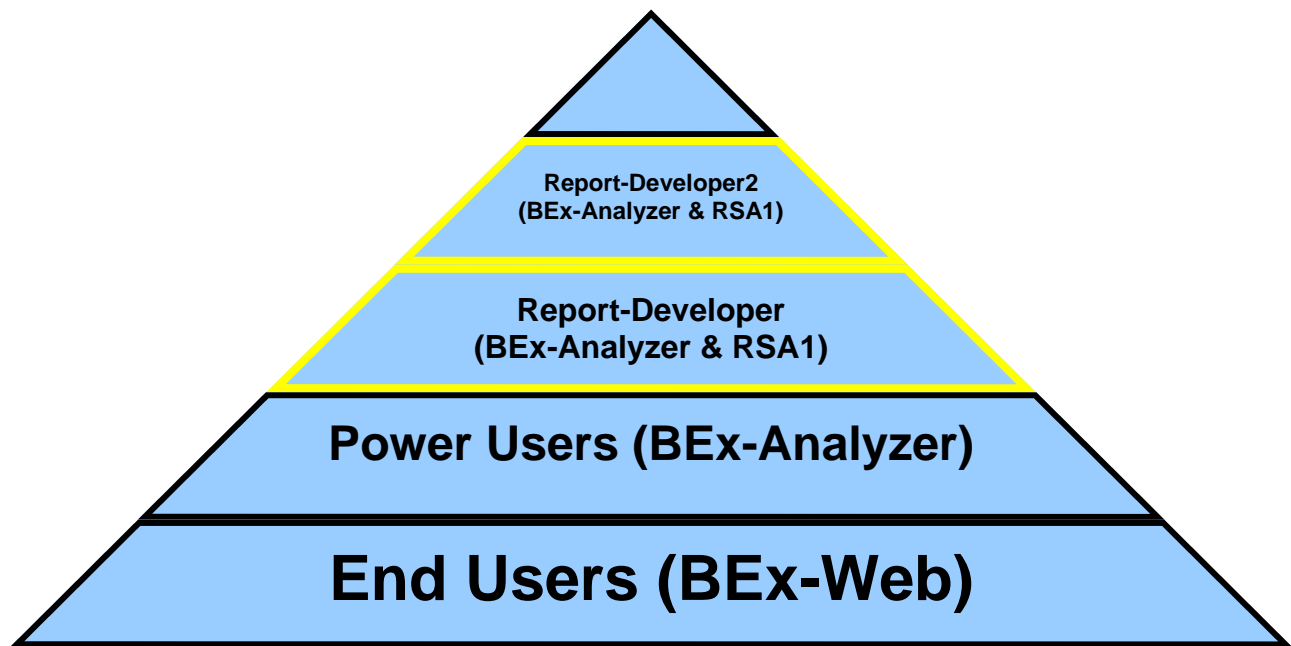# SAP Business Information Warehouse

Business Explorer Analyzer
for Power Users
(BEX_305)

Objective

This course is intended to familiarize users with the SAP Business Information Warehouse (BW): Business Explorer-Analyzer (BEx-Analyzer). After attending this class, you should be able to create, run, modify and save your BEx Queries.

You will have to pass a skills test before you are given the Power User Role in Production.

Business Warehouse: *Overview*

This is the Business Information Warehouse, also known as BW, which is like our current Data Warehouse in Oracle. Most of data we will be using is coming from R/3 (the SAP solution to replace our current mainframe environment) and imported into BW and placed in an ODS (Operational Data Store); which is equivalent to a flat file. From ODSs, InfoCubes are generated; which are summarized data. We're coming in through the Enterprise Portal to get to Business Explorer (BEx) to produce reports from BW. There are other third party tools; like WebFOCUS, SAS, Crystal, … that can also be used to produce reports from the BW data… for an extra cost. The third-party tools being talked about at this time are WebFOCUS and SAS. Currently the only reporting tool going against the BW data is BEx.

University of Kentucky BW Reporting Overview

Here is an overview of the roles associated with BW Reporting…

End Users: Most of our users will be using BEx-Web. They can only use queries that are assigned to a role they are assigned to. They are locked into using the Business Explorer-Web Application.

Power Users: These users have the ability to generate their own queries for ad-hoc reporting in BW production. They have more responsibility for Saved Views in order to help End Users.

Report-Developer: A Report-Developer generates queries in the BW Development environment, which will eventually get transported to production to be shared by a group of users. The functionality is very similar to the Power User. Queries are created the same way, no matter which environment you are in. One of the differences is the Technical Names.

Report-Developer2: A Report-Developer2 must also have the role for a Report-Developer. Their added functionality is to be able to create **global** objects (examples: structures, variables, restricted key figures, calculated key figures, and hierarchies).

Other (top of pyramid):
>	**Report-Publisher:** Assigns queries to roles and prepares transports to QA and Production.
>	**BW Admin & BW Developer:** Configuration, monitors system, creates InfoProviders, activates objects, …

| X indicates functionality allowed in the role. | | | |
	End-User	Power-User	Report-Developer	Report-Developer2
Run Query	X	X	X	
Run Query view	X	X	X	
Create Query view (starting with Z....)	X	X		
Change Query view (starting with Z....)		X		
Delete Query view (starting with Z....)		X		
Create Query view (starting with V....)			X	
Change Query view (starting with V....)			X	
Delete Query view (starting with V....)			X	
Display Query view	X	X	X	
Create Query (starting with Y....)		X		
Change Query (starting with Y...)		X		
Delete Query (starting with Y...)		X		
Create Query (starting with Q....)			X	
Change Query (starting with Q...)			X	
Delete Query (starting with Q...)			X	
Display Query	X	X	X	
Create Global Structure				X
Change Global Structure				X
Display Structure	X	X	X	
Create Variables				X
Change Variables				X
Display Variables	X	X	X	
Create Global Restricted Key Figures				X
Change Global Restricted Key Figures				X
Display Restricted Key Figures	X	X	X	
Create Global Calculated Key Figures				X
Change Global Calculated Key Figures				X
Display Calculated Key Figures	X	X	X	
Display Hierarchy			X	
Display Hierarchy (data)	X	X	X	
RSRT analyze query & comp			X	
RSRT2 analyze web item			X	
RSA1 display			X	

(Left vertical label: In BW)

Role Functionality

These are the functions of a Power User

- Run, Create, Save, Change, Delete and Display a *Query*
- Run, Create, Save, Change, Delete and Display a *Query View*
- Display *Structures, Variables, Restricted Key Figures, Calculated Key Figures* and *Hierarchies*
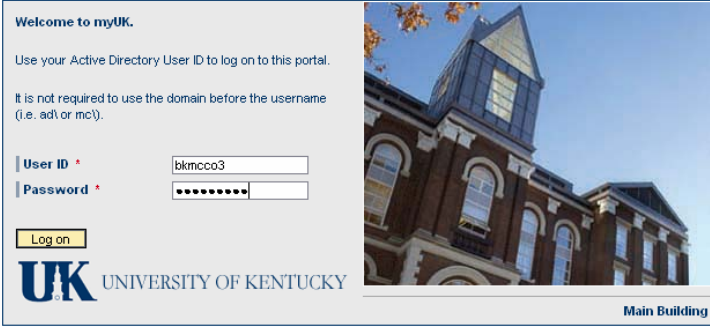
Within the Power User name space

In this Class we are only covering the basics. Much more functionality exists, but that the objective is to introduce you to the tool.

What is Required to Access BEx-Analyzer?

- **Web browsers** that support DOM level 2 (with dynamic generation of DOM objects), ECMA-262 script, HTML 4.0, and CSS 1.0. The reference Web browsers are the Microsoft Internet Explorer (MS IE) and the Netscape Navigator (NS) in the current Windows implementations (**MS IE 6.x and NS 6.x**). Instances of these Web browsers on other systems, for example, Apple Macintosh or Linux, may behave differently.

