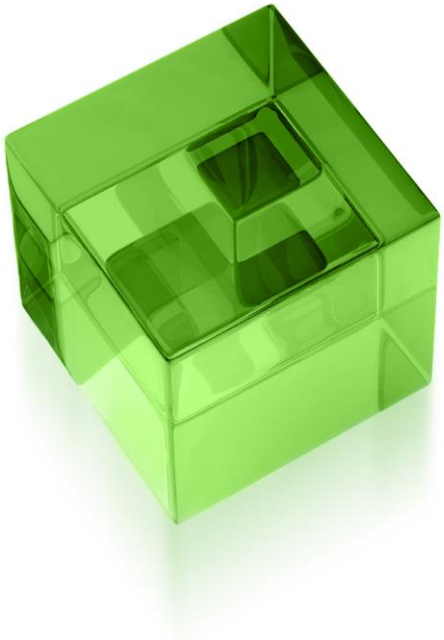

New World Systems

Business Analytics Excel Quick Tips

August 29, 2014

New World Systems®

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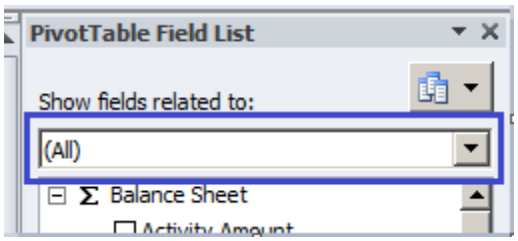
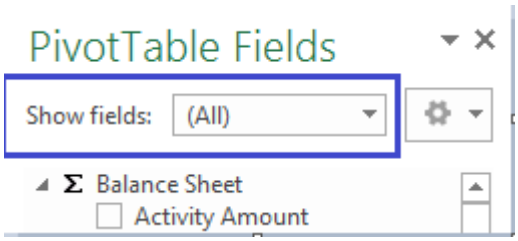
WHY YOU SHOULD SELECT A MEASURE GROUP

Let's assume you have a question you want to answer… so you ***connect*** to a Business Analytics cube.

For this example we will connect to the Logos **General Ledger** cube.

Whether you are in excel 2010 or 2013 they both have the option for you to select a specific measure group.

Excel 2010	**Excel 2013**
	

Right now you may be asking yourself: "Self, what is this measure group thing he is talking about?"

I am glad you asked yourself that question!

There is some "lingo" that may seem intimidating, but I will try to breakdown for you.

Firstly, the Business Analytics product uses a database technology that is designed for very fast analysis of large datasets.

It does this by restructuring and pre-calculating a lot of information into a **Cube.**

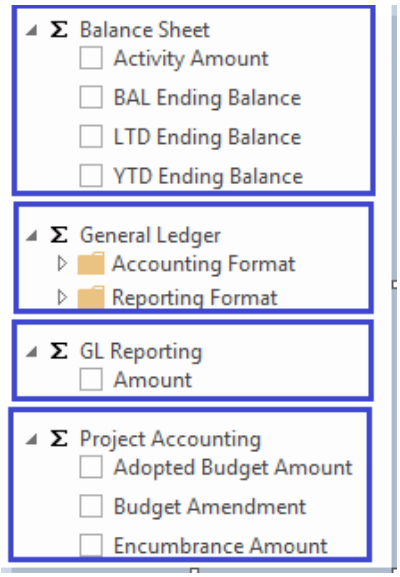
A **Cube** consists mainly of two things which are termed as **Facts** and **Dimensions**.

A **Fact** is just something that you want to measure in some way.

A **Dimension** is an attribute or field that can describe the measurement in some meaningful way.

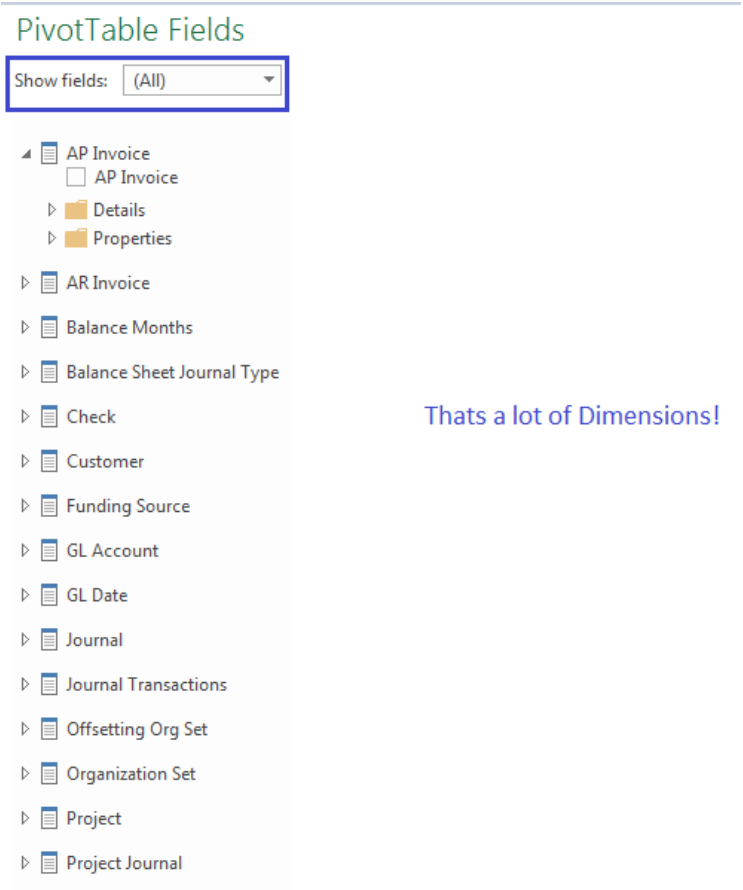
Therefore a **Measurement Group** is just a group of related measurements.

As you can see you have multiple measures available to choose in each measurement group.

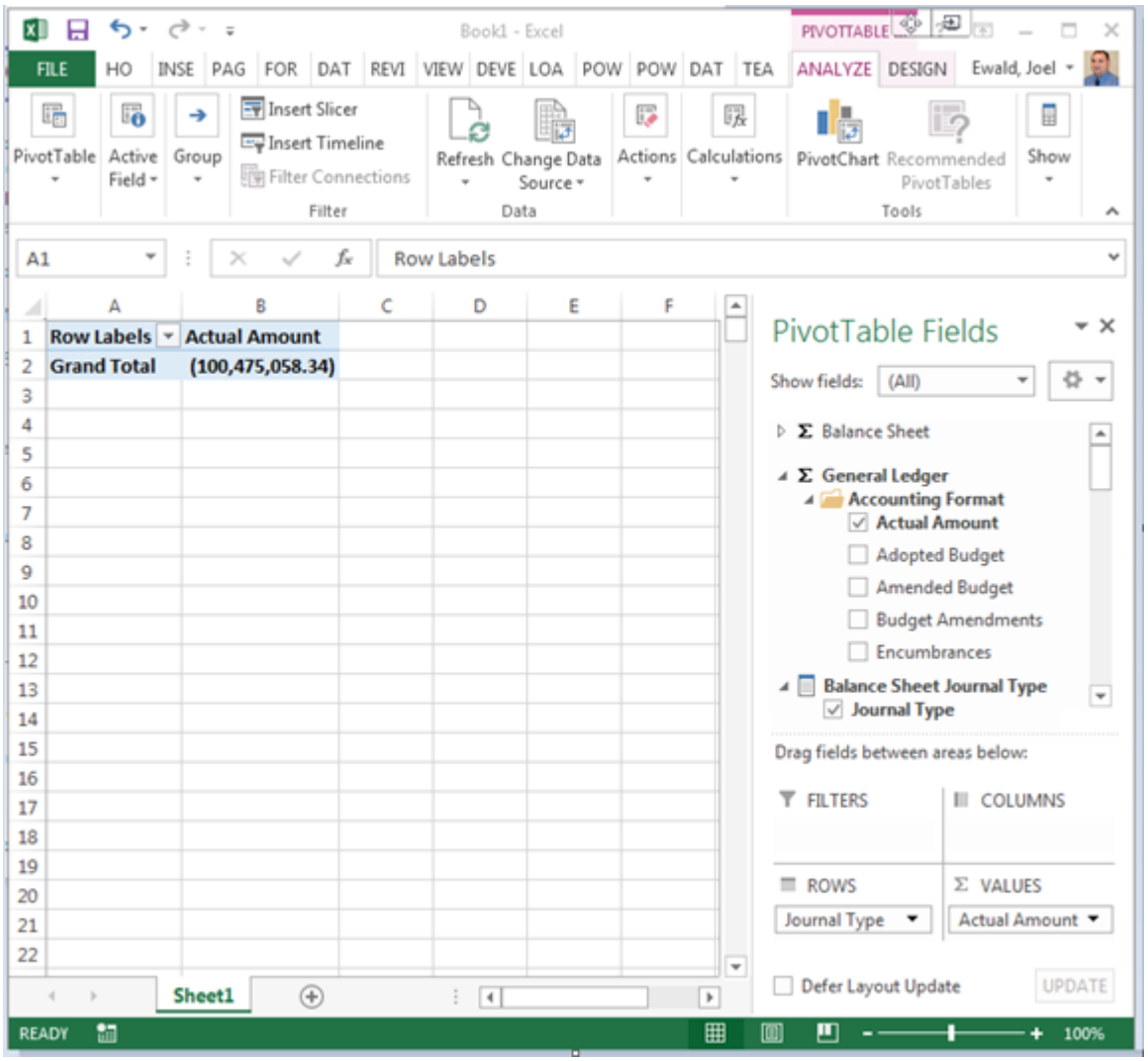


When using Business Analytics (or any Cube) you always want to select a measure!

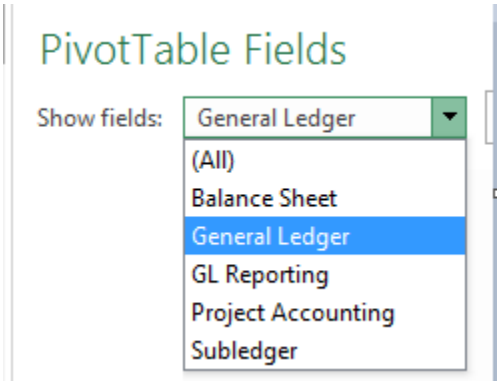
When you have **All** measure groups selected your list of Dimension fields is not limited in any way.



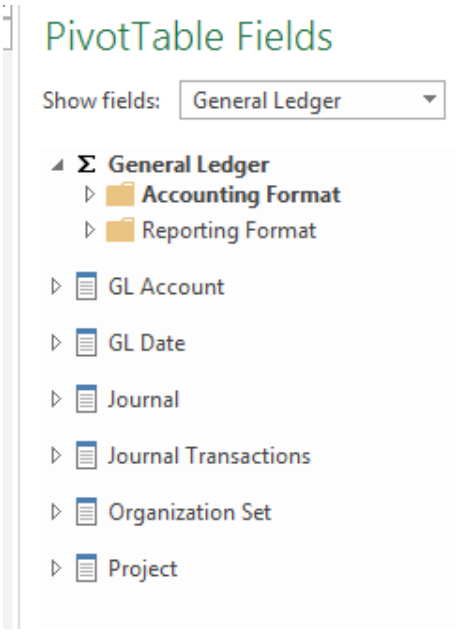
If you select a measure, **General Ledger Actual Amount** in this case, and then a field that is not related to it, **Balance Sheet Journal Type**, you can get strange results (possibly even stranger than the example below)!



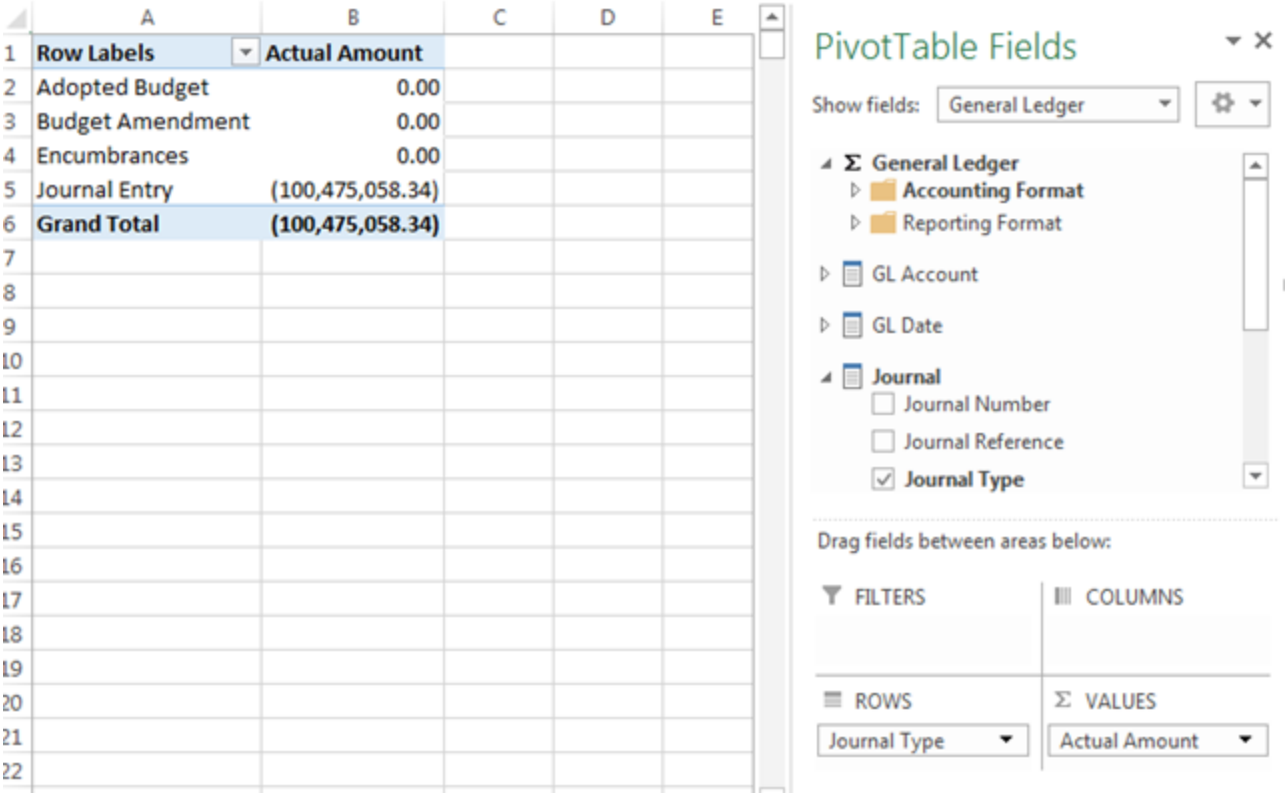
You can see that if you filter down to only the **General Ledger** Measure Group.



You will only see dimensions and fields that are related to the measure you have selected.



So if we want to break down **General Ledger Actual Amount** by Journal Type we could choose the **Journal Type** from the **Journal** Dimension Fields.



As with most things there are some exceptions to this best practice.

For example the Consumption cube for Logos Utilities has been specifically designed so that almost every dimension is related to every Measurement group. This means that you can select almost any Dimension field with any measure which lets you do such things as analyze Usage and Charges at the same time.

As you get familiar with the cubes you may find other dimensional relationships that may offer you expanded insights, but to start you want to always filter to a specific measurement group.

PAGE BREAK ON A SPECIFIC FIELD WHEN PRINTING

If you have ever created a report using Decision Support Business Analytics and then wanted to print each group on a separate page this tip is for you.

We had a customer want to do this very thing with an employee timesheet report.

While this is not the type of report that Business Analytics is optimized to create - it is a granular level of detail without any aggregation - the versatility is impressive.

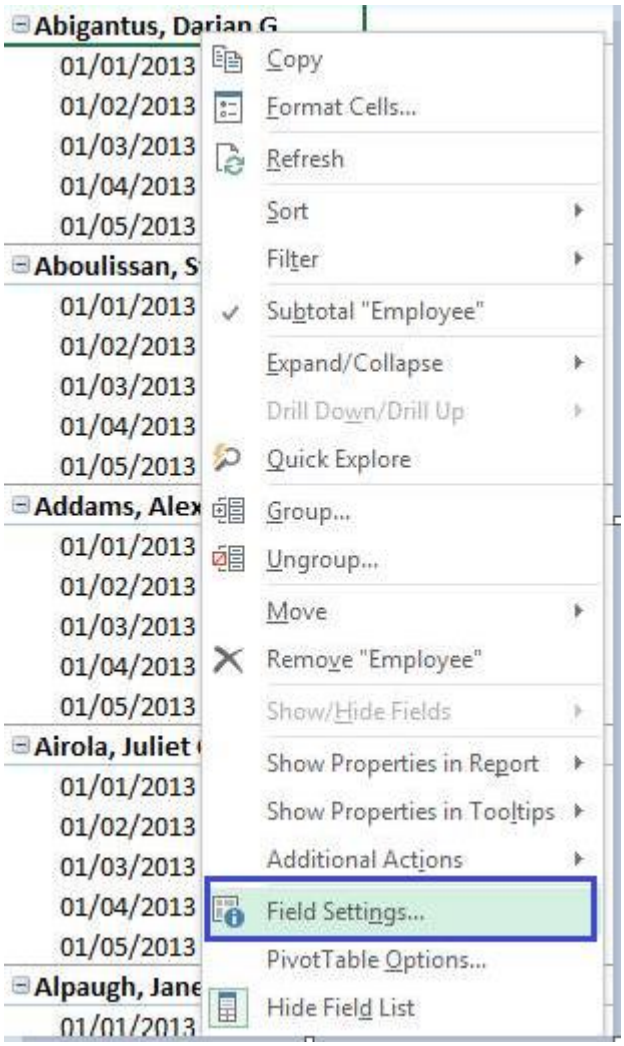
Example 1

The customer created a timesheet report similar to the following example.

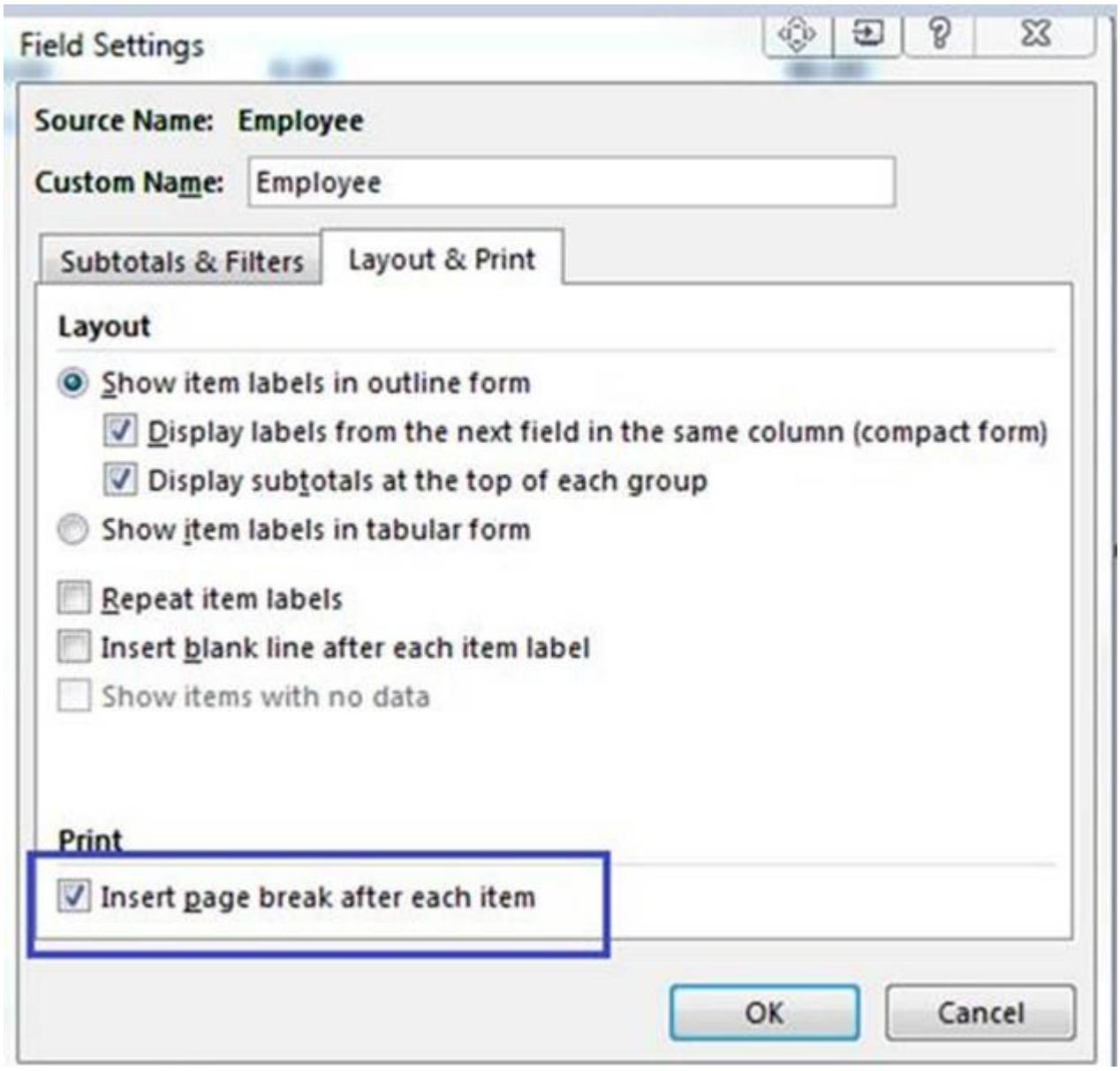
	A	B	C	D	E	F	G	H
1	Work Date.Calendar Weeks	Week 01, 2013						
2								
3	Hours Worked	Column Labels						
4		220132						Grand Total
5	Row Labels	10 REG FT	14 HOL FT	44 PD HOL	EFLTF	PD HOL OT	PDHOLF	
6	Abigantus, Darian G			8.00				8.00
7	01/01/2013			8.00				8.00
8	01/02/2013							
9	01/03/2013							
10	01/04/2013							
11	01/05/2013							
12	Aboulissan, Stuart A	24.00	8.00		8.00			40.00
13	01/01/2013		8.00		8.00			16.00
14	01/02/2013	8.00						8.00
15	01/03/2013	8.00						8.00
16	01/04/2013	8.00						8.00
17	01/05/2013							
18	Addams, Alexandria R			8.00				8.00
19	01/01/2013			8.00				8.00
20	01/02/2013							
21	01/03/2013							
22	01/04/2013							
23	01/05/2013							
24	Airola, Juliet C					4.00	6.00	10.00
25	01/01/2013					4.00	6.00	10.00
26	01/02/2013							
27	01/03/2013							
28	01/04/2013							
29	01/05/2013							
30	Alpaugh, Janelle D							

They then wanted to print this report and have a separate page printed for each employee.

In order to do this you simply have to **Right Click** on one of the Employee Names (or your particular Field) and **Choose *Field Settings***.



On the *Layout & Print* tab **Check** the ***Insert page break after each item*** checkbox.



Now when you print, each employee will be printed on its own page.

SHOW FIELD DESCRIPTIONS WITH NO DATA

Have you ever wanted to show every possible value for a given field whether there was something relevant to measure or not?

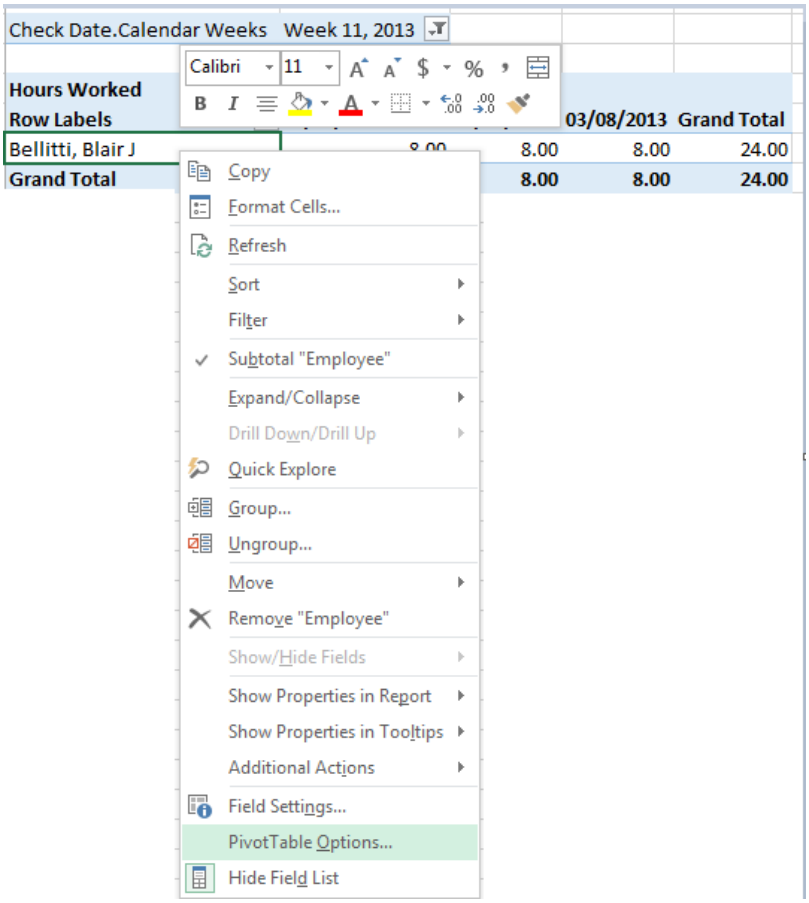
The most typical example is usually a calendar where you want to show Sunday to Saturday even if someone only worked Monday to Wednesday, as an example.

Assume we have pulled up the hours for a particular employee for a particular week (like below).

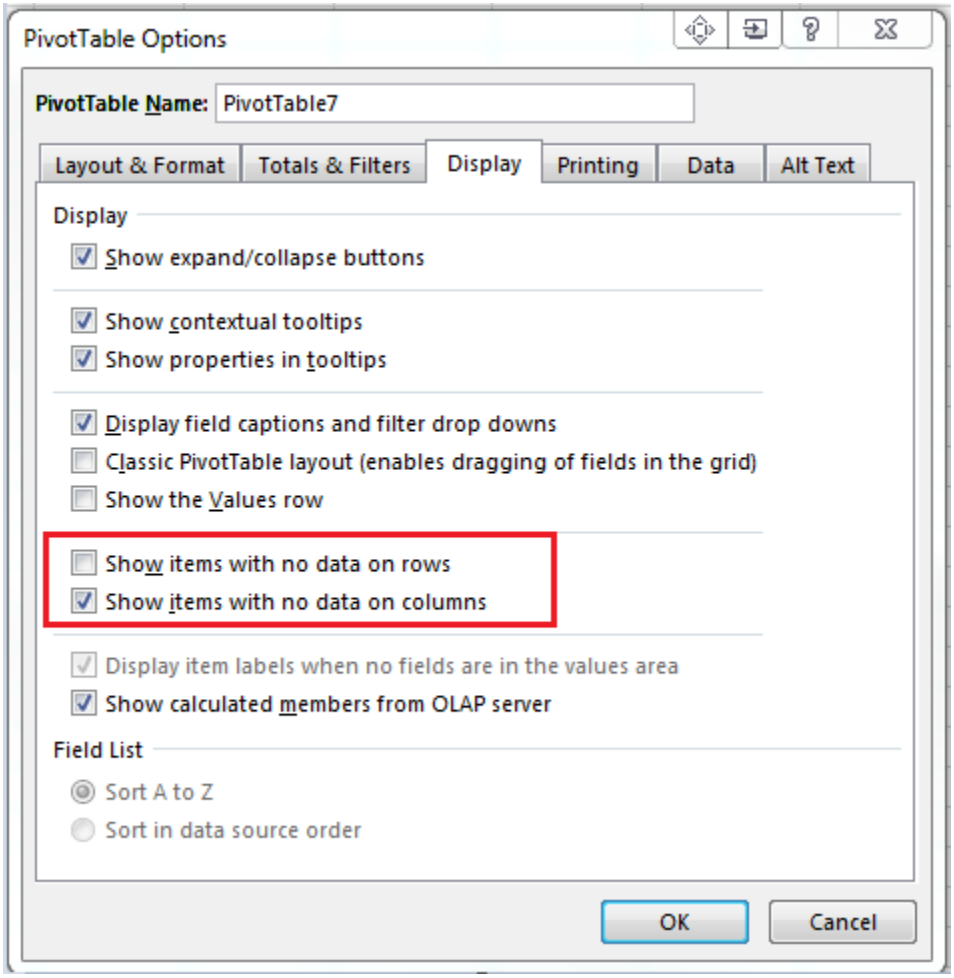
Work Date.Calendar Weeks	Week 10, 2013			
Hours Worked	**Column Labels**			
Row Labels	**03/04/2013**	**03/07/2013**	**03/08/2013**	**Grand Total**
Bellitti, Blair J	8.00	8.00	8.00	24.00
Grand Total				**24.00**

You see we only have hours worked on three days of the week.

To show the other days simply **Right Click** on the pivot table and **select** "Pivot Table Options" to bring up the options window.



On the options window **select** the "Display" tab



Check the "Show items with no data on columns" option

Work Date.Calendar Weeks	Week 10, 2013							
Hours Worked	**Column Labels**							
Row Labels	**03/03/2013**	**03/04/2013**	**03/05/2013**	**03/06/2013**	**03/07/2013**	**03/08/2013**	**03/09/2013**	**Grand Total**
Bellitti, Blair J		8.00			8.00	8.00		24.00
Grand Total								**24.00**

Example 2

You could do something similar if you wanted a listing of every Org Function. Consider the following.

Account Type	Expenses
Calendar	December 2013
Row Labels	**Actual Amount**
General government	0.00
Parks and recreation	67.75
Grand Total	**67.75**

Simple choose the "Show items with no data on rows" from the Display tab of the Pivot Table Options.

Account Type	Expenses
Calendar	December 2013
Row Labels	**Actual Amount**
Aquatics	
Community services	
Convention center	
General government	0.00
Golf course	
Housing and community development	
Interest Expense	
None	
Parks and recreation	67.75
Public safety	
Public works	
Grand Total	**67.75**

Example 3

Another example we got recently was a customer trying to list all "New" and "Move-In" utility accounts using the Account Balance cube.

Seeing as these accounts are not active it is very unlikely that they have had any Transactions against them yet.

In fact, when you filter to only "New" and "Move-In" account statuses no records are returned. Once you show the rows with no data (Transaction Amount in this instance) the accounts show up and you can add additional properties to your report. Give it a Try!

