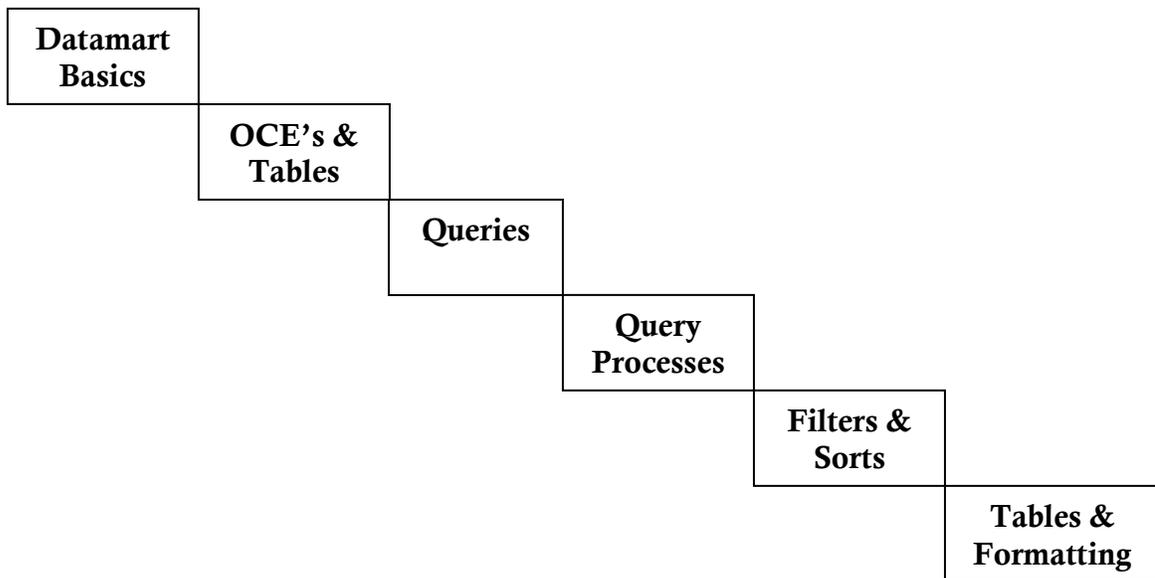
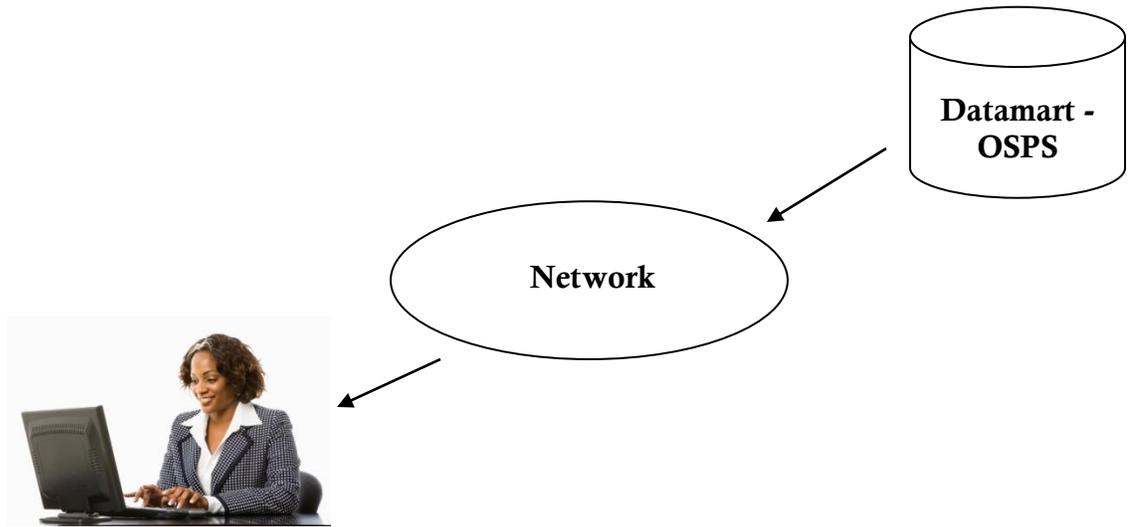


# *Datamart & Hyperion: Payroll*



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## **About the Department of Administrative Services (DAS) – Datamart Team:**

The Department of Administrative Services (DAS) Datamart team provides courses with a focus on helping our customers improve their financial and technological skills.

The training materials are for the students' use both during the course and as a reference guide after the course is complete.

For more information and a list of other available products, please visit us at our website at <http://egov.oregon.gov/DAS>.

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## **Copyright & Trademarks**

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Trademarked names appear throughout this book. Rather than list the names and entities that own the trademarks or insert a trademark symbol with each mention of the trademark name, DAS Datamart team states that it is using the names for editorial purposes and to the benefit of the trademark owner with no intention of infringing upon the trademark.

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## **Disclaimer**

The DAS Datamart team has taken every effort to ensure the accuracy of this manual. If you should discover any discrepancies, please notify us immediately.

