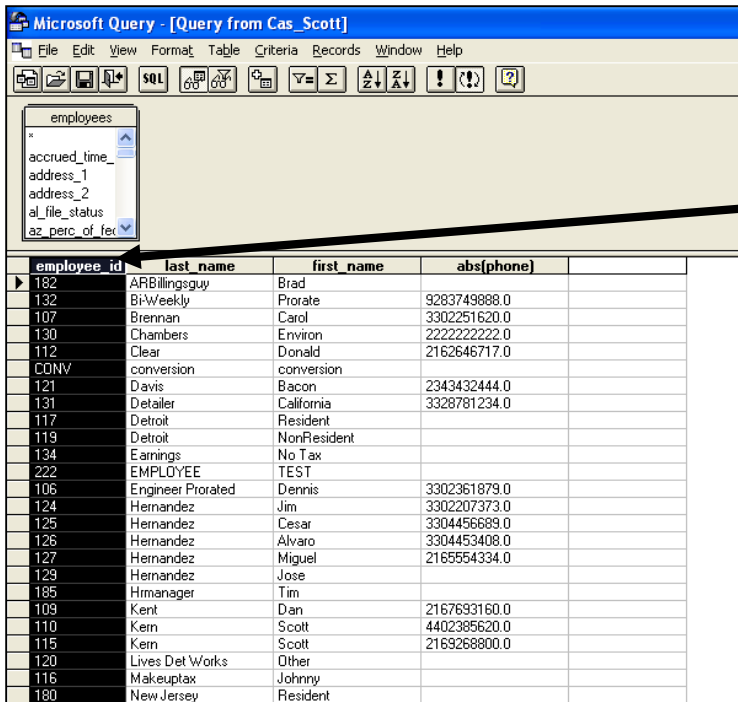


	A	B	C	D	E	F	G
1	employee_id	last_name	first_name				
2	182	ARBillingsguy	Brad				
3	132	Bi-Weekly	Prorate	(928) 374-9888			
4	107	Brennan	Carol	(330) 225-1620			
5	130	Chambers	Environ	(222) 222-2222			

These are the field names from the query, and the “phone” column heading is altogether gone.

We need to access the query mode once again.

1. Right click in an area where there is data in the spreadsheet and select “Table” then “Edit Query.”



employee_id	last_name	first_name	abs(phone)
182	ARBillingsguy	Brad	
132	Bi-Weekly	Prorate	9283749888.0
107	Brennan	Carol	3302251620.0
130	Chambers	Environ	222222222.0
112	Clear	Donald	2162646717.0
CONV	conversion	conversion	
121	Davis	Bacon	2343432444.0
131	Detailer	California	3328781234.0
117	Detroit	Resident	
119	Detroit	NonResident	
134	Earnings	No Tax	
222	EMPLOYEE	TEST	
106	Engineer Prorated	Dennis	3302361879.0
124	Hernandez	Jim	3302207373.0
125	Hernandez	Cesar	3304456689.0
126	Hernandez	Alvaro	3304453408.0
127	Hernandez	Miguel	2165554334.0
129	Hernandez	Jose	
185	Hrmanager	Tim	
109	Kent	Dan	2167693160.0
110	Kern	Scott	4402385620.0
115	Kern	Scott	2169268800.0
120	Lives Det Works	Other	
116	Makeuptax	Johnny	
180	New Jersey	Resident	

2. Double click the column heading that you wish to change.
3. In the Edit Column box, note the *Column Heading* field.

4. Type a more appropriate heading here.

The screenshot shows a Microsoft Query window titled "Microsoft Query - [Query from Cas_Scott]". The main window displays a table with the following columns: employee_id, last_name, first_name, and abs(phone). The data includes rows for employees like Brad DeWeese, Carol Brennan, and others. An "Edit Column" dialog box is open over the 'employee_id' column, showing the field name 'employee_id' and a blank 'Column heading' field.

employee_id	last_name	first_name	abs(phone)
182	DeWeese	Brad	3282749999.0
107	Brennan	Carol	3302291820.0
130	Chambers	Environ	2222222222.0
112	Clear	Donald	2162646717.0
CONV	conversion	conversion	
121	Davis	Bacon	2343432444.0
131	Detaler	California	3328781234.0
117	Detroit	Resident	
119	Detroit	NonResident	
134	Earnings	No Tax	
222	EMPLOYEE	TEST	
105	Engineer Phorated	Dennis	3302361879.0
124	Hernandez	Jim	3302207373.0
125	Hernandez	Cesar	3304456689.0
126	Hernandez	Alvaro	3304453408.0
127	Hernandez	Miguel	216554334.0
129	Hernandez	Jose	
185	Hrmanager	Tim	
109	Kent	Dan	2167683160.0
110	Ken	Scott	4402385620.0
115	Ken	Scott	2163268800.0
120	Lives Del Works	Other	
116	Makeuplax	Johnny	
180	New Jersey	Resident	
179	New York	Resident	
133	New York	Resident	3333333330.0
128	o	Efran	
183	PayrollAdmin	Molly	
181	PClerk	Bill	
123	Premiere	Caulking	3302208383.0
103	President	John	3302255186.0
1	Public	John	
108	Redford	Jake	2163281069.0
ROLANDO	Remas	Rolando	
104	Secretary	Shelly	2167711279.0

The "Edit Column" dialog box shows the following fields:

- Field: employee_id
- Column heading: Employee Number
- Total: (empty dropdown)

5. Repeat this process across all of the columns in the data window at the bottom of the screen.

Three overlapping "Edit Column" dialog boxes are shown, each with a different column selected and a heading entered:

- Top-left dialog: Field: last_name, Column heading: Last Name
- Bottom-center dialog: Field: abs(phone), Column heading: Phone Number
- Top-right dialog: Field: first_name, Column heading: First Name

Our Query is looking better.

Microsoft Query - [Query from Cas_Scott]

employees

Employee Number	Last Name	First Name	Phone Number
182	ARBillingguy	Brad	
132	Bi-Weekly	Prorate	9283749888.0
107	Brennan	Carol	3302251620.0
130	Chambers	Environ	2222222222.0
112	Clear	Donald	2162646717.0
CONV	conversion	conversion	
121	Davis	Bacon	2343432444.0
131	Detailer	California	3328781234.0

6. Return the data to Excel.

Microsoft Excel - 01 Employee Phone List

	A	B	C	D	E	F	G	H
1	Employee Number	Last Name	First Name	Phone Number				
2	182	ARBillingguy	Brad					
3	132	Bi-Weekly	Prorate	9283749888				
4	107	Brennan	Carol	3302251620				
5	130	Chambers	Environ	2222222222				
6	112	Clear	Donald	2162646717				
7	CONV	conversion	conversion					
8	121	Davis	Bacon	2343432444				
9	131	Detailer	California	3328781234				
10	117	Detroit	Resident					
11	119	Detroit	NonResident					
12	134	Earnings	No Tax					
13	222	EMPLOYEE	TEST					
14	106	Engineer Prorated	Dennis	3302361879				
15	124	Hernandez	Jim	3302207373				
16	125	Hernandez	Cesar	3304456689				
17	126	Hernandez	Alvaro	3304453408				
18	127	Hernandez	Miguel	2165554334				
19	129	Hernandez	Jose					
20	185	Hrmanager	Tim					
21	109	Kent	Dan	2167693160				

Sample Report / Lesson 4

Employee Phone List

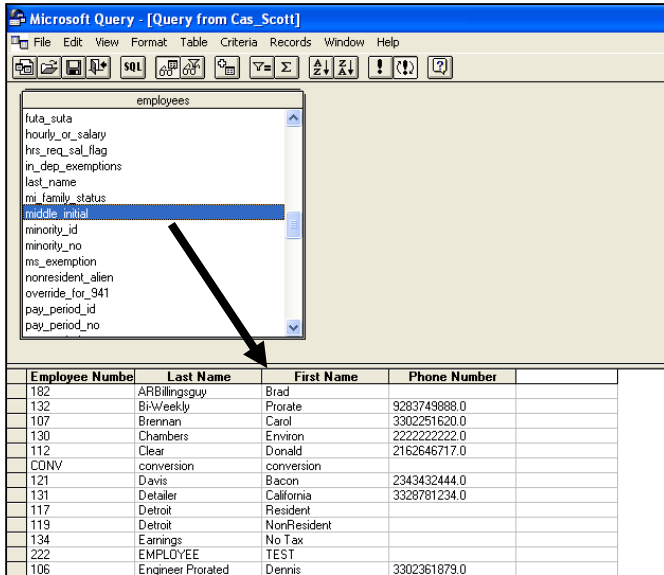
Tasks: Adding Fields / Columns to MS Query
Preserving Layout in Excel

	A	B	C	D	E	F
1	Employee Number	Last Name	middle_initial	First Name	Phone Number	
2	182	ARBillingsguy	D	Brad	(555) 555-5443	
3	132	Bi-Weekly	B	Prorate	(928) 374-9888	
4	130	Chambers	G	Environ	(222) 222-2222	
5	112	Clear	C	Donald	(216) 264-6717	
6	CONV	conversion	D	conversion	(346) 534-6665	
7	121	Davis	W	Bacon	(234) 343-2444	
8	131	Detailer	A	California	(332) 878-1234	
9	119	Detroit	O	NonResident	(445) 533-3221	
10	134	Earnings	B	No Tax	(222) 233-4545	
11	222	EMPLOYEE	D	TEST	(222) 222-2112	
12	106	Engineer Prorated	D	Dennis	(330) 236-1879	
13	129	Hernandez	A	Jose		
14	124	Hernandez	L	Jim	(330) 220-7373	
15	125	Hernandez	J	Cesar	(330) 445-6689	
16	126	Hernandez	P	Alvaro	(330) 445-3408	
17	127	Hernandez	G	Miguel	(216) 555-4334	
18	185	Hrmanager		Tim		
19	109	Kent		Dan	(216) 769-3160	
20	110	Kern		Scott	(440) 238-5620	
21	115	Kern	T	Scott	(216) 926-9902	
22	120	Lives Det Works	N	Other		
23	116	Makeuptax	Q	Johnny		
24	180	New Jersey	O	Resident		
25	179	New York	O	Resident		
26	133	New York	O	Resident	(333) 333-3330	
27	128	o	G	Efran		
28	183	PayrollAdmin		Molly		
29	181	PClerk	A	Bill		
30	123	Premiere		Caulking	(330) 220-8383	
31	103	President	E	John	(330) 225-5186	
32	1	Public	Q	John		

Lesson 4: Adding more fields to an existing query:

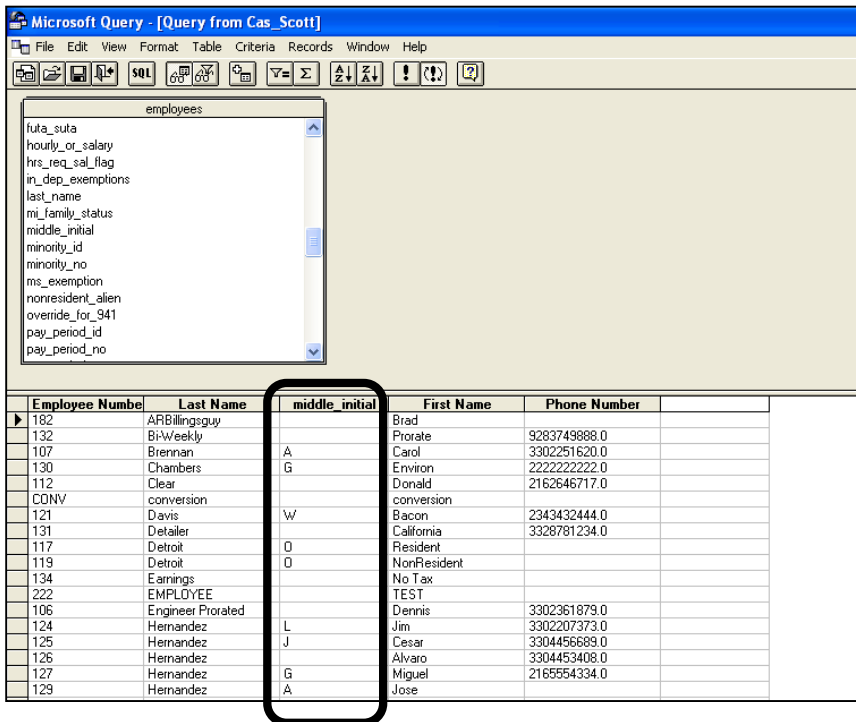
I have a need to enter the middle initial to this query.