- An **Active Directory Services Account** (domain is ad or mc) from IT User Accounts that is used to log onto the Enterprise Portal to get to SAP. (*This is the same account used with Outlook and Microsoft Exchange)*

- **SAPGUI**
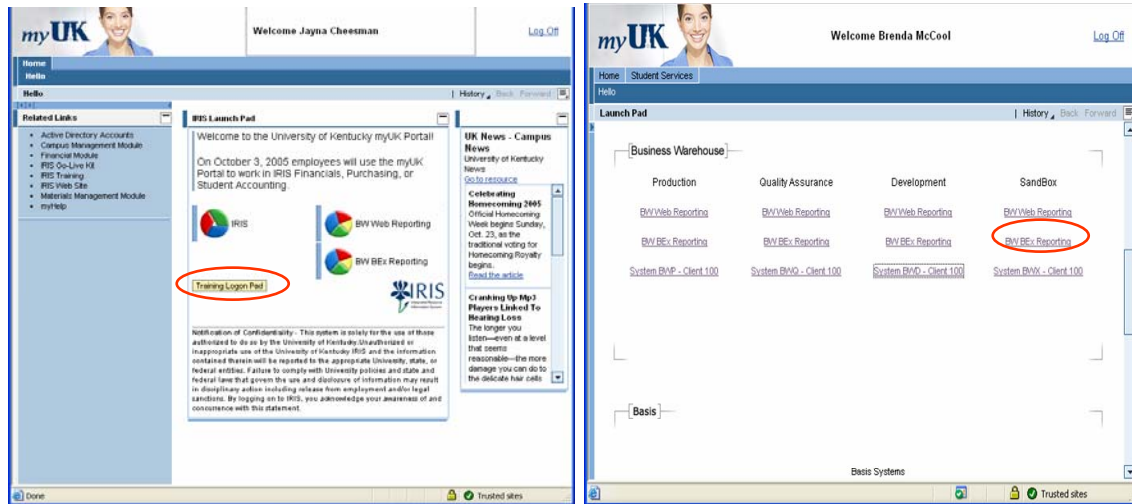
- **Microsoft Excel**

Installing SAPGUI

- Log onto **http://download.uky.edu** with your U-Connect userid and password

- Search for **SAPGUI**

- Download

- Restart your computer

myUK

- Logon myUK, *https://myuk.uky.edu/irj/portal*

- Key in your *Active Directory Services User Id* and *Password*

- Log on

Getting Through the Portal

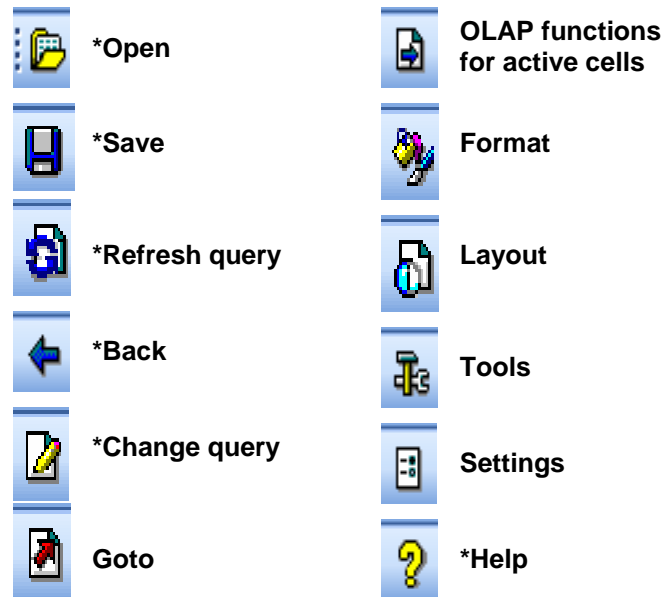Click on the **Training Logon Pad** button to get to the sandbox.

Click the *BW BEx Reporting* Link under Business Warehouse - Sandbox

Please remember that we are using the BW sandbox for training only. The data is not updated and the InfoProviders do not have all the InfoObjects that are in production. This class is to teach you how to produce your own queries and to manage query views.
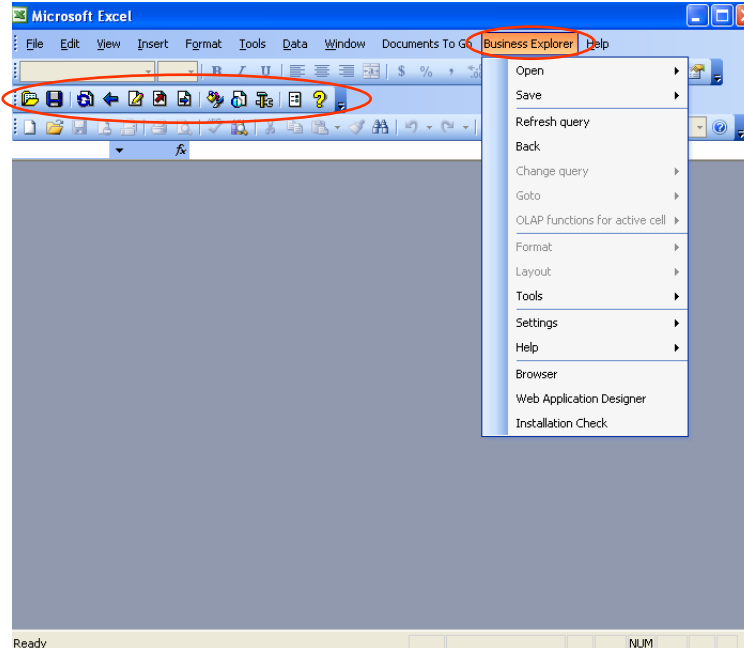
BEx Analyzer

The BEx Analyzer opens up Microsoft Excel as you know it, with an enhanced BW menu and toolbar. It doesn't always show up in the same place in your group of toolbars. You can move it around if you want to. If you already have an active Excel session open, the new toolbar and menu will be added to your open session.

|			
📂	***Open**	📄	**OLAP functions for active cells**
💾	***Save**	🖌️	**Format**
🔄	***Refresh query**	📑	**Layout**
⬅️	***Back**	🔧	**Tools**
📝	***Change query**	📋	**Settings**
📄	**Goto**	❓	***Help**

BEx Analyzer: *Toolbar*

This course will be going over the functions with an asterisk. The rest of them will be for you to play around with when you have some "spare" time.

Note for Report Developers: In Development, you will need to follow the Query Guidelines to get the query published to a role. So if you add formatting or change a setting not in the guidelines, you will need to explain the need for the addition or exclusion; otherwise, it will be changed to meet the guidelines.

📂 ***Open**

- **Workbooks** – *Not available* using *portal/AD authentication*
- **Queries** – Collection of a selection of characteristics and key figures (InfoObjects) for the analysis of the data in an InfoProvider.
- **Saved Views** – The saved changes made to a query view.
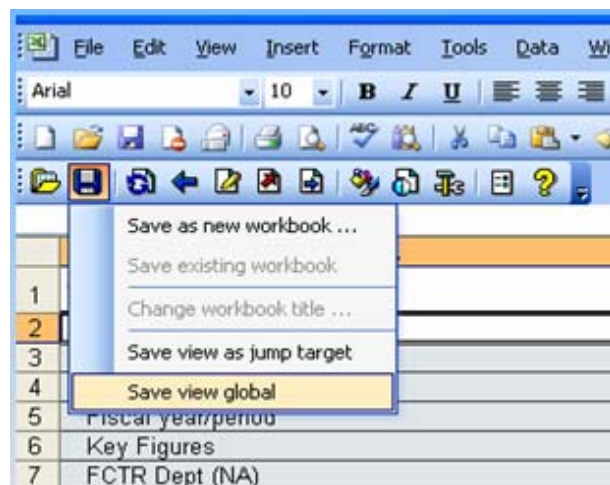- **Exceptions** - *Not available*
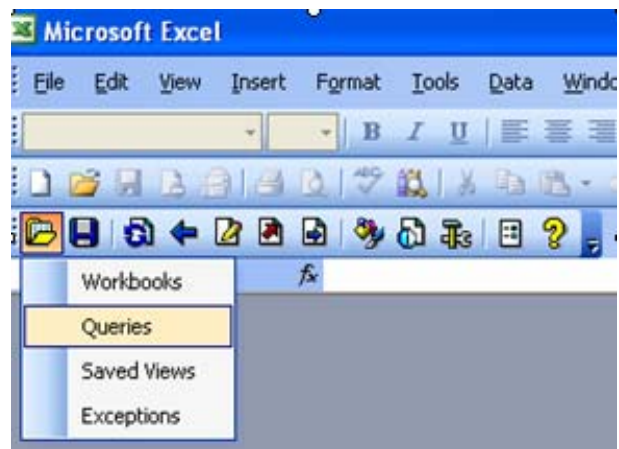
*Save

• **Save as new workbook…** – Workbooks are _Not available_ using portal/AD _authentication_

• **Save view as jump target** – To use this option, you must have a saved workbook; therefore, _Not available_.