HOW TO FILL IN BLANK MEASURE VALUES

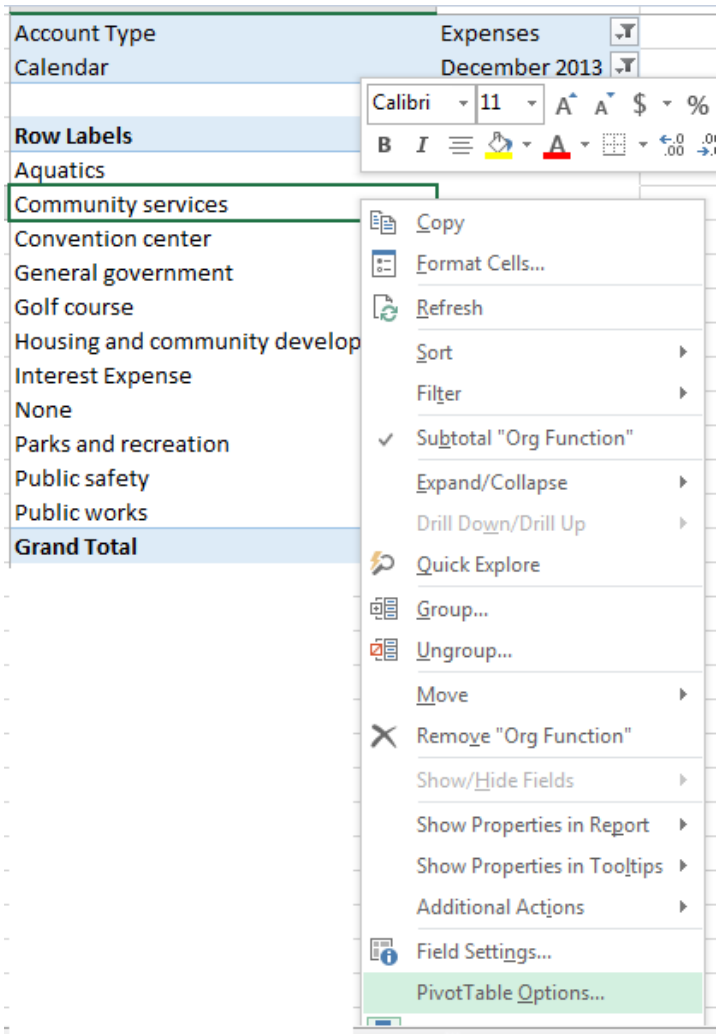
If you have you ever built a template where you decided to **Show field descriptions with no data** (see previous Tip) it can leave you with a template that looks like the one below.

Account Type	Expenses
Calendar	December 2013
Row Labels	**Actual Amount**
Aquatics	
Community services	
Convention center	
General government	0.00
Golf course	
Housing and community development	
Interest Expense	
None	
Parks and recreation	67.75
Public safety	
Public works	
Grand Total	**67.75**

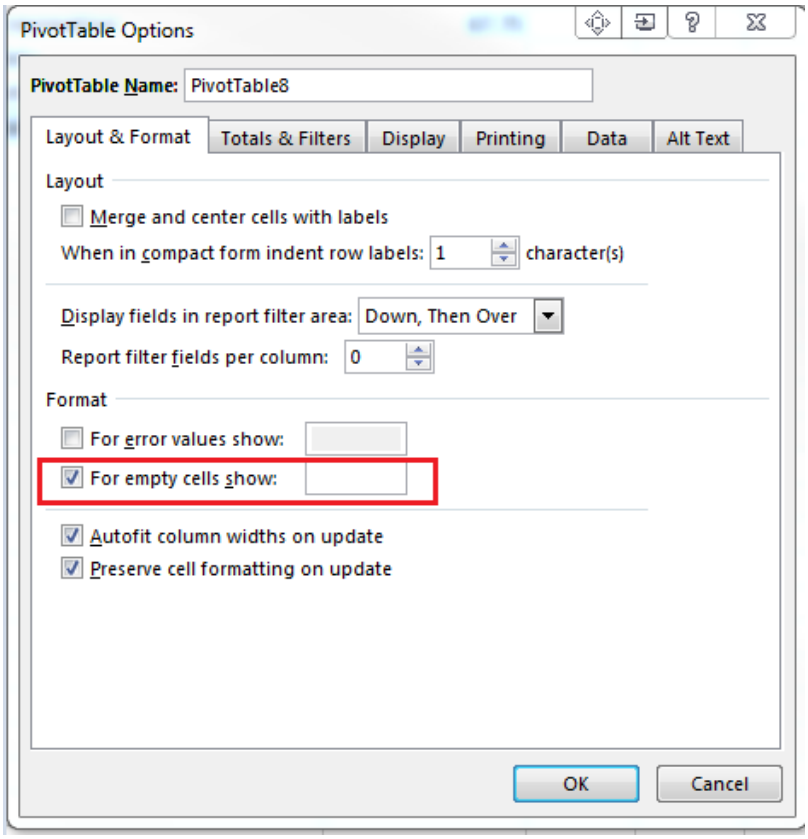
What if you did not want those to be blanks, but instead to be Zeroes?

Then you are in luck! Read on…

Right Click on the pivot table and select **Pivot Table Options** to bring up the options window.



On the **Layout and Format** tab enter a **0** for the **For empty cells show** value.



Viola! You now have a fully populated list of values.

Account Type	Expenses
Calendar	December 2013
Row Labels	**Actual Amount**
Aquatics	0.00
Community services	0.00
Convention center	0.00
General government	0.00
Golf course	0.00
Housing and community development	0.00
Interest Expense	0.00
None	0.00
Parks and recreation	67.75
Public safety	0.00
Public works	0.00
Grand Total	**67.75**

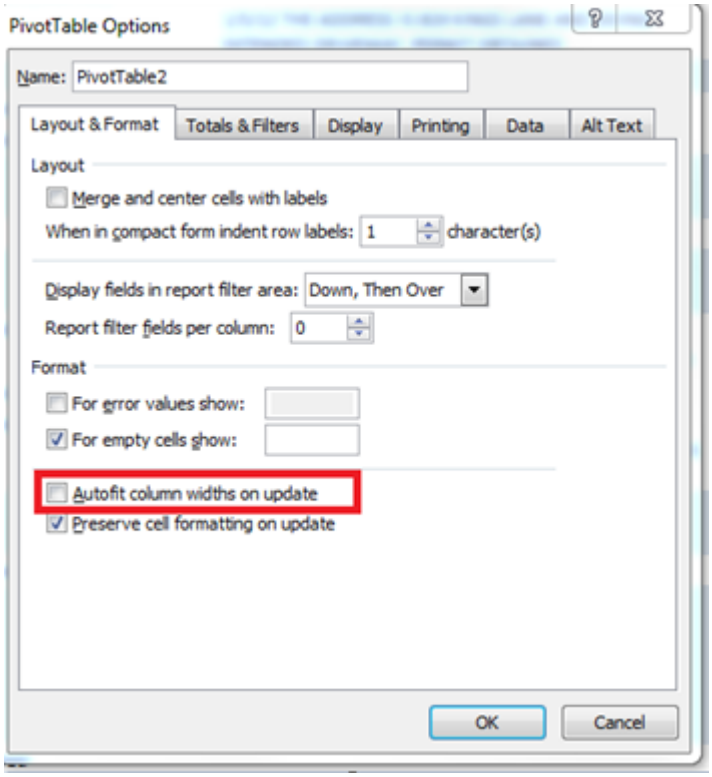
KEEP YOUR FORMATTING WHEN YOU REFRESH

Have you finally got your pivot table setup just how you want it, but every time you refresh your data your entire pivot table shifts and resizes on you?

You can tell excel to go into time out and behave.

Right click on your pivot table and select **Pivot Table Options**.

Uncheck the **Autofit column widths on update** option.



Now when you refresh the data your pivot table will not resize on you!

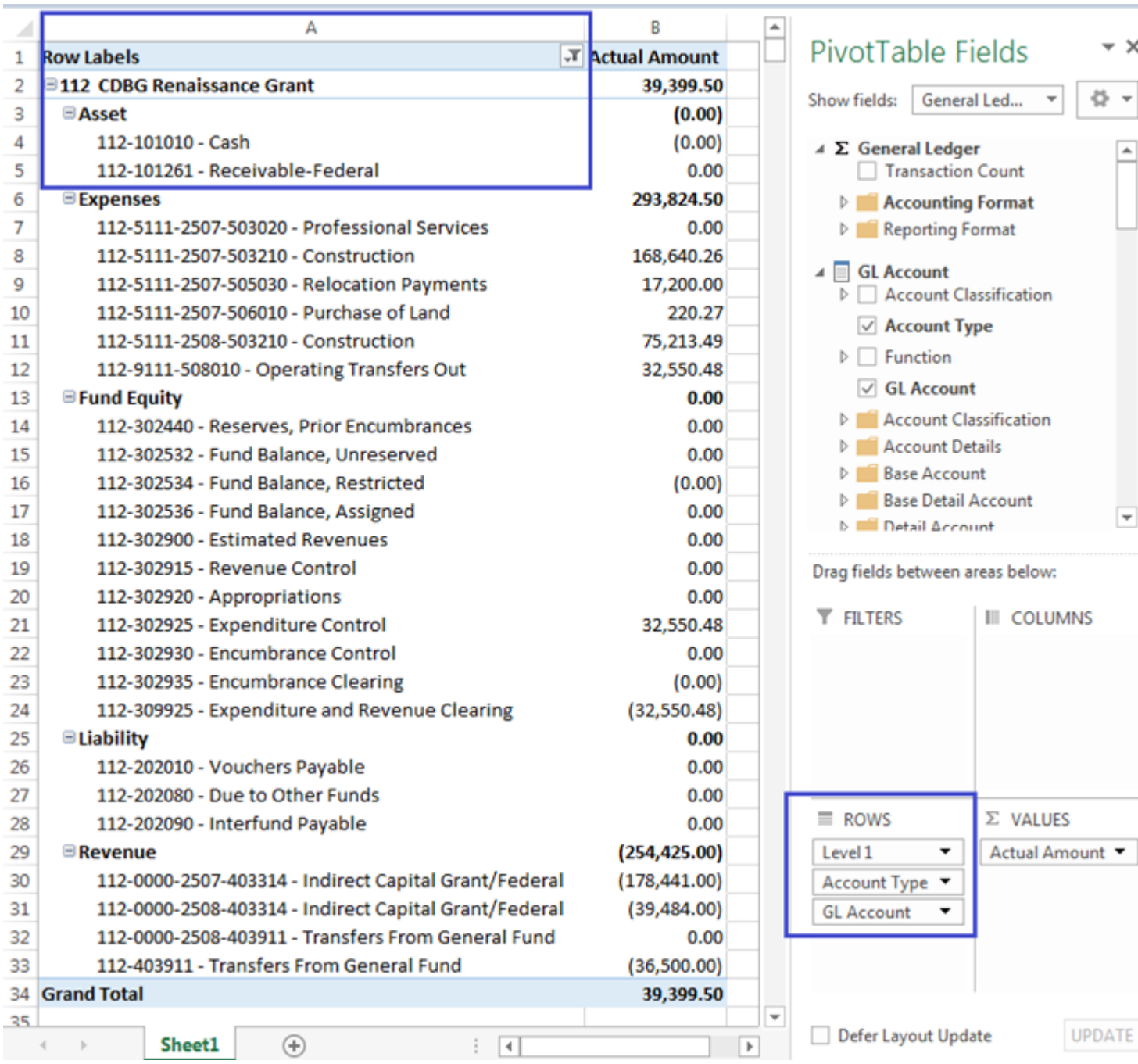
<u>Note on word wrapping</u>

You can word wrap the text, but if you just specify a single column to word wrap it may change when you alter the pivot table. To get around this format the entire sheet / column to word wrap and it should retain the formatting.

USING TABULAR LAYOUT

There are times when you may want to modify your pivot table from its default compact layout.

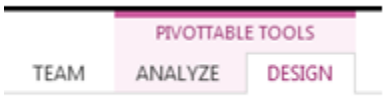
In the example below you can see I have selected 3 different Dimension Fields to breakdown my General Ledger Amount. You may also notice that all three of those fields are layered in Column A, which is the default **Compact Design**.



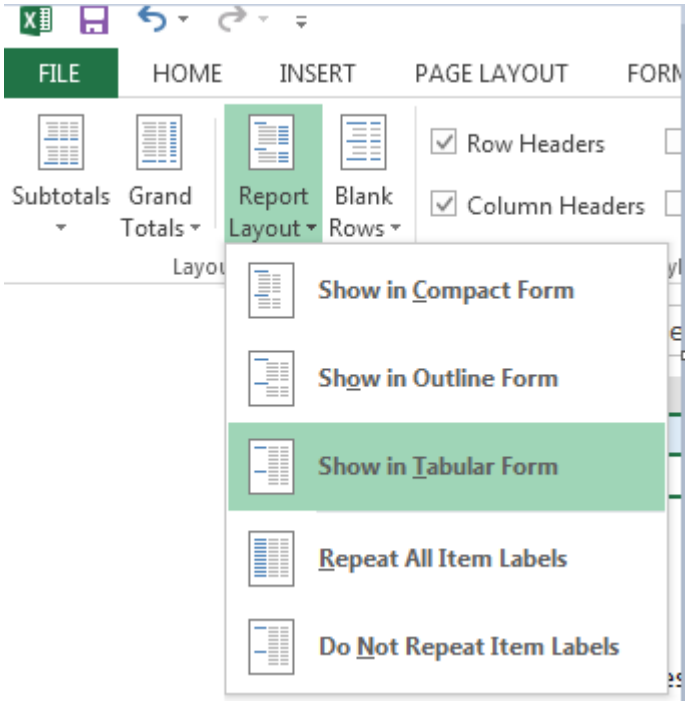
Row Labels	Actual Amount
112 CDBG Renaissance Grant	39,399.50
Asset	(0.00)
112-101010 - Cash	(0.00)
112-101261 - Receivable-Federal	0.00
Expenses	293,824.50
112-5111-2507-503020 - Professional Services	0.00
112-5111-2507-503210 - Construction	168,640.26
112-5111-2507-505030 - Relocation Payments	17,200.00
112-5111-2507-506010 - Purchase of Land	220.27
112-5111-2508-503210 - Construction	75,213.49
112-9111-508010 - Operating Transfers Out	32,550.48
Fund Equity	0.00
112-302440 - Reserves, Prior Encumbrances	0.00
112-302532 - Fund Balance, Unreserved	0.00
112-302534 - Fund Balance, Restricted	(0.00)
112-302536 - Fund Balance, Assigned	0.00
112-302900 - Estimated Revenues	0.00
112-302915 - Revenue Control	0.00
112-302920 - Appropriations	0.00
112-302925 - Expenditure Control	32,550.48
112-302930 - Encumbrance Control	0.00
112-302935 - Encumbrance Clearing	(0.00)
112-309925 - Expenditure and Revenue Clearing	(32,550.48)
Liability	0.00
112-202010 - Vouchers Payable	0.00
112-202080 - Due to Other Funds	0.00
112-202090 - Interfund Payable	0.00
Revenue	(254,425.00)
112-0000-2507-403314 - Indirect Capital Grant/Federal	(178,441.00)
112-0000-2508-403314 - Indirect Capital Grant/Federal	(39,484.00)
112-0000-2508-403911 - Transfers From General Fund	0.00
112-403911 - Transfers From General Fund	(36,500.00)
Grand Total	39,399.50

There are instances when you want to expand each of these fields into its own unique column, and excel allows you to do this.

Go to the **Pivot Table Tools Design** tab. (Note the screenshot is from Excel 2013 - Excel 2010 is very similar)



Under **Report Layout** choose the **Show in Tabular Form** option.

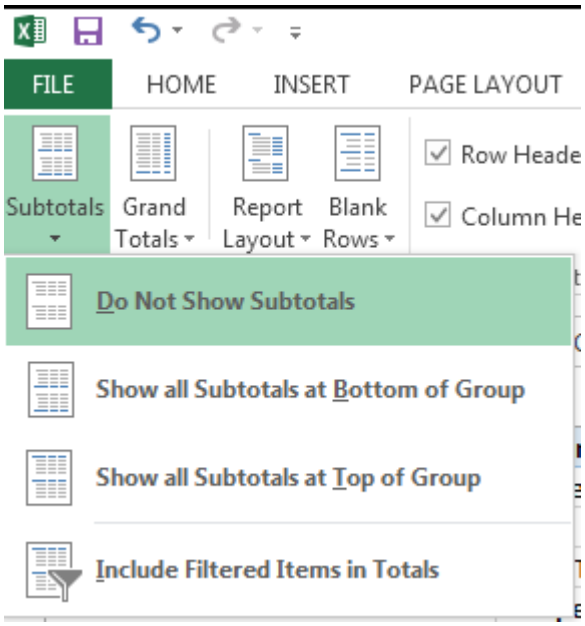


Now each of our fields are displayed in their own unique columns (as seen below).

	A	B	C	D
1	Level 1	Account Type	GL Account	Actual Amount
2	112 CDBG Renaissance Grant	Asset	112-101010 - Cash	(0.00)
3			112-101261 - Receivable-Federal	0.00
4		Asset Total		(0.00)
5		Expenses	112-5111-2507-503020 - Professional Services	0.00
6			112-5111-2507-503210 - Construction	168,640.26
7			112-5111-2507-505030 - Relocation Payments	17,200.00
8			112-5111-2507-506010 - Purchase of Land	220.27
9			112-5111-2508-503210 - Construction	75,213.49
10			112-9111-508010 - Operating Transfers Out	32,550.48
11		Expenses Total		293,824.50
12		Fund Equity	112-302440 - Reserves, Prior Encumbrances	0.00
13			112-302532 - Fund Balance, Unreserved	0.00
14			112-302534 - Fund Balance, Restricted	(0.00)
15			112-302536 - Fund Balance, Assigned	0.00
16			112-302900 - Estimated Revenues	0.00
17			112-302915 - Revenue Control	0.00
18			112-302920 - Appropriations	0.00
19			112-302925 - Expenditure Control	32,550.48
20			112-302930 - Encumbrance Control	0.00
21			112-302935 - Encumbrance Clearing	(0.00)
22			112-309925 - Expenditure and Revenue Clearing	(32,550.48)
23		Fund Equity Total		0.00
24		Liability	112-202010 - Vouchers Payable	0.00
25			112-202080 - Due to Other Funds	0.00
26			112-202090 - Interfund Payable	0.00
27		Liability Total		0.00
28		Revenue	112-0000-2507-403314 - Indirect Capital Grant/Federal	(178,441.00)
29			112-0000-2508-403314 - Indirect Capital Grant/Federal	(39,484.00)
30			112-0000-2508-403911 - Transfers From General Fund	0.00
31			112-403911 - Transfers From General Fund	(36,500.00)
32		Revenue Total		(254,425.00)
33	112 CDBG Renaissance Grant Total			39,399.50
34	Grand Total			39,399.50

It is very common when you select to show your information in this view that the subtotals can add a level of unwanted noise. You can hide the subtotals with a few more clicks.

Remaining on the **Design** tab you want to drop down the **Subtotals** Options and choose **Do Not Show Subtotals.**



This will give you a much cleaner Report Listing format.

Level 1	Account Type	GL Account	Actual Amount
112 CDBG Renaissance Grant	Asset	112-101010 - Cash	(0.00)
		112-101261 - Receivable-Federal	0.00
	Expenses	112-5111-2507-503020 - Professional Services	0.00
		112-5111-2507-503210 - Construction	168,640.26
		112-5111-2507-505030 - Relocation Payments	17,200.00
		112-5111-2507-506010 - Purchase of Land	220.27
		112-5111-2508-503210 - Construction	75,213.49
		112-9111-508010 - Operating Transfers Out	32,550.48
	Fund Equity	112-302440 - Reserves, Prior Encumbrances	0.00
		112-302532 - Fund Balance, Unreserved	0.00
		112-302534 - Fund Balance, Restricted	(0.00)
		112-302536 - Fund Balance, Assigned	0.00
		112-302900 - Estimated Revenues	0.00
		112-302915 - Revenue Control	0.00
		112-302920 - Appropriations	0.00
		112-302925 - Expenditure Control	32,550.48
		112-302930 - Encumbrance Control	0.00
		112-302935 - Encumbrance Clearing	(0.00)
		112-309925 - Expenditure and Revenue Clearing	(32,550.48)
	Liability	112-202010 - Vouchers Payable	0.00
		112-202080 - Due to Other Funds	0.00
		112-202090 - Interfund Payable	0.00
	Revenue	112-0000-2507-403314 - Indirect Capital Grant/Federal	(178,441.00)
		112-0000-2508-403314 - Indirect Capital Grant/Federal	(39,484.00)
		112-0000-2508-403911 - Transfers From General Fund	0.00
		112-403911 - Transfers From General Fund	(36,500.00)
Grand Total			39,399.50

There are ways to mix and match the different Report Layout options on the same pivot table, such as having the Level 1 and Account Type as compact while having GL Account as tabular. We will cover that in a future tip.

HOW TO REPEAT ROW LABELS

Consider that you are pulling together all of the information from a particular cube into a pivot table that you plan to use as a source for a vLookup against. Perhaps you are instead building a quick data dump and trying to format it to be sent to another system for importing. In both of these scenarios the grouping features of the pivot table leave you with blanks that could be troublesome.

Rather than manually copying and pasting you can easily have Excel do the work of filling in those empty cells for you.

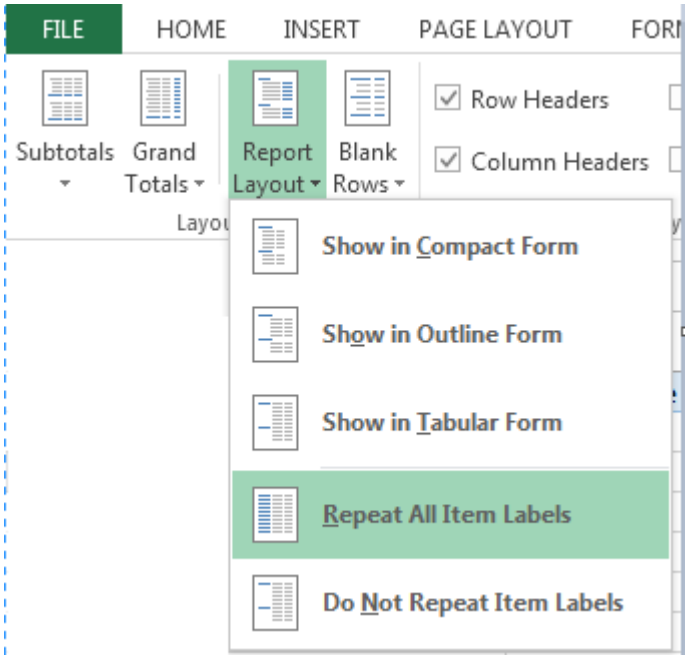
Consider this example that we saw in the ***Using Tabular Layout*** tip above.

Level 1	Account Type	GL Account	Actual Amount
112 CDBG Renaissance Grant	Asset	112-101010 - Cash	(0.00)
		112-101261 - Receivable-Federal	0.00
	Expenses	112-5111-2507-503020 - Professional Services	0.00
		112-5111-2507-503210 - Construction	168,640.26
		112-5111-2507-505030 - Relocation Payments	17,200.00
		112-5111-2507-506010 - Purchase of Land	220.27
		112-5111-2508-503210 - Construction	75,213.49
		112-9111-508010 - Operating Transfers Out	32,550.48
	Fund Equity	112-302440 - Reserves, Prior Encumbrances	0.00
		112-302532 - Fund Balance, Unreserved	0.00
		112-302534 - Fund Balance, Restricted	(0.00)
		112-302536 - Fund Balance, Assigned	0.00
		112-302900 - Estimated Revenues	0.00
		112-302915 - Revenue Control	0.00
		112-302920 - Appropriations	0.00
		112-302925 - Expenditure Control	32,550.48
		112-302930 - Encumbrance Control	0.00
		112-302935 - Encumbrance Clearing	(0.00)
		112-309925 - Expenditure and Revenue Clearing	(32,550.48)
	Liability	112-202010 - Vouchers Payable	0.00
		112-202080 - Due to Other Funds	0.00
		112-202090 - Interfund Payable	0.00
	Revenue	112-0000-2507-403314 - Indirect Capital Grant/Federal	(178,441.00)
		112-0000-2508-403314 - Indirect Capital Grant/Federal	(39,484.00)
		112-0000-2508-403911 - Transfers From General Fund	0.00
		112-403911 - Transfers From General Fund	(36,500.00)
Grand Total			39,399.50

What would we do if we wanted all of those empty fields filled in?

All we would need to do is go to the **Pivot Table Tools Design** tab. (Note the screenshot is from Excel 2013 - Excel 2010 is very similar)

Under the **Report Layout** group choose **Repeat All Item Labels**.

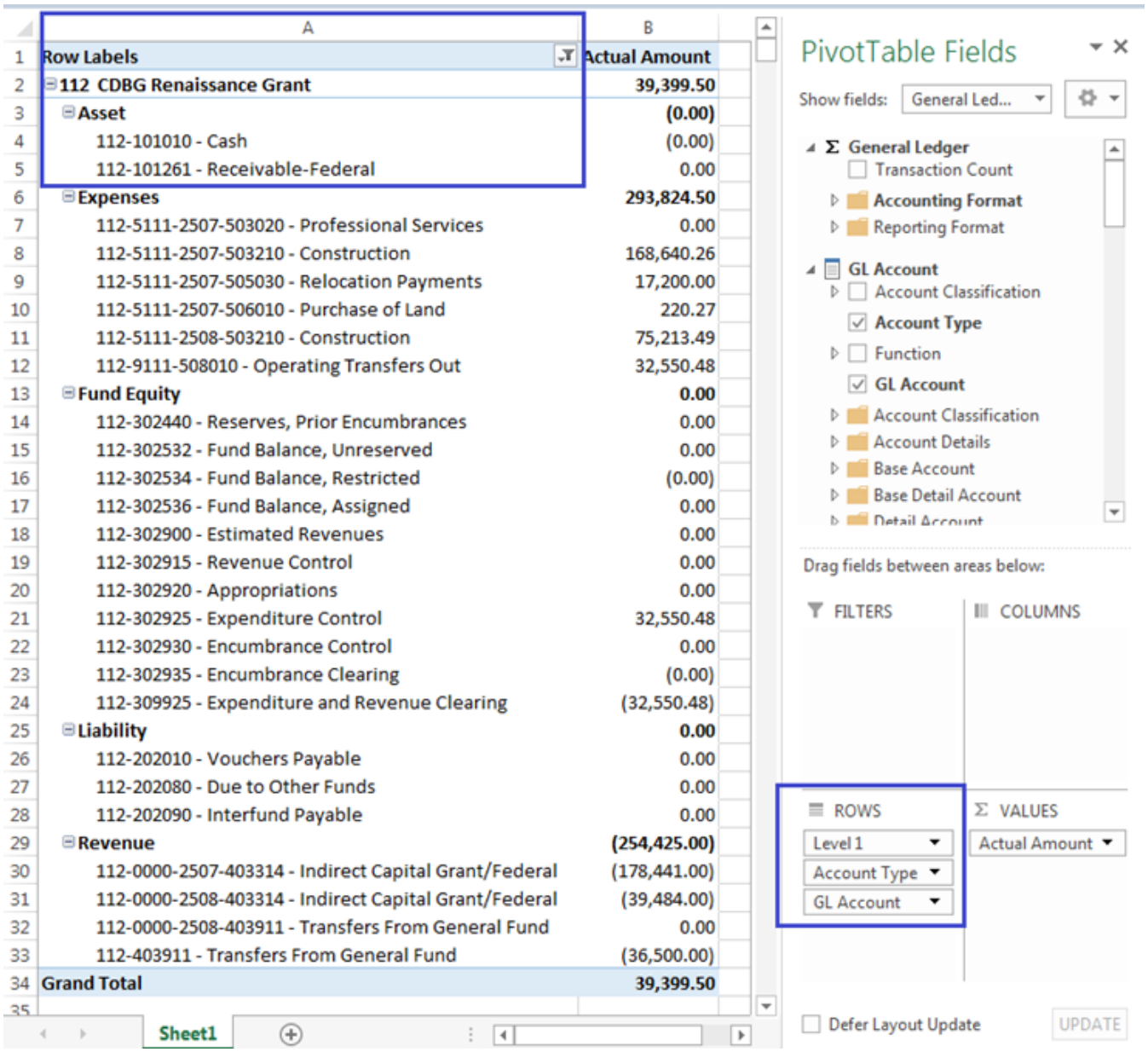


Presto! All of the previously empty cells that made up the groups are filled in for you.