1. Access the ability to “*edit query*”.

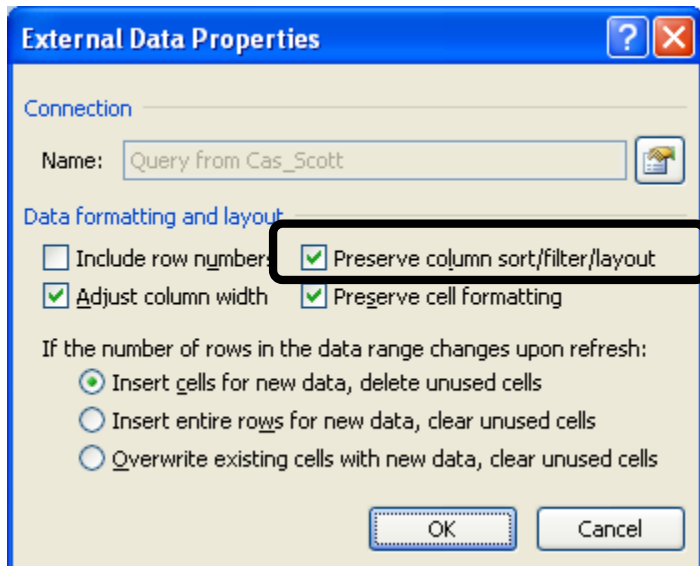
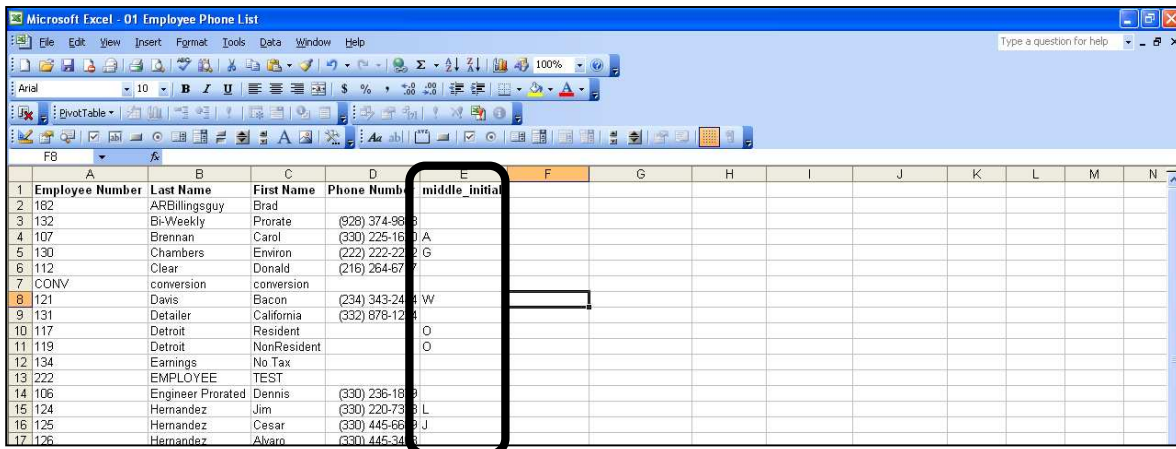


2. Click, hold, and drag the “*middle_initial*” field to the appropriate column in the preview window.

3. Drag the field and drop it in the appropriate position.



- Return the Data to Excel. You will notice that the middle initial did not return to the spreadsheet in the desired location. It is at the end of our list.



- Right click on a cell within the table and select **Table > External Data Properties**.

- Uncheck *Preserve column sort/filter/layout* and click [OK].

- Refresh the data manually by right clicking, and choosing "*Refresh Data*".

You will notice the excel file is now in the correct format.

The important thing to remember is, once the Excel file is in the correct format/layout, you should enable the option to *Preserve column/sort/filter/layout*.

This will maintain the layout based on what you see on screen at the time that you select this option.

Sample Report/Lesson 5

Employee Phone List

Tasks: Adding Criteria to MS Query
 Removing columns from MS Query

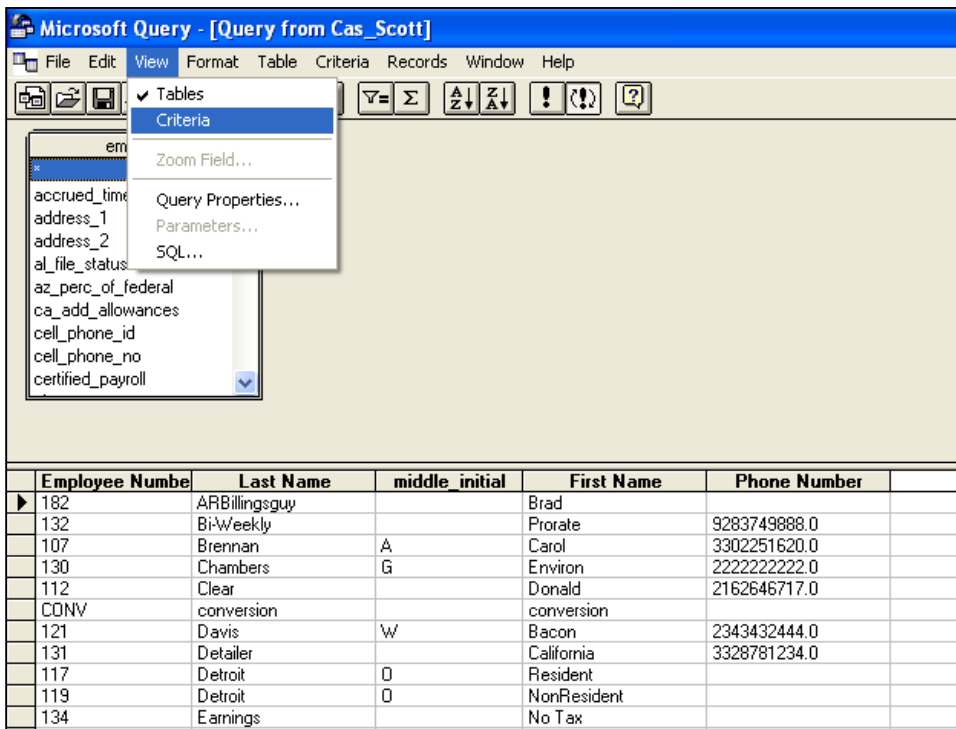
	A	B	C	D	E	F
1	Employee Number	Last Name	middle_initial	First Name	Phone Number	
2	182	ARBillingsguy	D	Brad	(555) 555-5443	
3	132	Bi-Weekly	B	Prorate	(928) 374-9888	
4	130	Chambers	G	Environ	(222) 222-2222	
5	112	Clear	C	Donald	(216) 264-6717	
6	CONV	conversion	D	conversion	(346) 534-6665	
7	121	Davis	W	Bacon	(234) 343-2444	
8	131	Detailer	A	California	(332) 878-1234	
9	119	Detroit	O	NonResident	(445) 533-3221	
10	134	Earnings	B	No Tax	(222) 233-4545	
11	222	EMPLOYEE	D	TEST	(222) 222-2112	
12	106	Engineer Prorated	D	Dennis	(330) 236-1879	
13	129	Hernandez	A	Jose		
14	124	Hernandez	L	Jim	(330) 220-7373	
15	125	Hernandez	J	Cesar	(330) 445-6689	
16	126	Hernandez	P	Alvaro	(330) 445-3408	
17	127	Hernandez	G	Miguel	(216) 555-4334	
18	185	Hrmanager		Tim		
19	109	Kent		Dan	(216) 769-3160	
20	110	Kern		Scott	(440) 238-5620	
21	115	Kern	T	Scott	(216) 926-9902	
22	120	Lives Det Works	N	Other		
23	116	Makeuptax	Q	Johnny		
24	180	New Jersey	O	Resident		
25	179	New York	O	Resident		
26	133	New York	O	Resident	(333) 333-3330	
27	128	o	G	Efran		
28	183	PayrollAdmin		Molly		
29	181	PClerk	A	Bill		
30	123	Premiere		Caulking	(330) 220-8383	
31	103	President	E	John	(330) 225-5186	
32	1	Public	Q	John		

Lesson 5: Adding Criteria to the Query:

Imagine that I do not want terminated employees to show on the phone list. We need to tell the query to ignore, or suppress the terminated employees.

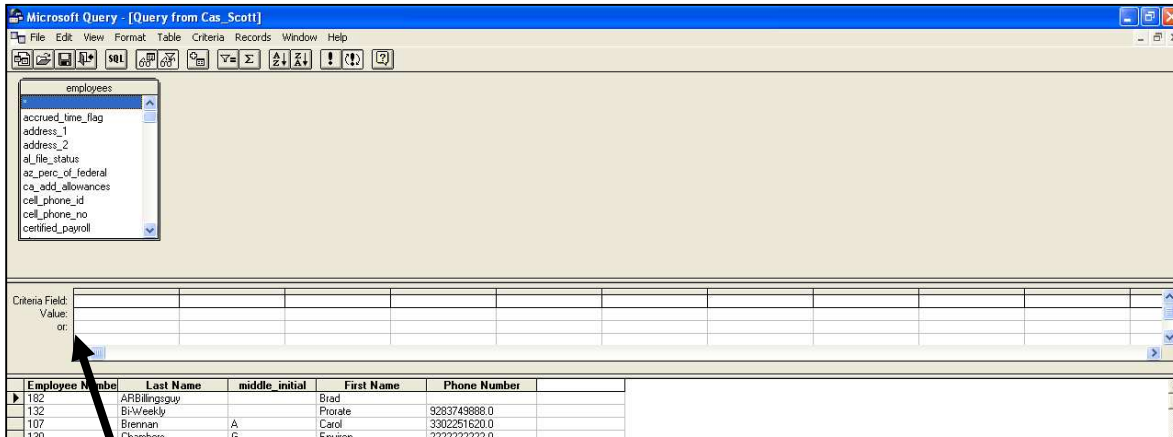
This is where a good amount of thought may be required for queries. What to include or exclude on a list or report. Much like FOUNDATION “Criteria” tabs on reports, we will assign filters to show only the data we request.