• **Save view global** – This will save your view so you can recall it later.

To use **_Save_**, you must have a query run (report generated in BEx Analyzer).

*Refresh query

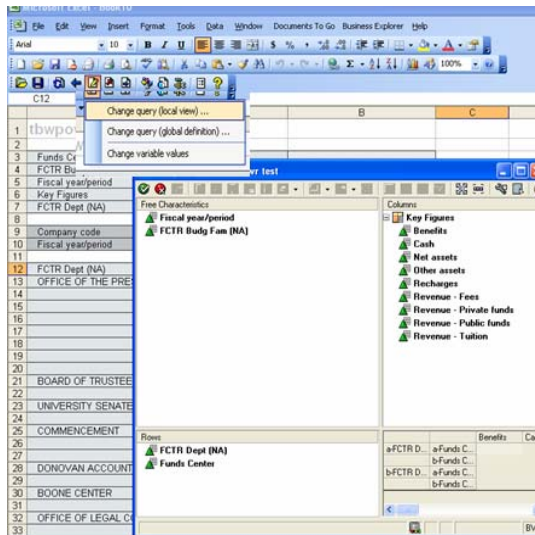Brings up the parameter window for you to adjust the values of the variables.

*Back

Go back one step. While you are making changes to a view of a query, you may want to undo the last thing you did. To do this, just hit the **_Back_** button.
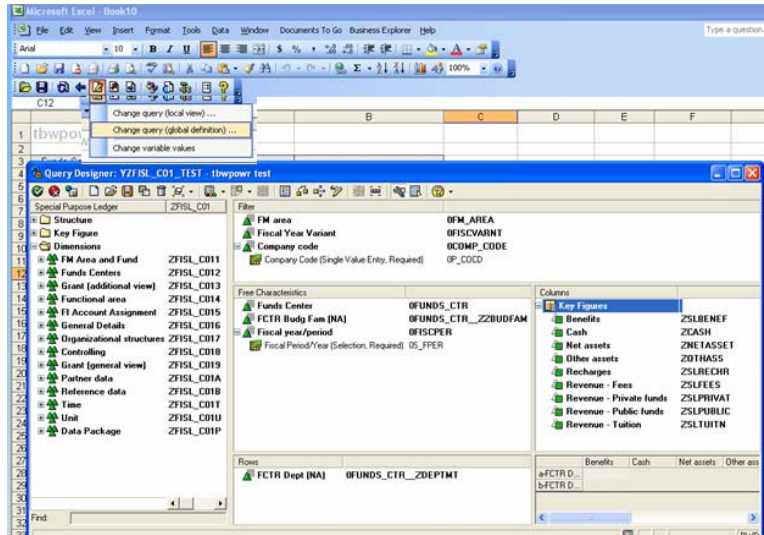
*Change query

Change query (local view)…
Gives you the ability to create your own calculated and restricted key figures for the current query view. It does not allow you to add Key Figures or Characteristics.

Change query (global definition)…
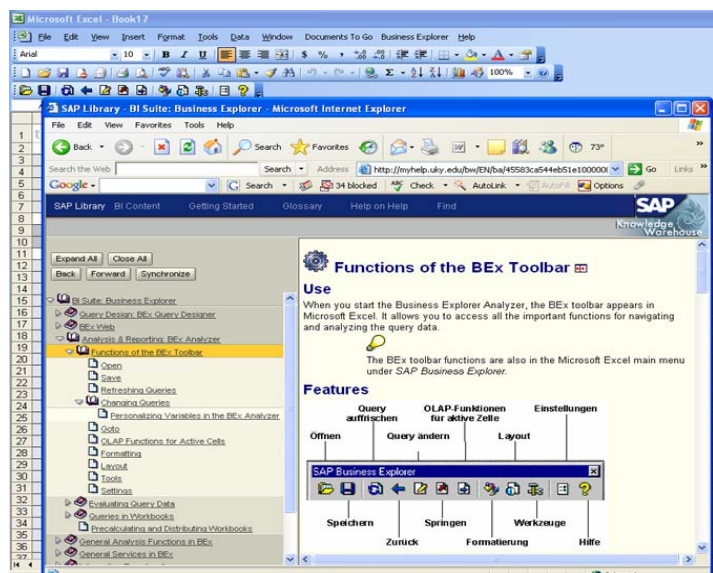Gives you the ability to add Key Figures and/or Characteristics.

Change variable values
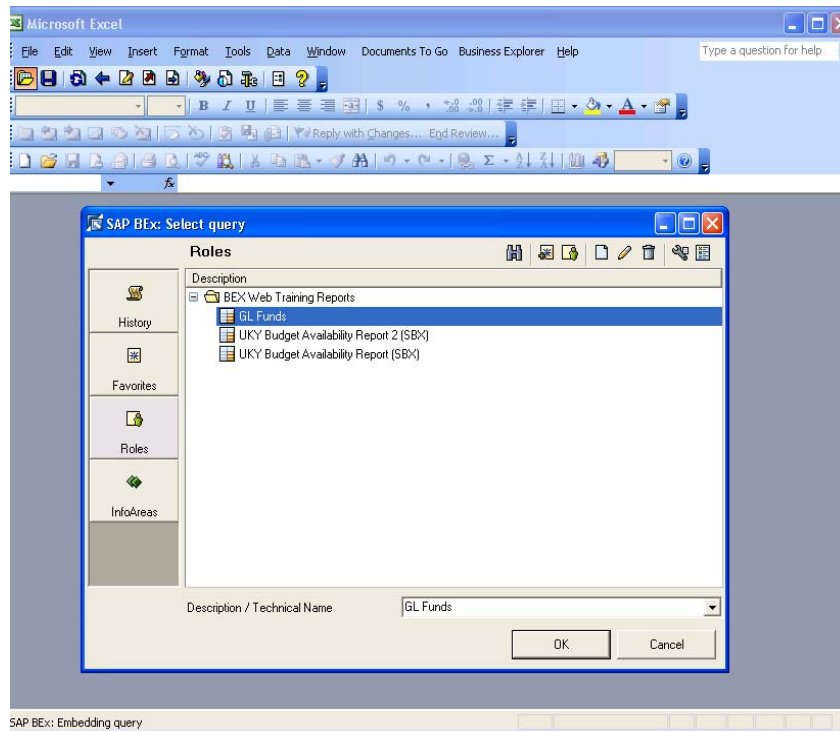Takes you back to the parameter screen, so you can change variable values.

*Help

Use the *Help* button to get to the SAP Library, where you can get more information about the BEx Analyzer and the other functions that we will not be going over in this class.

Query Designer: *Select query*

To get to the Query Designer, click the **Open** icon and select **Queries**

History, Favorites, Roles & InfoAreas are where your available queries are located.

History – Your history… the queries you have opened or have run.
Favorites – Your queries only… the queries you created.
Roles – Shared queries – you *cannot* change these. These are the queries that are developed in BW Development and assigned to roles for End Users to run.
InfoAreas – Shared queries – you *can* change these. These are the queries that are developed in BW Production by all Power Users.

Toolbar

Find – Helps you find a particular query… this can be useful when you have access to a number of queries and need to find one quickly.
Add to Favorites – You have the ability to copy a shared query to your Favorites. It is not advisable to do this from "Roles", since it is a duplicate and you will still not be able to change this query.
Enter in Role – Function not available to Power Users (it is for Report Publishers)
**New** – Create a new query
Change – After selecting a query, you can go into the change mode of the Query Designer.
Delete – Deletes the selected query (you do not have the ability to delete queries from "Roles")
Technical Names On/Off – This allows you to see the technical names of everything (roles, queries, …). This will come in handy when communicating to the BW Reporting Group.
Properties On/Off – Gives you information about the query you have selected.