	A	B	C	D
1	Level 1	Account Type	GL Account	Actual Amount
2	112 CDBG Renaissance Grant	Asset	112-101010 - Cash	(0.00)
3	112 CDBG Renaissance Grant	Asset	112-101261 - Receivable-Federal	0.00
4	112 CDBG Renaissance Grant	Expenses	112-5111-2507-503020 - Professional Services	0.00
5	112 CDBG Renaissance Grant	Expenses	112-5111-2507-503210 - Construction	168,640.26
6	112 CDBG Renaissance Grant	Expenses	112-5111-2507-505030 - Relocation Payments	17,200.00
7	112 CDBG Renaissance Grant	Expenses	112-5111-2507-506010 - Purchase of Land	220.27
8	112 CDBG Renaissance Grant	Expenses	112-5111-2508-503210 - Construction	75,213.49
9	112 CDBG Renaissance Grant	Expenses	112-9111-508010 - Operating Transfers Out	32,550.48
10	112 CDBG Renaissance Grant	Fund Equity	112-302440 - Reserves, Prior Encumbrances	0.00
11	112 CDBG Renaissance Grant	Fund Equity	112-302532 - Fund Balance, Unreserved	0.00
12	112 CDBG Renaissance Grant	Fund Equity	112-302534 - Fund Balance, Restricted	(0.00)
13	112 CDBG Renaissance Grant	Fund Equity	112-302536 - Fund Balance, Assigned	0.00
14	112 CDBG Renaissance Grant	Fund Equity	112-302900 - Estimated Revenues	0.00
15	112 CDBG Renaissance Grant	Fund Equity	112-302915 - Revenue Control	0.00
16	112 CDBG Renaissance Grant	Fund Equity	112-302920 - Appropriations	0.00
17	112 CDBG Renaissance Grant	Fund Equity	112-302925 - Expenditure Control	32,550.48
18	112 CDBG Renaissance Grant	Fund Equity	112-302930 - Encumbrance Control	0.00
19	112 CDBG Renaissance Grant	Fund Equity	112-302935 - Encumbrance Clearing	(0.00)
20	112 CDBG Renaissance Grant	Fund Equity	112-309925 - Expenditure and Revenue Clearing	(32,550.48)
21	112 CDBG Renaissance Grant	Liability	112-202010 - Vouchers Payable	0.00
22	112 CDBG Renaissance Grant	Liability	112-202080 - Due to Other Funds	0.00
23	112 CDBG Renaissance Grant	Liability	112-202090 - Interfund Payable	0.00
24	112 CDBG Renaissance Grant	Revenue	112-0000-2507-403314 - Indirect Capital Grant/Federal	(178,441.00)
25	112 CDBG Renaissance Grant	Revenue	112-0000-2508-403314 - Indirect Capital Grant/Federal	(39,484.00)
26	112 CDBG Renaissance Grant	Revenue	112-0000-2508-403911 - Transfers From General Fund	0.00
27	112 CDBG Renaissance Grant	Revenue	112-403911 - Transfers From General Fund	(36,500.00)
28	Grand Total			39,399.50

HOW TO MIX REPORT LAYOUTS

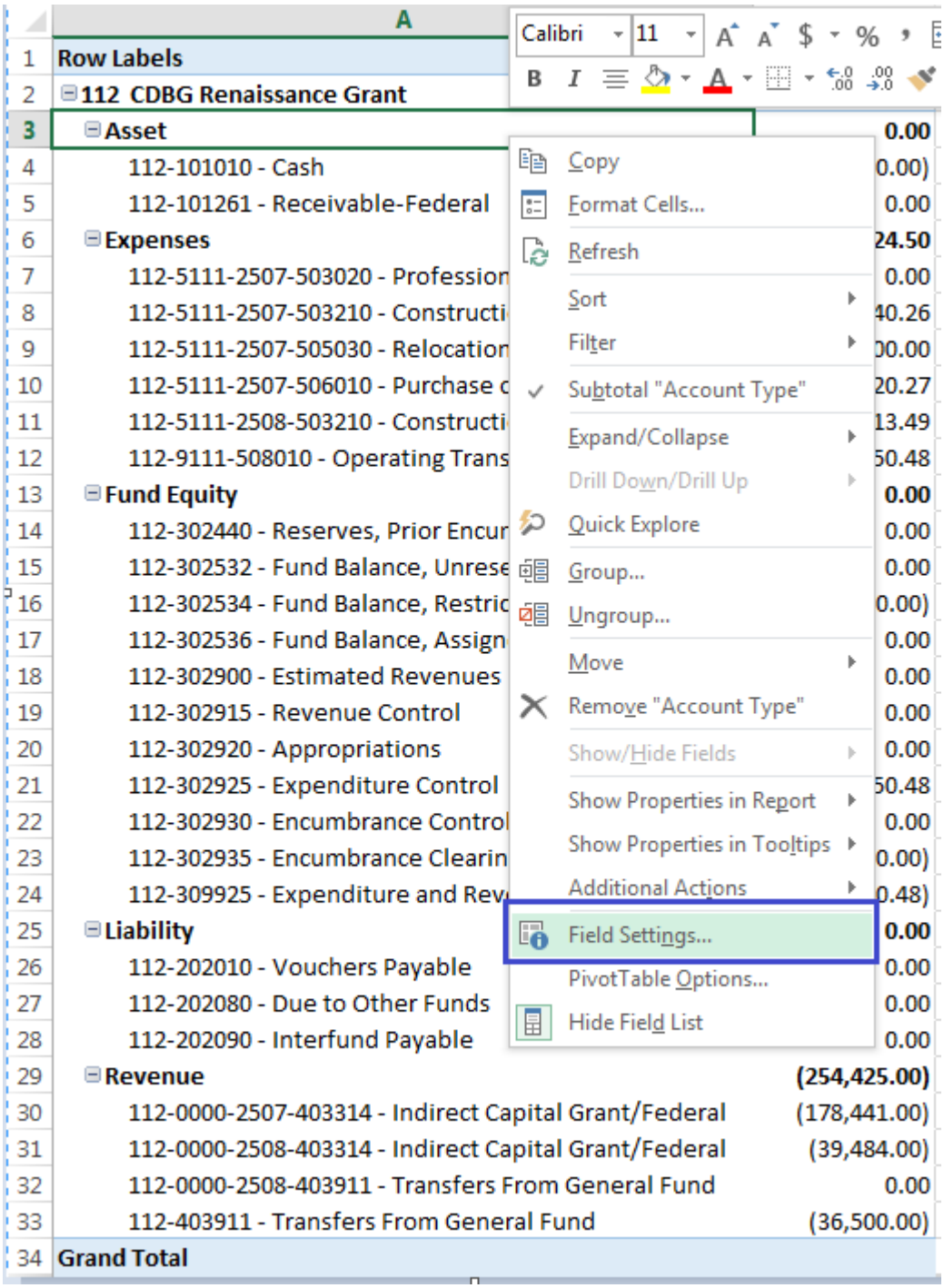
Consider this example that we saw in the ***Using Tabular Layout*** tip above. However, this time instead of putting each of the fields in its own column we want only the GL Account field in its own column while leaving Level 1 and Account Type fields in the compact form.



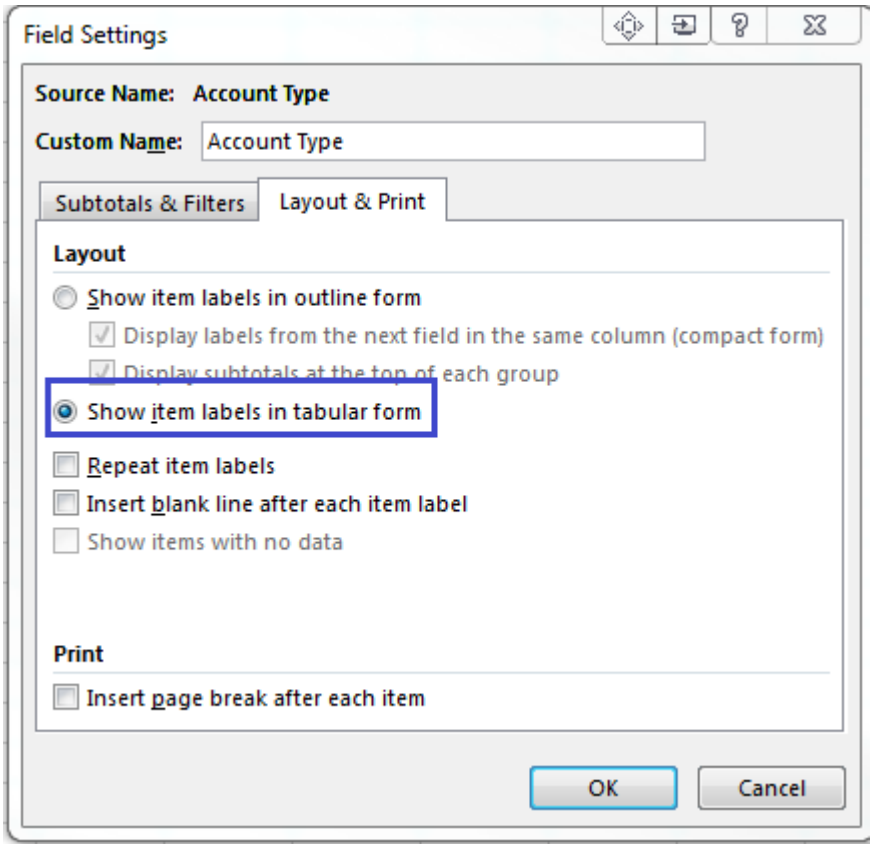
Row Labels	Actual Amount
112 CDBG Renaissance Grant	39,399.50
Asset	(0.00)
112-101010 - Cash	(0.00)
112-101261 - Receivable-Federal	0.00
Expenses	293,824.50
112-5111-2507-503020 - Professional Services	0.00
112-5111-2507-503210 - Construction	168,640.26
112-5111-2507-505030 - Relocation Payments	17,200.00
112-5111-2507-506010 - Purchase of Land	220.27
112-5111-2508-503210 - Construction	75,213.49
112-9111-508010 - Operating Transfers Out	32,550.48
Fund Equity	0.00
112-302440 - Reserves, Prior Encumbrances	0.00
112-302532 - Fund Balance, Unreserved	0.00
112-302534 - Fund Balance, Restricted	(0.00)
112-302536 - Fund Balance, Assigned	0.00
112-302900 - Estimated Revenues	0.00
112-302915 - Revenue Control	0.00
112-302920 - Appropriations	0.00
112-302925 - Expenditure Control	32,550.48
112-302930 - Encumbrance Control	0.00
112-302935 - Encumbrance Clearing	(0.00)
112-309925 - Expenditure and Revenue Clearing	(32,550.48)
Liability	0.00
112-202010 - Vouchers Payable	0.00
112-202080 - Due to Other Funds	0.00
112-202090 - Interfund Payable	0.00
Revenue	(254,425.00)
112-0000-2507-403314 - Indirect Capital Grant/Federal	(178,441.00)
112-0000-2508-403314 - Indirect Capital Grant/Federal	(39,484.00)
112-0000-2508-403911 - Transfers From General Fund	0.00
112-403911 - Transfers From General Fund	(36,500.00)
Grand Total	39,399.50

In order to accomplish this all you would need to do is select the field directly above the one you want to change - in this case any of the Account Type Values. I selected "Asset".

Right click the field and go to **Field Settings.**

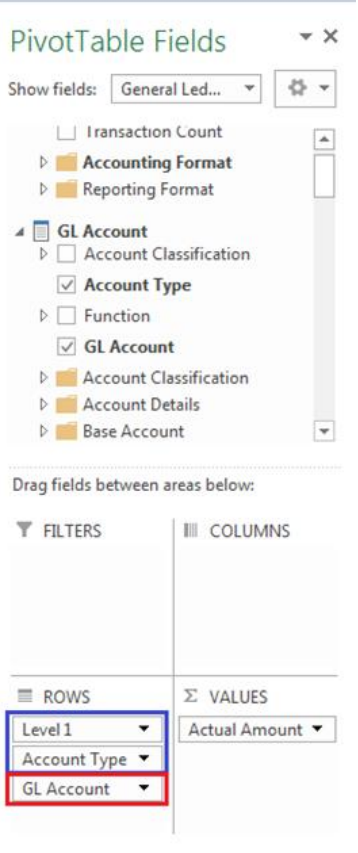


On the **Field Settings** page go to the **Layout & Print** tab and select the **Show item labels in tabular form**.



After I suppress **Subtotals** (see ***Using Tabular Layout***) I am left with the format I wanted. Level 1 and Account Type are compact in column A and GL Account has been moved into its own tabular column.

	A	B	C
1	Row Labels	GL Account	Actual Amount
2	112 CDBG Renaissance Grant		
3	Asset	112-101010 - Cash	(0.00)
4		112-101261 - Receivable-Federal	0.00
5	Expenses	112-5111-2507-503020 - Professional Services	0.00
6		112-5111-2507-503210 - Construction	168,640.26
7		112-5111-2507-505030 - Relocation Payments	17,200.00
8		112-5111-2507-506010 - Purchase of Land	220.27
9		112-5111-2508-503210 - Construction	75,213.49
10		112-9111-508010 - Operating Transfers Out	32,550.48
11	Fund Equity	112-302440 - Reserves, Prior Encumbrances	0.00
12		112-302532 - Fund Balance, Unreserved	0.00
13		112-302534 - Fund Balance, Restricted	(0.00)
14		112-302536 - Fund Balance, Assigned	0.00
15		112-302900 - Estimated Revenues	0.00
16		112-302915 - Revenue Control	0.00
17		112-302920 - Appropriations	0.00
18		112-302925 - Expenditure Control	32,550.48
19		112-302930 - Encumbrance Control	0.00
20		112-302935 - Encumbrance Clearing	(0.00)
21		112-309925 - Expenditure and Revenue Clearing	(32,550.48)
22	Liability	112-202010 - Vouchers Payable	0.00
23		112-202080 - Due to Other Funds	0.00
24		112-202090 - Interfund Payable	0.00
25	Revenue	112-0000-2507-403314 - Indirect Capital Grant/Federal	(178,441.00)
26		112-0000-2508-403314 - Indirect Capital Grant/Federal	(39,484.00)
27		112-0000-2508-403911 - Transfers From General Fund	0.00
28		112-403911 - Transfers From General Fund	(36,500.00)
29	Grand Total		39,399.50



USING CALCULATED MEASURES IN EXCEL 2013

A question came up recently which gave me the opportunity to give an example use case for a feature new to excel 2013.

A customer was building a reporting template over the Annual Budgeting cube in Finance and wanted all of the amounts to be positive - Revenues are typically negative in the system. There are valid times when you would want to report on them as negative, such as when you are aggregating revenues and expenses. Many times, however, when reporting at the GL Account level you want all of the numbers to be positive.

Example of customers report

⊕101 General Fund				
⊖411 - Property Taxes				
41101 - Current Property Taxes	(3,665,067.00)	(3,665,067.00)	(3,657,972.92)	0.00
41102 - Delinquent Property Taxes	(30,000.00)	(30,000.00)	(20,377.33)	0.00
41103 - Tax Penalty & Interest	(30,000.00)	(30,000.00)	(11,661.73)	0.00
411 - Property Taxes Total	(3,725,067.00)	(3,725,067.00)	(3,690,011.98)	0.00
⊖412 - Sales Tax				
41201 - Sales Tax Revenue	(6,600,000.00)	(6,600,000.00)	(3,001,676.02)	0.00
412 - Sales Tax Total	(6,600,000.00)	(6,600,000.00)	(3,001,676.02)	0.00
⊖415 - Other Taxes				
41501 - Tax on Sale of Mixed Drinks	(80,000.00)	(80,000.00)	(48,246.10)	0.00
41503 - Payment if Lieu of Taxes	(3,000.00)	(3,000.00)	(442.41)	0.00
415 - Other Taxes Total	(83,000.00)	(83,000.00)	(48,688.51)	0.00
⊖416 - Permit/Development Fees				
41611 - CoC - City Limits	(6,000.00)	(6,000.00)	(2,650.00)	0.00
41612 - CoC - Zon & Util - Mob Hm Prks	0.00	0.00	0.00	
41613 - CoC - Zon & Util - Metes & Bnds	0.00	0.00	0.00	
41614 - Rezoning	0.00	0.00	0.00	

In the General Ledger measure group we actually have both formats and you can find every amount as a positive value available in a "Reporting" folder. However, this was not the case in Annual Budgeting.

Now that I have setup the situation, here comes Excel 2013 to the rescue.

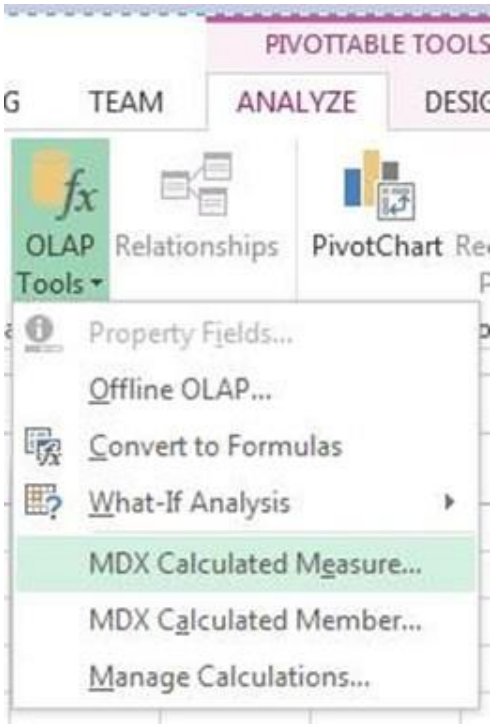
Below is a simple listing of Revenue amounts by General Ledger Account where we can see all of the amounts are negative.

1	Account Type	Revenue
2		
3	**Row Labels**	**Actual Amount**
4	100.04.801 - General Property Tax	(12,590,949.35)
5	100.04.802 - Bank, Building & Loan Tax	(130,887.06)
6	100.04.803 - Auto & Aircraft Excise Tax	(922,934.03)
7	100.04.804 - Certified Shares	(7,757,006.81)
8	100.04.805 - Property Tax Replacement PTRC	(1,453,777.44)
9	100.04.806 - CEDIT	(39,942.82)
10	100.04.807 - CVET	(15,501.37)
11	100.04.824 - Other Licenses & Permits	(2,140.00)
12	100.04.830 - Other Federal Grants	0.00
13	100.04.831 - Other State Grants	(12,485.00)
14	100.04.832 - ABC Excise Tax	(60,199.10)
15	100.04.833 - ABC Gallonage Tax	(171,430.12)

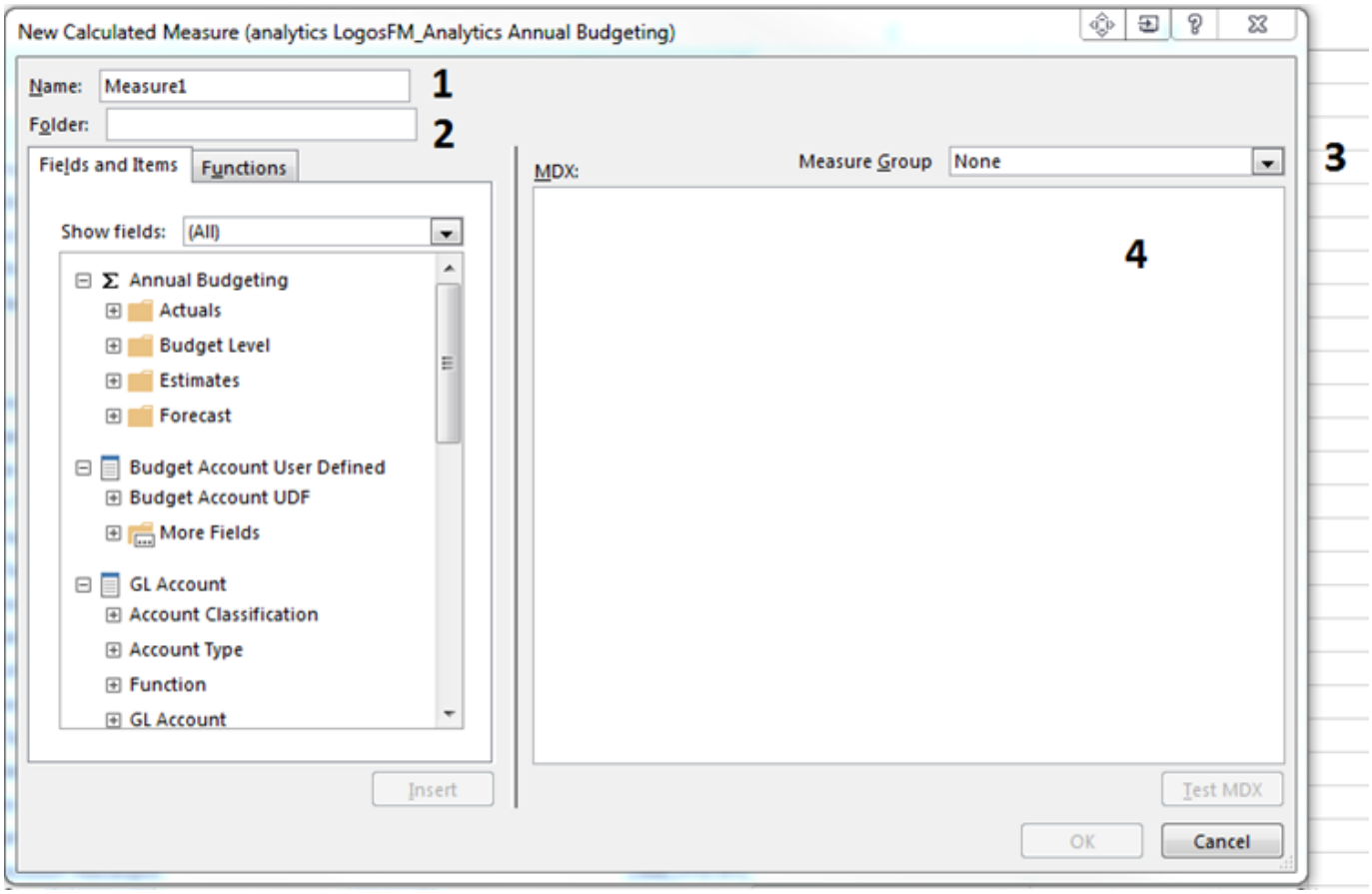
We easily create a measure where all of the amounts are positive.

First, go to the **PIVOTTABLE TOOLS > ANALYZE** tab and expand the dropdown for **OLAP Tools.**

Pick the **MDX Calculated Measure** option

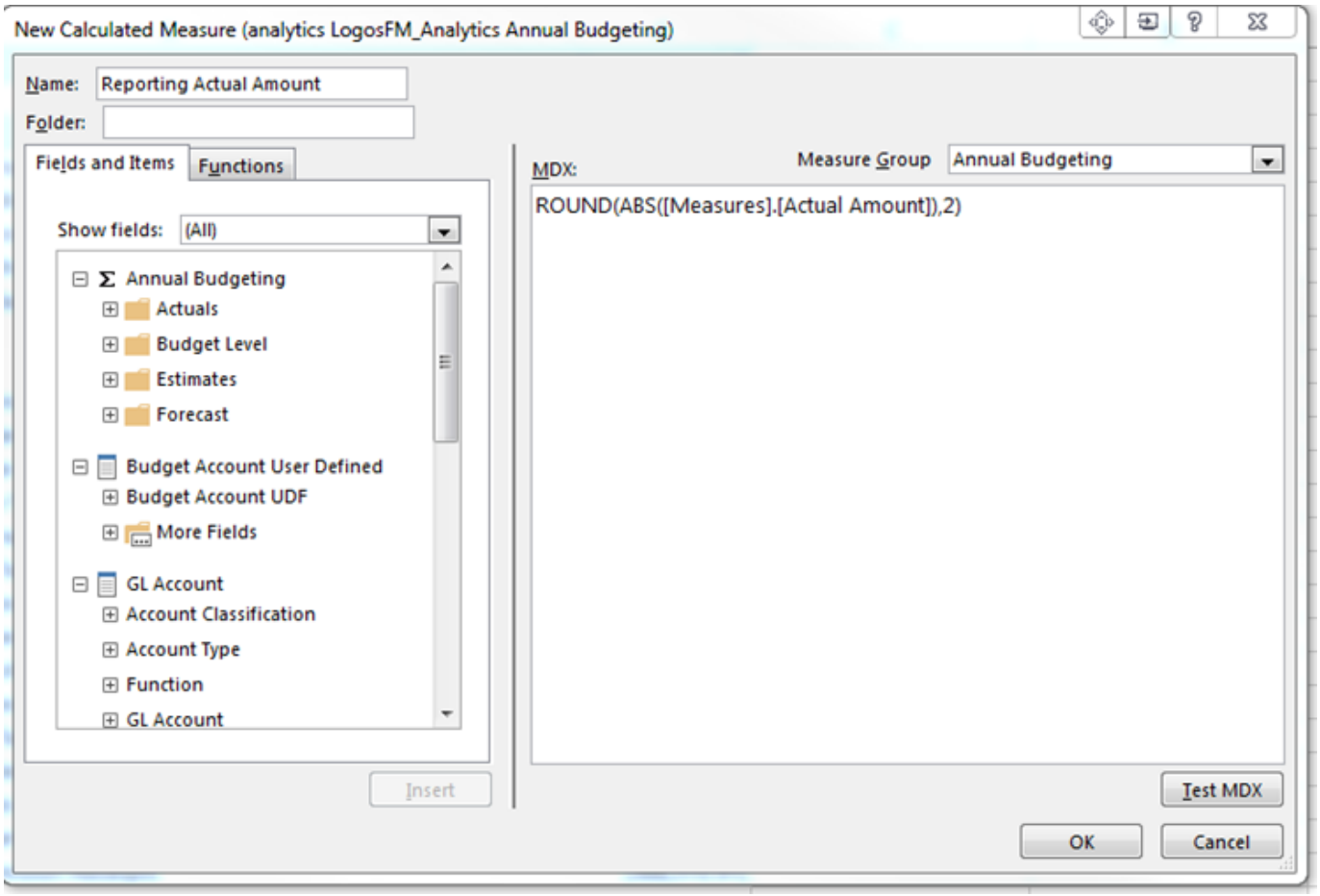


This will bring up the following window for us to configure our new measure.



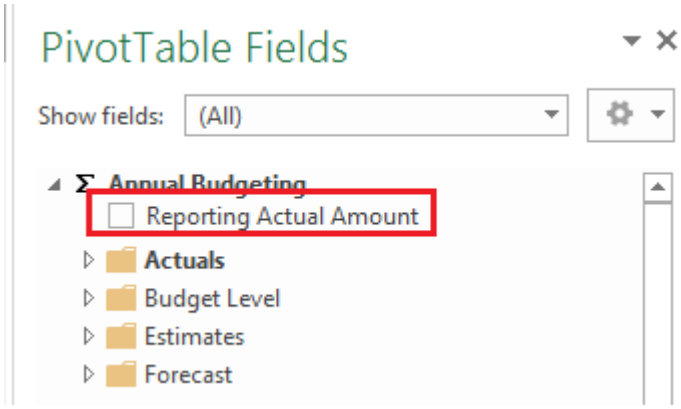
1. We want to give our new measure a name. In this case we will name it **Reporting Actual Amount**
2. Optionally, you can specify a folder to place your measure in. We will leave it empty for this example, but I recommend you place them in a "Custom" folder to separate them from standard fields, such as "Reporting Amounts – Custom"
3. Select the Measure Group where we want this measure to go. In this case we will select **Annual Budgeting**.
4. This is where we will put our formula for our measure. To make all of the amounts positive we will use absolute value. Enter the following formula: **ROUND(ABS([Measures].[Actual Amount]),2)**

You should now have your Calculated measure configured like below.



Go ahead and **Test MDX** is valid and then select **OK**

You will see that our new Measure is available for use.

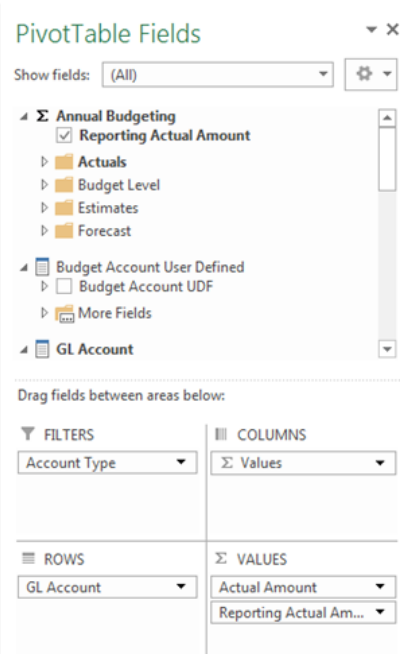


If we go ahead and add it to our pivot table we can see we have all of the amounts as positive.

	A	B	C
1	Account Type	Revenue	
2			
3	Row Labels	Actual Amount	Reporting Actual Amount
4	100.04.801 - General Property Tax	(12,590,949.35)	12590949.35
5	100.04.802 - Bank, Building & Loan Tax	(130,887.06)	130887.06
6	100.04.803 - Auto & Aircraft Excise Tax	(922,934.03)	922934.03
7	100.04.804 - Certified Shares	(7,757,006.81)	7757006.81
8	100.04.805 - Property Tax Replacement PTRC	(1,453,777.44)	1453777.44
9	100.04.806 - CEDIT	(39,942.82)	39942.82
10	100.04.807 - CVET	(15,501.37)	15501.37
11	100.04.824 - Other Licenses & Permits	(2,140.00)	2140
12	100.04.830 - Other Federal Grants	0.00	0
13	100.04.831 - Other State Grants	(12,485.00)	12485

After doing a little formatting in Excel

	A	B	C
1	Account Type	Revenue	
2			
3	Row Labels	Actual Amount	Reporting Actual Amount
4	100.04.801 - General Property Tax	(12,590,949.35)	12,590,949.35
5	100.04.802 - Bank, Building & Loan Tax	(130,887.06)	130,887.06
6	100.04.803 - Auto & Aircraft Excise Tax	(922,934.03)	922,934.03
7	100.04.804 - Certified Shares	(7,757,006.81)	7,757,006.81
8	100.04.805 - Property Tax Replacement PTRC	(1,453,777.44)	1,453,777.44
9	100.04.806 - CEDIT	(39,942.82)	39,942.82
10	100.04.807 - CVET	(15,501.37)	15,501.37
11	100.04.824 - Other Licenses & Permits	(2,140.00)	2,140.00
12	100.04.830 - Other Federal Grants	0.00	0.00
13	100.04.831 - Other State Grants	(12,485.00)	12,485.00
14	100.04.832 - ABC Excise Tax	(60,199.10)	60,199.10
15	100.04.833 - ABC Gallonage Tax	(171,430.12)	171,430.12
16	100.04.834 - Cigarette Tax	(65,111.75)	65,111.75
17	100.04.845 - Parking Receipts	(12,006.67)	12,006.67
18	100.04.846 - Fines & Fees	(97,988.99)	97,988.99
19	100.04.848 - Garbage Collection Fees	(3,936,799.48)	3,936,799.48
20	100.04.849 - Miscellaneous Contracts	(224,830.09)	224,830.09
21	100.04.856 - In Lieu of Taxes & Utilities	(2,397,000.00)	2,397,000.00
22	100.04.866 - Court Docket Fees	(36,252.65)	36,252.65
23	100.04.868 - Other Fines & Fees	(8,685.00)	8,685.00
24	100.04.869 - Interest Earned	(164,429.00)	164,429.00
25	100.04.870 - Cable Television Receipts	(368,575.97)	368,575.97
26	100.04.872 - Miscellaneous Revenue	(45,747.36)	45,747.36

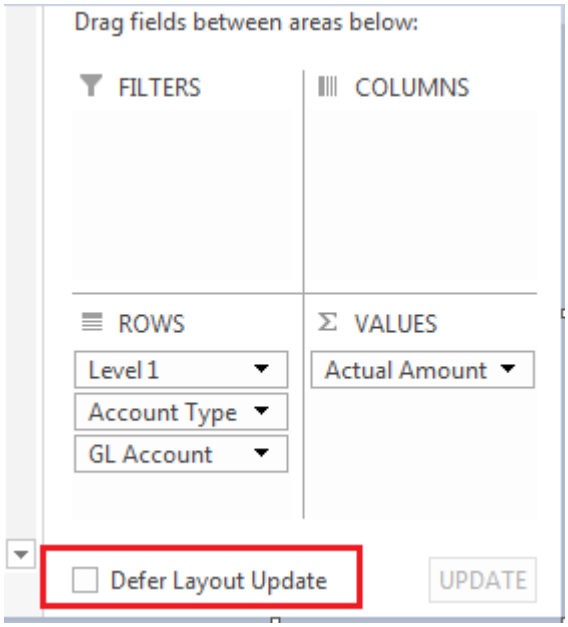


So you can see how this feature may come in handy when you are trying to do things like forecasting and want to see what things would look like if you increased an amount by 3% or decreased a budget by 5%, as examples.