1. Once again, access the MS Query tool.
2. On the toolbar, select **View > Criteria**.



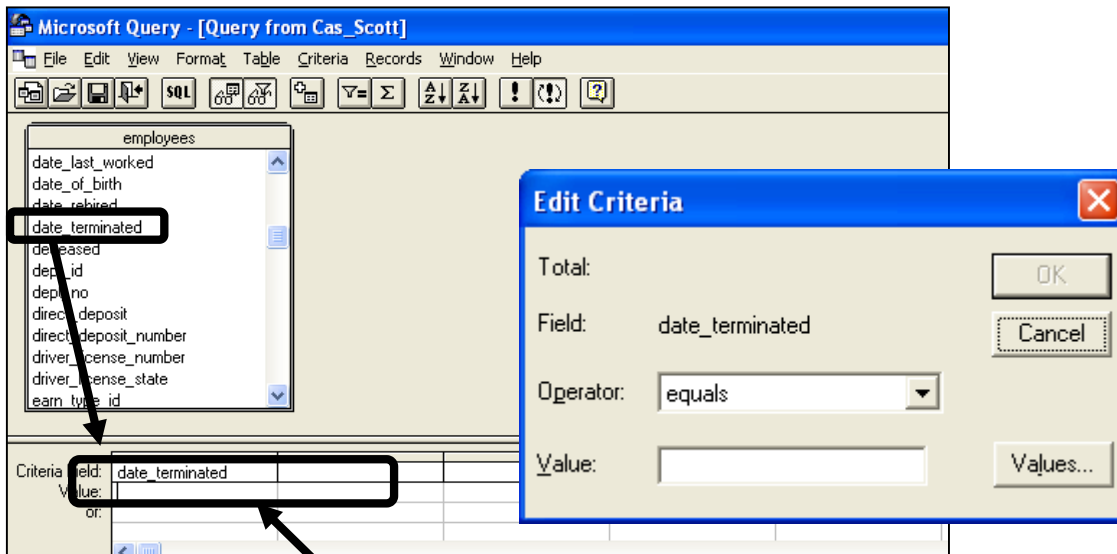
The screenshot shows the Microsoft Query application window titled "Microsoft Query - [Query from Cas_Scott]". The menu bar includes File, Edit, View, Format, Table, Criteria, Records, Window, and Help. The "View" menu is open, showing options: Tables, Criteria, Zoom Field..., Query Properties..., Parameters..., and SQL... The "Criteria" option is highlighted. Below the menu, a list of fields is visible, including accrued_time, address_1, address_2, al_file_status, az_perc_of_federal, ca_add_allowances, cell_phone_id, cell_phone_no, and certified_payroll. At the bottom of the window, a data table is displayed with the following columns: Employee Number, Last Name, middle initial, First Name, and Phone Number.

Employee Number	Last Name	middle initial	First Name	Phone Number
182	ARBillingsguy		Brad	
132	Bi-Weekly		Prorate	9283749888.0
107	Brennan	A	Carol	3302251620.0
130	Chambers	G	Environ	2222222222.0
112	Clear		Donald	2162646717.0
CONV	conversion		conversion	
121	Davis	W	Bacon	2343432444.0
131	Detailer		California	3328781234.0
117	Detroit	0	Resident	
119	Detroit	0	NonResident	
134	Earnings		No Tax	



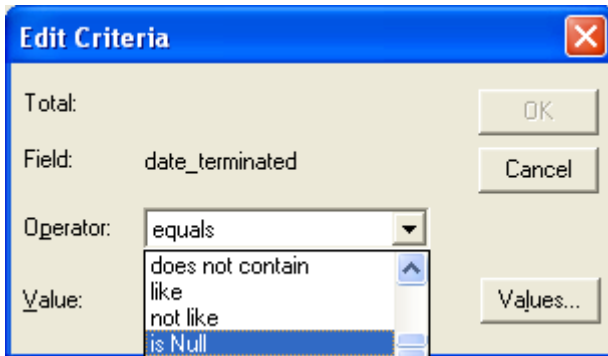
You will notice the Criteria Field section is now available in the query designer.

3. Click and drag the **"date_terminated"** field into the criteria toolbar:



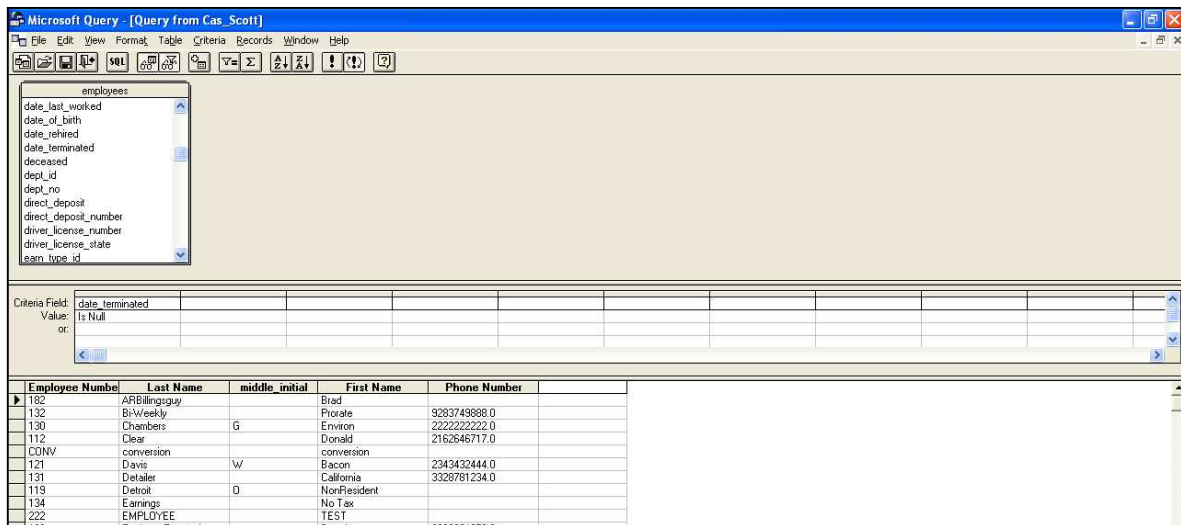
4. Double Click the empty *Value* field to the right of the word "Value" to open the Edit Criteria box.

- Put on the thinking caps and try to remember your statistics class from 9th grade. What do we want to determine? In this case we only want to show employees who are **not** terminated. The “Operator” in this example would be:



Yes... “**is Null**”, or is blank. If the employee terminated date is blank, we want him to show up on the current phone list.

You may notice that the data in the preview window at the bottom flickers for a second as the terminated employees are removed from the query.



- If you want to verify this information, drag the **date_terminated** into the last column in the preview pane. Based on our criteria, this column should be blank.

Employee Number	Last Name	middle_initial	First Name	Phone Number	date_terminated
182	ARBillingguy		Brad	9283749888.0	
132	Bi-Weekly		Prorate	222222222.0	
130	Chambers	G	Environ	2162646717.0	
112	Clear		Donald	2343432444.0	
CONV	conversion		conversion	3328781234.0	
121	Davis	W	Bacon	3328781234.0	
131	Detailer		California		
119	Detroit	O	NonResident		

If we remove the “Is Null” criteria from the criteria pane, we should then see the terminated employees.

Employee Number	Last Name	middle_initial	First Name	Phone Number	date_terminated
182	ARBillingguy		Brad	9283749888.0	
132	Bi-Weekly		Prorate	222222222.0	
107	Brennan	A	Carol	2162646717.0	2003-05-21 00:00:00.00
130	Chambers	G	Environ	2162646717.0	
112	Clear		Donald	2343432444.0	
CONV	conversion		conversion	3328781234.0	
121	Davis	W	Bacon	3328781234.0	
131	Detailer		California		
117	Detroit	O	Resident		2007-10-15 00:00:00.00
119	Detroit	O	NonResident		
134	Earnings		No Tax		
222	EMPLOYEE		TEST		
106	Engineer Prorated		Dennis	3302361879.0	
124	Hernandez	L	Jim	3304207373.0	
125	Hernandez	J	Cesar	3304456689.0	
126	Hernandez		Alvaro	3304453408.0	
127	Hernandez	G	Miguel	2165554334.0	
129	Hernandez	A	Jose		
185	Hmanager		Tim		
109	Kent		Dan	2167633160.0	
110	Kern		Scott	4402385620.0	
115	Kern	T	Scott	2169268800.0	

Note: The field that we are setting criteria on does NOT need to be part of the returned data, we offer this example so you may validate that the criteria selection is performing as intended.

Here is the same data with the “is null” criteria enabled. Notice Carol Brennan and Detroit Resident are now gone from the list, as they are terminated.

Employee Number	Last Name	middle_initial	First Name	Phone Number	date_terminated
182	ARBillingguy		Brad	9283749888 0	
132	BiWeekly		Prorate	2222222222 0	
130	Chambers	G	Environ	2162646717 0	
112	Clear		Donald	2343432444 0	
CONV	conversion		Bacon	3328781234 0	
121	Davis	W	Bacon	3328781234 0	
131	Detaler		California		
119	Detroit	O	NonResident		
134	Earnings		No Tax		

- After validating the data, click on the *date_terminated* column to highlight it, and hit the <Delete> key on the keyboard. This will remove the column from the query, but it will not remove the criteria we set a few moments ago.

Employee Number	Last Name	middle_initial	First Name	Phone Number
182	ARBillingguy		Brad	9283749888 0
132	BiWeekly		Prorate	2222222222 0
130	Chambers	G	Environ	2162646717 0
112	Clear		Donald	2343432444 0
CONV	conversion		Bacon	3328781234 0
121	Davis	W	Bacon	3328781234 0
131	Detaler		California	
119	Detroit	O	NonResident	
134	Earnings		No Tax	
222	EMPLOYEE		TEST	
106	Engineer Prorate		Dennis	3302361879 0
123	Hernandez	A	Jane	3302207373 0
124	Hernandez	L	Jim	330456689 0
125	Hernandez	J	Cesar	3304453408 0
126	Hernandez		Alvaro	

After pressing “delete” on the keyboard

The screenshot shows the Microsoft Query interface with the following data:

Criteria Field	Value
date_terminated	is Null

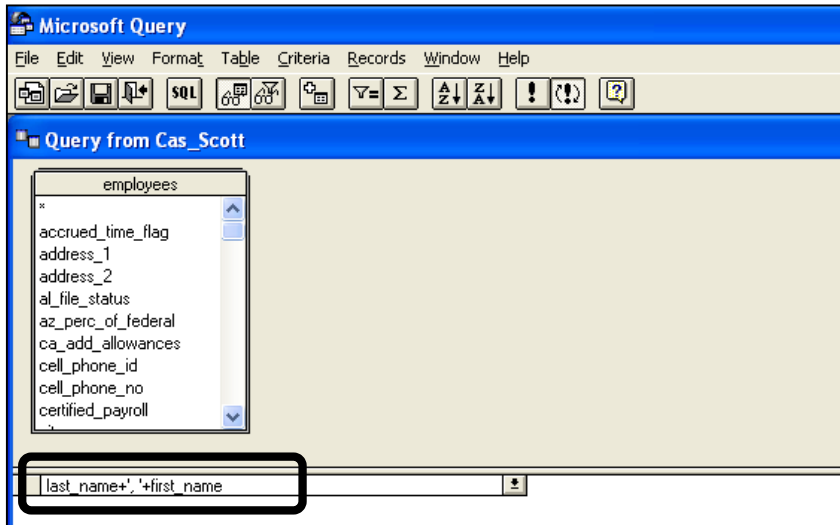
Employee Number	Last Name	middle_initial	First Name	Phone Number
102	ARBlingguy		Brad	
132	BrWeeky		Prorate	9283749888.0
130	Chambers	G	Environ	2222222222.0
112	Clear		Donald	2162646717.0
CONV	conversion		conversion	
121	Davis	W	Bacon	2343432444.0
131	Detaler		California	3328781234.0
119	Detroit	O	NonResident	
134	Earnings		No Tax	
222	EMPLOYEE		TEST	
106	Engineer Prorated		Dennis	3302361879.0
129	Hernandez	A	Jose	
124	Hernandez	L	Jim	3302207373.0
125	Hernandez	J	Cesar	3304456699.0
126	Hernandez		Alvaro	3304453408.0
127	Hernandez	G	Miguel	2169554334.0
185	Hrmanager		Tim	
109	Kent		Dan	2167693160.0
110	Kern		Scott	4402365620.0
115	Kern	T	Scott	2169268800.0
120	Lives Del Works	N	Other	
116	Makeupfax	O	Johnny	

- Once again return the data to Excel and save the file.