Note: This window is where you will be adding, changing and deleting queries and query views.
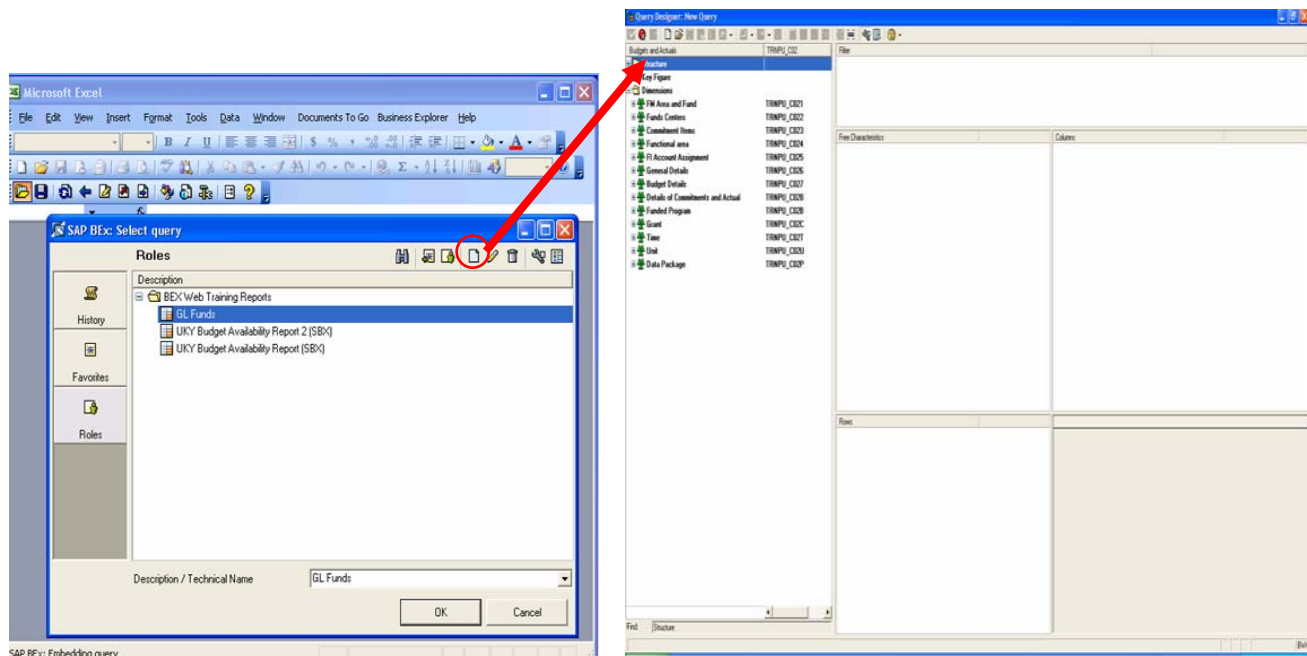
Query Designer: *New query*

If you have a query selected and you click on the *New* icon (the paper), the InfoCube that the selected query uses is the one that will be used to create your new query. In the illustration above, the query **GL Funds** uses the **Budget and Actuals** InfoCube.

Exit the Query Designer using the second icon from the left (red ball with an "x" in it) and *Open* / *Queries*, then press the *New* icon again (without selecting a query first).
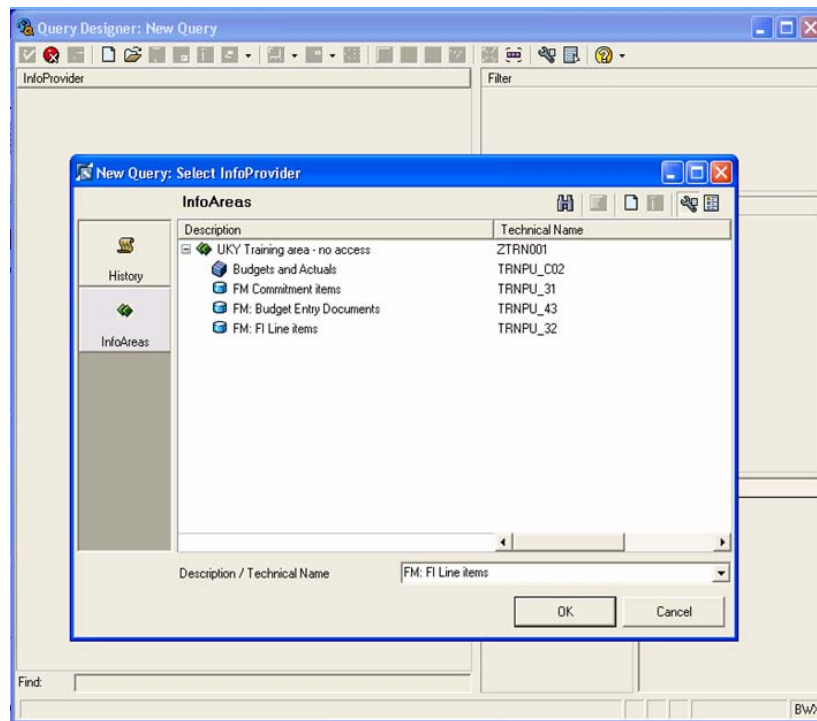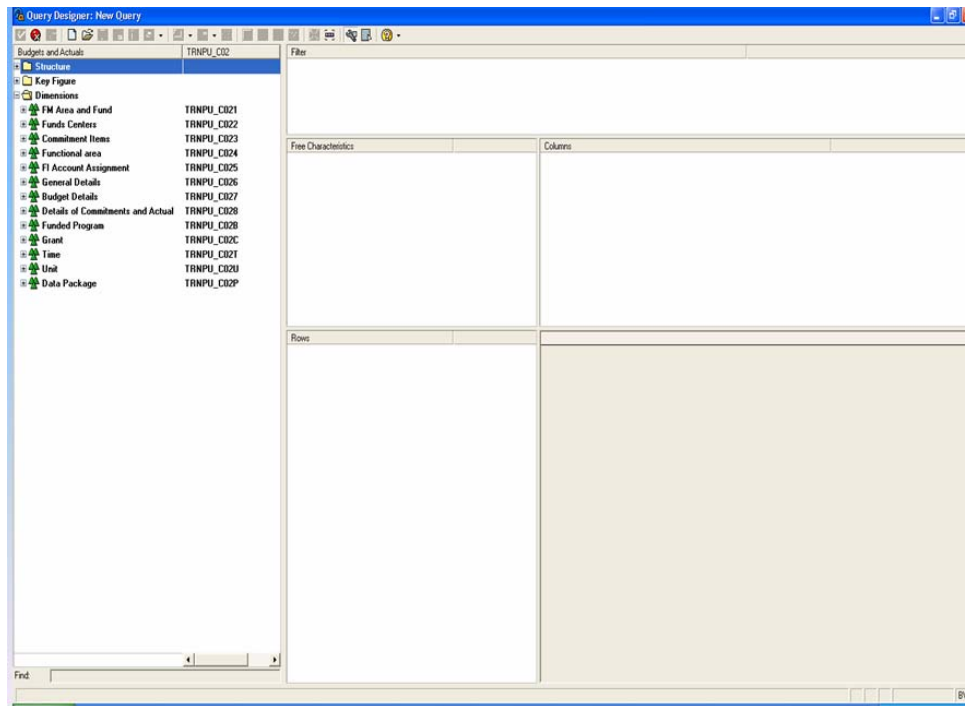
Query Designer: *New query*

Click on the **Technical Names** icon (not absolutely needed)

Click on **InfoAreas** – An InfoArea is a grouping of InfoProviders (ODSs, InfoCubes, etc.) and can be a grouping of InfoObjects (InfoObject Catalog)

Drill-down to the InfoProvider you want to create a query with and select it… click on **OK**.

Query Designer

Parts of the Query Designer

- Toolbar – on my example, the Technical Names are already turned on

- Description of the **InfoProvider** in the left window

  - **Structure:** Combinations of characteristics and key figures of the InfoProvider.

    - **Local Structures:** Structures that have not been saved as reusable that can only be used in one query.

    - **Reusable Structures:** A structure that has been saved as reusable can be used in several queries for the same InfoProvider.