DEFER LAYOUT UPDATE

You may notice that as you build a report, every time that you add a new item to any of the pivot table areas (ROWS, COLUMNS, VALUES, FILTERS) Excel issues a new command to the server in order to update your report. If you are building a low level detail report you may find yourself waiting over and over.

Excel has the option to **Defer Layout Update**. With the option **checked** you can add build out the report and formatting that you want without Excel constantly trying to rebuild the report with each change.



Once you have the report in the desired configuration you can uncheck the option and refresh the data on the page.

Hope that helps!

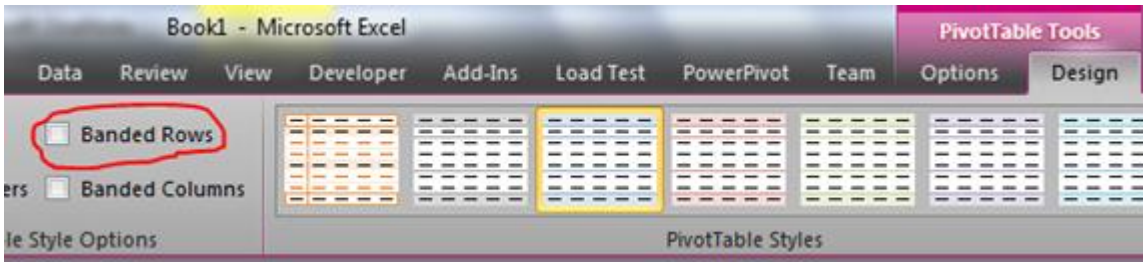
BANDED ROWS OR COLUMNS

Just a quick tip based on a question someone asked me.

While building a pivot table in Excel it is very easy to add row or column banding. This is ideal when doing so would make your results more readable.

Simply click somewhere in your pivot table to get the **PivotTable Tools** options.

Then select the **Design** tab and you can choose either **Banded Rows** or **Banded Columns**.



Sample with Banded Rows

Row Labels	Activity Amount
January	559,665,249.87
February	447,177.08
March	1,449,967.57
April	990,626.60
May	597,953.20
June	1,766,003.58
July	5,540,906.30
August	(813,426.82)
September	1,438,017.98
October	2,445,429.41
November	5,462,915.86
December	(13,747,887.57)
Grand Total	**565,242,933.06**

APPLYING ACUSTOM SORT FOR ATTRBIUTE VALUES IN PIVOT TABLE

I discovered this little trick recently when I was looking at something for a customer

I was building an aging report and using the Banding Dimension.

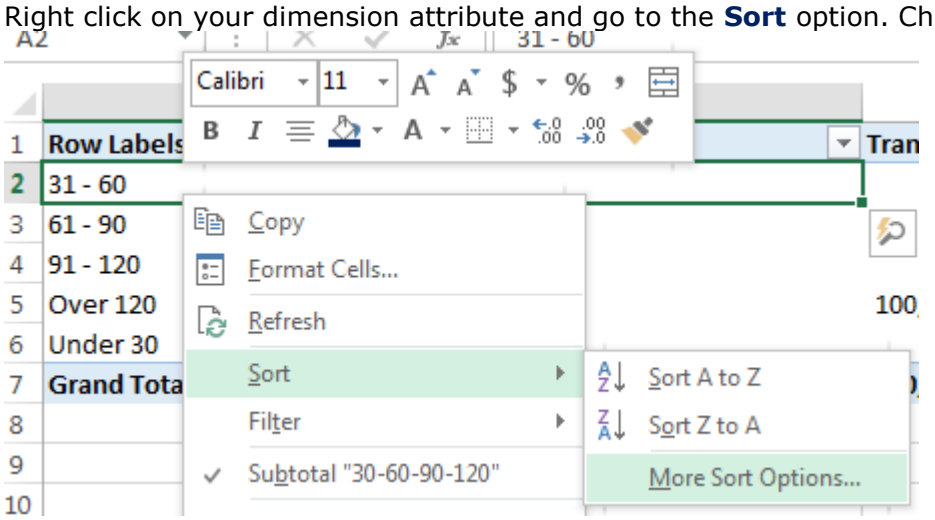
Row Labels	Transaction Amount
31 - 60	469,674,598.11
61 - 90	491,722,148.95
91 - 120	463,888,134.35
Over 120	100,004,159,720,745.00
Under 30	1,028,489,032.41
Grand Total	**100,006,613,494,665.00**

Well this is unfortunate because Under 30 sorted to the bottom of the list (since it is sorting by the text only).

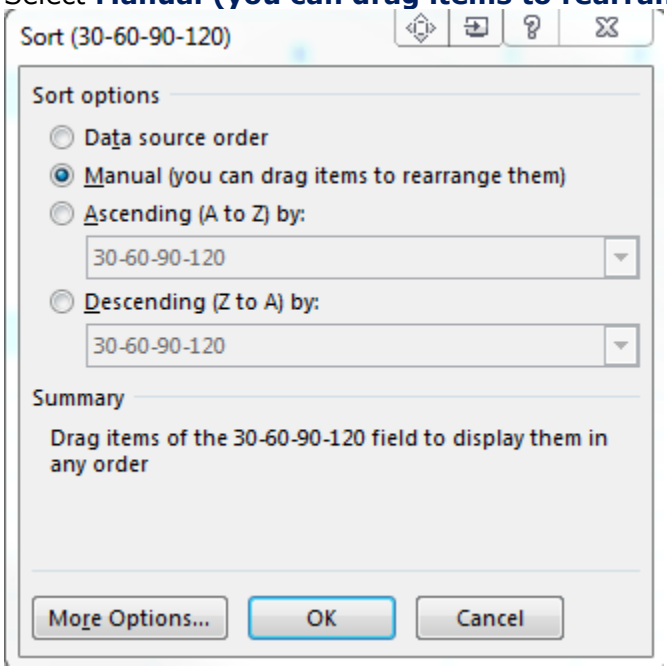
Ideally we would be handling this automatically in the cube and sort this in a more appropriate way (which we will do), but I figured there was a way I could do this easily within excel for the time being.

Here is how to do it.

Right click on your dimension attribute and go to the **Sort** option. Choose **More Sort Options**.



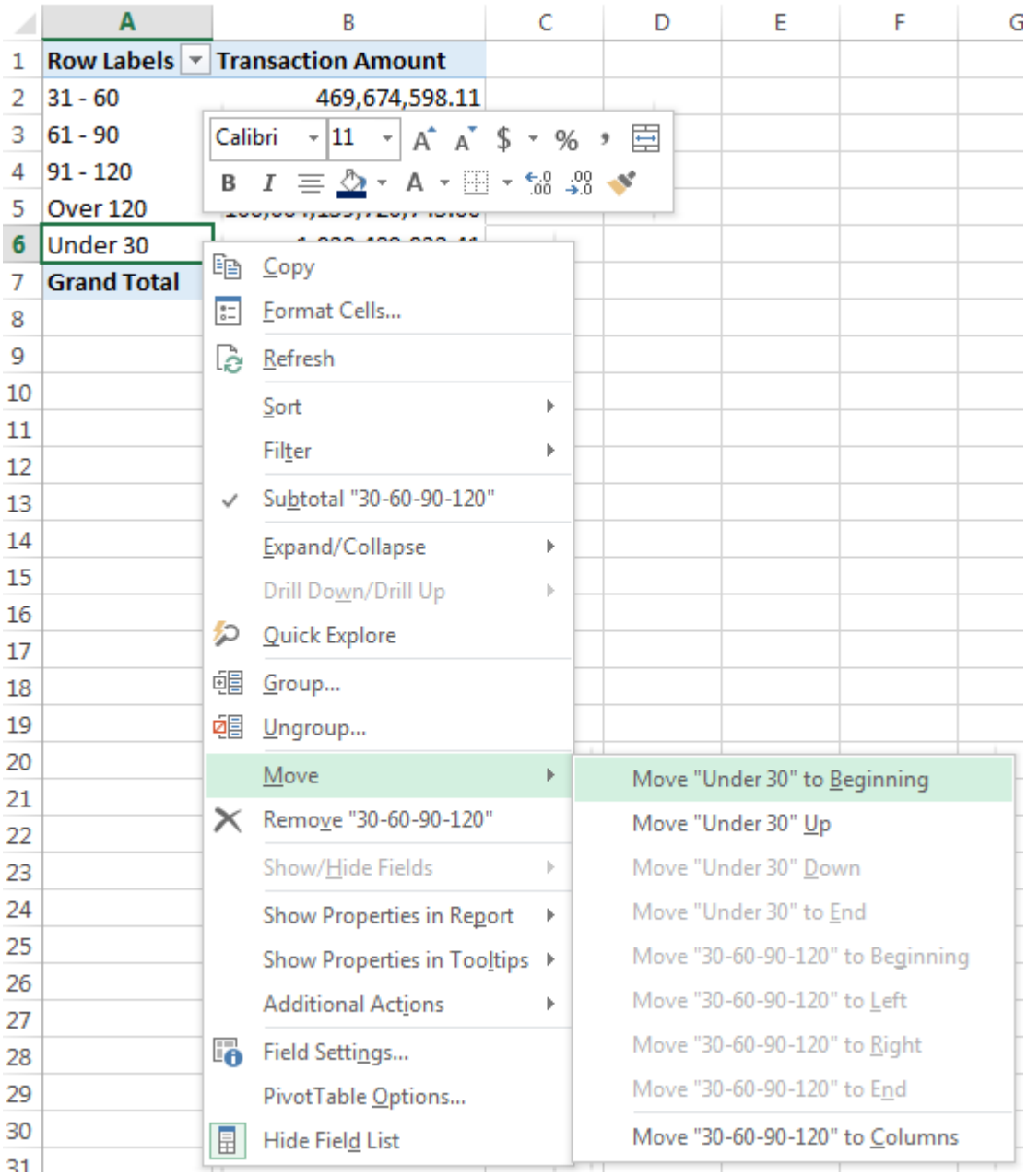
Select **Manual (you can drag items to rearrange them),** and click **OK.**



The description is a little misleading as I could find no way at all to ***Drag and Drop*** the fields.

Instead what you need to do is select the value you wish to move (*"Under 30"*) and right click on it.

Under the **Move** options you can move that value in your sort list.



After choosing **Move "Under 30" to Beginning** I had the sort I wanted.

	A	B
1	**Row Labels**	**Transaction Amount**
2	Under 30	1,028,489,032.41
3	31 - 60	469,674,598.11
4	61 - 90	491,722,148.95
5	91 - 120	463,888,134.35
6	Over 120	100,004,159,720,745.00
7	**Grand Total**	**100,006,613,494,659.00**

HOW TO FILTER BY A MEASURE (OR VALUE)

I get questions occasionally on how to filter based on a measure that was added to a pivot table.

Below we have a common pivot table. However, we want to limit it to only those entries with an actual amount >= 25,000,000.

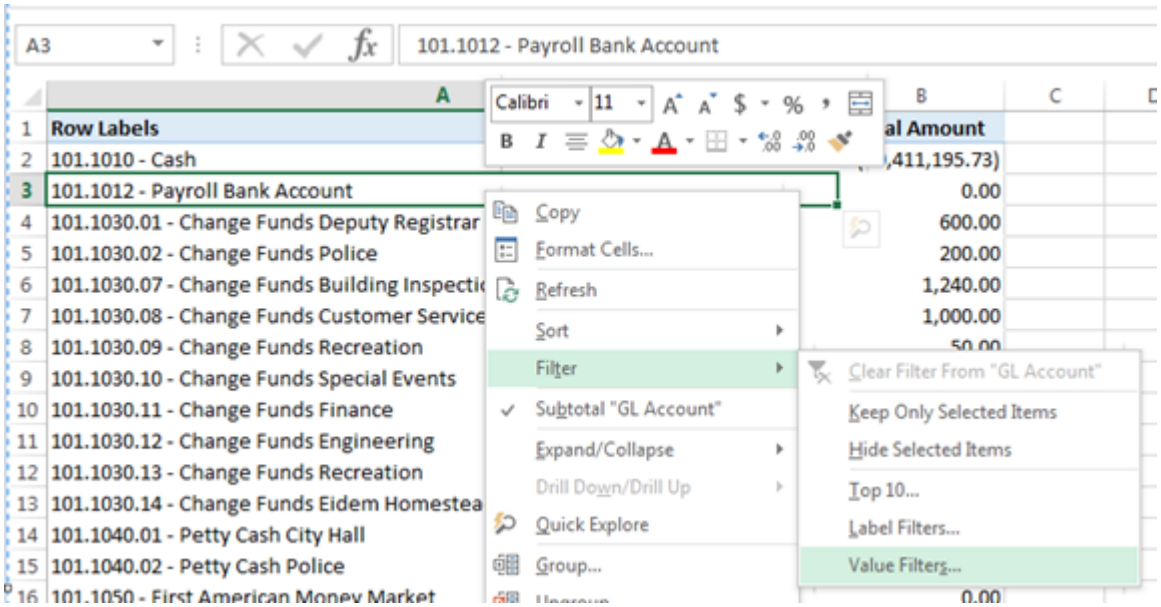
	Row Labels	Actual Amount
2	101.1010 - Cash	(60,411,195.73)
3	101.1012 - Payroll Bank Account	0.00
4	101.1030.01 - Change Funds Deputy Registrar	600.00
5	101.1030.02 - Change Funds Police	200.00
6	101.1030.07 - Change Funds Building Inspections	1,240.00
7	101.1030.08 - Change Funds Customer Service	1,000.00
8	101.1030.09 - Change Funds Recreation	50.00
9	101.1030.10 - Change Funds Special Events	2,065.00
10	101.1030.11 - Change Funds Finance	3,000.00
11	101.1030.12 - Change Funds Engineering	1,800.00
12	101.1030.13 - Change Funds Recreation	350.00
13	101.1030.14 - Change Funds Eidem Homestead	100.00
14	101.1040.01 - Petty Cash City Hall	1,000.00
15	101.1040.02 - Petty Cash Police	1,000.00
16	101.1050 - First American Money Market	0.00
17	101.1060 - Investments	63,950,132.87
18	101.1100 - Accrued Interest - Investments	(556,680.29)
19	101.1200 - Taxes Receivable - Unremitted	189,635.55
20	101.1220 - Taxes Receivable - Delinquent	2,657,810.20
21	101.1260 - Special Assessment - Current	1,805,068.09
22	101.1262 - Special Assessment - Unremitted	35,046.63
23	101.1264 - Special Assessment - Delinquent	358,307.23
24	101.1265 - Special Assessment - Deferred	963,406.00
25	101.1300 - Accounts Receivable	(0.00)
26	101.1300.01 - Accounts Receivable Miscellaneous Billing	2,481,779.83
27	101.1300.02 - Accounts Receivable Visa/Mastercard	(31,620.71)
28	101.1300.05 - Accounts Receivable Other Receivable	189,523.77
29	101.1300.08 - Accounts Receivable Credit Card Clearing Account	0.00
30	101.1400 - Due from Other Governments	518,897.28
31	101.1440 - Due from Other Funds	10,309,331.88
32	101.1444 - Due from other funds (GASB 34)	0.00

To do this you need only follow a couple steps.

First, **Right Click** on an attribute. In this case I right click on "101.1012 - Payroll Bank Account"

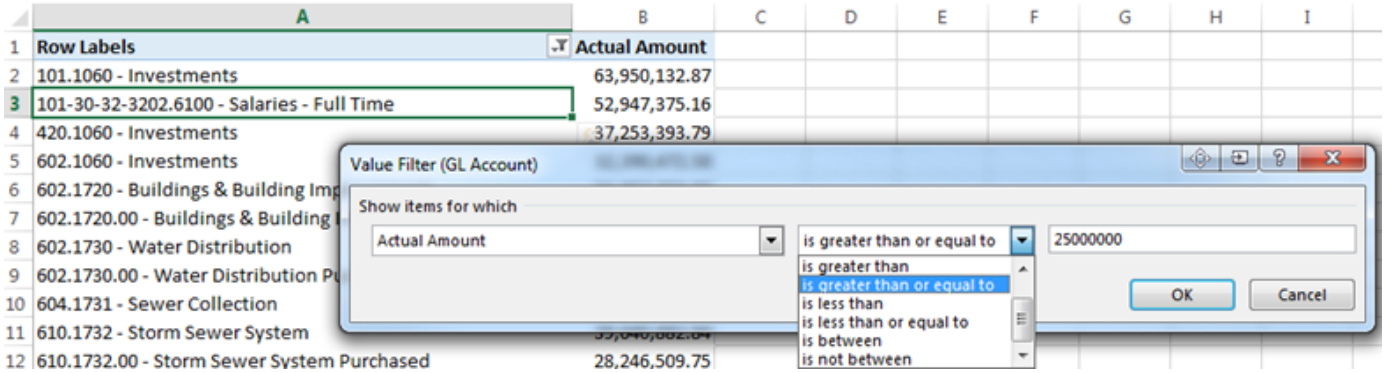
Select **Filter** followed by **Value Filters...**

Notice this is also where you can easily perform TOP X filtering as well



On the value filter screen you need simply select

1. The measure you want to filter
2. The logical comparison
3. The value to filter by



In this case I select to show any Actual Amount that is greater than or equal to 25,000,000.

Now we only have the entries we wanted!

	A	B
1	**Row Labels**	**Actual Amount**
2	101.1060 - Investments	63,950,132.87
3	101-30-32-3202.6100 - Salaries - Full Time	52,947,375.16
4	420.1060 - Investments	37,253,393.79
5	602.1060 - Investments	32,390,472.58
6	602.1720 - Buildings & Building Improvement	56,907,059.90
7	602.1720.00 - Buildings & Building Improvement Purchased	35,877,593.15
8	602.1730 - Water Distribution	41,620,943.46
9	602.1730.00 - Water Distribution Purchased	25,075,692.84
10	604.1731 - Sewer Collection	41,130,975.82
11	610.1732 - Storm Sewer System	39,640,882.84
12	610.1732.00 - Storm Sewer System Purchased	28,246,509.75
13	901.1700 - Land	61,132,169.67
14	901.1720 - Buildings & Building Improvement	45,981,587.74
15	901.1734 - Streets	97,471,736.50
16	920.1060 - Investments	138,192,410.44
17	**Grand Total**	**797,818,936.51**

PIVOT TABLE TOTAL DOES NOT MATCH THE EXCEL ROWS TOTAL

Questions come up as to why the numbers in some pivot tables values do not add up to the Excel aggregate total at the bottom of the sheet so I thought I would cover it here.

The reason you can see this is because Cubes, such as those in Business Analytics, have intelligence built into them so that they do not double count certain items that are associated to multiple attributes based on the dimensional field you have selected.

That description is probably not that helpful so I will cover some different examples from Logos and Aegis.

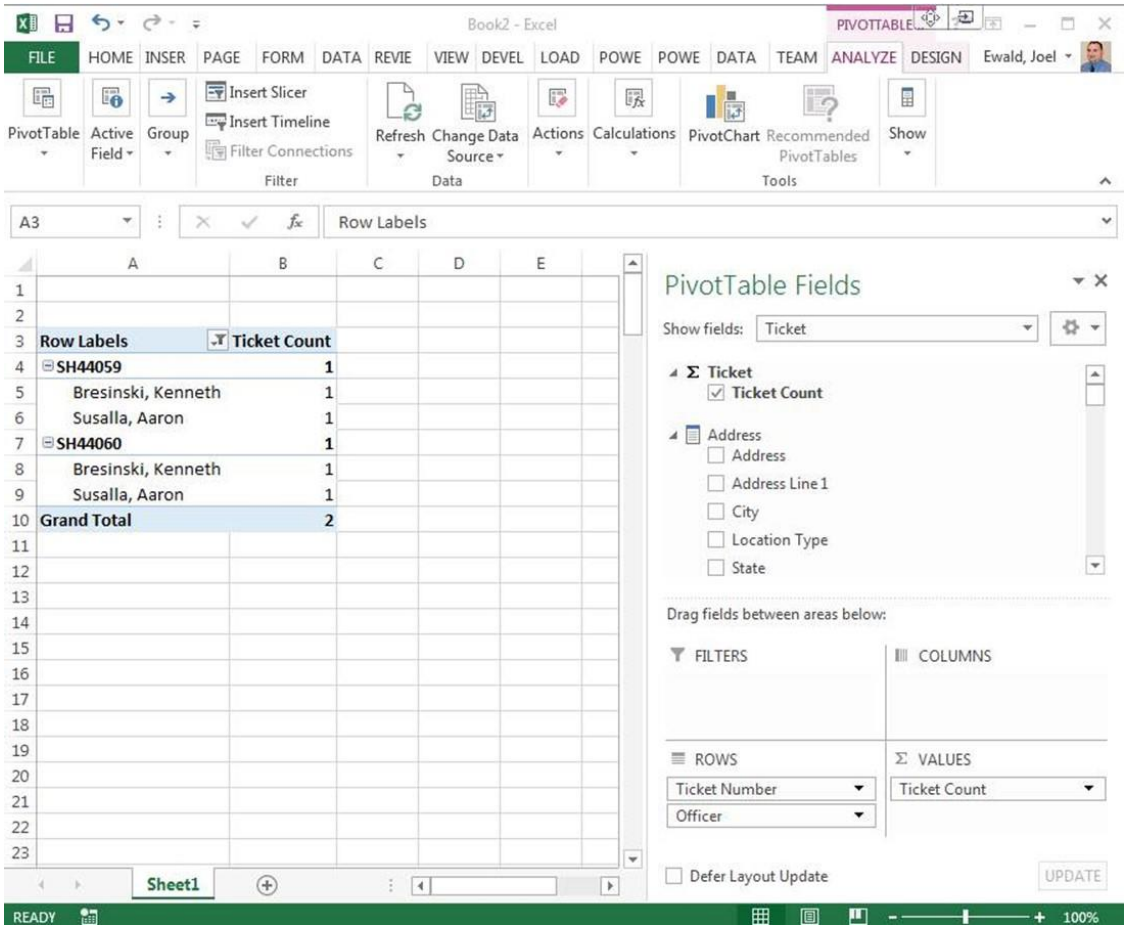
Example 1

We will start with an example from Aegis LERMS looking at Ticket counts by Officer.

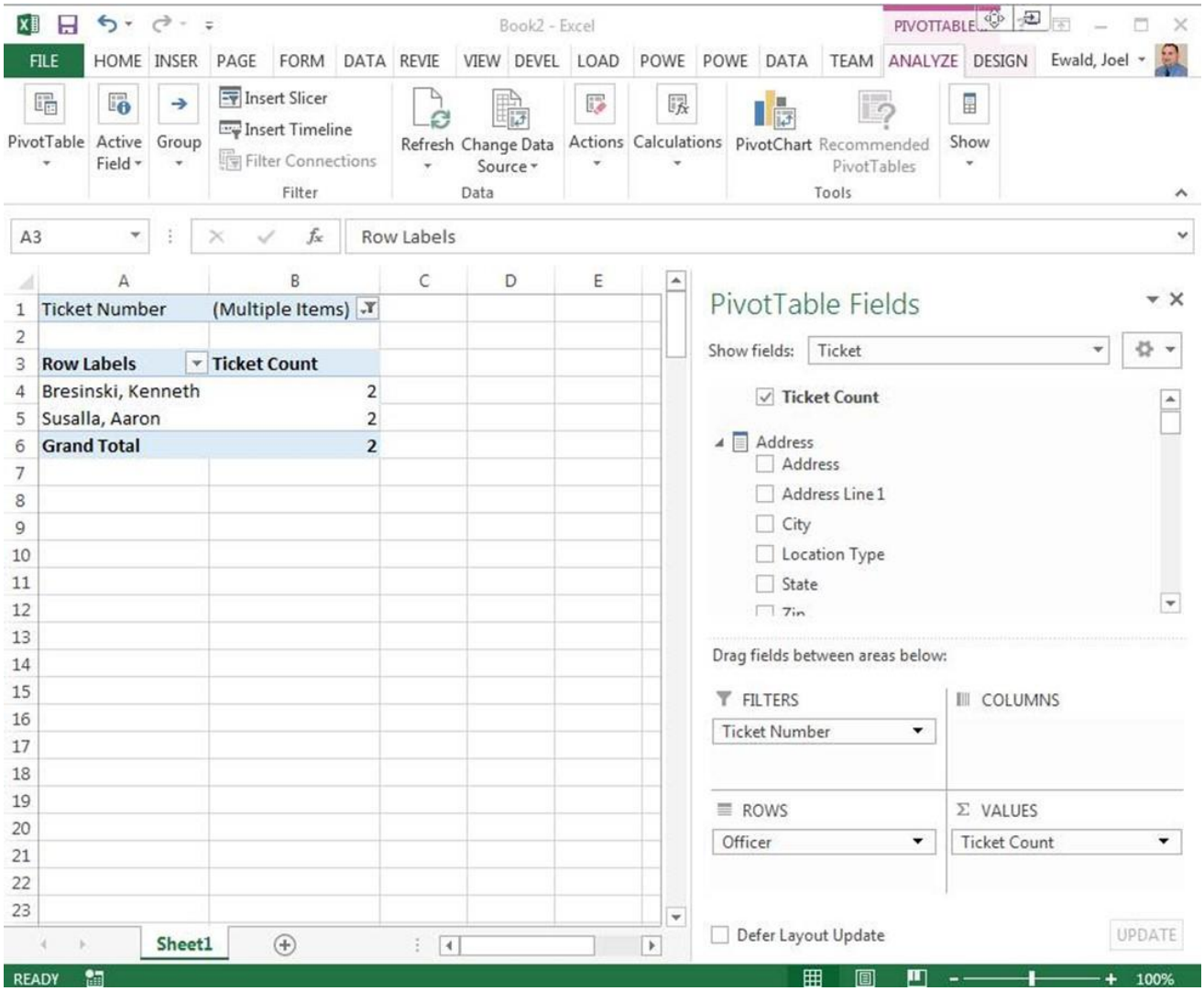
You can have multiple officers associated to a ticket, which is indeed the case in the screenshot below.

In this example we have two tickets both of which had two officers associated to it.

The cube understands we are still only looking at two tickets and as such shows us the **Grand Total** of 2 Tickets.



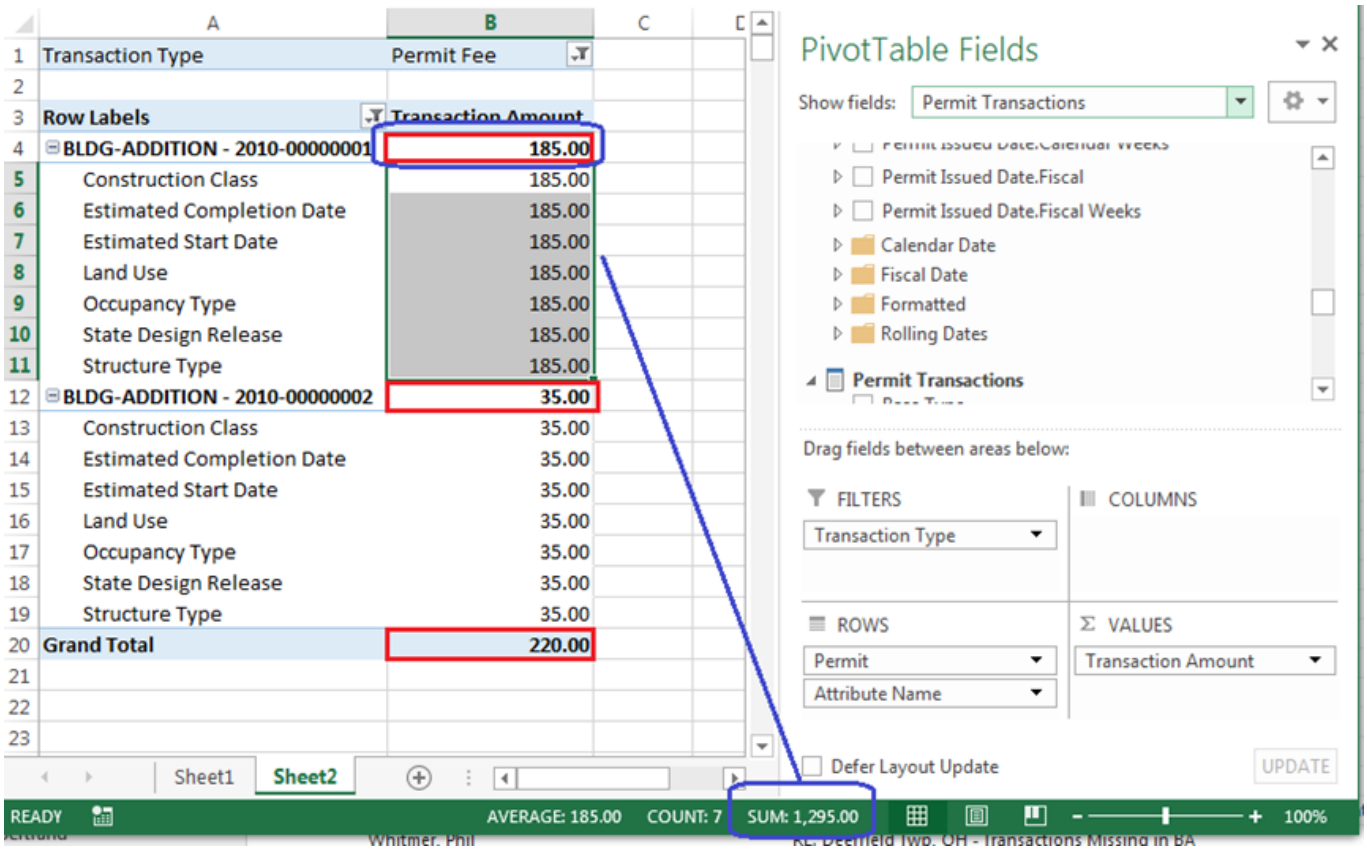
The confusion comes in when you just look at this from an Officer perspective. In the screenshot below we are still looking at the exact same two tickets, but at an officer level. It is both true that each officer was responsible for two tickets and that there was only a total of two tickets as the pivot table shows us. However, obviously if you highlight the ticket count for both officers excel will tell you that it sums up to 4 and not 2, because it is just doing the math and does not understand the context that the cube does.



Example 2

Another common area where you can see this is with User Defined Fields. Since we cannot control how many user Defined Fields a customer may assign to a particular entity.