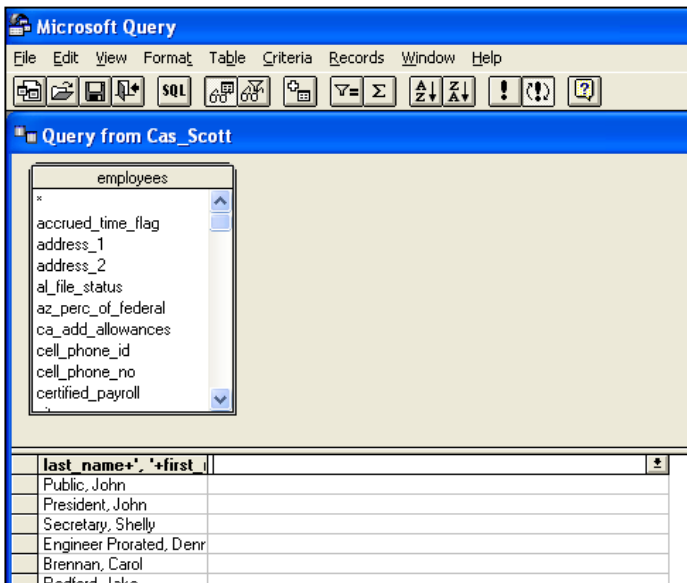
Lesson 6: Concatenate function in MS Query

1. In the Query mode, with the employee table selected, we click on the first column header in the data preview area and type in the following:

last_name+', '+first_name



2. Tab out of the field to view the results.



This is only the beginning...

Combining text fields is one option. You can write rather complex calculations against numeric data from tables.

This is not recommended for the faint of heart, as the formula logic in Excel does not always relate to writing a formula in the Query mode.

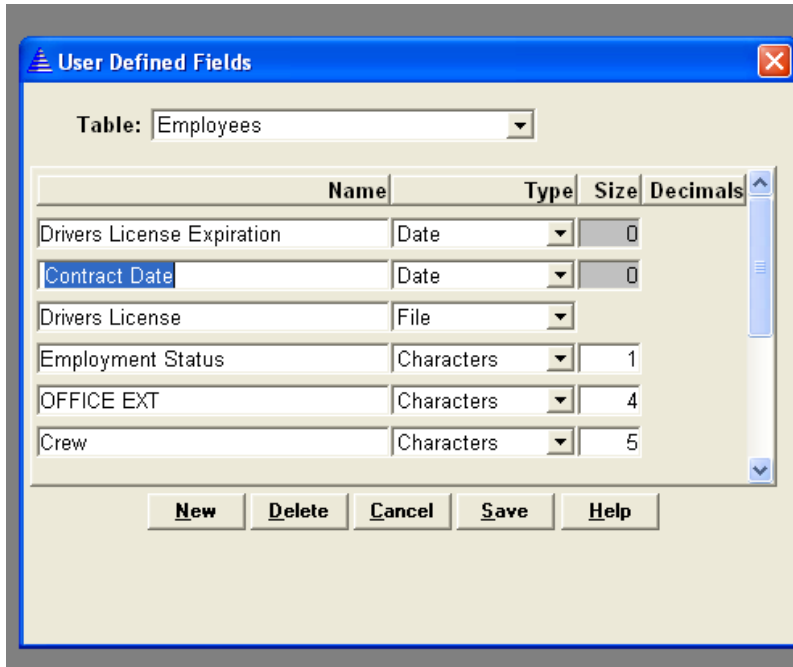
A lot of trial and error will be needed in order to create the desired results. If you are better at writing formulas in Excel, by all means, return the data to Excel, perform the calculations on the spreadsheet and hide unneeded columns. (you may thank me later).

Lesson 7: Creating queries accessing User Defined Fields

User defined fields are available in most maintenance tables across the Foundation database.

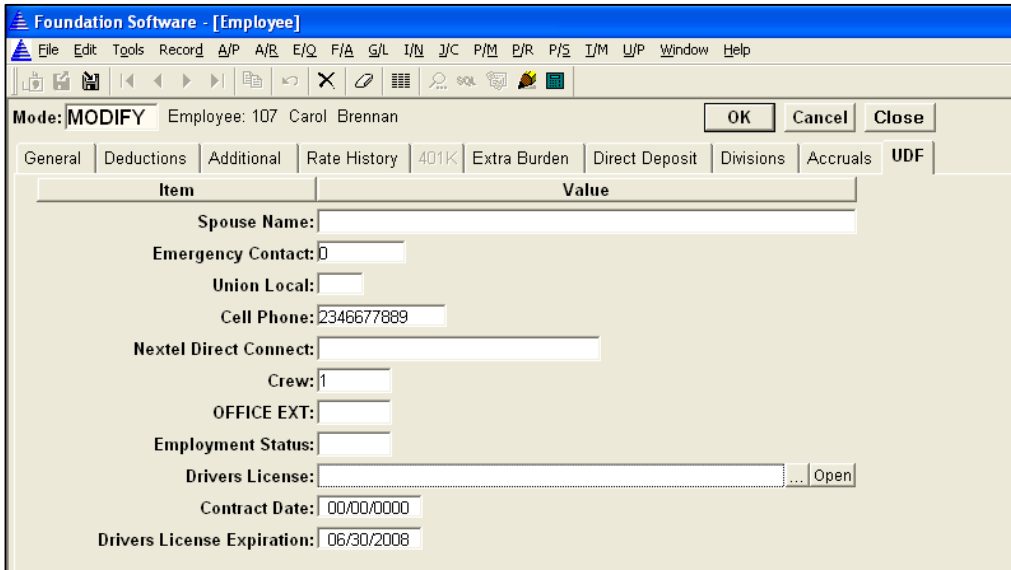
In this example, we will create a list of driver's license numbers and their associated expiration dates.

1. Log into Foundation and select **Tools – User Defined Fields**. Scroll down to the Employees table.



2. Click [New] to add whatever type of field you want. A number of fields are noted here, but some other examples are:
 - Certification Dates
 - Drug Test dates
 - Spouse's name and contact information
 - Nextel Direct Connect Numbers
 - Work Permit Expiration Dates

Once the fields are added in the tools menu, they become fields in the Foundation Program and Foundation database. If they are part of the database, we can query the information for a custom list.

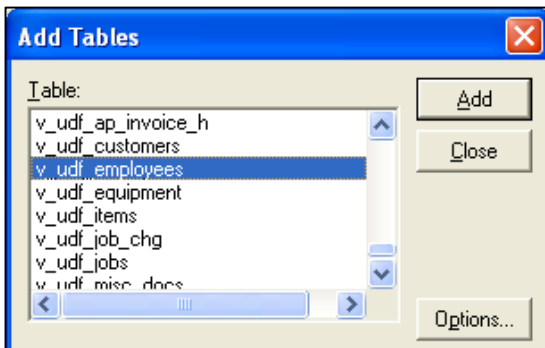


When executing a query that accesses User Defined Fields, we need to look to special tables in order to find the data. Since User Defined Fields are “user Defined”, no two FOUNDATION users will have the same tables. When you create a UDF, FOUNDATION creates a “view” or virtual table to store the complete data. These virtual tables are easily located because they are named as follows:

V_UDF_EMPLOYEES

This “View” contains all of the information that the *employees* table has, **plus** the user defined fields.

3. To create a custom query/list of employee’s driver’s license numbers and expiration dates, we need to access a new query and select the **V_UDF_EMPLOYEES** table.



employee_id	last_name	first_name	driver_license_num	udf_Drivers_License
1	Public	John		
103	President	John	000000000000	
104	Secretary	Shelly	LL5566	
105	Engineer Prorated	Dennis	YG3221	
107	Brennan	Carol	PT22690	2008-06-30 00:00:00
108	Redford	Jake	ZP6321	
109	Kent	Dan	AP5120	
110	Kern	Scott	YA3390	
112	Clear	Donald	0000000	
113	Wiley	Allen	A29655PL	
114	Thomson	Floyd	000000000	
115	Kern	Scott	123456789	
116	Makeuplax	Johnny		2008-12-31 00:00:00
117	Detroit	Resident		
118	Seventeen	Seven		
119	Detroit	NonResident		
120	Lives Det Works	Other		
121	Davis	Bacon		
122	Vacation	Accrual		
123	Premiere	Caulking		
124	Rescorder	Jim		

Note: All of the UDF *name* fields are at the bottom of this table.

All other items are in alphabetical order just like the “*employees*” table

- If we add a date to an Employee Record in FOUNDATION, and refresh the query, we can see the data appear on our preview screen.