  - **InfoObjects** (key figures and characteristics)

    - **Key Figures**

      - May contain **Calculated Key Figures**

      - May Contain **Restricted**

    - **Characteristics** are under the "Dimensions" folder

      - The icon (three triangles) under the "Dimensions" folder is the one for InfoArea

- Window for **Filters**

- Window for **Free Characteristics**

- Window for **Columns**

- Window for **Rows**

- Window to show a **rough draft** of what your report will look like

The windows are adjustable. Click on the *Technical Name* icon.
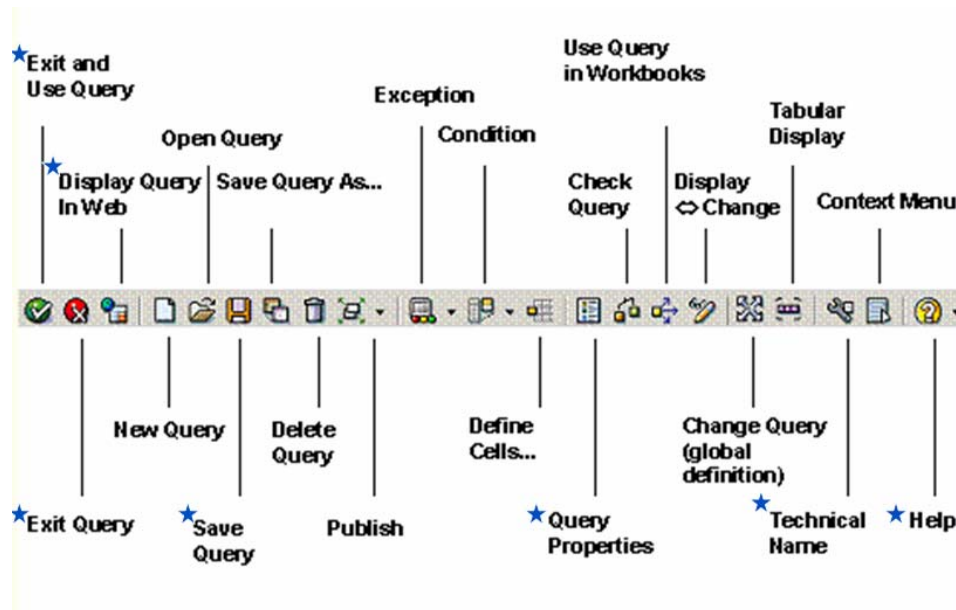
Query Designer: *Toolbar*

URL: http://help.sap.com/saphelp_nw04/helpdata/en/f1/0a569ae09411d2acb90000e829fbfe/content.htm

Exit and Use Query – Exits the Query Designer and produces the report within Excel (not the web). If you have saved your query, it will check your query for errors and open a window so you can name your query.

Exit Query – Exits the Query Designer without running a report

Display Query In Web – This runs your query in a browser
Note: This is how the EndUsers see their reports. It is suggested to use this view of your report, especially if you are a Report Developer.

New Query – Use to start a new query

Open Query – Use to open an existing query

Save Query – Use to save your query

Save Query As… - Use to duplicate the open query

Delete Query

Publish – Not Available to PowerUsers

Exception – Create an exception for your query

Condition – Create a condition for your query

Define Cells – Not in the scope of the class… if you want to know more about this option, go to the URL for the Query Designer Toolbar.

Query Properties – Set the properties of the query

Check Query – Checks the syntax of your query

Use Query in Workbooks – As stated before, we cannot use workbooks with Active Directory Services authentication

Display⇔ Change – Toggles from display mode to change mode

Change Query (global definition) – Change an existing query

Tabular Display – Resulting report will be in a tabular format

Technical Name – Toggles on/off the technical names

Context Menu – Shows the Context Menu for what is selected

Help – SAP Library

Note: This course will go over those designated with a blue star.

Query Designer

To see what makes up a **Structure**
- Drag and Drop the **Structure** to the <u>**Columns**</u> window

- Right-click on each object that makes up the **Structure**

- Select *Edit* from the context menu

To see what makes a **Calculated** or **Restricted Key Figure**
- Right-click the one you want to look at

- Select *Edit* from the context menu

Characteristics – like "Fund"
- The blue icon with an "I" in it – If you select "Fund" for your query, "FM area" will be automatically selected also. "Fund area" helps to define the "Fund". You may keep it or not. You could put it in the *Filter* window and restrict it.

- The icon that looks like a sale tag = **Attributes** – These are master data attributes – they are for display only.

- The yellow box with red plus and minus signs on it = **Characteristic Value Variables** – These are the parameters available for you to use.

  - To see what the **variable** is (like mandatory / optional) – Right-click and **Display**

  - If you need a new variable/parameter, send your request to BWRequests@email.uky.edu.

- The light blue box with an equal sign in it = **Values** – Gives you all the possible values for the characteristic. Example for "Fund" is on the right.
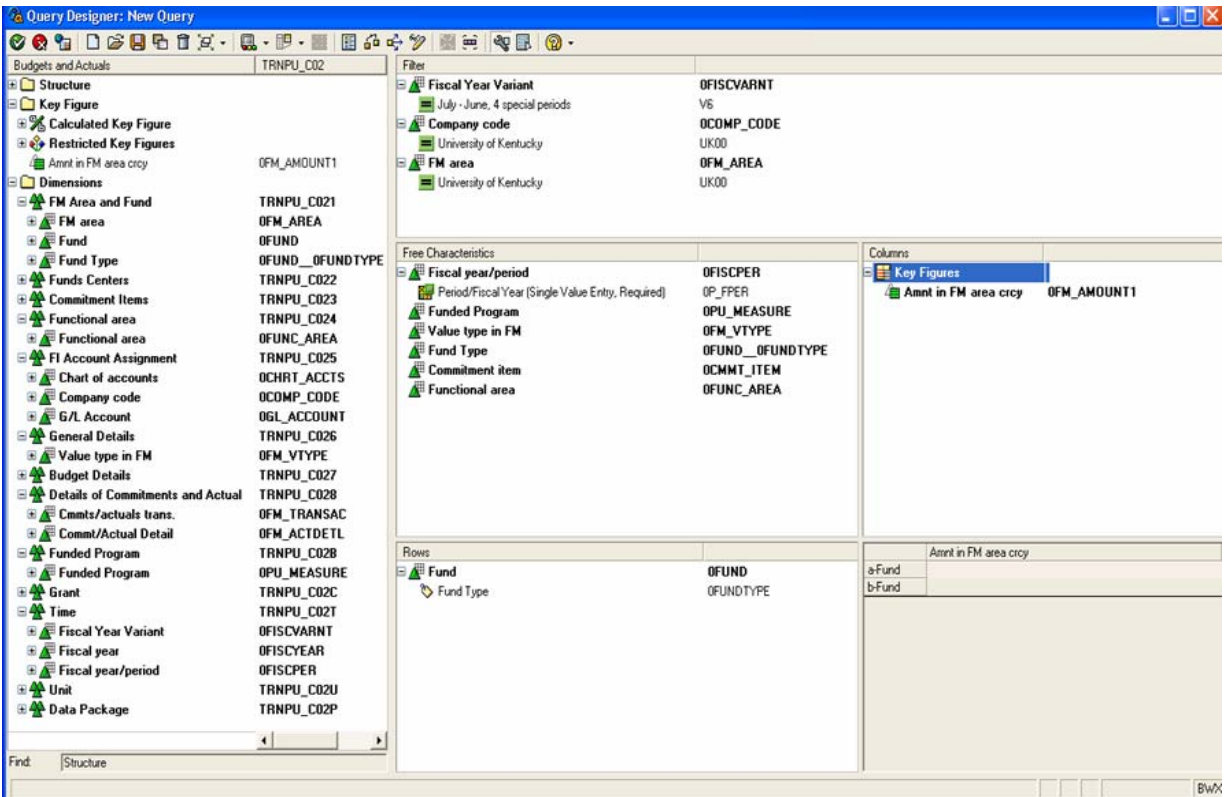
Power Users: *Create Query*

To select an InfoObject, Drag and Drop to the window you want it to go into.

You must put in the "Company Code"
- Located in the "FI Account Assignment"
- Put in the **Filter** window
- Restrict to UK00

It is best to restrict the amount of data by a time period – like "**Fiscal** year/period"

Select "Fiscal year/period" (variable 0P_FPER), "Funded Program", "Value type on FM", "Fund Type", "Commitment item" & "Functional area" as **Free Characteristics**

Select "Fund" and its **attribute** "Fund Type" for the **Row**

Select **Key Figure** "Amt in FM area crcy" for the **Column**

When you add InfoObjects to **Rows** and **Columns,** take a look at the change in the **Rough Draft** window.