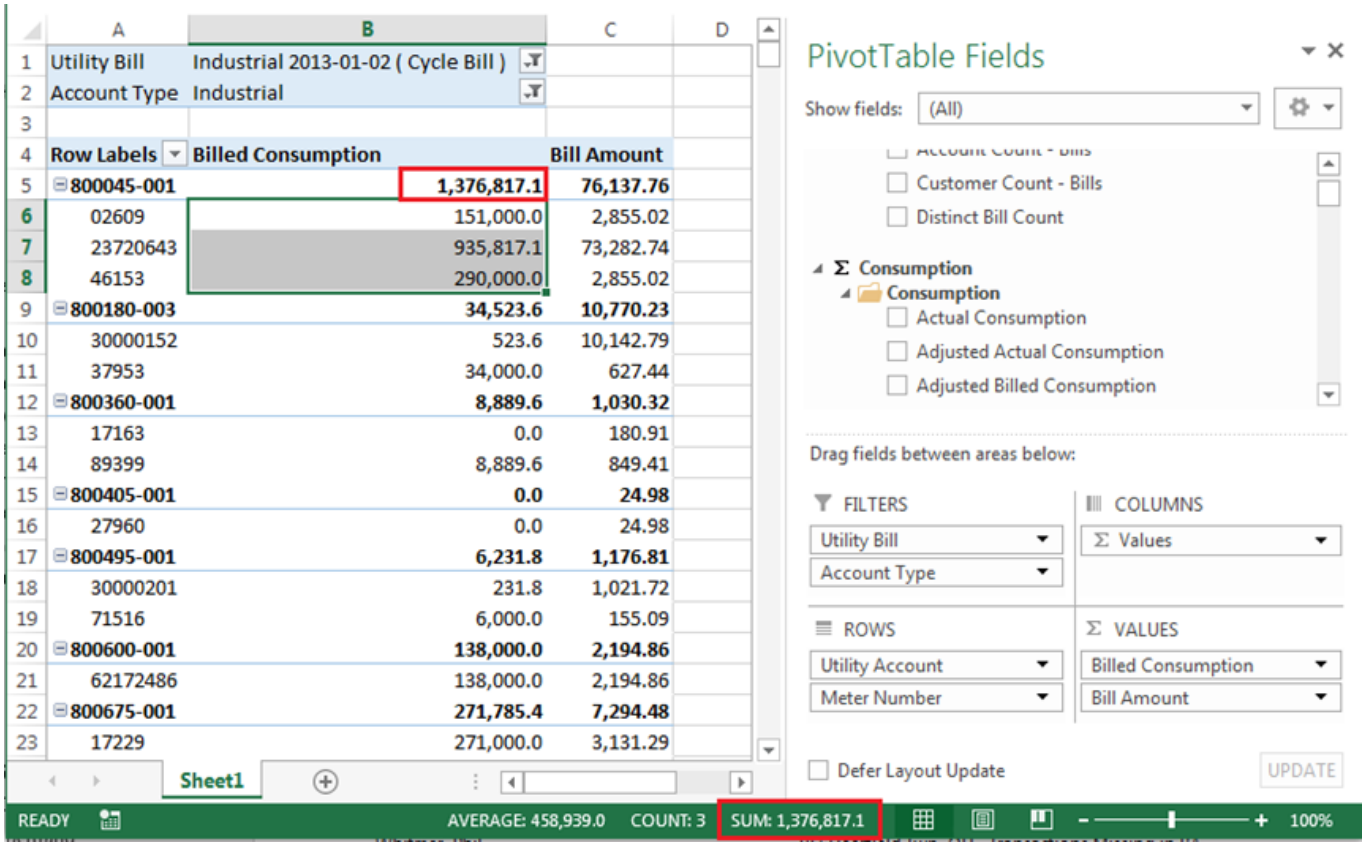
In the example below we can see for a particular permit the customer has associated 7 different UDFs. For Each UDF it will show us the transaction amount for the permit. Again the Total Permit Transaction Amount did not change from $185 just because the permit is associated to 7 different UDF values.



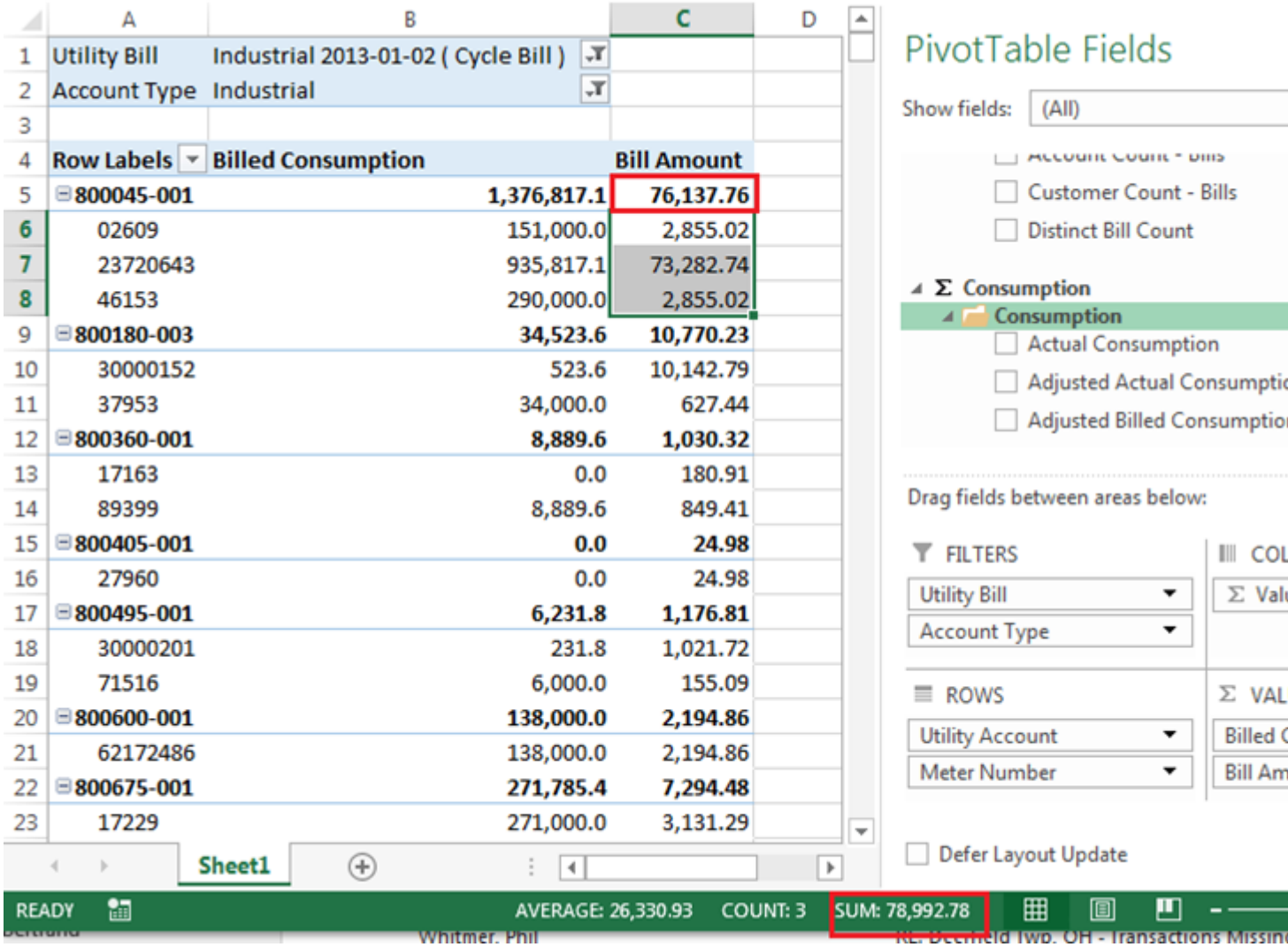
Example 3

Lastly, I will show the situation with an example of Utility Usages Charges.

In the screenshot below we see a detail level look at the usage and charges for accounts and meters for a particular utility bill. You will notice in this screenshot the **Billed Consumption** values do indeed total up to the value excel shows in the status bar. This makes sense because consumption is a direct relationship to the meter.



However, we can clearly see that the **Bill Amount** does not total up to the value in the status bar below. This is because the meters could have the same rates on them or have their consumption may have been consolidated before running through the rates which would mean that some of the charges we see are associated to both of the meters. At the meter level those charges are displayed to us for each meter.



	A	B	C
1	Utility Bill	Industrial 2013-01-02 (Cycle Bill)	
2	Account Type	Industrial	
3			
4	Row Labels	Billed Consumption	Bill Amount
5	800045-001	1,376,817.1	76,137.76
6	02609	151,000.0	2,855.02
7	23720643	935,817.1	73,282.74
8	46153	290,000.0	2,855.02
9	800180-003	34,523.6	10,770.23
10	30000152	523.6	10,142.79
11	37953	34,000.0	627.44
12	800360-001	8,889.6	1,030.32
13	17163	0.0	180.91
14	89399	8,889.6	849.41
15	800405-001	0.0	24.98
16	27960	0.0	24.98
17	800495-001	6,231.8	1,176.81
18	30000201	231.8	1,021.72
19	71516	6,000.0	155.09
20	800600-001	138,000.0	2,194.86
21	62172486	138,000.0	2,194.86
22	800675-001	271,785.4	7,294.48
23	17229	271,000.0	3,131.29

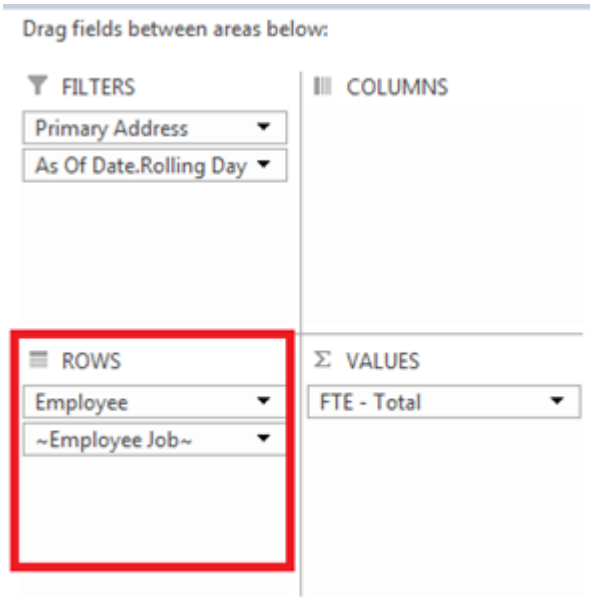
In the sample above the true Total Bill Amount for Account 800045-001 for this bill is $76,137.76 and not the sum of the Bill Amounts associated to each meter.

The cube understands that the Total Bill Amount is not necessarily the sum of the charges displayed for each meter and since some portion of those charges are associated to multiple meters it should not double count them. This is why the status bar may be different than the total showed in the cube.

SHOWING PROPERTIES IN PIVOT TABLES

Though not the ideal use of Business Analytics there are times when a detail listing or report is needed. When this is the case the use of Property fields can save you a lot of time and headache.

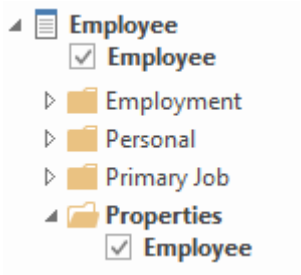
These types of reports typically have a lot of columns added to them and if you have tried to add 6 or more **ROWS** *(see below)* to a pivot table you may have noticed that the performance can go downhill rather quickly. This is because behind the scenes whatever **VALUES** you have selected have to be aggregated by every single item in the **ROWS** and **COLUMNS** and subtotals have to be determined for each. Depending on the amount of data you are requesting this could be a resource intensive process.



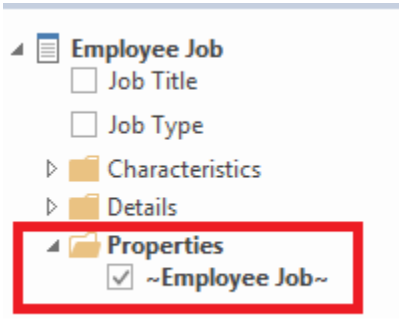
You could add 10 fields as **ROWS** and then format the pivot table to Tabular layout and suppress subtotals (see previous tip), but that formatting occurs after all of the work has occurred so it will not help you with performance.

A better way might be to add the fields as properties.

Properties are only available on the Dimension's Key Field, and for Dimensions where properties are available we have added a **Property Folder.** In most cases we made the default field in the dimension the Property field, as seen below.

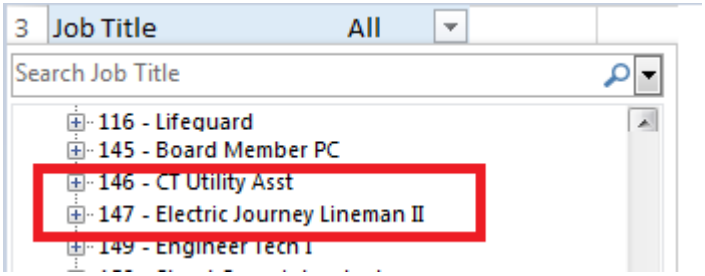


However, there cases when it did not make sense to make the Property fields the default field and we will take a slight detour for a moment to try and explain why.

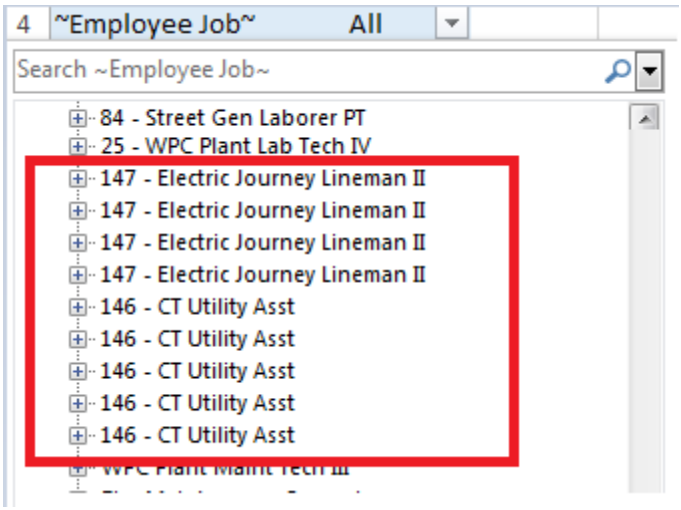


The above is usually done when the Dimension Key is a compound of other items. In the case above the employee and the job, or perhaps in Unit Log where it is the Unit and a Timestamp, but we have a narrative attached.

We like to make the Default fields something the user would normally select, such as **Job Title**.



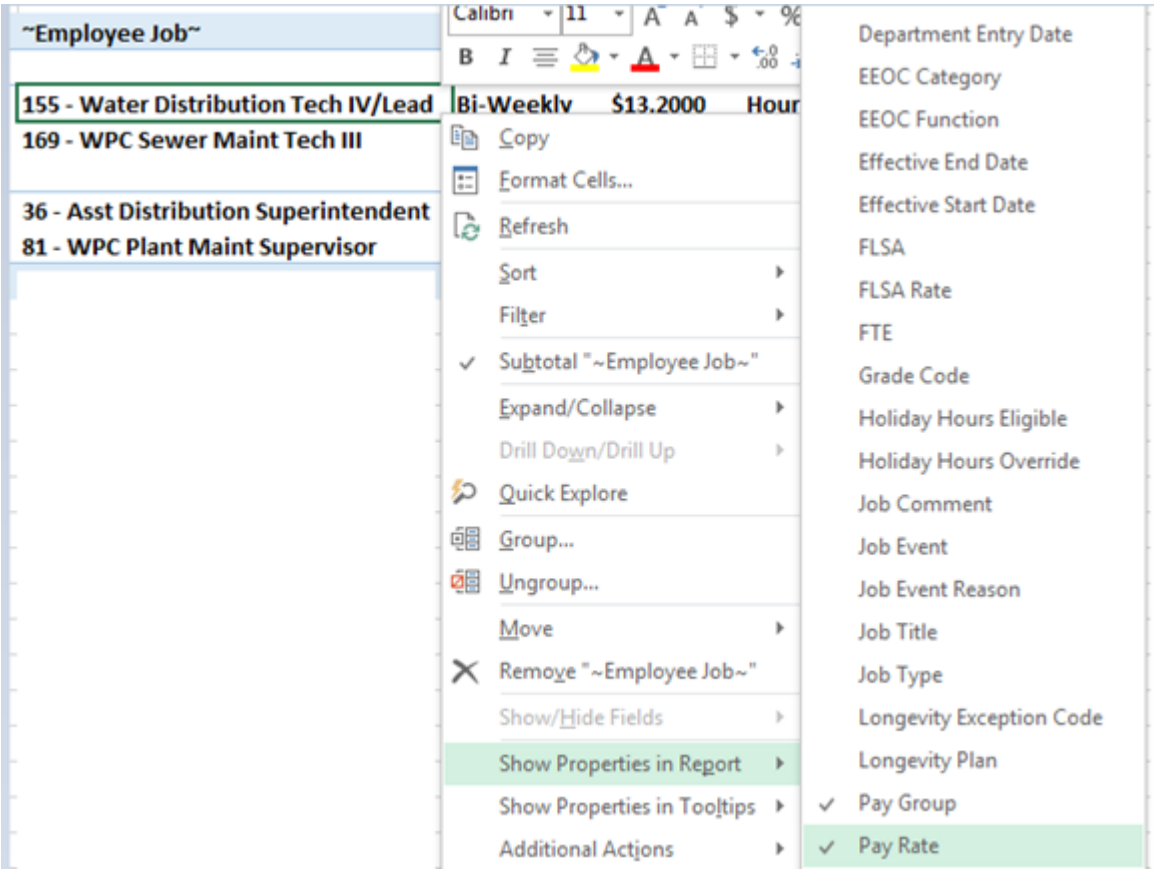
However, if we used the dimension key, **Employee Job** in this instance, the user would see certain jobs repeated over and over because different employees could have help the job at different times. Remember it is actually a key for every record.



Back to Properties…

By selecting the field in the Property Folder (the Dimension Key) you get additional functionality.

By Right Clicking on the Field in your pivot table you can select to **Show Properties in Report** and then you can select the Fields you want to add.



These will just be added without any grouping or aggregation.

Primary Address	Yes						
As Of Date.Rolling Day	Today						
Employee	Employee Number	Hire Date	~Employee Job~	Pay Group	Pay Rate	Pay Type	FTE - Total
Melford, Valentina R	1231	2003-10-14					2.00
			155 - Water Distribution Tech IV/Lead	Bi-Weekly	$13.2000	Hourly	1.00
			169 - WPC Sewer Maint Tech III	Bi-Weekly	$1,533.94	Salary	1.00
Reigel, Ariel T	1515	2013-01-07					2.00
			36 - Asst Distribution Superintendent	Bi-Weekly	$11.0000	Hourly	1.00
			81 - WPC Plant Maint Supervisor	Bi-Weekly	$8.5000	Hourly	1.00
Grand Total							4.00

Additionally, if you hover over Property fields you will see every field and value for the Dimension

155 - Water Distribution Tech IV/Lead (~Employee Job~)
Accrual Exception Code:
Accrual Plan:
Annual Hours: 2080
Benefit Exception Code:
Benefit Group: HRLY - Hourly
Cycle Hours: 80
Daily Hours: 8
Department: IS - Information Systems
Department Entry Date: 2010-03-07
EEOC Category: Para-Professionals Full Time
EEOC Function: 1 Financial Administration
Effective End Date: 9999-12-31
Effective Start Date: 2010-03-09
FLSA:
FLSA Rate:
FTE: 1
Grade Code: HourlyConversion
Holiday Hours Eligible: No
Holiday Hours Override:
Job Comment:
Job Event: Non-Primary Job
Job Event Reason: Out of Position
Job Title: 155 - Water Distribution Tech IV/Lead
Job Type: Secondary
Longevity Exception Code:
Longevity Plan:
Pay Group: Bi-Weekly
Pay Rate: $13.2000
Pay Type: Hourly
Plan Calculation Percent:
Position Entry Date: 2007-12-30
Position Status: Out Of Position
Special Assignment:
Step Code:
Union Code:
Work Site:
Workers Comp: 8810 - Clerical Office Employees NOC
Row: Melford, Valentina R - 1231 - 2003-10-14 - 155 - Water Distribution Tech IV/Lead

A couple things to note:

1. Properties, when added, only appear in Alphabetical order.

Within Logos many dimensions have a Detail folder. These fields should probably be selected via the Properties unless there is a specific reason not to as we have determined most of the fields in this folder have little use for analysis, but may have significant use for reporting.

USING VLOOKUP TO ANSWER QUESTIONS

This is an excerpt from series of articles written on improving operational performance for Law Enforcement using Business Analytics.

It is common to want to analyze your data over time so that you can easily understand how you are doing in managing towards your goals, and make course corrections as necessary.

For the next few posts consider that you are a Police Chief and want to understand how the current crime incidents compare to other meaningful metrics.

For simple scenarios you can look at operational improvements over time using simple excel formulas.

For example if we just want to compare incidents from this year to last year to see how much improvement we are making for our identified incident types.

D3 =(C3-B3)/B3

	A	B	C	D
1	Incident Count	Column Labels		Improvement % =
2	Row Labels	Calendar 2013	Calendar 2014	(Current - Previous)/Previous
3	Accident	3,891	1,152	-70.39%
4	Assault	766	221	-71.15%
5	Burglary	1,284	419	-67.37%
6	Disturbance	3,730	768	-79.41%
7	Hit & run	980	267	-72.76%
8	Kidnapping	2		-100.00%
9	Robbery	116	19	-83.62%
10	Grand Total	10,769	2,846	

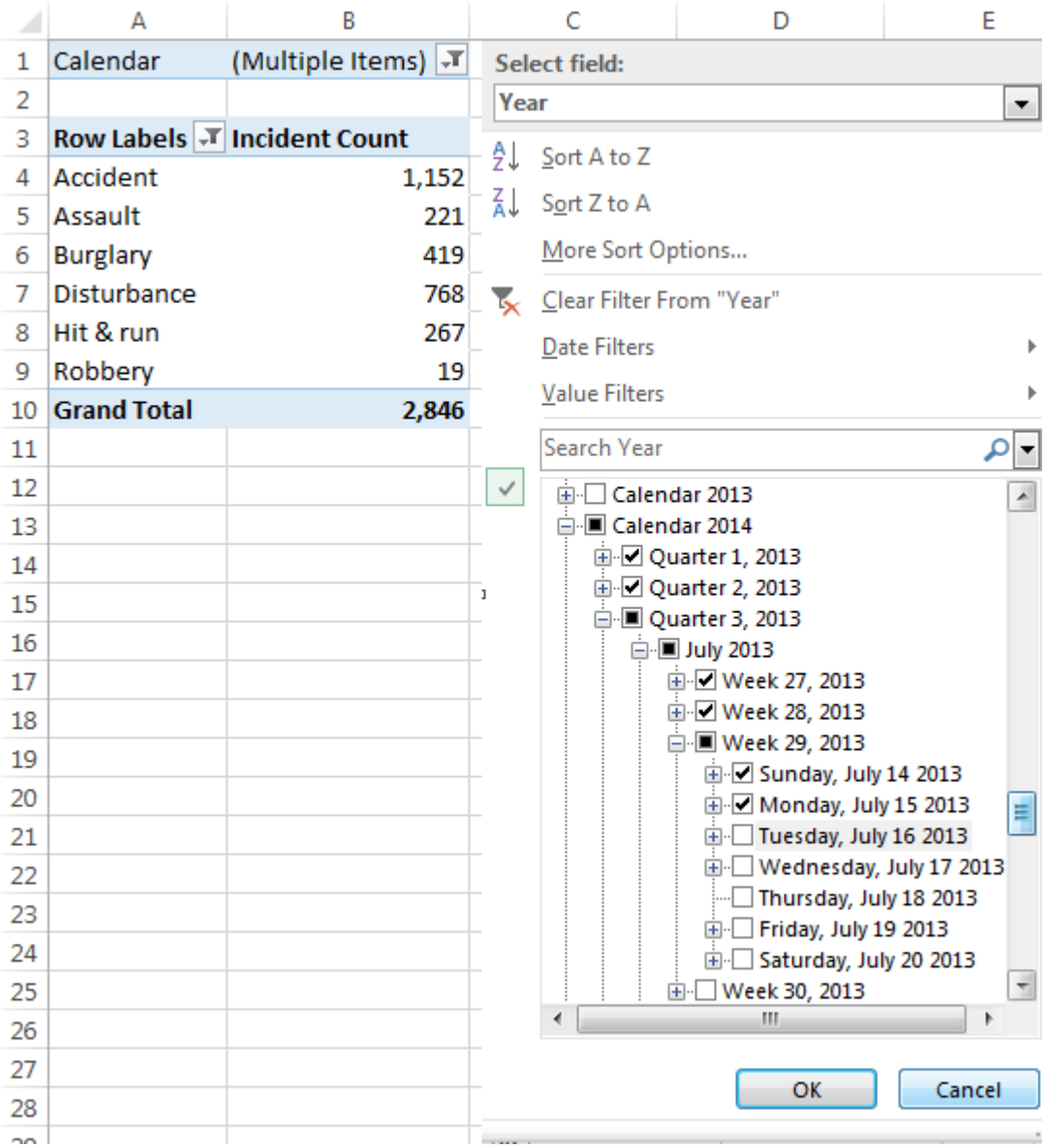
These numbers look pretty good! All of our incident types are down.

But wait a minute it is only July of this year which means there are still 5 more months of crime that will happen. So this measurement is not really ideal for what I am looking for.

What I really need to compare is the crime numbers as of July 15th of 2014 to the crime numbers of July 15th for 2013.

To solve this problem what we may have to do is build out two different pivot tables and link the results together.

Pivot Table Number 1 we will filter to all records in 2014 that are before July 15th.



For Pivot Table 2 we will do the same thing for 2013 by filtering to all dates on or before July 15th.

	A	B	C	D	E
1	Current Year			Previous Year	
2	Calendar	(Multiple Items)		Calendar	(Multiple Items)
3					
4	Row Labels	Incident Count		Row Labels	Incident Count
5	Accident	1,152		Accident	1,837
6	Assault	221		Assault	447
7	Burglary	419		Burglary	712
8	Disturbance	768		Disturbance	1,779
9	Hit & run	267		Hit & run	504
10	Robbery	19		Robbery	45
11	Grand Total	2,846		Grand Total	5,324

Now I can create a sample report that pulls the values I want from each pivot table using a **VLOOKUP** and then calculate my YTD performance metric.

First determine what information is important to you.

Managed Items
Accident
Assault
Burglary
Disturbance
Hit & run
Robbery

In our case specific incident types for YTD 2013 and 2014 are what interest us.

We will proceed to get our information using a **VLOOKUP**.

Managed Items	2013 YTD as of July 15th	2014 YTD as of July 15th
Accident		
Assault		
Burglary		
Disturbance		
Hit & run		
Robbery		

A **VLOOKUP** wants 4 pieces of information as displayed by the function.

VLOOKUP(**lookup_value**, table_array, col_index_num, [range_lookup])

Typically I would put the customer table on a separate sheet from my pivot data, but for this example I put them on the same sheet to illustrate the usage.

<u>Looking at the example below</u>

We specify to lookup the column G4 which is "Accident".

We then specify the Table Array to go and get our 2013 incidents from which is D5 to E10. Because I want to copy and paste this formula down and my table range is not going to change I lock the range using the $ giving me $E$5 to $E$10.

Then we specify that the value we want to get from the table range is in the 2nd column.

Finally we want to match exactly on our lookup value "Accident".

H4 =VLOOKUP(G4,$D$5:$E$10,2,)

	A	B	C	D	E	F	G	H	I
1	Current Year			Previous Year					
2	Calendar	(Multiple Items)		Calendar	(Multiple Items)				
3							Managed Items	2013 YTD as of July 15th	2014 YTD as of July 15th
4	Row Labels	Incident Count		Row Labels	Incident Count		Accident	1837	1152
5	Accident	1,152		Accident	1,837		Assault	447	221
6	Assault	221		Assault	447		Burglary	712	419
7	Burglary	419		Burglary	712		Disturbance	1779	768
8	Disturbance	768		Disturbance	1,779		Hit & run	504	267
9	Hit & run	267		Hit & run	504		Robbery	45	19
10	Robbery	19		Robbery	45				
11				Column 1	Column 2			Lookup Value	G4
12								Table Array	$D$5:$E$10
13								Column Number	2
14								Range Lookup	FALSE

After copying the formula down it fills in for all of my values.

The only difference in getting 2014 values is selecting a different lookup range ($A$5 to $B$10).

Now we can add a column to determine our performance improvement which is typically (Current Value - Previous Value) / Previous Value.

J4 =(I4-H4)/H4

	A	B	C	D	E	F	G	H	I	J
1	Current Year			Previous Year						
2	Calendar	(Multiple Items)		Calendar	(Multiple Items)					
3							Managed Items	2013 YTD as of July 15th	2014 YTD as of July 15th	Improvement
4	Row Labels	Incident Count		Row Labels	Incident Count		Accident	1837	1152	-37.29%
5	Accident	1,152		Accident	1,837		Assault	447	221	-50.56%
6	Assault	221		Assault	447		Burglary	712	419	-41.15%
7	Burglary	419		Burglary	712		Disturbance	1779	768	-56.83%
8	Disturbance	768		Disturbance	1,779		Hit & run	504	267	-47.02%
9	Hit & run	267		Hit & run	504		Robbery	45	19	-57.78%
10	Robbery	19		Robbery	45					
11				Column 1	Column 2			Lookup Value	G4	
12								Table Array	$D$5:$E$10	
13								Column Number	2	
14								Range Lookup	FALSE	
15										

If we wanted we could then do conditional formatting on our improvement to display as red when it is increasing (positive number) or green is it is decreasing (negative number).

Using these techniques we can build templates that can provide pretty impressive operational analysis similar to the one below.