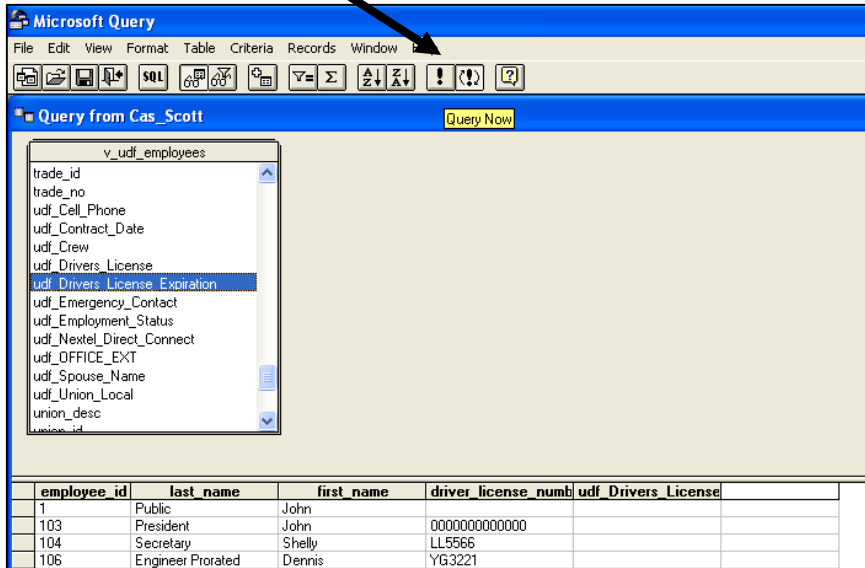
Mode: MODIFY Employee: 108 Jake Redford

General | Deductions | Additional | Rate History | 401K | Extra Burden | Direct Deposit | Divisions | Accruals | **UDF**

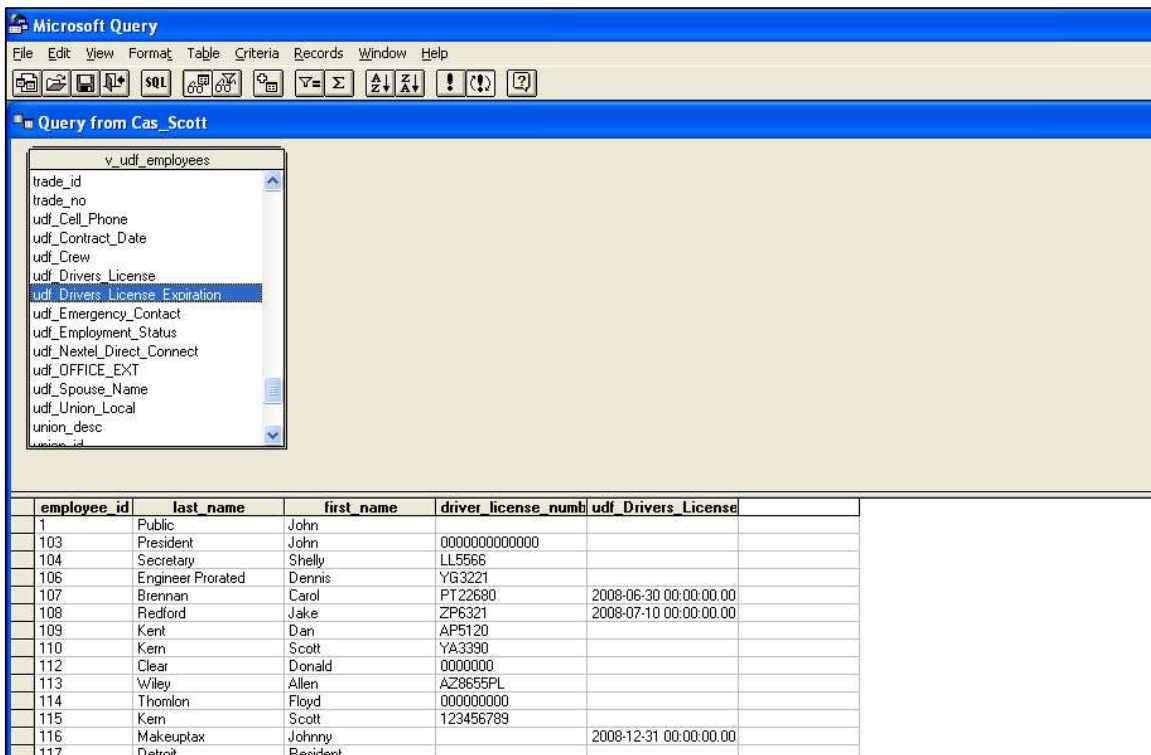
Item	Value
Spouse Name:	
Emergency Contact:	D
Union Local:	
Cell Phone:	B764545667
Nextel Direct Connect:	
Crew:	2
OFFICE EXT:	
Employment Status:	
Drivers License:	... Open
Contract Date:	00/00/0000
Drivers License Expiration:	07/10/2008

Data has been added to FOUNDATION, and the record has been saved.

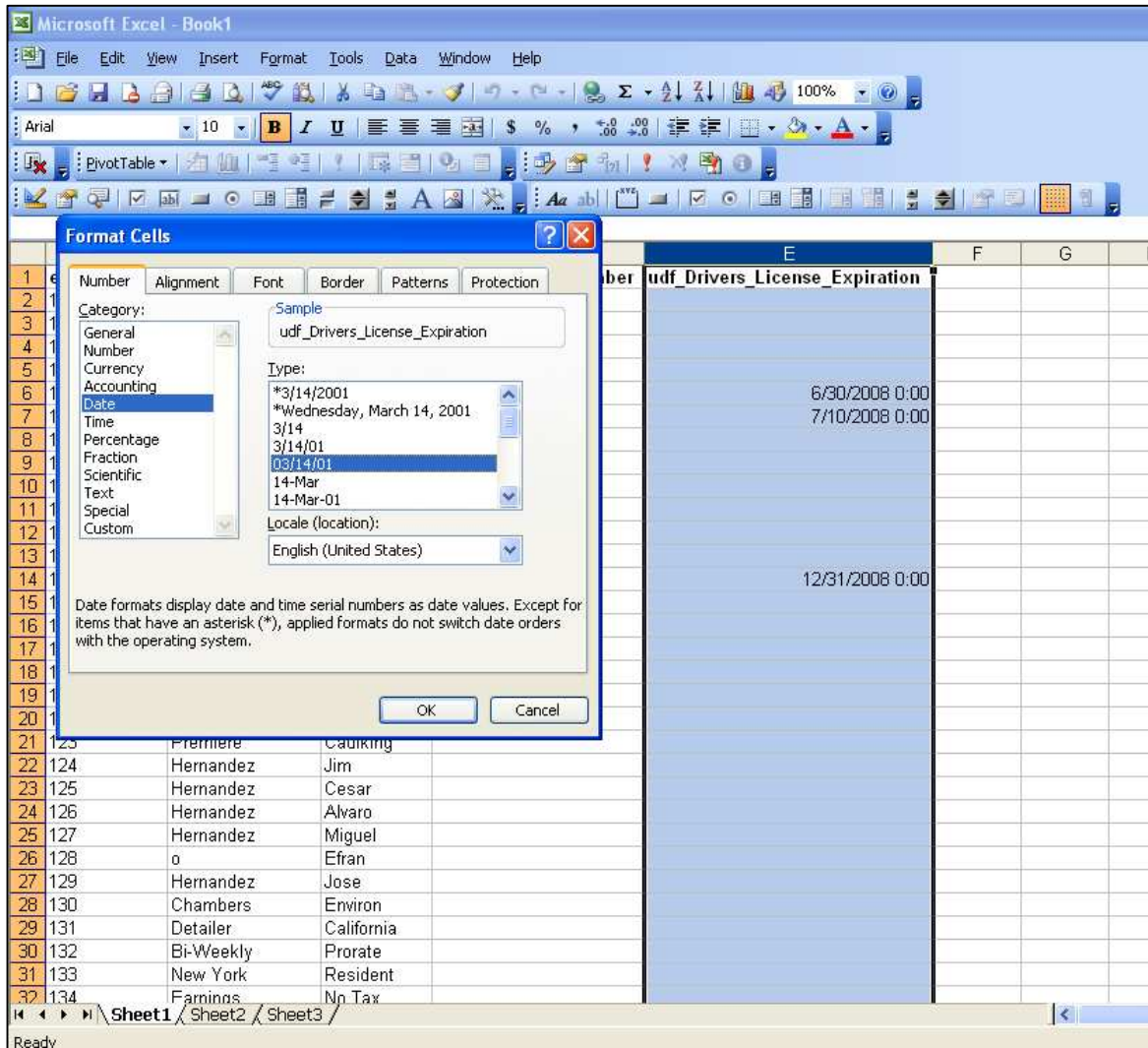
- Click the *Query Now* button (an exclamation point) on the query toolbar to refresh the data in the query mode.



The newly added information in the UDF shows on the query screen.



6. Return the Data to Excel and format the column containing the date:



TOP 20 tables for use with MS Query.

There are over 2,000 individual tables in FOUNDATION’s database.

The following list of Foundation Software Database tables is a representation of the most commonly sought after tables when creating reports through queries.

These tables break down into two simple categories; maintenance-related tables and history-related tables.

The easiest way to start is by creating the list.

For a simple Chart of Accounts, look for the G/L Account List. In the database, this table is known as ...**Accounts**. There are 52 fields within this table. What is important is the ability to match the table.field name to the screen item in Foundation.

<i>company_no</i>	<i>ach_origin_routing_num</i>	
<i>account_no</i>	<i>ach_origin_name</i>	
<i>description</i>	<i>ach_origin_reference_code</i>	
<i>debit_credit</i>	<i>ach_company_name</i>	
<i>apply_subdivision</i>	<i>ach_company_id</i>	
<i>inc_exp_type</i>	<i>ach_pr_entry_desc</i>	
<i>overhead_percent</i>	<i>ach_pr_discretionary_data</i>	
<i>overhead_formula_percent</i>	<i>ach_pr_emp_identifier</i>	
<i>force_job_costing</i>	<i>ach_pr_emp_name_format</i>	
<i>jc_income_expense</i>	<i>dir_dep_exp_dsg_report_id</i>	
<i>cash_flag</i>	<i>condense_on_cash_rec</i>	
<i>bonding_class</i>	<i>statement_category_no</i>	
<i>record_status</i>	<i>bank_account_num</i>	
<i>row_modified_by</i>	<i>bank_account_type</i>	
<i>row_modified_on</i>	<i>ach_balanced_file</i>	
<i>row_unique_id</i>	<i>statement_category_id</i>	
<i>ovhd_alloc_income_expense</i>	<i>include_in_canned_financials</i>	
<i>percent_to_allocate</i>	<i>ach_origin_dfi_id</i>	
<i>overhead_weight_factor</i>	<i>positive_pay_exp_dsg_report_no</i>	
<i>account_id</i>	<i>positive_pay_export_file</i>	
<i>company_id</i>	<i>positive_pay_exp_dsg_report_id</i>	
<i>direct_deposit_format</i>	<i>ach_use_origin_routing_bal_dfi</i>	
<i>dir_dep_exp_dsg_report_no</i>	<i>ach_use_dest_routing_bal_dfi</i>	
<i>direct_deposit_pr_file</i>	<i>ach_origin_type</i>	
<i>ach_dest_routing_num</i>	<i>account_type</i>	
<i>ach_dest_name</i>	<i>gl_history_report_rollup</i>	

This table is created as a reference so you may get familiar with identifying table and field names within the database as they relate to the more “public” face of Foundation Software.