Move "Fiscal Year Variant" to the **Filter** window – Restrict to V6
Move "FM area" to the **Filter** window – Restrict to UK00

If you decide you don't want an InfoObject you have used, just drag and drop it back to the left window. You can also move the InfoObjects to a different window – like **Free Characteristics** to **Rows**

**Save** your query– Click on the 6th icon from the left (looks like a diskette)
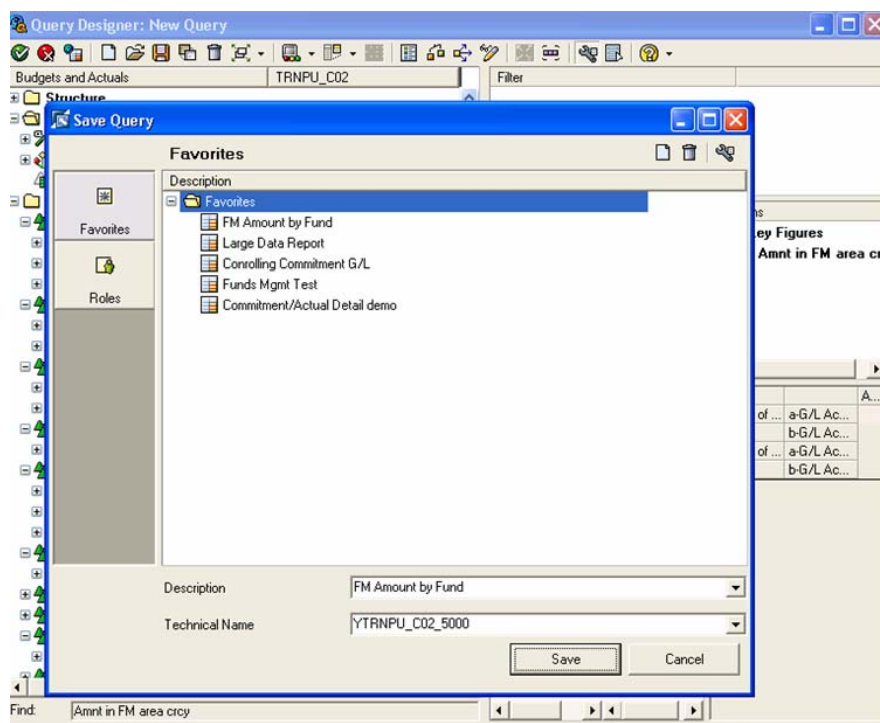
Power Users: *Save Query*

Turn on **Technical Names**

In Favorites
- **Description**: Make it as descriptive as possible
- **Technical Name**: Y*cube_userid_nnnn*
    - "Y" is a must for Power Users
    - "cube" – technical name of the InfoProvider
    - underscore
    - "userid" – your Active Directory Services userid
    - underscore
    - "nnnn" – The next number available for that InfoProvider where the technical name begins with 'Y'… starting number is 5000
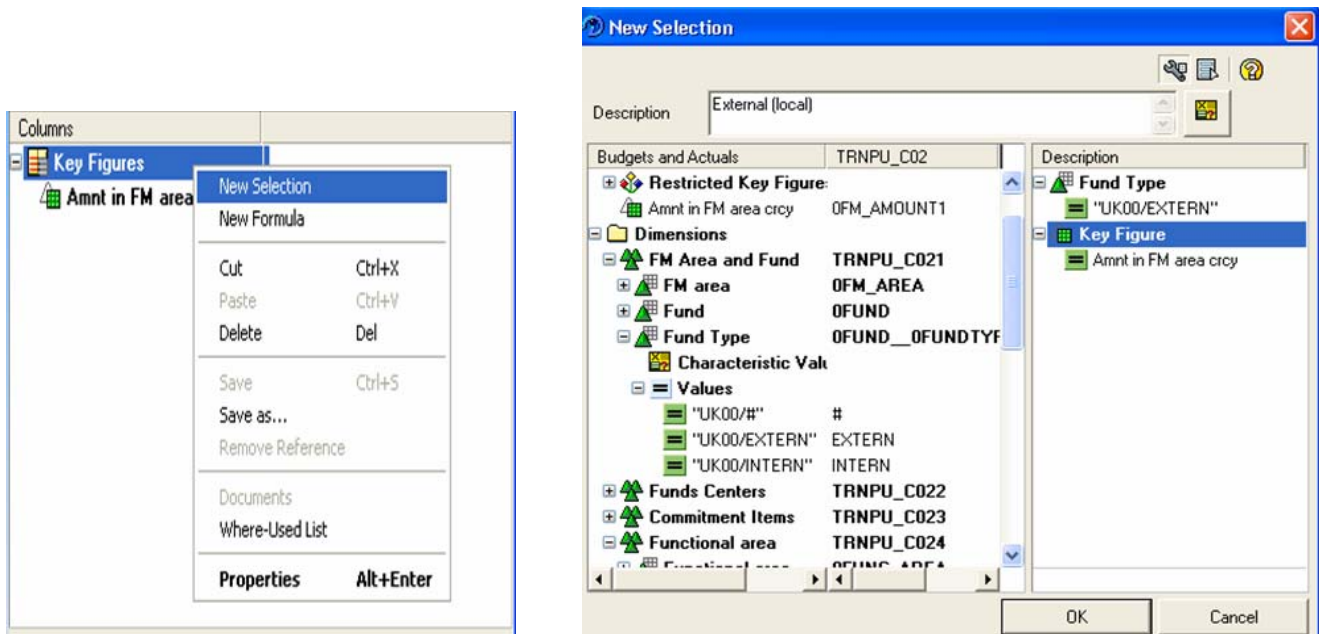
Power Users: *Create Query*
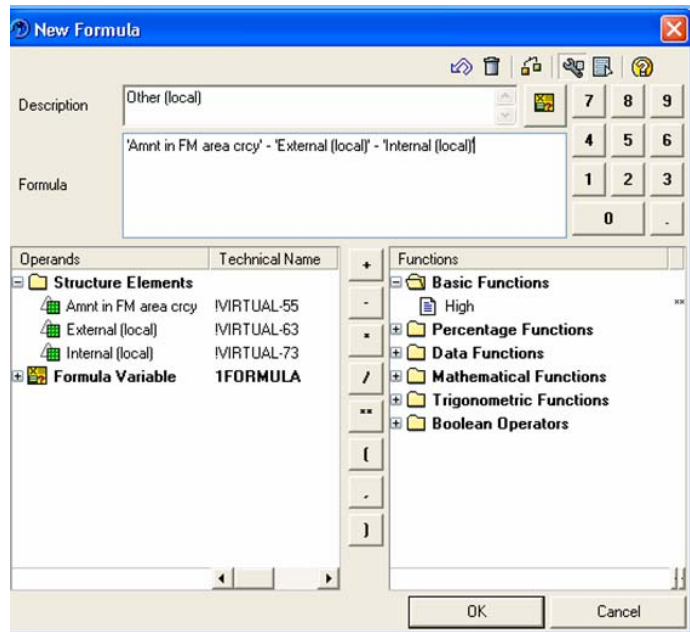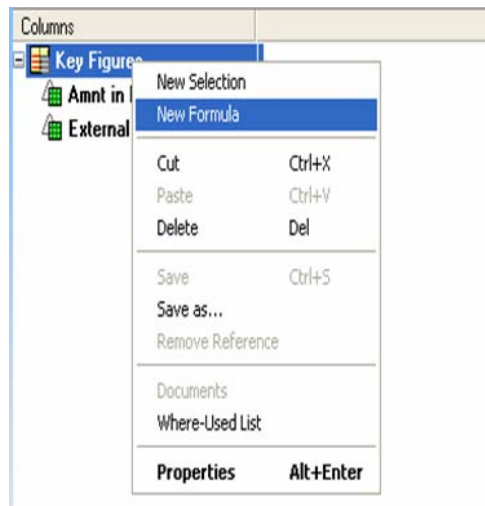### Generate a Local Restricted Key Figure

Right-click on **Key Figures**

Select **New Selection**

- Fill in a description for your new **restricted key figure**.
- From the left window, Drag & Drop the **characteristic**(s) and the **key figures** you want restricted to the right window.
- Click *OK* when

Notice that it does not have a **Technical Name**. This **key figure** is local to this query only.