CITYWIDE TRENDS (Current Wk #01 Jun, 16 - Jun. 22, 2014)

*Trends are measured by a count of occurred incidents during the reported period.	Current Wk#25	Prior 4 Weeks (4/21 - 5/18)	Current 4 Weeks (5/19 - 6/15)		Current 4 Weeks (5/19 - 6/15)			Year-To-Date Totals (1/1 thru 6/15)		
	2014	2014	2014	% ▲or▼	2013	2014	% ▲or▼	2013	2014	% ▲ or▼
Major Crimes										
Homicide	0	0	1		0	1		7	5	-28.60%
Sex Battery Incident	0	21	23	9.50%	13	23	76.90%	83	98	18.10%
Robbery Incidents	3	26	33	26.90%	44	33	25%	227	178	21.60%
-Armed										
-Strong Arm										
Agg. Battery/Assault	4	50	55	10%	44	55	25%	255	277	8.60%
Burglary Incidents	21	149	124	16.80%	172	124	27.90%	883	810	8.30%
-Residental										
-Apartment										
-Commercial										
-Hotel										
-Vehicle Burglaries	8	88	90	2.30%	138	90	34.80%	851	619	27.30%
Thefts	61	486	472	2.90%	669	472	29.40%	3,553	3,047	14.20%
-Beach										
-Retail										
Auto Thefts	7	65	78	20%	73	78	6.80%	406	431	6.20%
7 Major Crimes	**96**	797	786	1.40%	1,015	786	22.60%	5,414	4,846	10.50%

Obviously this can require some significant work to build the template, and the certain date filters may have to be changed from time to time. However, there are things that can be used to help with this, such as slicers or custom measures in Excel 2013 (see previous tip).

Additionally, if we understand what is common practice across the majority of customers we can bake these types of measures into the cubes to make this type of analysis much easier.

SLICERS CAN MAKE YOUR LIFE EASIER

Slicers were introduced in Excel 2010 and allow users the flexibility to link the filtering of many pivot tables together. This can be quite powerful if you have many different views of the same data and you want to see them all changed the same way when one is changed.
For example perhaps you have 3 different pivot tables each looking at inspections for a particular time period and you want to quickly change all of them from this week to last week.

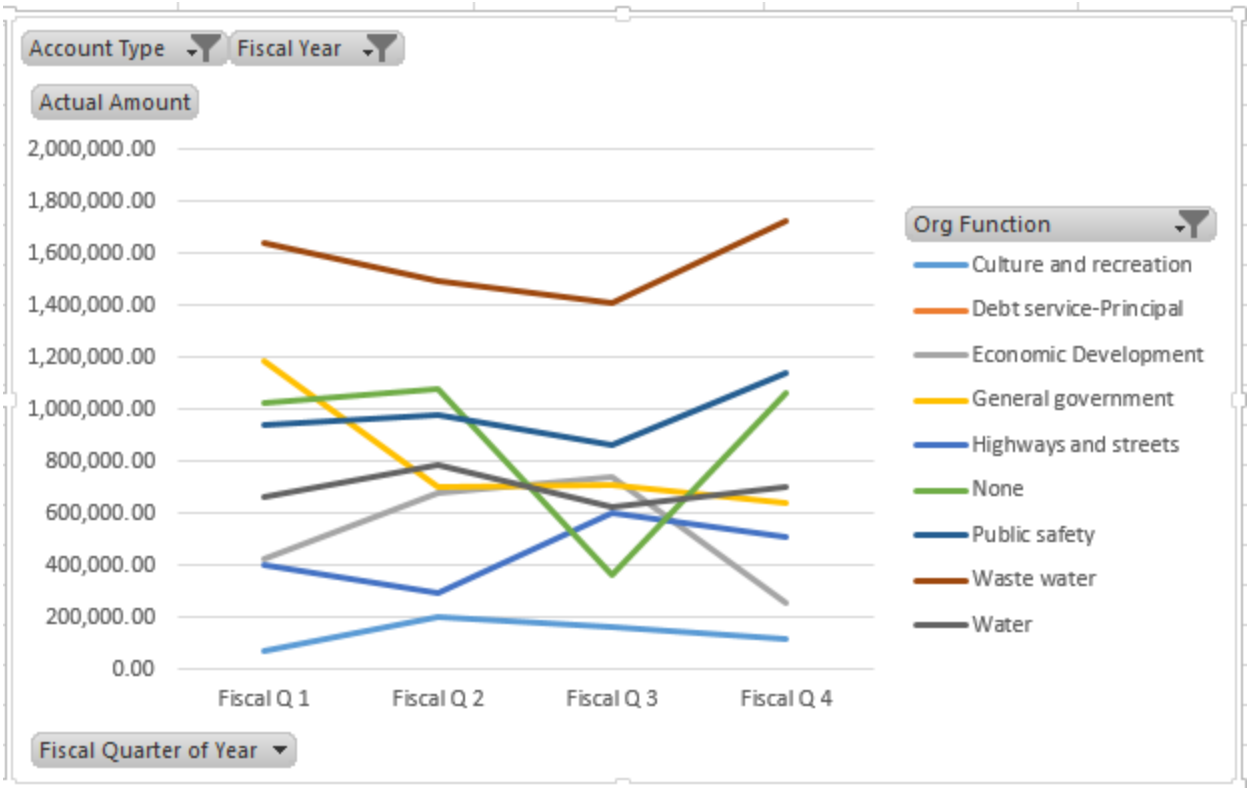
Consider that we have two views of expenses:
Our first view is TOP 10 GL Accounts by expenses for 2013.

	A	B
1	Account Type	Expenses
2	Fiscal Year	Fiscal Calendar 2013
3		
4	**Row Labels**	**Actual Amount**
5	610.102.556.10 - Purchased Power Energy Charge	15,946,240.97
6	610.102.556.15 - Purchased Power PJM Open Access Trans. Tariff	9,914,105.85
7	610.102.556.05 - Purchased Power Demand Charge	7,254,412.30
8	610.102.556.30 - Purchased Power Fuel Charge	3,428,242.68
9	480.93.4900 - Other Capital Outlays	2,093,458.64
10	630.307.900 - Utility Transfer	2,025,196.24
11	611.106.550 - Depreciation	1,306,851.56
12	800.02.4999 - Misc. Expense	1,277,472.36
13	610.106.900 - Utility Transfer	1,152,798.00
14	100.20.1100 - Salaries & Wages	1,138,625.23
15	**Grand Total**	**45,537,403.83**
16		

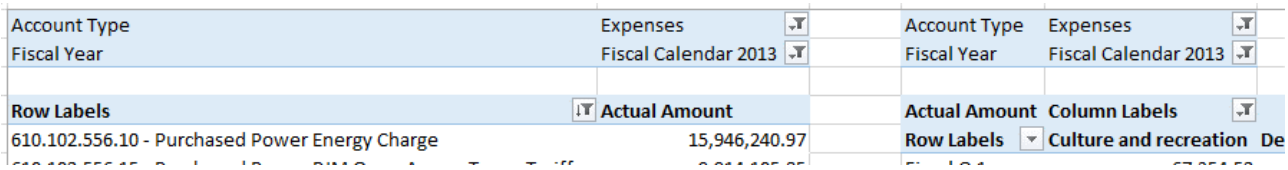
Our second view is Expenses by Quarter by Organization Function for 2013.

Account Type	Expenses				
Fiscal Year	Fiscal Calendar 2013				
Actual Amount	**Column Labels**				
Row Labels	**Fiscal Q 1**	**Fiscal Q 2**	**Fiscal Q 3**	**Fiscal Q 4**	**Grand Total**
Culture and recreation	67,354.52	203,612.64	160,520.73	117,149.01	548,636.90
Debt service-Principal				64,371.43	64,371.43
Economic Development	424,739.53	679,977.93	738,787.15	252,218.51	2,095,723.12
Electric	8,651,515.42	8,916,696.79	8,257,208.08	7,746,311.58	33,571,731.87
General government	1,190,362.74	702,532.41	706,857.02	638,039.90	3,237,792.07
Highways and streets	400,750.55	295,183.85	600,702.01	508,399.76	1,805,036.17
None	1,025,599.79	1,078,800.76	364,903.06	1,065,147.26	3,534,450.87
Public safety	942,814.29	976,291.42	865,937.16	1,137,308.05	3,922,350.92
Waste water	1,643,796.47	1,497,831.45	1,409,078.42	1,723,770.55	6,274,476.89
Water	666,497.23	788,028.31	622,952.09	703,604.08	2,781,081.71
Grand Total	**15,013,430.54**	**15,138,955.56**	**13,726,945.72**	**13,956,320.13**	**57,835,651.95**

Which we turn into a chart.

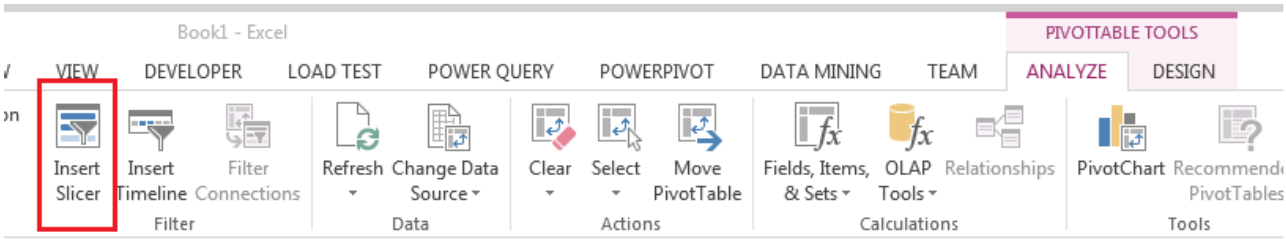


We can see that these pivot table share some filters in common. Namely **Account Type** and **Fiscal Year**. This makes them prime candidates for a **Slicer**.

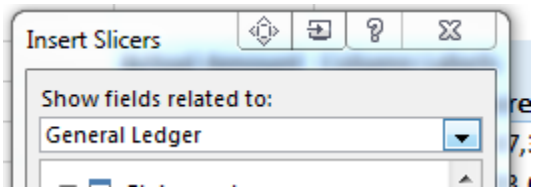


Now what if instead of seeing information for 2013 we wanted to see 2012. Right now we would have to change the filter on both pivot tables.
Instead let's add a slicer.

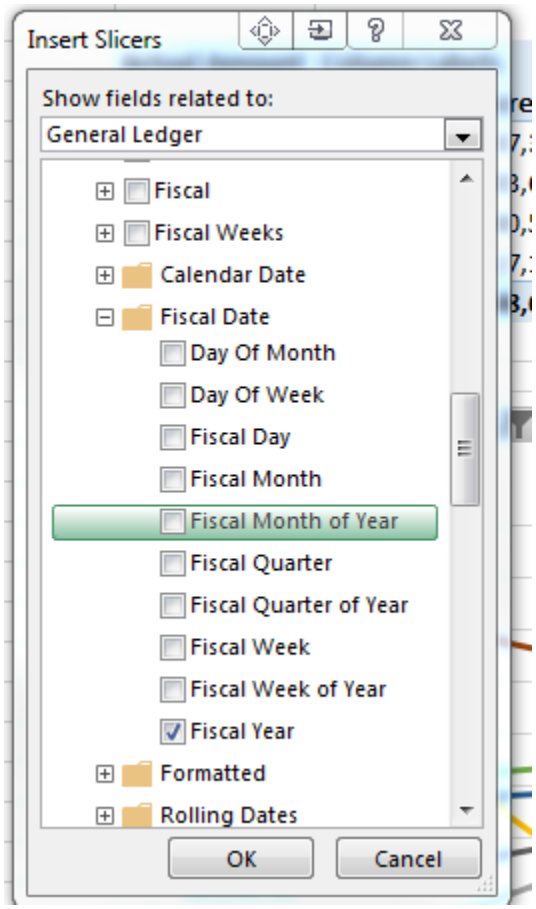
Click on one of your pivot tables and then under the **PIVOTTABLE TOOLS** area select **ANALYZE** and you will see the **Insert Slicer** option.



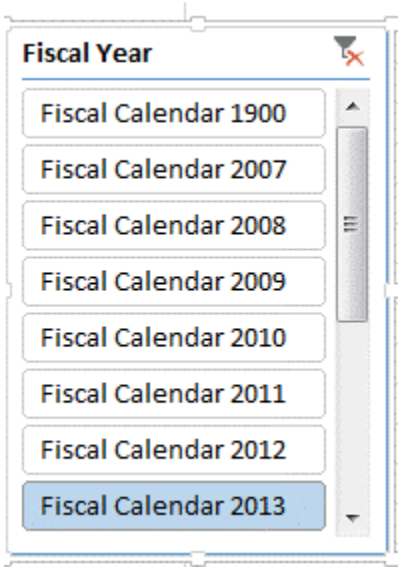
Clicking on it will bring up the Insert Slicer Window where it wants to know what dimension attribute(s) you want to create slicers for.
You can limit the list by selecting the appropriate **Show Fields related to**: option.



Scroll down to **GL Date** and under the Fiscal Date folder check **Fiscal Year**, and click **OK**.

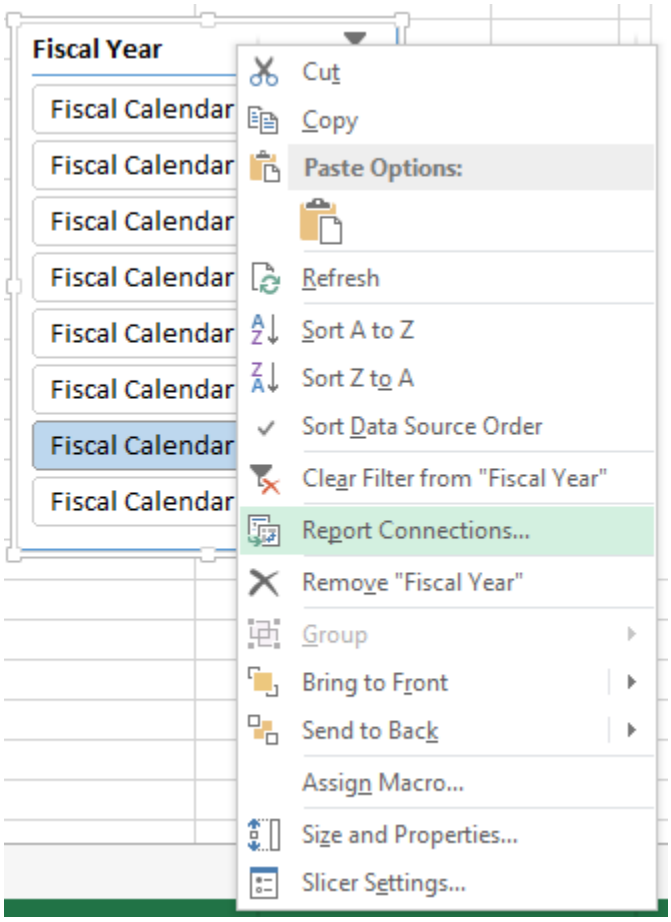


It will add a slicer.

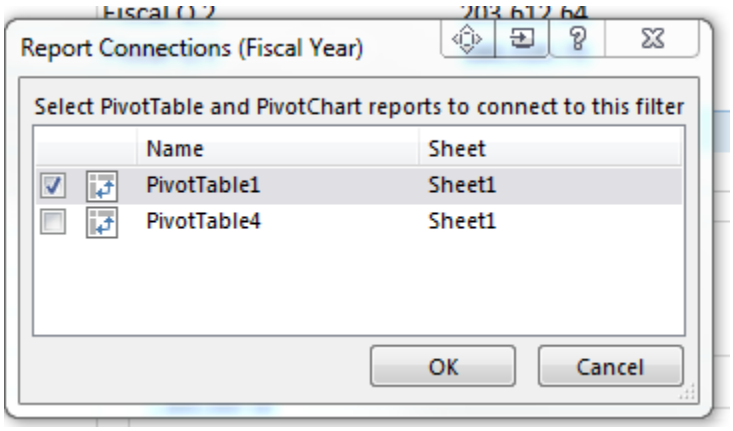


Go ahead and select "Fiscal Calendar 2012" in the slicer.
I know what you are thinking. "Wait a minute. It only changed one of my pivot tables!"

We can hook it to the other pivot table by Right Clicking on the Slicer and selecting **Report Connections**.



It will bring up a list of the available pivot tables that you can use the slicer on.

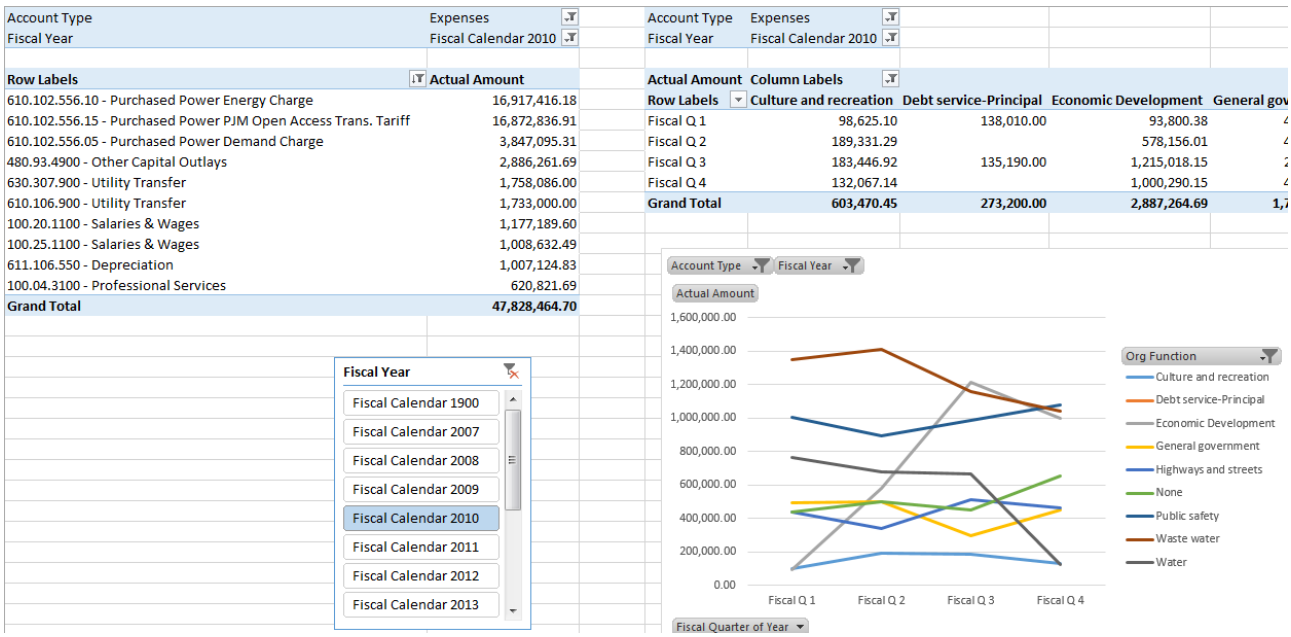


Note: above it shows the default names Excel assigned when I created the pivot table. You can rename your pivot tables so it is easier to identify them by Right Clicking on the pivot table and choosing Pivot Table Options.

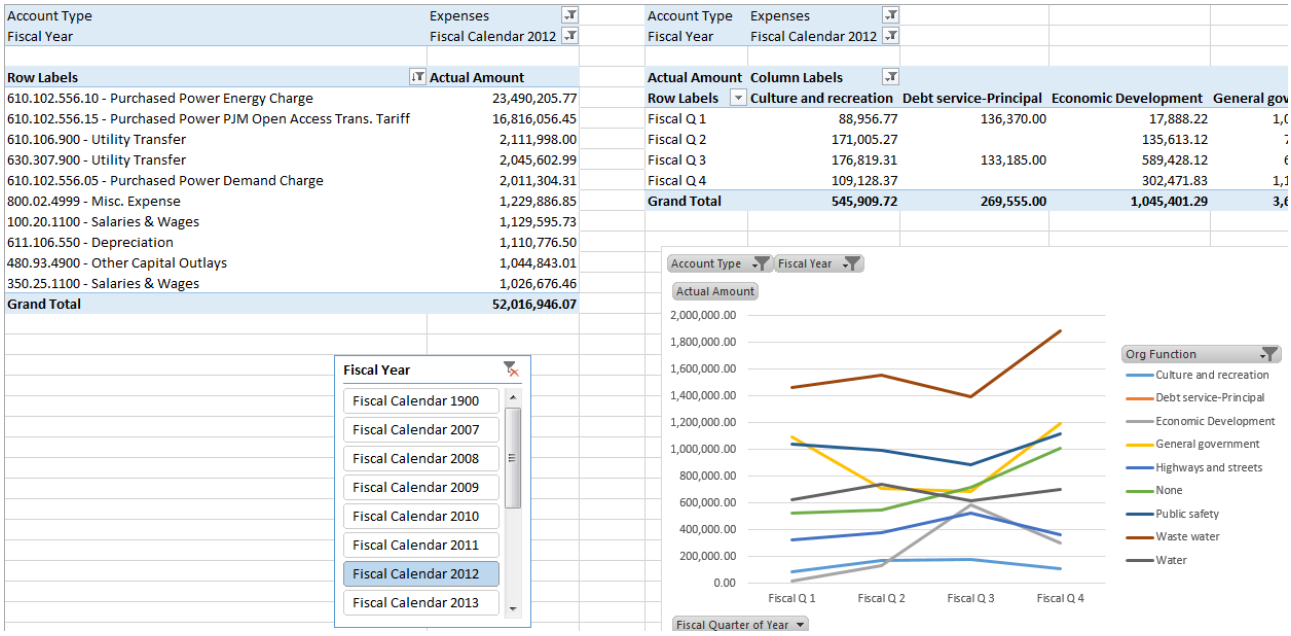
Check the box Next to the second Pivot Table and select **OK.**

Now the slicer is tied to both pivot tables and the chart. If you pick different dates in the slicer it changes the data for each of them.

Example for Fiscal Calendar 2010



Example for Fiscal Calendar 2012



Account Type	Expenses
Fiscal Year	Fiscal Calendar 2012

Row Labels	Actual Amount
610.102.556.10 - Purchased Power Energy Charge	23,490,205.77
610.102.556.15 - Purchased Power PJM Open Access Trans. Tariff	16,816,056.45
610.106.900 - Utility Transfer	2,111,998.00
630.307.900 - Utility Transfer	2,045,602.99
610.102.556.05 - Purchased Power Demand Charge	2,011,304.31
800.02.4999 - Misc. Expense	1,229,886.85
100.20.1100 - Salaries & Wages	1,129,595.73
611.106.550 - Depreciation	1,110,776.50
480.93.4900 - Other Capital Outlays	1,044,843.01
350.25.1100 - Salaries & Wages	1,026,676.46
Grand Total	**52,016,946.07**

Account Type	Expenses
Fiscal Year	Fiscal Calendar 2012

Actual Amount	Column Labels			
Row Labels	Culture and recreation	Debt service-Principal	Economic Development	General gov
Fiscal Q 1	88,956.77	136,370.00	17,888.22	1,0
Fiscal Q 2	171,005.27		135,613.12	7
Fiscal Q 3	176,819.31	133,185.00	589,428.12	6
Fiscal Q 4	109,128.37		302,471.83	1,1
Grand Total	**545,909.72**	**269,555.00**	**1,045,401.29**	**3,6**

Another nice thing about the slicers is that you can cut them off of a page and paste them onto another page, just like you can do with charts.

Quite often I will create a Configuration Tab in my workbooks where I will paste all of my slicers to in addition to any hard coded goals, forecast percentages, or other user configurable values.

CREATING CUSTOM GROUPS IN PIVOT TABLES

Excel allows you to create custom groupings on the fly. This can be very beneficial when you want to aggregate or analyze information at a higher level than the data you have available in the system.

For example, below we have a very simple pivot table from the HR Payroll cube containing total **Hours Worked** by **Hours Code**.

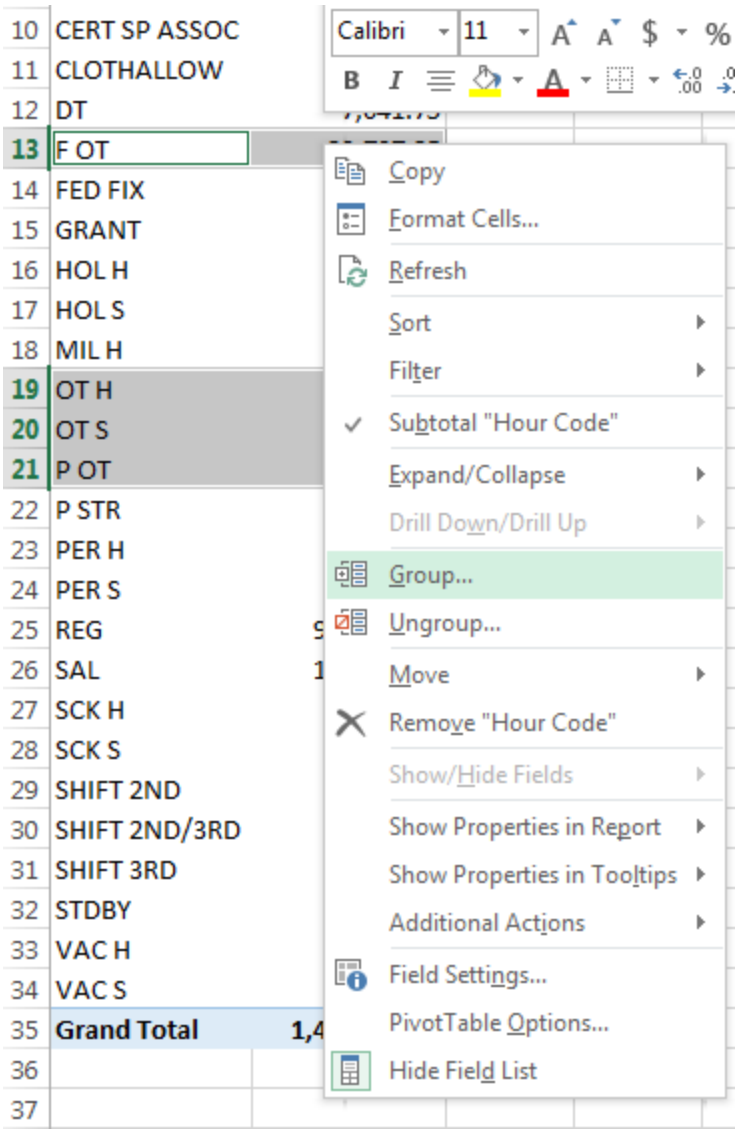
Row Labels	Hours Worked
ACE GRANT	0.00
BEREAV H	1,257.75
BEREAV S	768.00
CARALLOW	0.00
CERT PAY	0.00
CERT SP 1-3	0.00
CERT SP 4-6	0.00
CERT SP 7+	0.00
CERT SP ASSOC	0.00
CLOTHALLOW	0.00
DT	7,041.75
F OT	29,707.25
FED FIX	0.00
GRANT	0.00
HOL H	28,966.00
HOL S	23,712.00
MIL H	120.00
OT H	41,570.55
OT S	40,532.50
P OT	1,080.25
P STR	10,299.50
PER H	18,799.00
PER S	21,062.00
REG	905,350.50
SAL	157,773.00
SCK H	21,465.00
SCK S	15,698.00
SHIFT 2ND	0.00
SHIFT 2ND/3RD	0.00
SHIFT 3RD	0.00
STDBY	38,067.00
VAC H	47,752.00
VAC S	66,112.00
Grand Total	**1,477,134.05**

We can see here that maybe you would like to group this information up in a special way.
For example.

Perhaps we want "OT H", "OT S", "P OT", and "F OT" all grouped together as "Overtime" and we want "VAC H" and "VAC S" grouped together as "Vacation"

Excel allows us to do this

Highlight the items you want to group together, in this case "OT H", "OT S", "P OT", and "F OT". Right Click on the pivot table and select **Group**.



You can see that excel put all of those items into a Group called **Group 1** and everything else into a group called **Other.**

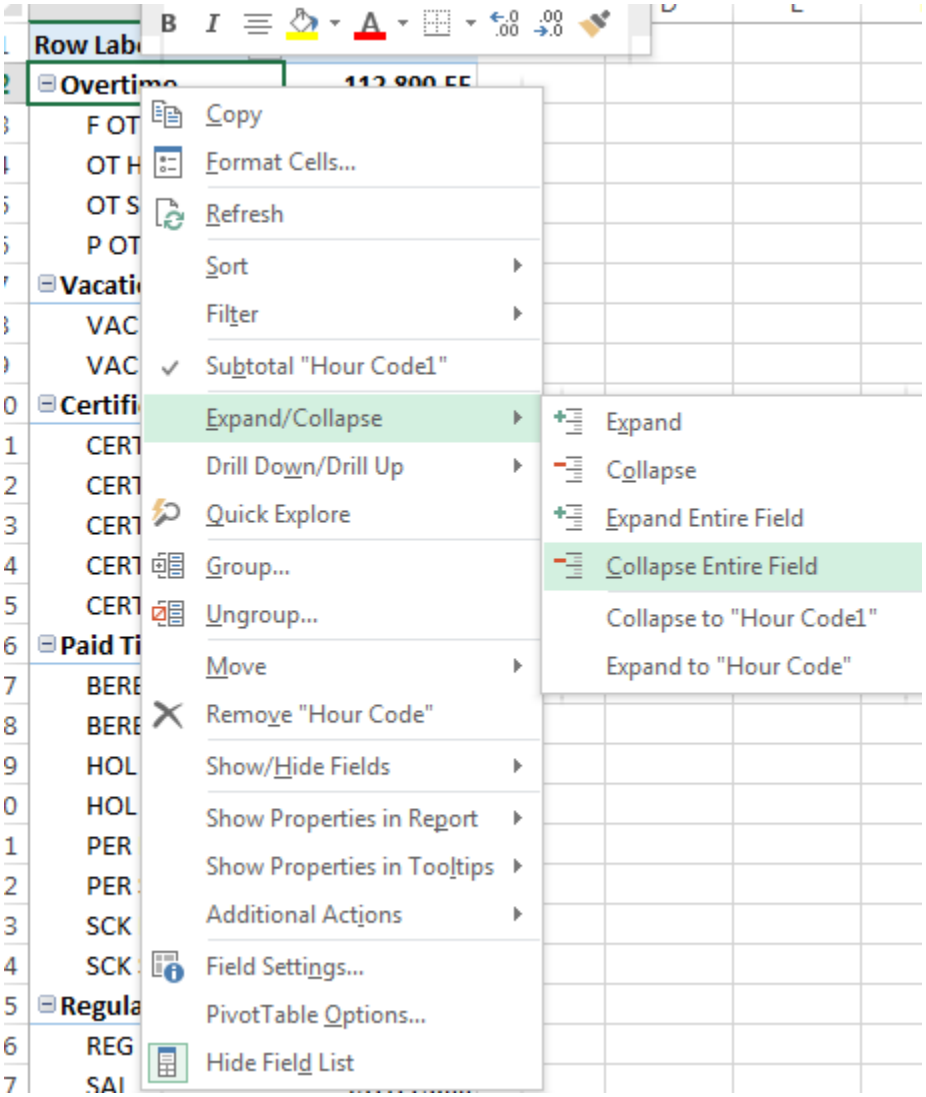
	A	B
1	**Row Labels**	**Hours Worked**
2	**Group1**	**112,890.55**
3	F OT	29,707.25
4	OT H	41,570.55
5	OT S	40,532.50
6	P OT	1,080.25
7	**Other**	**1,364,243.50**
8	ACE GRANT	0.00
9	BEREAV H	1,257.75
10	BEREAV S	768.00
11	CARALLOW	0.00
12	CERT PAY	0.00
13	CERT SP 1-3	0.00
14	CERT SP 4-6	0.00
15	CERT SP 7+	0.00
16	CERT SP ASSOC	0.00
17	CLOTHALLOW	0.00
18	DT	7,041.75
19	FED FIX	0.00

Rename “Group 1” to “Overtime”.