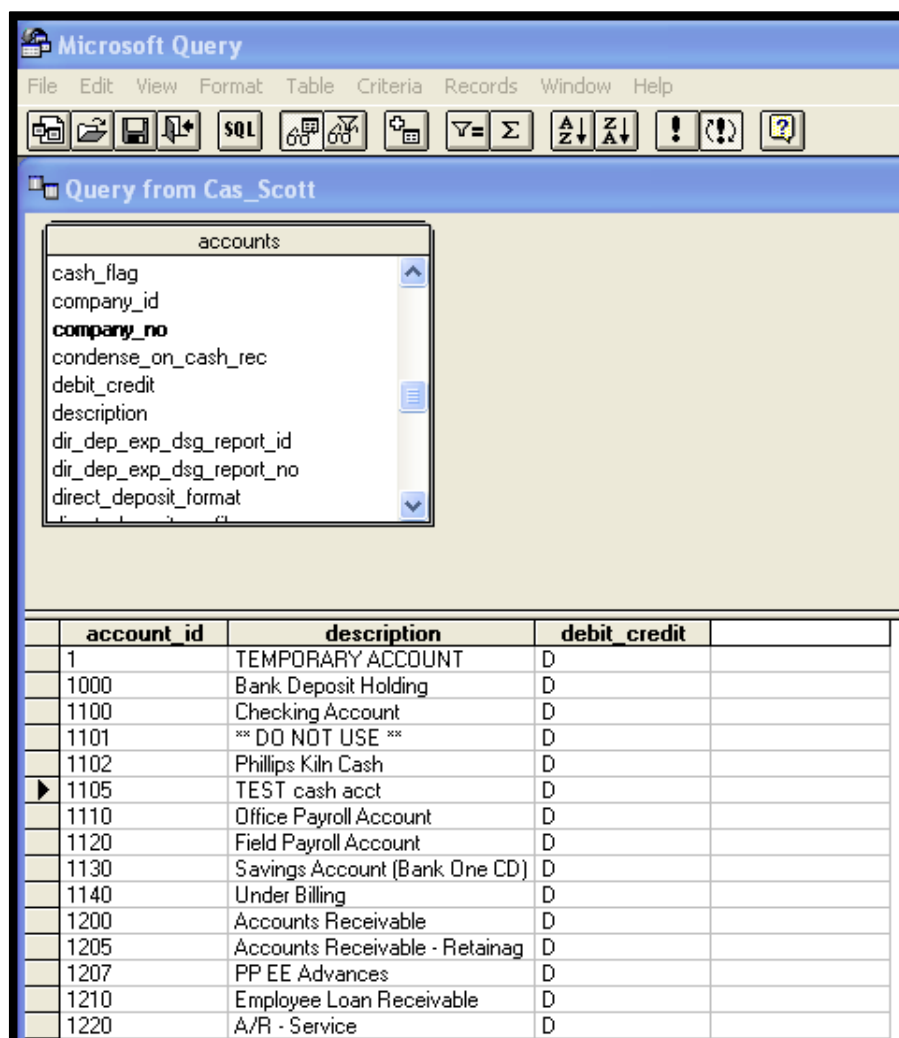
When reviewing the “Top 20” tables, we will look at the most used fields within the tables as well.

Table Name: Accounts

FOUNDATION Location: General Ledger > Maintenance > Accounts

In A Query Window, the most common fields used in the accounts table are:

account_id	Account number
description	G/L account name
debit_credit	What "type of account it is



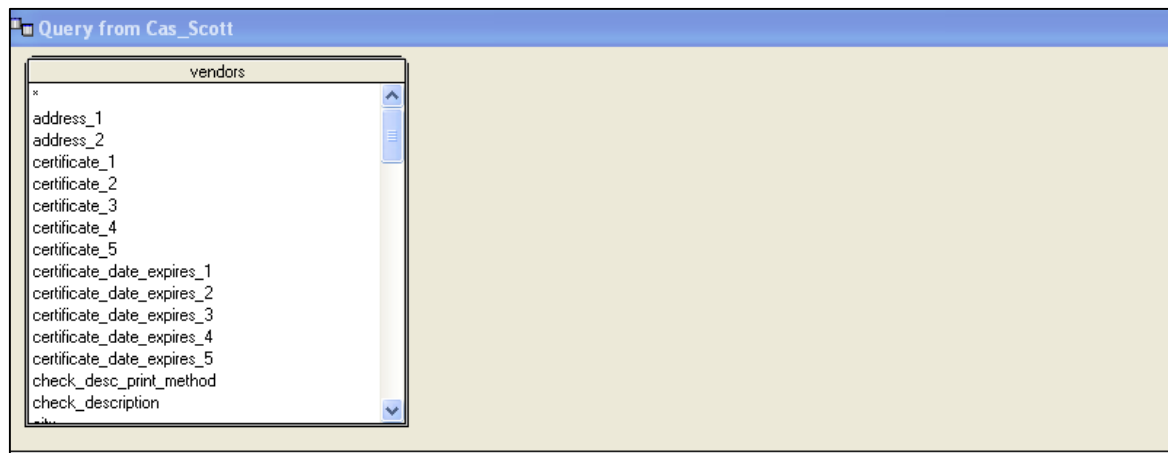
The screenshot shows the Microsoft Query interface. The title bar reads "Microsoft Query". The menu bar includes File, Edit, View, Format, Table, Criteria, Records, Window, and Help. The toolbar contains icons for file operations, SQL, and data manipulation. The main window displays a query from "Cas_Scott" on the "accounts" table. A list of fields is shown in a scrollable box, including cash_flag, company_id, company_no, condense_on_cash_rec, debit_credit, description, dir_dep_exp_dsg_report_id, dir_dep_exp_dsg_report_no, and direct_deposit_format. Below the list, a table of query results is displayed with the following columns: account_id, description, and debit_credit.

account_id	description	debit_credit
1	TEMPORARY ACCOUNT	D
1000	Bank Deposit Holding	D
1100	Checking Account	D
1101	** DO NOT USE **	D
1102	Phillips Kiln Cash	D
1105	TEST cash acct	D
1110	Office Payroll Account	D
1120	Field Payroll Account	D
1130	Savings Account (Bank One CD)	D
1140	Under Billing	D
1200	Accounts Receivable	D
1205	Accounts Receivable - Retainag	D
1207	PP EE Advances	D
1210	Employee Loan Receivable	D
1220	A/R - Service	D

Table Name: Vendors

FOUNDATION Location: Accounts Payable > Maintenance > Vendors

vendor_id	Vendor number
name	Vendor description/name
address_1	First line address
address_2	Additional address line
city	City
state	State
zip_code	Zip code



vendor_id	name	address_1	address_2	city	state	zip_code
10	Subs R Us	3122 Subcontract Drive		Sub City	IA	12346
11	U-Rent-Um	120 Rentway Avenue		Rentaway	CA	90234
12	Test					
100	Mack's Lumber-Gypsum	6760 School Street	P. O. Box 460	Valley City	OH	44280
101	Friends Of the Court	Here is the address		It does Exist	CA	
102	Alibaba	1799 Joseph Lloyd Pkwy		Willoughby	OH	44094
103	Lien Trust Vendor	Lien Trust Vendor Addre		Lien Trust Vendor City	CA	99432
107	Scott's Stuff	101 My house		Cleveland	OH	44111
108	New Vendor					
110	Ford Motor Credit					
111	Hold Vendor	111 Hold Street		Job Cost	PA	32432
112	TN Vendor					
116	Pavestone Pavers			Cudahy	CA	99504
117	Sherwin Williams					
119	Here is the Test					

Additional Vendor fields of interest:

wc_certificate	Y or N to "W/C Certificate on file"
wc_date_expires	W/C insurance certificate expiration date
ins_certificate	Y or N to "Insurance Certificate on file"
ins_date_expires	Insurance certificate expiration date
default_gl_account	Uhhhhh.... the default G/L account
tax_id	Default sales tax authority

Table Name: Customers

FOUNDATION Location: Accounts Receivable > Maintenance > Customers

customer_id	customer number
name	customer description / name
address_1	First line address
address_2	Additional address line
city	City
state	State
zip_code	Zip code
phone_voice	Phone Number

The screenshot shows the Microsoft Query interface for a query named '[Query from Cas_Scott]'. A list of fields for the 'customers' table is displayed in a scrollable window, including: income_type_no, Internal_Batch_Number, inv_usage_markup, invoice_design_id, invoice_design_no, invoice_freight, mileage_rate, name, on_account, order_status, phone_data, phone_fax, phone_voice, price_level_id, and price_level_no. Below the field list, a preview of the data table is shown with columns: customer_id, name, address_1, address_2, city, state, zip_code, contact, and phone. The data rows include customer information such as 'T&M Client CUSTOMER', 'Westfield Insurance', and 'Advanced Communicati'.

customer_id	name	address_1	address_2	city	state	zip_code	contact	ph
10	T&M Client CUSTOMER	123 Rockwood Drive		Cleveland	OH	44444	Mr Contact on T&M Clien	330
101	Westfield Insurance	1945 Root Road		Lorain	OH	44052	Brian Cancian	321
106	Advanced Communicati	3221 Mary Lane		Shipstown	OR	89872	Joe Freeber	123
107	Document Control Custo	Make Changes		Rocky River	OH	44221	Jacob Harvey	330
108	Lien Job Customer	Lien Job Customer Addre		Leintown	CA	99932	Lein Customer Contact	330
109	CM Customer	4221 Riverwood Lane		Rocky River	OH	44221	Jacob Harvey	330
110	Hacker Owner Purchase	543 Breezewood Court	P.O. Box 1154	Rocky River	OH	44221	Jacob Harvey	330
111	TKNS	8789 Northwest Avenue		Rocky River	OH	44221	Brian Cancian	330

Additional Customer fields of interest:

client_since	How long client has been an active customer
income_type_id	Default income type for A/R invoicing
tax_id	Default A/R sales tax ID
default_tax_type	Sales/Use/N/A

Table Name: Jobs

FOUNDATION Location: Job Costing > Maintenance > Jobs

job_id	job number
description	Job description / name
address_1, 2, city, state, zip_code	Address information per other tables
customer_id	Default customer number on job record
job_status	Active/inactive/closed/overhead
completion_date	Job End Date from the "Addl" tab
geo_are_id	Geographic area number
project_manager_id	Project manager number
project_class_id	Project class number

The screenshot shows the Microsoft Query interface for a table named 'jobs'. The table structure is listed in a scrollable pane on the left, including fields like city, contract_id, project_id, completion_date, and company_no. Below the pane is a data preview table with columns: job_id, description, address_1, customer_id, job_status, completion_date, geo_area_id, project_manager_id, and proje.

job_id	description	address_1	customer_id	job_status	completion_date	geo_area_id	project_manager_id	proje
1	Office Overhead	123 Rockwood Drive		0	2010-12-31 00:00:00.00		JOE	
2	Estimating	123 Rockwood Drive		0				
3	Design			0				
4	Shop/Yard			0			JOE	
5	Test New Budget	This is the Job Address	1002	A		100AKR	JOE	
6	Basil Report	address	PAYNES	A		100CIN	100BTC	

Associated tables:

customers: contains customer name and addition customer related information

geographic_areas: Geographic area descriptions

project_managers: Project Manager Descriptions

project_classes: Project class descriptions

Additional Job fields of interest:

original_contract	Original Contract amount on "General" tab
original_cost	Original Estimated cost amount ("General" tab)

Table Name: Items

FOUNDATION Location: Inventory > Maintenance > Items

item_id	Inventory item number
description	Item name
stocking_unit_id	Stocking unit of measure
standard_cost	Standard cost
primary_item_category_id	Primary item category

The screenshot shows the Microsoft Query interface. A window titled 'Query from Cas_Scott' displays a list of fields for the 'items' table. The fields listed are: max_stocking_qty, on_hand_average_cost, operation, price_service_description, primary_item_category_id, primary_item_category_no, purchasing_unit_id, purchasing_unit_no, record_status, reorder_point, row_modified_by, row_modified_on, row_unique_id, and standard_cost. Below the field list, a preview of the data is shown in a table format.