Exercise:
Create "Internal" – Local **Restricted Key Figure**
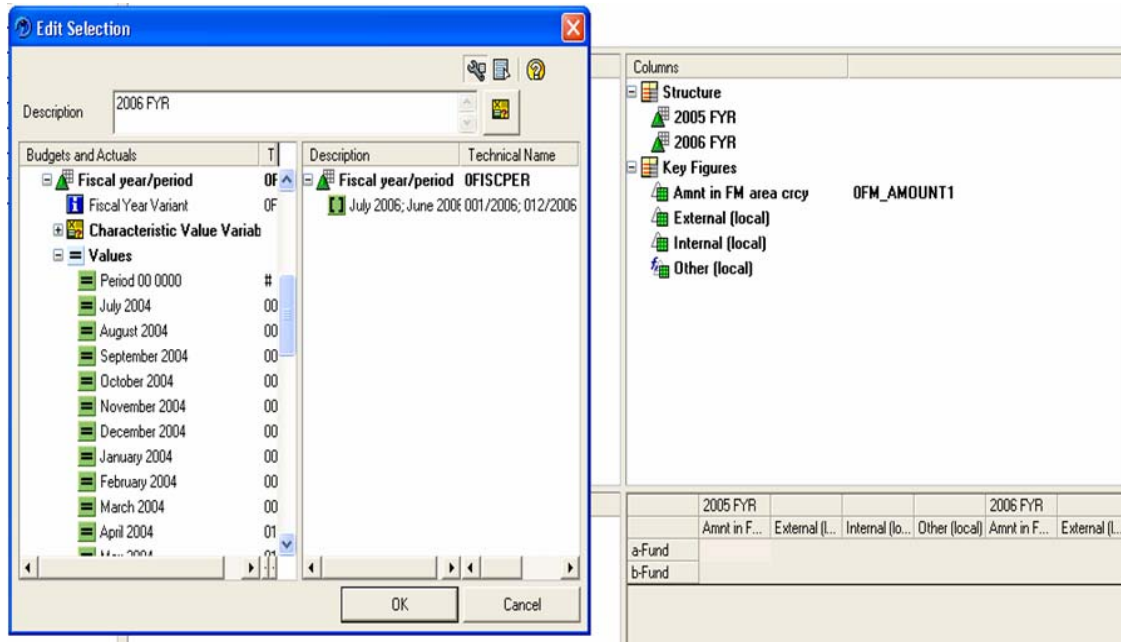
Power Users: *Create Query*
Generate a Local Calculated Key Figure

Right-click on **Key Figures**

Select **New Formula**

- Fill in a description for your new **calculated key figure**

- From the left window, Drag & Drop or Double-click the **Structure Elements** when you need one. You can also type in the formula. You can also take a look at the available functions.

- Click *OK* when completed

Notice that it does not have a **Technical Name**. This **key figure** is also local to this query only.

Power Users: *Create Query*
Generate a Local Structure

- You can right-click on **Columns** or **Rows**

- Select **New Formula** or **New Selection**

- Fill in a description for the new field in your **structure**

- Click **OK** when completed

Notice that it does not have a **Technical Name**. This **structure** is also local to this query only.
You can have only one **structure** per query.
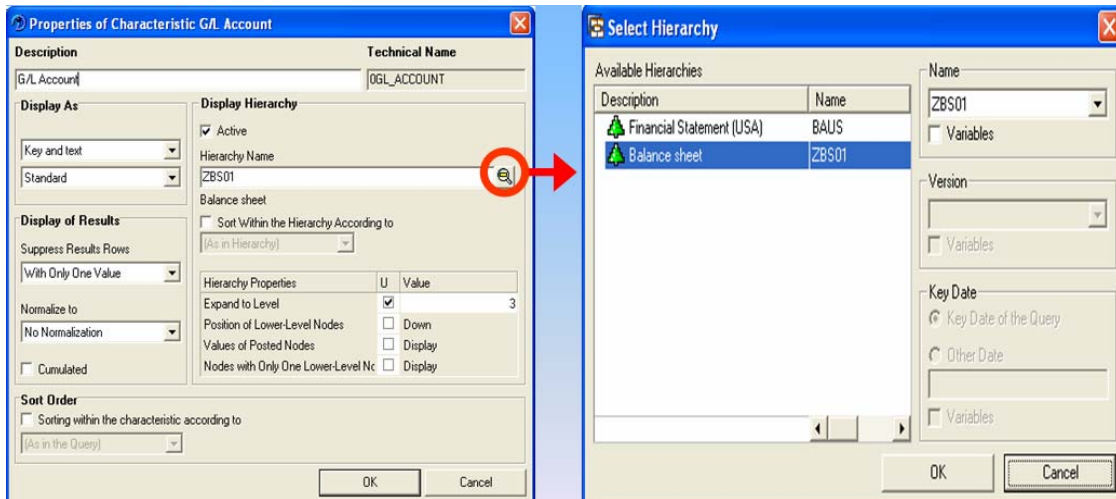
Power Users: *Create Query*
Hierarchies

There are no **Hierarchies** loaded from R/3 in the training InfoArea. The illustration above is from BW Development.

Put **G/L Account** into <u>Rows</u>
- Right-click on **G/L Account** and select on *Properties*

- If there is a **hierarchy** associated with this **characteristic**, click on the spy-glass icon and a "Select Hierarchy" window will appear.

- Select a **hierarchy** and click *OK*

- The "Hierarchy Name" box is populated and the "Active" box is checked. If you uncheck the box, you will deactivate the **hierarchy**.

- Under "Hierarchy Properties", check the box for "Expand to Level" and put in a value of how many levels you want to see when your report is displayed initially. It is suggested to display no more than three (3) initially.

- Click *OK* when completed
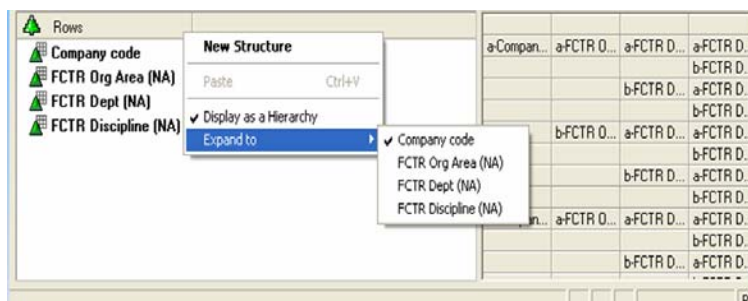
You can create your own **hierarchy** locally.

- Select the **characteristics** you want in your **hierarchy**, make sure they are in the order you are expecting for your **hierarchy**.

- Right-click on <u>Rows</u> and select "Display as a Hierarchy".