You can Repeat the grouping process for Vacation codes, and standard codes etc.

Row Labels	Hours Worked
Overtime	**112,890.55**
F OT	29,707.25
OT H	41,570.55
OT S	40,532.50
P OT	1,080.25
Vacation	**113,864.00**
VAC H	47,752.00
VAC S	66,112.00
Certifications	**0.00**
CERT PAY	0.00
CERT SP 1-3	0.00
CERT SP 4-6	0.00
CERT SP 7+	0.00
CERT SP ASSOC	0.00
Paid Time Off	**131,727.75**
BEREAV H	1,257.75
BEREAV S	768.00
HOL H	28,966.00
HOL S	23,712.00
PER H	18,799.00
PER S	21,062.00
SCK H	21,465.00
SCK S	15,698.00
Regular Time	**1,101,190.50**
REG	905,350.50
SAL	157,773.00
SHIFT 2ND	0.00
SHIFT 2ND/3RD	0.00
SHIFT 3RD	0.00
STDBY	38,067.00
Grand Total	**1,459,672.80**

Right Click on a group name and select **Expand / Collapse**. Choose **Collapse Entire Field**.



This leaves you with summaries broken down the way you wanted.

Row Labels	Hours Worked
⊞Overtime	112,890.55
⊞Vacation	113,864.00
⊞Certifications	0.00
⊞Paid Time Off	131,727.75
⊞Regular Time	1,101,190.50
Grand Total	**1,459,672.80**

Now you could break this information down in different ways, such as by Department.

Hours Worked	Column Labels					
Row Labels	Overtime	Vacation	Certifications	Paid Time Off	Regular Time	Grand Total
BOW - Board of Public Works & Safety					0.00	0.00
BPD - Building, Planning & Development	2,625.75	3,784.00		5,234.00	45,120.50	56,764.25
BZA - Board of Zoning Appeals					0.00	0.00
Clerk - Clerk-Treasurer	5,085.00	5,208.00		8,551.00	93,526.50	112,370.50
Council - Common Council					0.00	0.00
Elec - Electric	15,826.00	16,216.00		19,079.00	191,123.25	242,244.25
Eng - Engineering	1,011.25	2,408.00		3,574.75	28,514.00	35,508.00
Fire - Fire	34,438.25	27,392.00	0.00	17,827.00	65,912.25	145,569.50
HR - Human Resources	887.50	528.00		520.00	0.00	1,935.50
IS - Information Systems	8,750.30	1,864.00		3,584.00	25,898.75	40,097.05
Legal - Legal Department					0.00	0.00
Mayor - Mayor	487.75			424.00	2,397.75	3,309.50
Parks - Parks & Recreation	4,489.25	3,144.00		4,978.00	102,954.75	115,566.00
Parks-Pool - Parks & Recreation - Pool	0.75				1,028.75	1,029.50
PC - Plan Commission					0.00	0.00
Police - Police	4,909.00	20,504.00		28,881.50	126,097.25	180,391.75
Street - Street	10,366.25	9,832.00		13,949.50	162,645.25	196,793.00
Water - Water	8,487.00	8,512.00		10,271.00	109,406.00	136,676.00
WPC - Water Pollution Control	15,526.50	14,472.00		14,854.00	146,565.50	191,418.00
Grand Total	**112,890.55**	**113,864.00**	**0.00**	**131,727.75**	**1,101,190.50**	**1,459,672.80**

We have seen customers use this to group rate codes in utilities and more.

It is important to note that these grouping allow a lot of flexibility, but they have a high performance cost. The server and client have to perform a lot of work to perform these grouping.

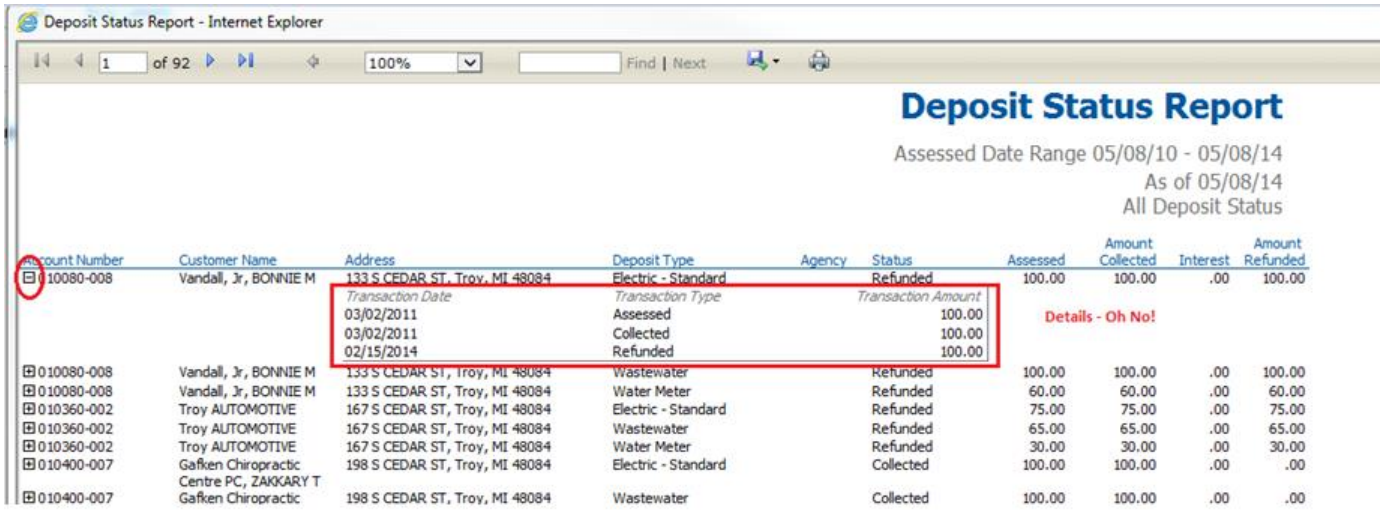
If you find that you need to create these custom groupings often it may be that we need to allow a way within the software to define these grouping for reporting and analysis if there is a common need.

POWER QUERY OVER SSRS WITH EXPAND/ COLLAPSE EXPORTED AS XML

Power Query is a Self Service BI tool in Microsoft's Business Intelligence product suite. It allows advanced users and domain experts to gather, cleanup, and transform many different types of data sources (databases, websites, excel files, text files, etc) on the fly for business use.

Below I will show one example of using an XML data source created from exporting a Logos SSRS report.

When you have a report that has expand / collapse abilities SSRS does not export the information to Excel or CSV very gracefully (usually).



Account Number	Customer Name	Address	Deposit Type	Agency	Status	Assessed	Amount Collected	Interest	Amount Refunded
⊟010080-008	Vandall, Jr, BONNIE M	133 S CEDAR ST, Troy, MI 48084	Electric - Standard		Refunded	100.00	100.00	.00	100.00
		Transaction Date	*Transaction Type*		*Transaction Amount*				
		03/02/2011	Assessed		100.00				
		03/02/2011	Collected		100.00				
		02/15/2014	Refunded		100.00				
⊞010080-008	Vandall, Jr, BONNIE M	133 S CEDAR ST, Troy, MI 48084	Wastewater		Refunded	100.00	100.00	.00	100.00
⊞010080-008	Vandall, Jr, BONNIE M	133 S CEDAR ST, Troy, MI 48084	Water Meter		Refunded	60.00	60.00	.00	60.00
⊞010360-002	Troy AUTOMOTIVE	167 S CEDAR ST, Troy, MI 48084	Electric - Standard		Refunded	75.00	75.00	.00	75.00
⊞010360-002	Troy AUTOMOTIVE	167 S CEDAR ST, Troy, MI 48084	Wastewater		Refunded	65.00	65.00	.00	65.00
⊞010360-002	Troy AUTOMOTIVE	167 S CEDAR ST, Troy, MI 48084	Water Meter		Refunded	30.00	30.00	.00	30.00
⊞010400-007	Gafken Chiropractic Centre PC, ZAKKARY T	198 S CEDAR ST, Troy, MI 48084	Electric - Standard		Collected	100.00	100.00	.00	.00
⊞010400-007	Gafken Chiropractic	198 S CEDAR ST, Troy, MI 48084	Wastewater		Collected	100.00	100.00	.00	.00

We can see Account 010080-008 has deposits for three types and you can expand out each line for transaction details.

However, if we export this to Excel or CSV it will repeat. The Account / Deposit Summary information for each detail.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	AccountNumber	AccountN	Textbox5(	DepositDe	Agency	Assessed1	Assessed	Collected	Interest	Refund	TransactionDate	Transactic	Transactic	Textbox61	Textbox63	Textbc
2	010080-008	Vandall, Ji	133 S CED/	Electric - Standard		Refunded	100	100	0	100	3/2/2011	Assessed	100	5003	########	######
3	010080-008	Vandall, Ji	133 S CED/	Electric - Standard		Refunded	100	100	0	100	3/2/2011	Collected	100	5003	########	######
4	010080-008	Vandall, Ji	133 S CED/	Electric - Standard		Refunded	100	100	0	100	2/15/2014	Refunded	100	5003	########	######
5	010080-008	Vandall, Ji	133 S CED/	Wastewater		Refunded	100	100	0	100	3/2/2011	Assessed	100	5003	########	######
6	010080-008	Vandall, Ji	133 S CED/	Wastewater		Refunded	100	100	0	100	3/2/2011	Collected	100	5003	########	######
7	010080-008	Vandall, Ji	133 S CED/	Wastewater		Refunded	100	100	0	100	2/15/2014	Refunded	100	5003	########	######
8	010080-008	Vandall, Ji	133 S CED/	Water Meter		Refunded	60	60	0	60	3/2/2011	Assessed	60	5003	########	######
9	010080-008	Vandall, Ji	133 S CED/	Water Meter		Refunded	60	60	0	60	3/2/2011	Collected	60	5003	########	######
10	010080-008	Vandall, Ji	133 S CED/	Water Meter		Refunded	60	60	0	60	2/15/2014	Refunded	60	5003	########	######
11	010360-002	Troy AUTC	167 S CED/	Electric - Standard		Refunded	75	75	0	75	1/3/2012	Assessed	75	5003	########	######
12	010360-002	Troy AUTC	167 S CED/	Electric - Standard		Refunded	75	75	0	75	1/3/2012	Collected	75	5003	########	######
13	010360-002	Troy AUTC	167 S CED/	Electric - Standard		Refunded	75	75	0	75	9/6/2013	Refunded	75	5003	########	######
14	010360-002	Troy AUTC	167 S CED/	Wastewater		Refunded	65	65	0	65	1/3/2012	Assessed	65	5003	########	######

Since exporting SSRS reports to excel or CSV does not work well when the report has expand / collapse abilities I wanted to explore ways we could get the information we wanted just using the report output.

We actually have a lot of options to get the information aggregated up to the account level.

We could use the CSV export and manually cleanup the Excel Worksheet which would involve only keeping the detail information, transforming certain transaction type amounts, such as refunds, to be a negative amount, and then turning it into a pivot table. This is not actually too difficult, but you would have to explore the data to make sure you have addressed all possible transaction types appropriately (as an example).

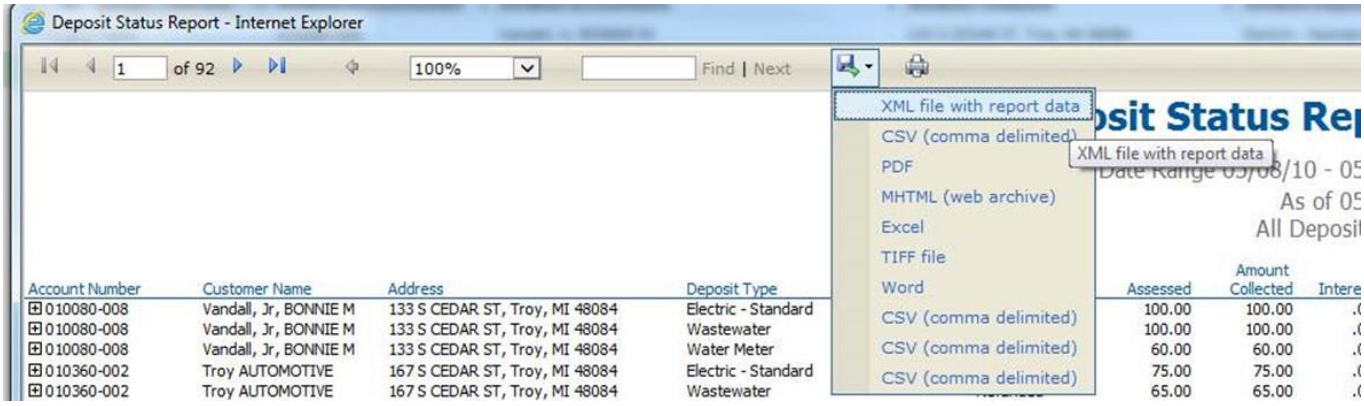
I figured Microsoft Excel's Power BI Tools could help here. Specifically Power Query which is an add-on for Excel 2013.

Power Query is the Data Exploration and Data Cleanup / Transformation tool within Excel. I have used it for many things when I have very unfriendly Excel data.

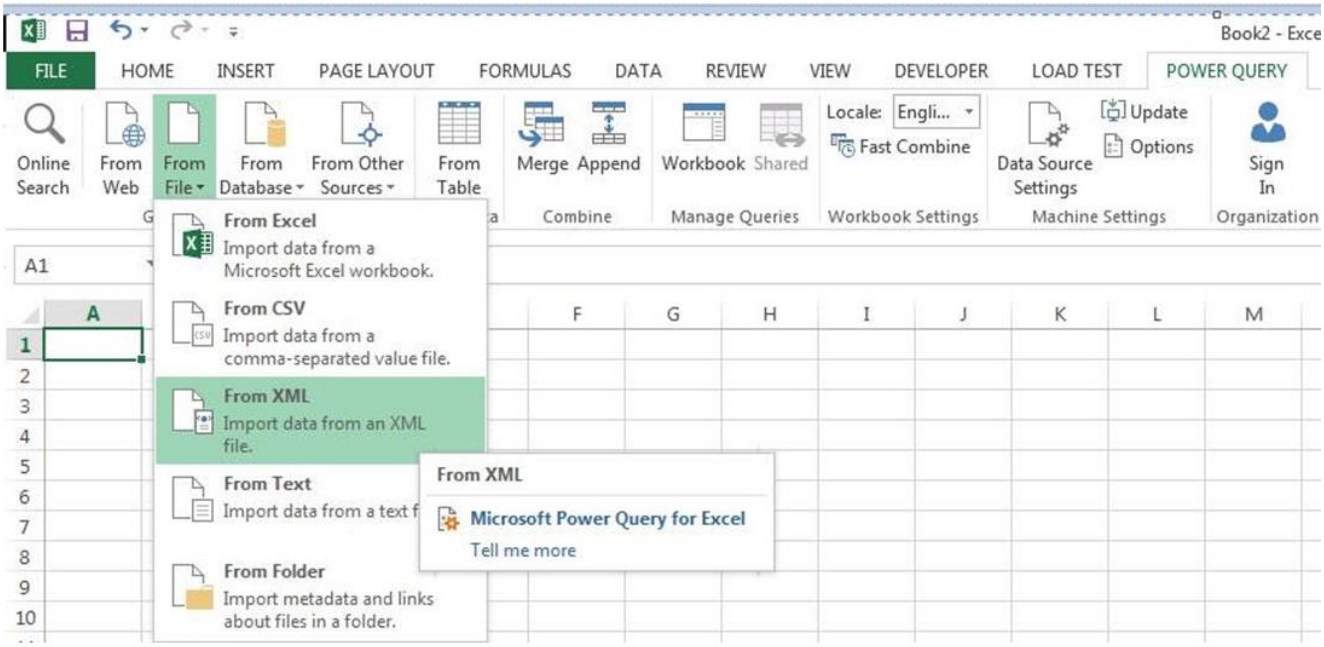
Since we do not care about the details here and just an account level view we could either

1. Ignore the repeated header information and Pivot the Details (I will show how to pivot the data using Power Query in a future post) this has some of the same perils as the manual cleanup above.
2. Or we can try to ignore the detail level information all together - which is what I will show today.

To accomplish this I started by exporting the report as XML.

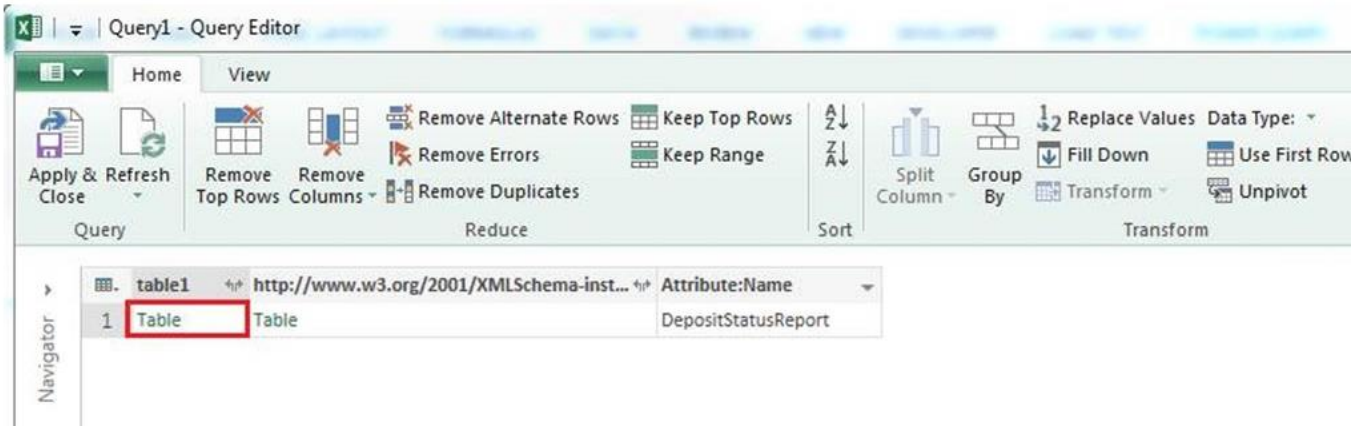


Then in excel I went to Power Query and specified I wanted to pull data from an XML file.



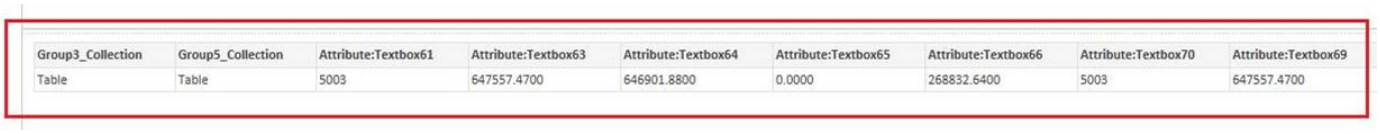
It will load the XML up into the query editor.

Now this will take a little exploration to find the right level / hierarchy you want, because as you see below the data it has loaded is not really helpful to me.



Where it says "table" specifies that there is a lower level to the XML you can explore.

If you click on it you get a preview at the bottom

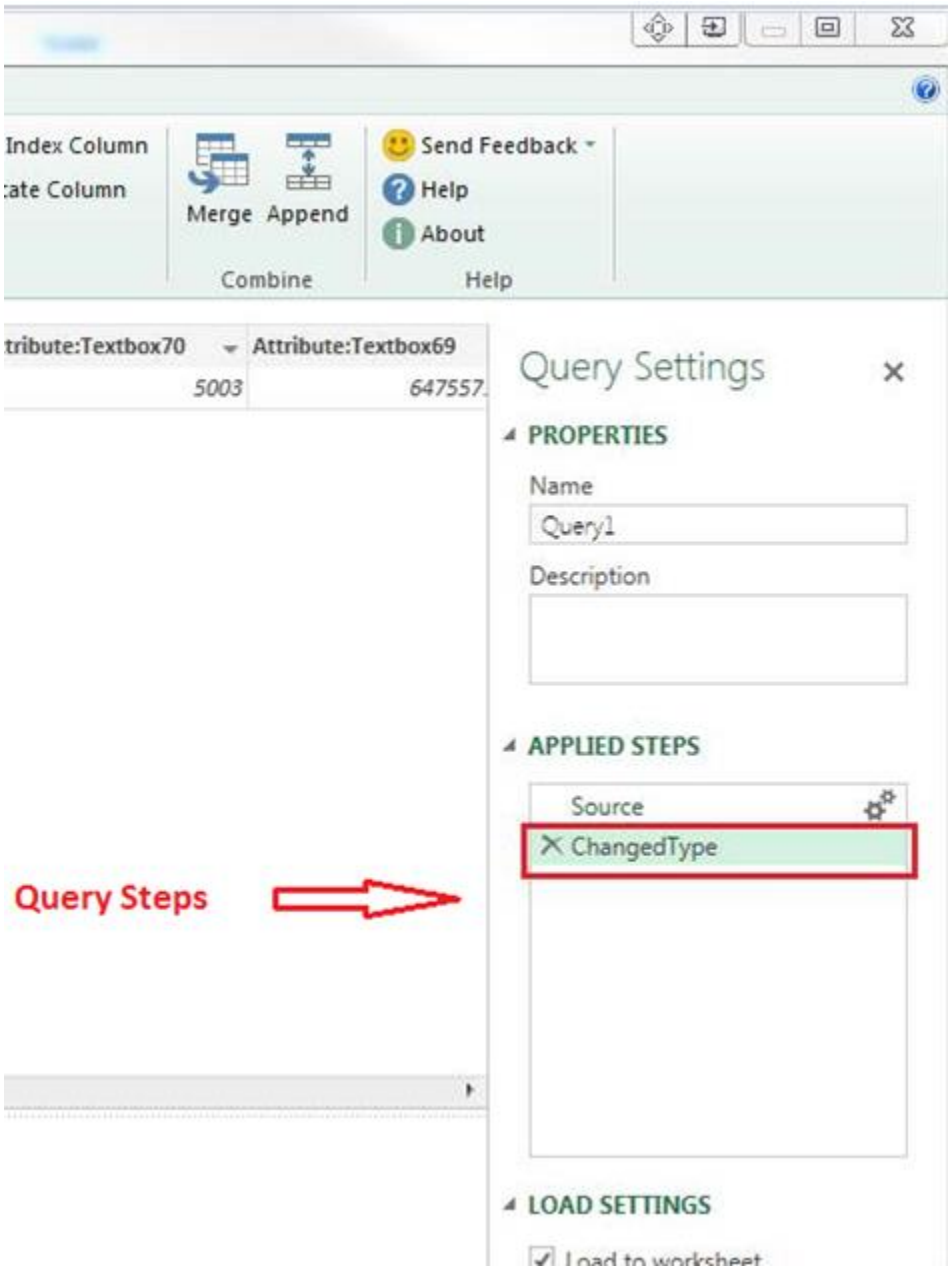


Group3_Collection	Group5_Collection	Attribute:Textbox61	Attribute:Textbox63	Attribute:Textbox64	Attribute:Textbox65	Attribute:Textbox66	Attribute:Textbox70	Attribute:Textbox69
Table	Table	5003	647557.4700	646901.8800	0.0000	268832.6400	5003	647557.4700

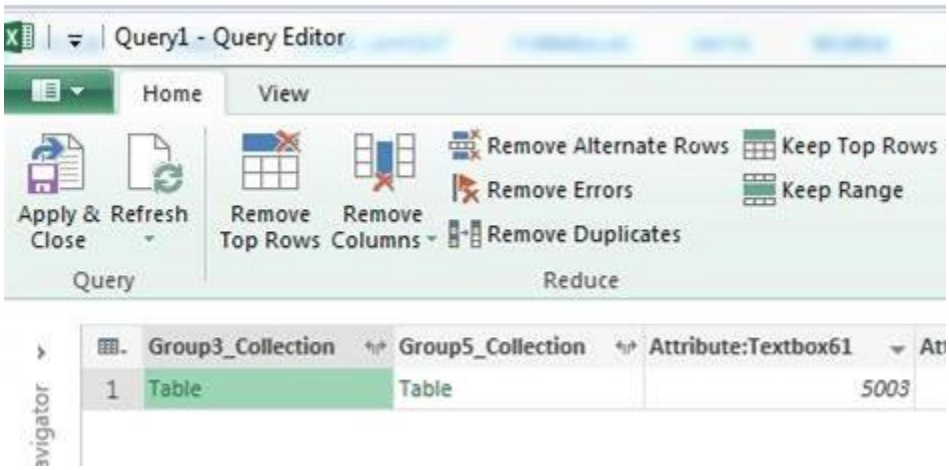
Oh great! I see below are more "table"s which means I have to explore more.

So I drilled down.

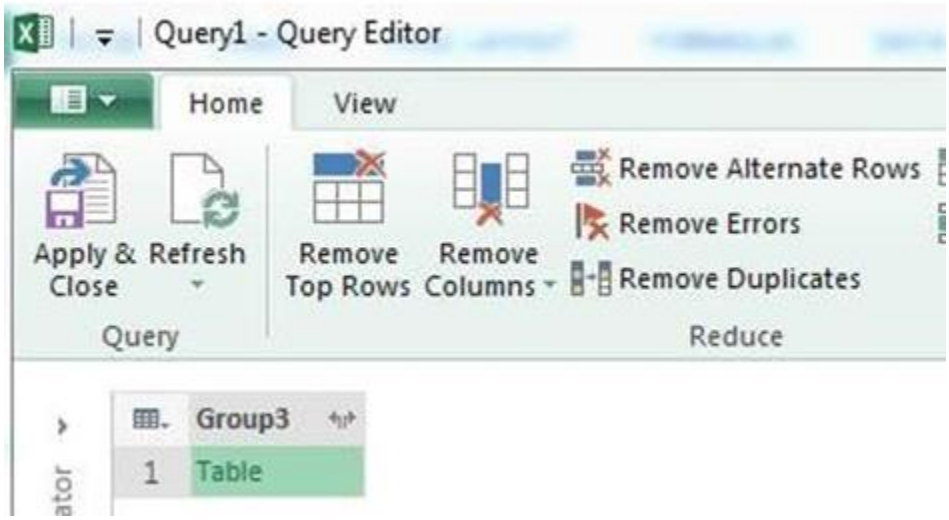
As I explore it adds steps to my "query" that I can delete later if I want to go back to a previous state.



I drill down into "Group3_collection" – whatever that is .. I am exploring.



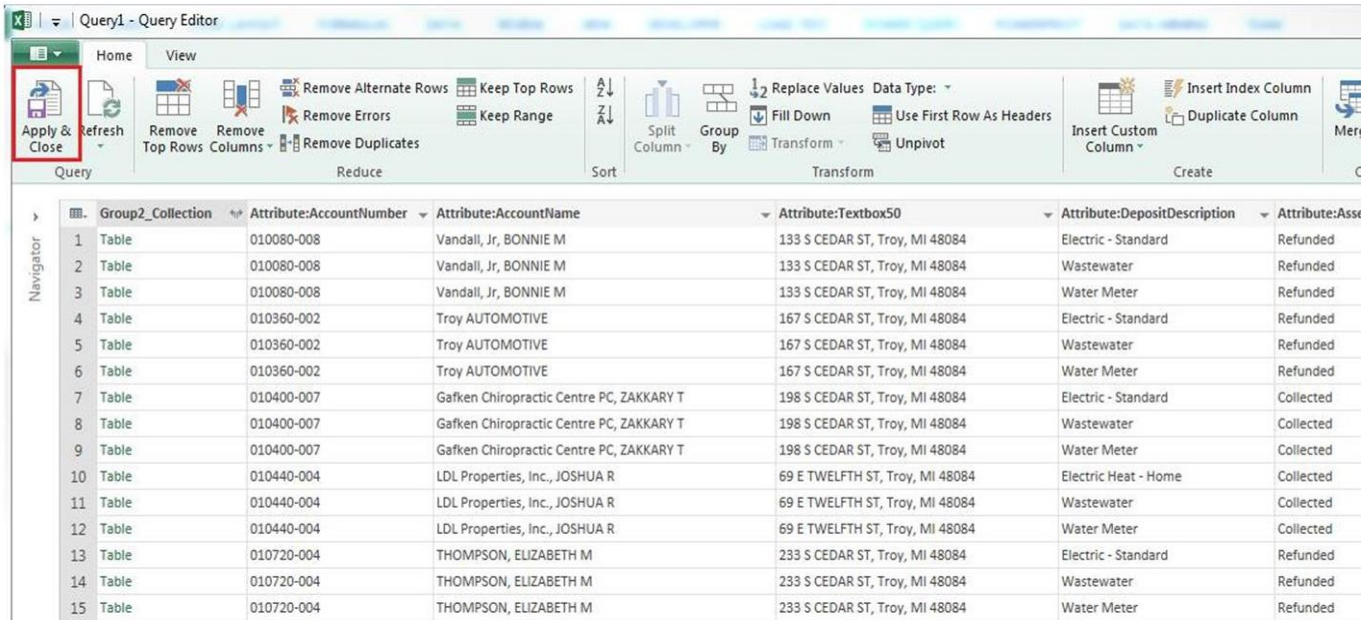
And I get yet another "Table".



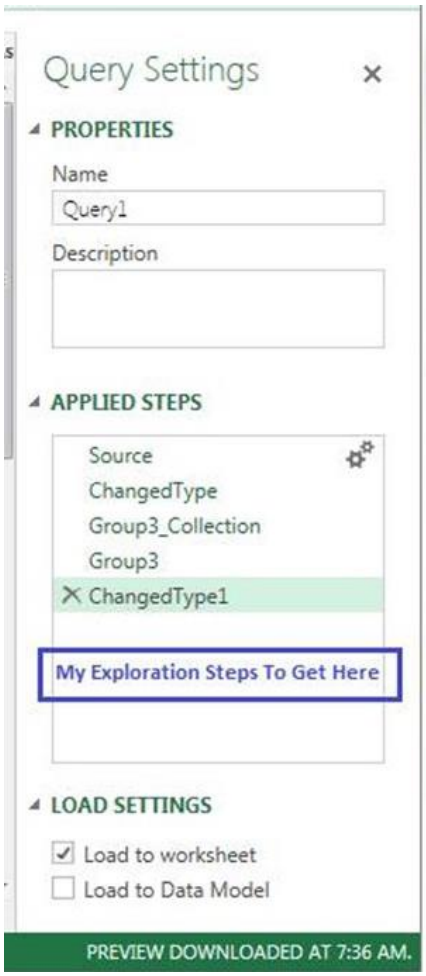
However, this time the preview looks very promising!