	item_id	description	stocking_unit_id	standard_cost	primary_item_category_id
▶	1	harry's pub	CASE	2.000000	PRI2
	2	Gutter - Metal	LF	1.000000	PRI2
	3	wat	EA	.000000	PRIME
	4	33' X 50' ASBESTOS BA	EA	.650000	PRIME
	5	SOWELL DODSON	LF	.000000	PRIME
	6	Test 2	LF	.000000	PRIME
	7	ON HAND AVERAGE C	EA	.000000	PRIME

Additional Item fields of interest:

item_2_category_id, item_3_category_id, etc.	Additional categories 2 -6
last_cost	Last cost transaction from receipt function
last_date_purchased	Last date received from receipts function
bin_location_id	Bin number

Table Name: Equipment

FOUNDATION Location: Equipment > Maintenance > Equipment Items

equipment_id	Equipment Number
description	Equipment description / name
eq_category_id	E/Q Category number
license_expiration	License expiration date
license_fee	License fee
model_year	Model year

The screenshot shows the Microsoft Query interface with a table named 'equipment' from the 'Cas_Scott' database. The table contains the following data:

equipment_id	description	eq_category_id	license_expiration	license_fee	model_year
1234	FORD F350 UTILITY 2008 4X	101	2011-06-30 00:00:00.00	158.00	2008
1230	GMC C15 EXT CAB 07 (KB)	101	2011-05-31 00:00:00.00	78.00	2007
K10	Kobelco Front End Loader 10	FRONT	2010-12-31 00:00:00.00	120.00	2001
1229	GMC C15 EXT CAB 07 (TF)	101	2010-05-31 00:00:00.00	78.00	2007
BULLDOZER	Bulldozer	1	2009-12-31 00:00:00.00	95.00	
395	R&W UTILITY TRAILER 12' 2	101	2009-04-30 00:00:00.00	18.00	2006
396	R&W UTILITY TRAILER 12' 2	101	2009-04-30 00:00:00.00	18.00	2006
397	R&W UTILITY TRAILER 12' 2	101	2009-04-30 00:00:00.00	18.00	2006
398	WELLS CARGO 12FT BOX 20	101	2009-04-30 00:00:00.00	18.00	2007
302	BUTLER TS2500 1981 TRAIL	101	2009-04-30 00:00:00.00	18.00	1981

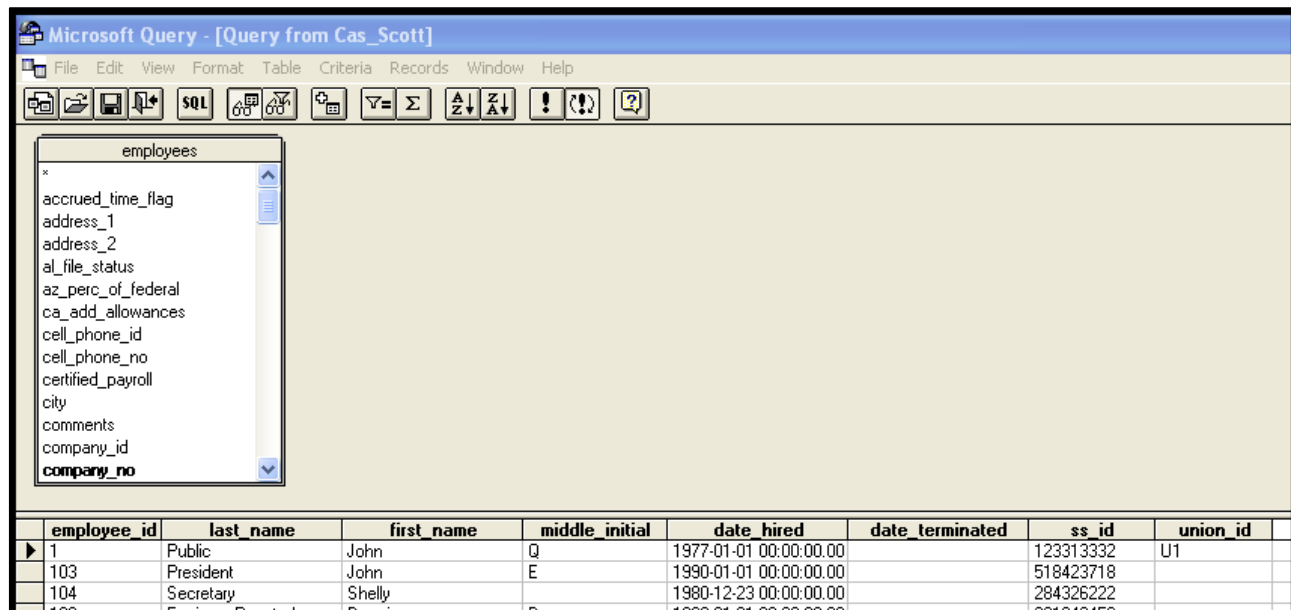
Additional Customer fields of interest:

manufacturer	Manufacturer
make_model	Make and Model information
ownership	Owned / Rented / Leased
distributor	Distributor

Table Name: Employees

FOUNDATION Location: Payroll > Maintenance > Employees

employee_id	Employee number
last_name	Last name
first_name	First Name
middle_initial	Middle Initial
date_hired	Hire Date
date_terminated	Termination Date
ss_id	Social Security Number
union_id	Union Number



The screenshot shows the Microsoft Query interface for a query named 'employees'. The table structure is listed on the left, and a preview of the data is shown at the bottom.

employee_id	last_name	first_name	middle_initial	date_hired	date_terminated	ss_id	union_id
1	Public	John	Q	1977-01-01 00:00:00.00		123313332	U1
103	President	John	E	1990-01-01 00:00:00.00		518423718	
104	Secretary	Shelly		1980-12-23 00:00:00.00		284326222	
105	Business Executive	Dennis	D	1980-01-01 00:00:00.00		331043450	

Associated tables:

Emp_direct_dep: Employee direct deposit information

Emp_rate_changes: Employee pay rate changes

Emp_ded: Employee miscellaneous deduction information

Emp_taxes: employee tax information (Federal, State, Local withholding information)

SPECIAL NOTE: Are you looking for UDF (User Defined Field) information with your maintenance tables? Simple add a V_UDF_ in front of the table name and you now have all the information from the basic maintenance table AND all of your User Defined Fields. IE: V_UDF_JOBS = all job maintenance fields and the user defined fields. (...and no, this does not count as tables 8-14, that would be cheating)

Table Name: job_budgets

FOUNDATION Location: Job Cost > Maintenance > Jobs > Budget Tab

job_id	Job number
cost_code_id	Cost code number
cost_class_id	Cost class number
orig_est_dollars	Original estimated dollars (per code and class)
orig_est_units	Original estimated units

The screenshot shows the Microsoft Query interface for a query named "[Query from Cas_Scott]". The table structure for 'job_budgets' is listed in a scrollable pane on the left:

- cost_code_id
- cost_code_no**
- job_id
- job_no**
- orig_est_dollars
- orig_est_unit_price
- orig_est_units
- phase_id
- phase_no**
- record_status
- row_modified_by
- row_modified_on
- row_unique_id

Below the field list is a data preview table with the following columns: job_id, cost_code_id, cost_class_id, orig_est_dollars, orig_est_units, and an empty column. The data rows are:

job_id	cost_code_id	cost_class_id	orig_est_dollars	orig_est_units	
149	1	1	1841222.00	.000	
127	4000	3	998144.87	.000	
UPB	1010	1	850000.00	.000	
▶ DAVID	1	2	704320.00	.000	
1000	1	2	550000.00	.000	
IMP	200	3	450000.00	.000	

Associated tables:

Jobs, cost_codes, cost_classes: all tables used to pull in descriptions for associated items

Additional job_budgets fields of interest:

phase_id	For phased companies
----------	----------------------

Table Name: job_chg

FOUNDATION Location: Job Cost > Daily Transactions > Enter Change Orders

job_id	Job number
change_order_id	Change order number
date_booked	Change order date
status	Approved, Estimate, Pending, Rejected, Internal
tot_income_adj	Total income adjustment
tot_cost_adj	Total cost Adjustment
comments	Change order comments

The screenshot shows the Microsoft Query interface for a table named 'job_chg'. The table structure is as follows:

job_id	change_order_id	date_booked	status	tot_income_adj	tot_cost_adj	comments
1	1	2011-01-17 00:00:00.00	A	1.00	.00	Here is a Test
2	150	2010-03-12 00:00:00.00	A	4000.00	3000.00	
3	190	2010-03-12 00:00:00.00	A	10000.00	9000.00	
3	101ABC	2010-03-15 00:00:00.00	A	1000.00	800.00	
5	141	2010-04-10 00:00:00.00	A	3000.00	2000.00	
5	144	2010-05-16 00:00:00.00	A	2000.00	1000.00	
5	146	2010-05-12 00:00:00.00	A	2000.00	1000.00	

Associated tables:

Jobs: to pull in descriptions for associated items

Additional job_budgets fields of interest:

owner_co_id	Owner Change Order number
tot_unit_adj	Total unit adjustment
tot_quantitiy_adj	Total quantity adjustment

Table Name: job_chg_budgets

FOUNDATION Location: Job Cost > Daily Transactions > Enter Change Orders > "Distribution" tab

job_id	Job Number
change_order_id	Change order number
cost_code_id	Cost code number
cost_class_id	Cost class number
cost_adj	Cost adjustment per code and class
unit_adj	Unit adjustment

The screenshot shows the Microsoft Query interface for a query named 'job_chg_budgets'. The table structure is listed in a scrollable pane on the left, including fields like cost_class_no, cost_code_id, cost_code_no, income_adj, job_id, job_no, phase_id, phase_no, quantity_adj, record_status, row_modified_by, row_modified_on, row_unique_id, and unit_adj. Below the pane, a data preview table is visible with columns for job_id, change_order_id, cost_code_id, cost_class_id, cost_adj, and unit_adj. The data rows show values for job_id (5), change_order_id (141, 144, 146), cost_code_id (1), cost_class_id (2), cost_adj (2000.00, 1000.00, 1000.00), and unit_adj (.000, .000, .000).