- Click on *Expand to* and select which level or node you want to view on the initial report.
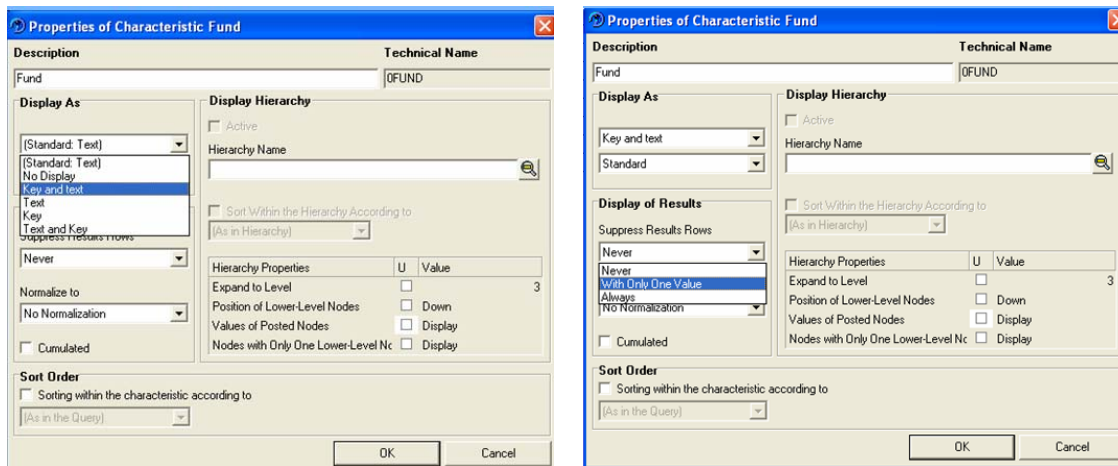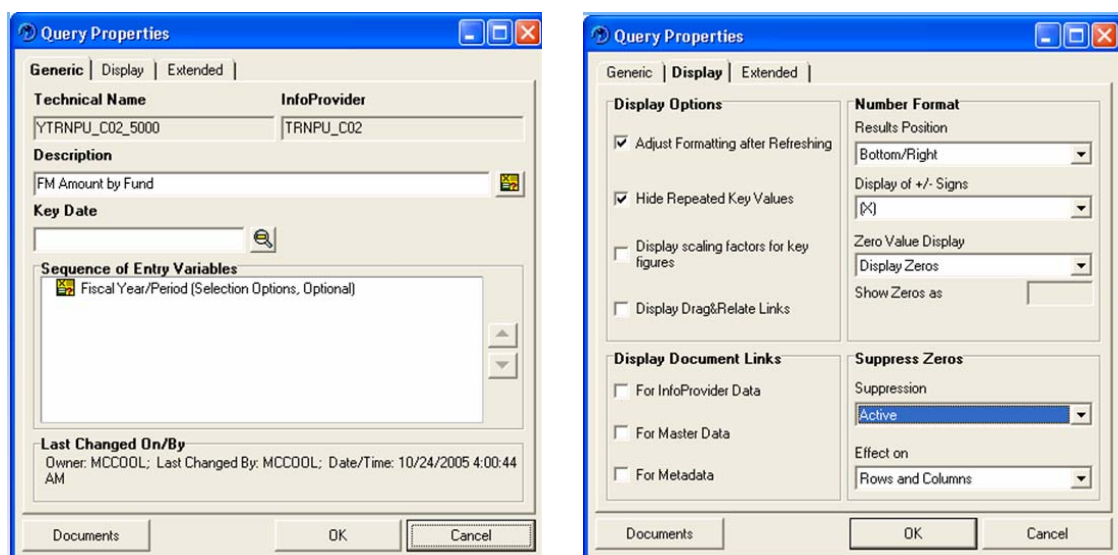
Power Users: *Create Query*
Properties of Characteristics

Right-click on each **characteristic** and make the following changes:

- Change "Display As" to "Key and Text" if available – if the **characteristic** text will always be the same as the key, just display as "Key" (like Check Number)

- Change "Display of Results" / "Suppress Results Rows" from "Never" to "With Only One Value"

Query Properties

- Select the **Query Properties** icon (looks like a 2 column list – 13th icon from left)

- Generic Tab

  - When you have multiple Variables/Parameters, arrange them to show the required variables 1st... Usually time period first then departmental objects (company code, functional area, department, …). The rest of the variables should be put in logical grouping / order.

- Display Tab

  - If you have **key figures** in your query

    - Change "Display of +/- Signs" to "(X)"

    - In the "Suppress Zeros" box, change "Suppression" to "Active"

Note: These changes are in the ***Query Guidelines***

Click *OK* **--** *Save* your query

Power Users: *Run Query*
There are two ways to display the output of a query, in <u>Excel</u> or on the <u>Web</u>.

Display Report in <u>Excel</u>

- If in the Query Designer
  - Click on the first icon (green ball with a check mark in it)
- If not in Query Designer
  - ***Open***
  - ***Queries***
  - Drill-down to a query
  - Double-click the query and it will run in Excel.

Display Report on the <u>Web</u>

- If in the Query Designer
  - Click on the third icon – looks like a spreadsheet with a world in the upper left corner
- If not in Query Designer
  - ***Open***
  - ***Queries***
  - Drill-down to a query
  - Single-click the query
  - Change the query
    - Right-click and select ***Change*** OR
    - Click on the icon that looks like a pencil

Note: This will put you in the Query Designer. See 1st option.

Power Users: *Change Query*

- ***Open***
- ***Queries***
- Drill-down to a query
- Single-click the query
- Change the query
    - Right-click and select ***Change*** OR
    - Click on the icon that looks like a pencil

**Note:** This will put you in the Query Designer

Power Users: *Delete Query*

- ***Open***
- ***Queries***
- Drill-down to a query
- Single-click the query
- Delete the query
    - Right-click and select ***Delete*** OR
    - Click on the icon that looks like a trash can

Power Users: *Query Views*

A query view is a "picture" of a query that saves any formatting done to the query. Examples of formatting would be hiding key figures from the initial display of the report or the generation of exceptions and conditions. Power Users can save, run, change the original query view, and delete query views.

A Power User can Save and Run query views from BEx-Web, just like the End User. A Power User can do more, they can actual change the original query view and delete it. The only way to delete a query view is through BEx Analyzer.
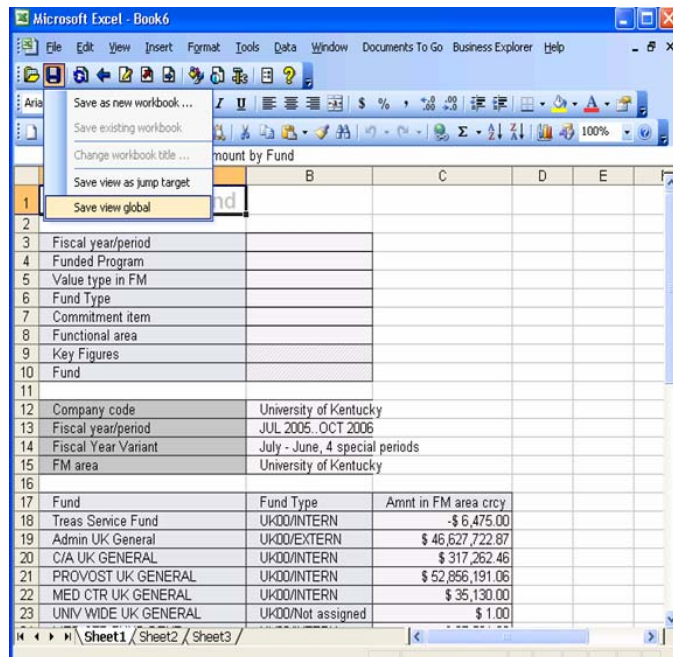
Power Users: *Create Query View*
Creating & Saving a Query View in BEx Analyzer

- *Open*
- *Queries*
- Drill-down to a query
- Double-click
- Make changes
- *Save view global*

Power Users: *Run Query View*
Run a Query View in BEx Analyzer

- *Open*
- *Saved Views*
- Find the view
- Double-click on Query View

Power Users: *Change Query View*
Change a Query View in BEx Analyzer

- *Open*
- *Saved Views*
- Find the view
- Double-click on Query View
- Make changes
- *Save view global*

Power Users: *Delete Query View*
Delete a Query View in BEx Analyzer

- *Open*
- *Saved Views*
- Find the view
- Delete Query View
  - Right-click and select *Delete* OR
  - Click on the icon of a trash can

Query Exercise

1. Display an existing query (**Technical Name** starts with a 'Q') from the Budget and Actuals InfoCube

2. Create a new query
   A. Put at least one **key figure** or **Structure** in **Columns** (beware: most **calculated** and **restricted key figures** do not work)

   B. Put at least one **characteristic** in **Rows**

   C. Put at least three **characteristics** in **Free Characteristics**

   D. Put at least one **characteristic** in **Filter** ("Fiscal year variant" / "Company Code")
      i. Restrict **Filter**

   E. Put a **variable** on a **characteristic**

   F. Change **Characteristic Properties** to meet *Query Standards*

   G. Change **Query Properties** to meet *Query Standards*

3. *Save* your new query – **Technical Names** must be unique – Don't forget to use the *naming standard*

4. Run your query on the web

5. *Exit* out of web

6. *Exit* out of Query Designer

7. Change "Your" Query in Query Designer
   A. Add two **characteristics** to **Free Characteristics**

   B. *Save* your query globally

8. *Run* your Query

9. *Delete* your Query

Notes