Group2_Collection	Attribute:AccountNumber	Attribute:AccountName	Attribute:Textbox50	Attribute:DepositDescription	Attribute:Assessed1	Attribute:As
Table	010080-008	Vandall, Jr, BONNIE M	133 S CEDAR ST, Troy, MI 48084	Electric - Standard	Refunded	100.0000
Table	010080-008	Vandall, Jr, BONNIE M	133 S CEDAR ST, Troy, MI 48084	Wastewater	Refunded	100.0000
Table	010080-008	Vandall, Jr, BONNIE M	133 S CEDAR ST, Troy, MI 48084	Water Meter	Refunded	60.0000

I drilldown into group 3 and it has now built a query for me over the XML file that contains exactly the data I want

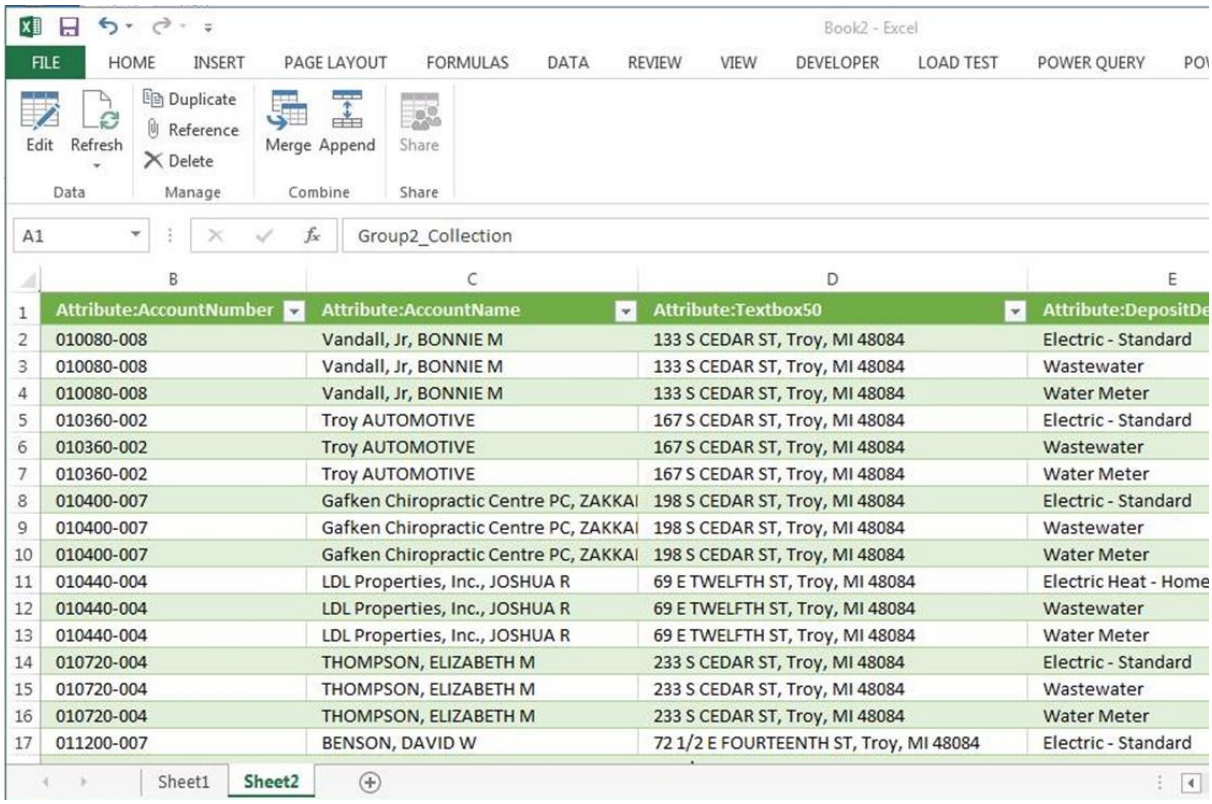


	Group2_Collection	Attribute:AccountNumber	Attribute:AccountName	Attribute:Textbox50	Attribute:DepositDescription	Attribute:Asse
1	Table	010080-008	Vandall, Jr, BONNIE M	133 S CEDAR ST, Troy, MI 48084	Electric - Standard	Refunded
2	Table	010080-008	Vandall, Jr, BONNIE M	133 S CEDAR ST, Troy, MI 48084	Wastewater	Refunded
3	Table	010080-008	Vandall, Jr, BONNIE M	133 S CEDAR ST, Troy, MI 48084	Water Meter	Refunded
4	Table	010360-002	Troy AUTOMOTIVE	167 S CEDAR ST, Troy, MI 48084	Electric - Standard	Refunded
5	Table	010360-002	Troy AUTOMOTIVE	167 S CEDAR ST, Troy, MI 48084	Wastewater	Refunded
6	Table	010360-002	Troy AUTOMOTIVE	167 S CEDAR ST, Troy, MI 48084	Water Meter	Refunded
7	Table	010400-007	Gafken Chiropractic Centre PC, ZAKKARY T	198 S CEDAR ST, Troy, MI 48084	Electric - Standard	Collected
8	Table	010400-007	Gafken Chiropractic Centre PC, ZAKKARY T	198 S CEDAR ST, Troy, MI 48084	Wastewater	Collected
9	Table	010400-007	Gafken Chiropractic Centre PC, ZAKKARY T	198 S CEDAR ST, Troy, MI 48084	Water Meter	Collected
10	Table	010440-004	LDL Properties, Inc., JOSHUA R	69 E TWELFTH ST, Troy, MI 48084	Electric Heat - Home	Collected
11	Table	010440-004	LDL Properties, Inc., JOSHUA R	69 E TWELFTH ST, Troy, MI 48084	Wastewater	Collected
12	Table	010440-004	LDL Properties, Inc., JOSHUA R	69 E TWELFTH ST, Troy, MI 48084	Water Meter	Collected
13	Table	010720-004	THOMPSON, ELIZABETH M	233 S CEDAR ST, Troy, MI 48084	Electric - Standard	Refunded
14	Table	010720-004	THOMPSON, ELIZABETH M	233 S CEDAR ST, Troy, MI 48084	Wastewater	Refunded
15	Table	010720-004	THOMPSON, ELIZABETH M	233 S CEDAR ST, Troy, MI 48084	Water Meter	Refunded



I can further refine my query here by deleting unwanted columns or adding new columns, but we can always do that later as well.

I "Apply and Close" and I now have a worksheet with the data I wanted.



	B	C	D	E
1	Attribute:AccountNumber	Attribute:AccountName	Attribute:Textbox50	Attribute:DepositDe
2	010080-008	Vandall, Jr, BONNIE M	133 S CEDAR ST, Troy, MI 48084	Electric - Standard
3	010080-008	Vandall, Jr, BONNIE M	133 S CEDAR ST, Troy, MI 48084	Wastewater
4	010080-008	Vandall, Jr, BONNIE M	133 S CEDAR ST, Troy, MI 48084	Water Meter
5	010360-002	Troy AUTOMOTIVE	167 S CEDAR ST, Troy, MI 48084	Electric - Standard
6	010360-002	Troy AUTOMOTIVE	167 S CEDAR ST, Troy, MI 48084	Wastewater
7	010360-002	Troy AUTOMOTIVE	167 S CEDAR ST, Troy, MI 48084	Water Meter
8	010400-007	Gafken Chiropractic Centre PC, ZAKKAI	198 S CEDAR ST, Troy, MI 48084	Electric - Standard
9	010400-007	Gafken Chiropractic Centre PC, ZAKKAI	198 S CEDAR ST, Troy, MI 48084	Wastewater
10	010400-007	Gafken Chiropractic Centre PC, ZAKKAI	198 S CEDAR ST, Troy, MI 48084	Water Meter
11	010440-004	LDL Properties, Inc., JOSHUA R	69 E TWELFTH ST, Troy, MI 48084	Electric Heat - Home
12	010440-004	LDL Properties, Inc., JOSHUA R	69 E TWELFTH ST, Troy, MI 48084	Wastewater
13	010440-004	LDL Properties, Inc., JOSHUA R	69 E TWELFTH ST, Troy, MI 48084	Water Meter
14	010720-004	THOMPSON, ELIZABETH M	233 S CEDAR ST, Troy, MI 48084	Electric - Standard
15	010720-004	THOMPSON, ELIZABETH M	233 S CEDAR ST, Troy, MI 48084	Wastewater
16	010720-004	THOMPSON, ELIZABETH M	233 S CEDAR ST, Troy, MI 48084	Water Meter
17	011200-007	BENSON, DAVID W	72 1/2 E FOURTEENTH ST, Troy, MI 48084	Electric - Standard

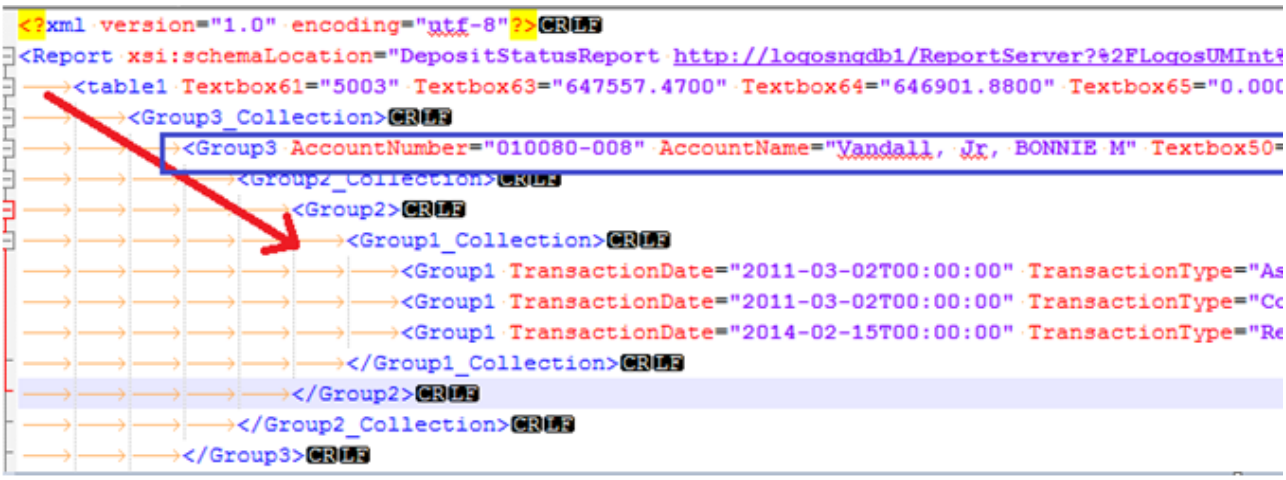
From here what I would normally do is load this to data to Power Pivot so I can further refine and slice and dice, but I will cover that in the next tip.

This is something to keep in the back of your mind if you run into this type of situation again or ever need to do some data extraction with XML.

Power Query has a lot of uses and is also very good at parsing data in columns apart, pivoting data, pulling in data from multiple sources including web pages, etc.

I just wanted to also specify that you do not need to blindly explore through the data.

You can create yourself a map by just opening the XML document and looking at the hierarchies. Some XML may not be "prettyfied" and you can use 3rd party tools to help you there. There are good add-ins for Notepad++ for example.



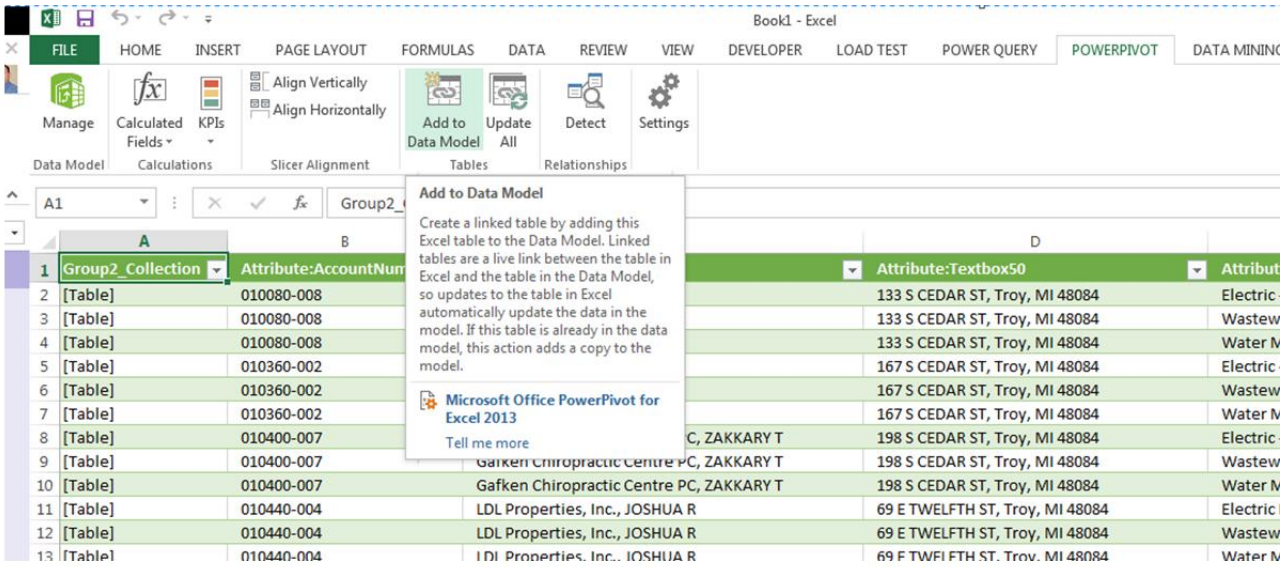
LOADING EXCEL DATA INTO POWER PIVOT

Power Pivot is a Self Service BI tool in Microsoft's Business Intelligence product suite. It allows advanced users and domain experts to link data together and perform analysis against it.

> *In Excel 2010 Power Pivot was a separate add in you had to download. In Excel 2013 it ships with excel, but is just disabled by default. Check out this link to [Enable Showing Power Pivot in Excel 2013 Under Advanced Options].*

Previously, we used **Power Query to load up some data from a Collapsible SSRS report** that we exported as XML and we were just getting ready to try and show you how to load it into Power Pivot.

To accomplish this I go to the excel sheet I want to load and on the **Power Pivot** tab and click on "Add to Data Model"

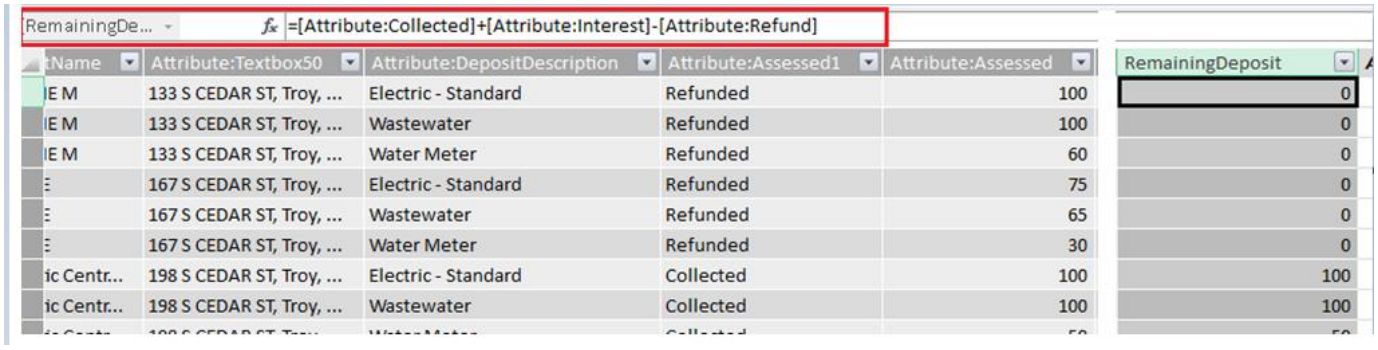


This loads my query data to Power Pivot.

Power Pivot gives me a lot of options such as hiding columns, creating my own calculations, and even relating this data to other data in the model.

I am going to create a single measure and call it Remaining Deposit by scrolling to the end where it says "Add Column" and Re-naming it.

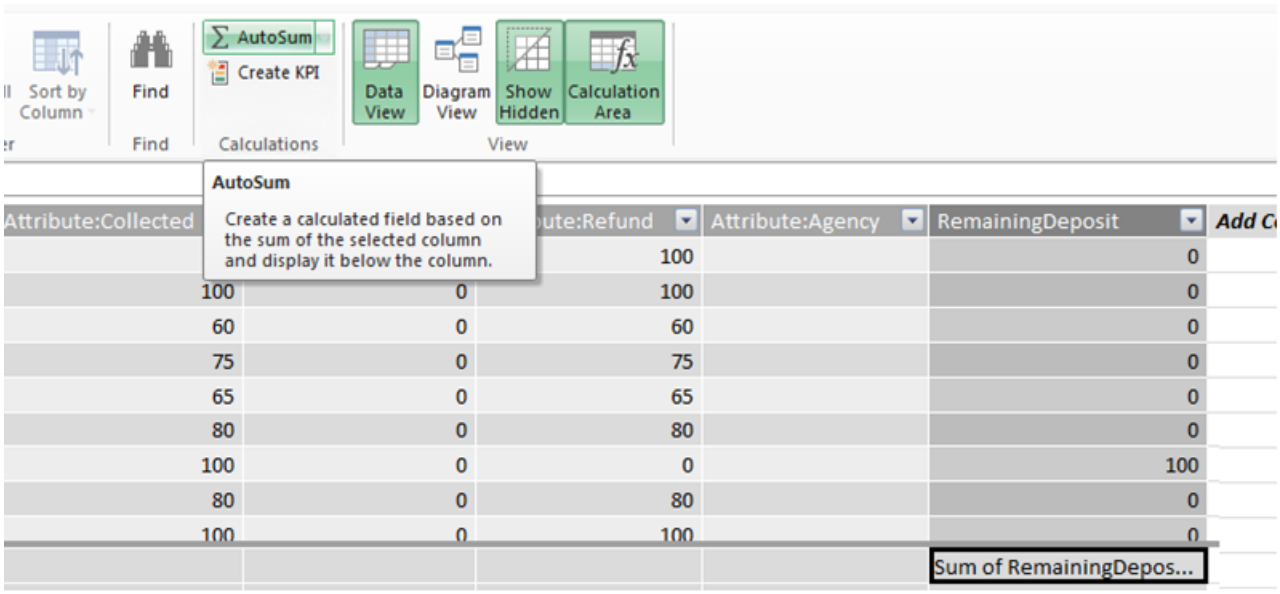
I will make Remaining Deposit equal Collected + Interest - Refund amounts which can be done with formulas you are very comfortable using in Excel.



:Name	Attribute:Textbox50	Attribute:DepositDescription	Attribute:Assessed1	Attribute:Assessed	RemainingDeposit
IE M	133 S CEDAR ST, Troy, ...	Electric - Standard	Refunded	100	0
IE M	133 S CEDAR ST, Troy, ...	Wastewater	Refunded	100	0
IE M	133 S CEDAR ST, Troy, ...	Water Meter	Refunded	60	0
E	167 S CEDAR ST, Troy, ...	Electric - Standard	Refunded	75	0
E	167 S CEDAR ST, Troy, ...	Wastewater	Refunded	65	0
E	167 S CEDAR ST, Troy, ...	Water Meter	Refunded	30	0
ic Centr...	198 S CEDAR ST, Troy, ...	Electric - Standard	Collected	100	100
ic Centr...	198 S CEDAR ST, Troy, ...	Wastewater	Collected	100	100

Once I am done creating my formula it will populate the column with values for me.

Now if I want to get Totals I can simply click anywhere in the "Remaining Deposit" column and click the AutoSum button while on the **Table Tools** tab.

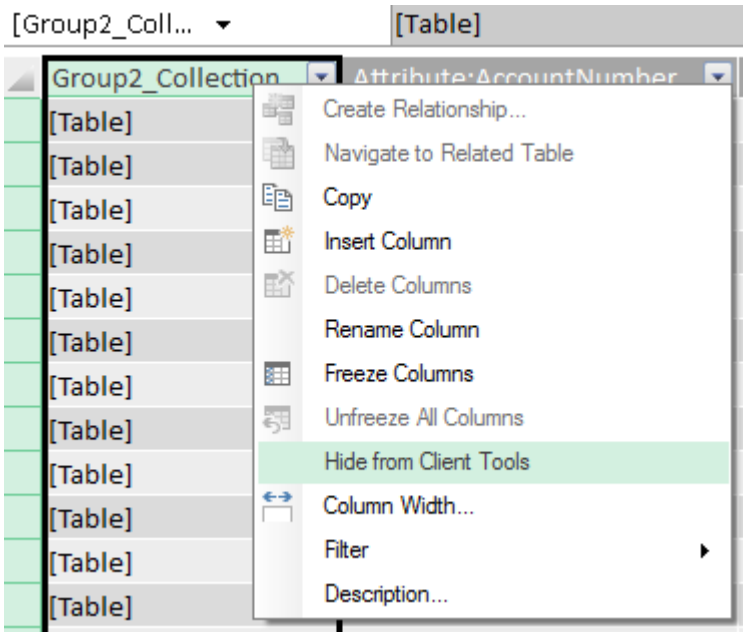


It created a "Sum of RemainingDeposit" measure. I will Rename it to Total Remaining Deposit in the formula field.

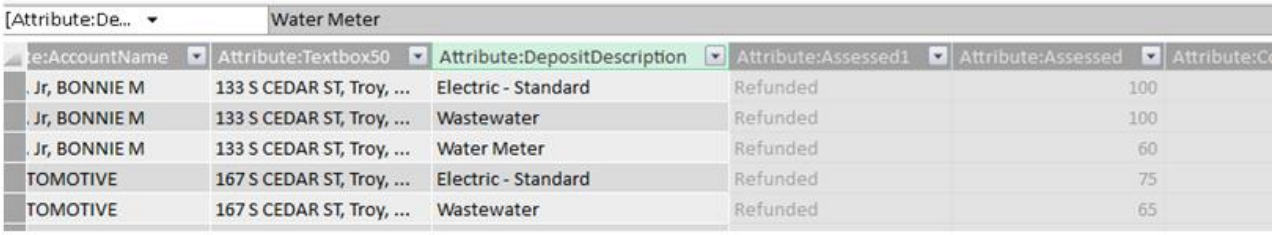
Before

After

Now I will just hide all of the columns I do not want to see such as "Group2_Collection" and all of the Amount Columns by Right clicking on the column name and selecting "Hide From Client Tools".



You can see it greys out all of the columns that I have hidden.

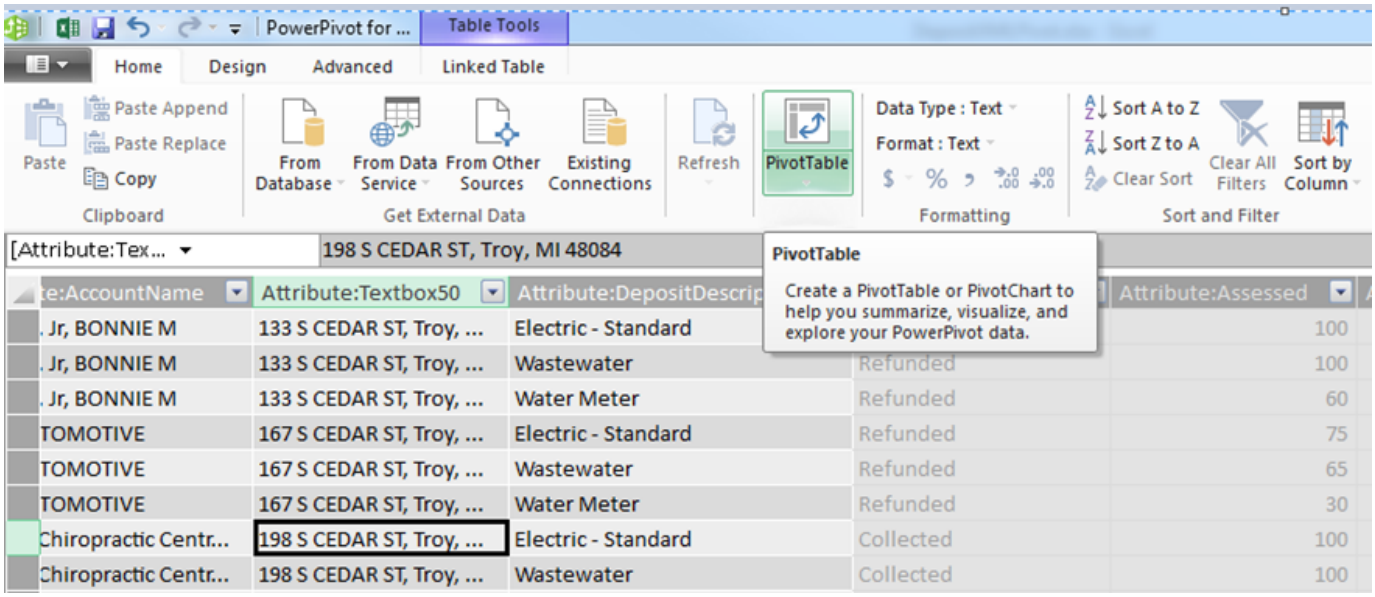


[Attribute:De...	Water Meter				
e:AccountName	Attribute:Textbox50	Attribute:DepositDescription	Attribute:Assessed1	Attribute:Assessed	Attribute:C
. Jr, BONNIE M	133 S CEDAR ST, Troy, ...	Electric - Standard	Refunded	100	
. Jr, BONNIE M	133 S CEDAR ST, Troy, ...	Wastewater	Refunded	100	
. Jr, BONNIE M	133 S CEDAR ST, Troy, ...	Water Meter	Refunded	60	
TOMOTIVE	167 S CEDAR ST, Troy, ...	Electric - Standard	Refunded	75	
TOMOTIVE	167 S CEDAR ST, Troy, ...	Wastewater	Refunded	65	

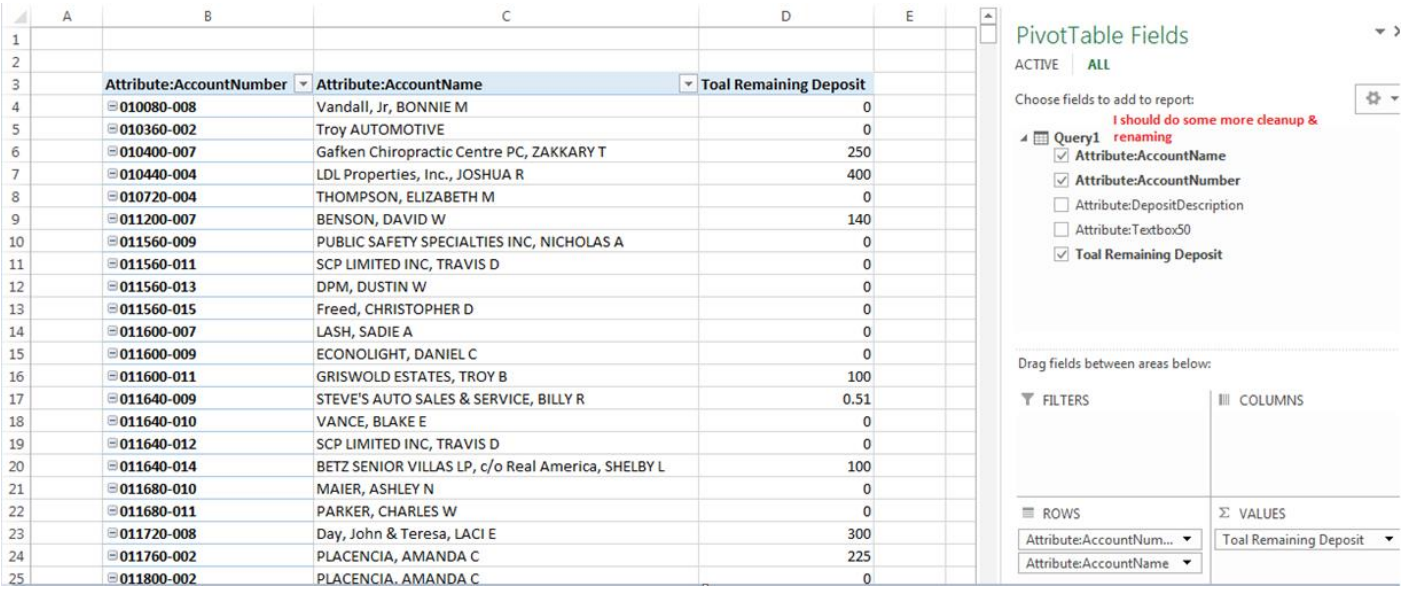
Don't forget to save your work.

Now I will create a pivot table out of my cleaned up and user friendly data.

To do this just simply click on the "Pivot Table" button (go ahead and create it on a new sheet when asked).



Now you can interact with it just like a normal pivot table.



Attribute:AccountNumber	Attribute:AccountName	Toal Remaining Deposit
010080-008	Vandall, Jr, BONNIE M	0
010360-002	Troy AUTOMOTIVE	0
010400-007	Gafken Chiropractic Centre PC, ZAKKARY T	250
010440-004	LDL Properties, Inc., JOSHUA R	400
010720-004	THOMPSON, ELIZABETH M	0
011200-007	BENSON, DAVID W	140
011560-009	PUBLIC SAFETY SPECIALTIES INC, NICHOLAS A	0
011560-011	SCP LIMITED INC, TRAVIS D	0
011560-013	DPM, DUSTIN W	0
011560-015	Freed, CHRISTOPHER D	0
011600-007	LASH, SADIE A	0
011600-009	ECONOLIGHT, DANIEL C	0
011600-011	GRISWOLD ESTATES, TROY B	100
011640-009	STEVE'S AUTO SALES & SERVICE, BILLY R	0.51
011640-010	VANCE, BLAKE E	0
011640-012	SCP LIMITED INC, TRAVIS D	0
011640-014	BETZ SENIOR VILLAS LP, c/o Real America, SHELBY L	100
011680-010	MAIER, ASHLEY N	0
011680-011	PARKER, CHARLES W	0
011720-008	Day, John & Teresa, LACI E	300
011760-002	PLACENCIA, AMANDA C	225
011800-002	PLACENCIA, AMANDA C	0

Power Query, Power Pivot, Power View, and Power map are powerful Self Service BI tools for the Business Analyst.