Associated tables:

Job_chg, Jobs, Cost_codes, cost_classes: all tables used to pull in descriptions for associated items

Additional Job_chg_budgets fields of interest:

Phase_id	For phased companies
----------	----------------------

Table Name: job_chg_cost_codes

FOUNDATION Location: Job Cost > Daily Transactions > Enter Change Orders > “Distribution” tab > Income Amount

job_id	Job Number
change_order_id	Change order number
cost_code_id	Cost code number
income_adj	income adjustment per cost code (if enabled)

Microsoft Query - [Query from Cas_Scott]

File Edit View Format Table Criteria Records Window Help

SQL

job_chg_cost_codes

- company_no
- cost_code_id
- cost_code_no
- income_adj
- job_id
- job_no
- phase_id
- phase_no
- quantity_adj
- record_status
- row_modified_by
- row_modified_on
- row_unique_id

	job_id	change_order_id	cost_code_id	income_adj		
	5	141	1	3000.00		
	5	144	1	2000.00		
	5	146	1	2000.00		

Associated tables:

Job_chg, Jobs, Cost_codes: all tables used to pull in descriptions for associated items

Additional Job_chg_cost_codes fields of interest:

phase_id	For phased companies
quantity_adj	Quantity adjustment per cost code

Table Name: v_job_history

FOUNDATION Location: Job Cost > Reports > Job History Detail

Job_id	Job Number
Job_description	Job description
Cost_code_id	Cost code number
Cost_code_description	Cost Code Description
Cost_class_id	Cost Class number
Cost_class_description	Cost Class Description
Cost	Cost
Units	Units/Hours
Date_booked	Date posted to G/L & Job Cost

The screenshot shows the Microsoft Query interface for a query named 'v_job_history'. The table structure is listed on the left, and a preview of the data is shown at the bottom.

job_id	job_description	cost_code_id	cost_code_description	cost_class_id	cost_class_description	cost	units	date
1005	OLD	1	GENERAL COSTS	1	LABOR	1232.33	.000	1998-12-4
1005	OLD	1	GENERAL COSTS	2	MATERIALS	22.94	.000	1998-12-4
1005	OLD	1	GENERAL COSTS	3	SUBCONTRACTORS	5050.00	.000	1998-12-4
1005	OLD	1	GENERAL COSTS	2	MATERIALS	288.00	.000	1998-12-4

Associated tables:

None – all of the associated data is in this table – **YEAH!!!**

Additional v_job_history fields of interest :

Too many to mention. Basically, if it is **cost**-related and shows up on a Job History Detail Report, it is in this table. Employee names, inventory items, equipment items, journal descriptions, source module, earn codes, departments, vendors – all of the IDs and Descriptions for these items are contained within this table.

Table Name: ap_invoice_d

FOUNDATION Location: Accounts Payable > Daily Transactions > Posted Invoice Distribution Detail

Voucher_id	A/P Invoice transaction number
Account_id	Basic G/L account number (no divisions)
Job_id	Job Number
Cost_code_id	Cost code number
Cost_class_id	Cost class number
Amount	\$ amount from A/P invoice distribution

The screenshot shows the Microsoft Query interface for the 'ap_invoice_d' table. The table structure is listed in a scrollable pane on the left, and a data preview is shown at the bottom.

voucher_id	account_id	job_id	cost_code_id	cost_class_id	amount
16	5200	1	1	2	1212.12
17	5200	1	1	2	1212.12

Associated tables:

Ap_invoice_h: This table carries the vendor, invoice and posting date information – pretty much required if you want to make any sense out of the ap_invoice_d table.

Jobs, cost_codes, cost_classes, accounts: All tables used to pull in descriptions for associated items.

Additional ap_invoice_d fields of interest:

Div_level_1 – 4	Division for G/L posting
Equip_id & eq_wo_id	Equipment module posting information
Full_account_id	Full G/L account number with divisions
Sales_tax_amount	Sales tax from distribution

Table Name: gl_history

FOUNDATION Location: General Ledger > Reports > History Detail

Basic_account_id	General ledger account number
Amount_db	Amount posted as a debit
Amount_cr	Amount Posted as a credit
Date_booked	Posting date
Module_from	Source module for transaction
Job_id	Job number posted to G/L

basic_account_id	amount_db	amount_cr	date_booked	module_from	
1100	.00	3413.89	2000-04-08 00:00:00.00	PR1	
2210	.00	822.62	2000-04-08 00:00:00.00	PR1	
2220	.00	216.07	2000-04-08 00:00:00.00	PR1	
2240	.00	71.47	2000-04-08 00:00:00.00	PR1	
2260	.00	16.50	2000-04-08 00:00:00.00	PR1	

Associated tables:

The accounts table must be joined to the gl_history table by joining the **gl_history.basic_account_id** and **accounts.account_id** fields. This is one of the only table joins that I have run across that does not have a direct relationship name-wise in both tables.

Customers, Jobs, Equipment, Vendors: All tables used to pull in descriptions for associated items.

Table Name: gl_history_pr_dtl

FOUNDATION Location: General Ledger > Reports > History Detail > drilldown to Payroll History within G/L history

Basic_account_id	G/L account number
Job_id	Job number
Amount_db	Amount posted as debit
Amount_cr	Amount posted as credit
Employee_id	Employee number
Date_booked	Date posted to general ledger

The screenshot shows the Microsoft Query interface for a query named 'gl_history_pr_dtl'. The table structure is listed in a scrollable window, including fields like amount_cr, amount_db, basic_account_id, job_id, amount_db, amount_cr, employee_id, and date_booked. Below the structure, a data preview table is displayed with columns for basic_account_id, job_id, amount_db, amount_cr, employee_id, and date_booked. The data shows four rows of transactions for employee 104 on 2004-07-10.

basic_account_id	job_id	amount_db	amount_cr	employee_id	date_booked
1100		.00	68.97	104	2004-07-10 00:00:00.00
1210		.00	50.00	104	2004-07-10 00:00:00.00
2210		.00	30.60	104	2004-07-10 00:00:00.00
2220		.00	53	104	2004-07-10 00:00:00.00

Associated tables:

Jobs, Employees, Accounts: all tables used to pull in descriptions for associated items

Additional gl_history_pr_dtl fields of interest:

Check_id	P/R check number for the posting
Full_account_id	G/L account including division
Gl_cash	Cash account used for check posting

Table Name: his_timecard

FOUNDATION Location: Payroll > Reports > Timecard History

Employee_id	Employee number
Job_id	Job number
Dated	Actual date of work on the timecard
Hours	Hours entered on timecard
Earn_type_id	Earn code
Pay_rate	Hourly pay rate
amount	Additional amount if not hourly

employee_id	job_id	dated	hours	earn_type_id	pay_rate	amount
107	99100	2000-04-03 00:00:00.00	8.0000	REG	8.00000	.00
107	99100	2000-04-04 00:00:00.00	5.0000	REG	8.00000	.00
112	1000	2000-04-03 00:00:00.00	8.0000	REG	18.00000	.00
112	1000	2000-04-05 00:00:00.00	8.0000	REG	18.00000	.00
112	1000	2000-04-06 00:00:00.00	8.0000	REG	18.00000	.00

Associated tables:

Jobs, Employees, Unions, Trades: All tables used to pull in descriptions for associated items.

Additional his_timecards fields of interest:

Cost_code_id / cost_class_id	Cost Code & Cost Class Number
Union_id	Union Number
Trade_id	Trade Number
Equipment_id / service_code_id	Equipment Service information

Table Name: his_misc

FOUNDATION Location: Payroll > Reports > Miscellaneous Deduction History

Employee_id	Employee number
Deduction_id	Miscellaneous Deduction number / code
Deduction_amount	Amount withheld for this deduction code
P401K_earnings	401K Earnings (401K codes only)
P401K_matching	401K matching amount
Dated	Date posted to Payroll History (most likely check date)

The screenshot shows the Microsoft Query interface for a query named 'his_misc'. The table structure is listed in a scrollable pane on the left, and a data preview is shown in a table below.

employee_id	deduction_id	deduction_amount	p401k_earnings	p401k_matching	dated
1	125	76.07	.00	.00	2007-01-10 00:00:00.00
1	125	76.07	.00	.00	2007-01-10 00:00:00.00
1	125	76.07	.00	.00	2007-07-10 00:00:00.00
1	125	76.07	.00	.00	2007-07-10 00:00:00.00

Associated tables:

Employees (and other earning history tables): All tables used to pull in descriptions for associated items.

Additional his_misc fields of interest:

Integration_type	For A/P integration
Vendor_id	Vendor number (for integration)

Table Name: his_earn_hours

FOUNDATION Location: Payroll > Reports > Earnings Detail

Employee_id	Employee number
Earn_type_id	Earn Code
Hours	Number of hours worked per earn code
Dollars	Summed value of dollars per earn code
Dated	Date posted (most likely check date)

The screenshot shows the Microsoft Query interface for a query named 'his_earn_hours' from the 'Cas_Scott' database. The field list on the left includes: company_id, company_no, date_posted, date_week_ended, dated, dollars, earn_type_flag, earn_type_id, earn_type_no, employee_id, employee_no, hours, Internal_Mod, Internal_Reference, and pay_method. Below the field list is a preview of the query results.

employee_id	earn_type_id	hours	dollars	dated
113	REG	40.0000	520.00	2000-04-29 00:00:00.00
113	REG	27.0000	351.00	2002-01-09 00:00:00.00
113	REG	40.0000	520.00	2003-01-20 00:00:00.00
113	REG	-40.0000	-920.00	2003-02-12 00:00:00.00
113	REG	40.0000	920.00	2003-02-15 00:00:00.00

Associated tables:

Employees: Used to pull in descriptions for associated items.

Table Name: his_earn_additional

FOUNDATION Location: Payroll > Reports > Earnings Detail

Employee_id	Employee number
Earn_type_id	Earn Code
Additional_dollars	Additional earning amount
Dated	Date posted (most likely check date)

The screenshot shows the Microsoft Query interface for a query named 'his_earn_additional'. The field list on the left includes: additional_dollars, company_id, company_no, date_posted, date_week_ended, dated, earn_type_flag, earn_type_id, earn_type_no, employee_id, employee_no, Internal_Mod, and Internal_Reference. The data grid below shows the following records:

employee_id	earn_type_id	additional_dollars	dated
1	AUTO	500.00	2003-10-20 00:00:00.00
1	BON	4000.00	2003-10-25 00:00:00.00
1	COMM	1400.00	2007-07-10 00:00:00.00
1	CWA	550.00	2007-01-10 00:00:00.00
1	CWA	550.00	2007-01-10 00:00:00.00
1	OAT	85.15	2003-10-20 00:00:00.00
1	PERDI	500.00	2009-01-10 00:00:00.00
1	SAL	1400.00	2006-01-31 00:00:00.00
1	SAL	1000.00	2007-01-10 00:00:00.00
1	SAL	1000.00	2007-01-10 00:00:00.00

Associated tables:

Employees: Used to pull in descriptions for associated items.

Table Name: v_em_jc_billings

FOUNDATION Location: Accounts Receivable > Reports > Applied History

Job_id	Job Number
Customer_id	Customer Number
Invoice_id	A/R Invoice number
Amount_invoiced	Amount Invoiced
Cash_amount	Amount of Cash Received
Adjust_date	Date of posting

The screenshot shows the Microsoft Query interface for a query named 'v_em_jc_billings'. The left pane lists the fields in the view: adjust_amount_due, adjust_date, adjust_retainage_amount, AMOUNT_INVOICED, cash_amount, company_id, company_no, cr_version, customer_id, customer_no, description, estimate_id, estimate_no, and history_type. The right pane displays a table with the following data:

job_id	customer_id	invoice_id	AMOUNT_INVOICED	cash_amount	adjust_date
1000	1005	879	1750000.00	.00	2008-12-01 00:00:00.00
10	10	382	1517490.68	.00	2004-06-11 00:00:00.00
UPB	UPB	295	1335983.61	.00	2003-06-01 00:00:00.00
1001	1001	280	1235000.00	.00	2003-06-01 00:00:00.00
149	108	858	1101936.00	.00	2008-06-01 00:00:00.00

Associated tables:

Jobs, Customers, ar_invoice: Used to pull in descriptions for associated items.

This is a rather unique view table; it is very helpful when creating reports for cash receipts and billings by customer and jobs.