Department of Administrative Services  
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E-mail: [Datamart.Support@oregon.gov](mailto:Datamart.Support@oregon.gov)

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# *Lesson 1*

## **Datamart Basics**

- ✓ **What is a Datamart?**
- ✓ **How does information get into the Datamart?**
- ✓ **How can I get current information about the Datamart?**
- ✓ **History of Brio/Hyperion**
- ✓ **Am I ready to work in Hyperion?**

## What is a Datamart?

---

**The Department of Administrative Services (DAS) financial Datamart is your one-stop warehouse for financial transactions, account balances, grant profiles, PCA information, Payroll data and more, which helps employees develop reports for business information and decision making.**

Many years ago, the Department of Administrative Services (DAS) State Controller's Division (SCD) sponsored the creation of a Datamart. This initiative brought data from the primary transactional accounting system (SFMA) and the payroll system (OSPA) into a relational database for various agencies and users to easily query against for information using a reporting tool. Recently, Position Information Control System (PICS), PPDB and ORBITS (Budget) data have been added to this Datamart, and many other transactional applications have been created that capture relevant information that users can use to make better business decisions.

**The Datamart provides a resource for easy reporting.**

In 1997, the SCD developed a Datamart of accounting data from SFMA to meet the ad-hoc reporting needs of state agencies. This became known as the SCD Datamart and later known as the SFMA Datamart. In 1999, the SCD developed a Datamart of payroll data from OSPA, which became known as the OSPA Datamart. The number of active Datamart users has expanded over the past several years, from 145 users in 1999 to an average of 360 users per month in 2007 to over 800 users in 2013.

Many agencies are using these data sources on a regular basis to meet individual agency reporting needs. Some agencies use the Datamart to replace system-generated mainframe reports. This provides agencies with more meaningful, custom designed reports and saves time since data does not need to be re-keyed from hard-copy reports for various analyses.

**The Datamart gives the user the ability to create custom reports.**

## **How does information get into the Datamart?**

*The DAS Datamart contains data from the following statewide systems:*

### **SFMA (Statewide Financial Management Application)**

SFMA data is updated *weekly* with a download Friday evening and an upload on Saturday evening. (These dates are subject to change. See the Datamart Processing Calendar for specific dates throughout the year.)

Mid-July through August (considered Period 13) the YE GL Detail, YE GL Summary, and Profile tables are updated three times per week from SFMA. In addition, the YE Active Accounting Event table is updated the last three Thursday's during this time period.

### **OSPA (Oregon Statewide Payroll Application)**

The payroll or OSPA data is updated *monthly* after the Final Run 2, approximately the 10<sup>th</sup> of each month. The data is available the morning after Final Run 2 is posted to R\*STARS (Please view the OSPS Processing Calendar for specific load dates throughout the year. This is located on the main Datamart website).

### **ORBITS (Oregon Relational Budget Information Tracking System)**

The Orbits or budget data is loaded *weekly* along with the normal SFMA load process.

### **PPDB (Position & Personnel Database)**

The PPDB data is loaded the first of every *month*.

### **PICS (Position Information Control System)**

The PICS information is loaded *weekly* along with the normal SFMA load process.

## **How can I get current information about the Datamart?**

If you have any questions, suggestions, problems, or just plain comments, please contact the Datamart Business Analyst listed below.

**Datamart Business Analyst**  
**155 Cottage Street NE, U50**  
**Salem, OR 97301-3969**  
**Phone: (503) 373-0269**  
**Fax: (503) 378-3514**  
***E-mail: [Datamart.Support@oregon.gov](mailto:Datamart.Support@oregon.gov)***

### **Datamart Main Website**

The main Datamart site is dedicated to providing valuable information on everything about the Datamart, as well as, the Hyperion application.

Please visit:

<http://www.oregon.gov/DAS/Financial/AcctgSys/Pages/Datamart.aspx>

### **Datamart Maintenance Website**

The maintenance site is dedicated to helping users with their Datamart password, as well as, has the capability to stop queries ran against the DAS Datamart. Please visit:

<https://dasapp.state.or.us/DatamartApp/>

### **Datamart News List**

To join the Datamart News List, please visit the main Datamart website, shown above, and review the Datamart-News section. There is an additional link on the website that goes to the E-Communications site. Follow the necessary instructions and soon you will be receiving important communication from the Datamart team, as well as, other Datamart users.

### **Datamart User Group Survey meetings**

The Datamart team hosts various meetings where users gather to discuss the goals, needs and direction of the Datamart. Meeting dates and times are announced through the Datamart News List.

## **History of Brio/Hyperion**

---

Since the Datamart's creation in 1997, the State of Oregon has come to rely on the Brio/Hyperion query tool as its primary means of retrieving accounting, payroll and other financial information.

The original application, which was called 'Brio' was created by the Brio Software, Inc. and was used extensively throughout the state to access the Datamart. However, in 2003, Brio was acquired by Hyperion Solutions Corporation. Hyperion continued to update the software until March 2007, when Hyperion was acquired by Oracle.

Throughout these transition years, the State of Oregon continued to use the product. In May 2010, the State of Oregon purchased an enterprise license for 'Oracle Enterprise Performance Management System 11' also known as Hyperion Interactive Reporting Studio (aka '**IR Studio**'). This purchase allows the state to use the Brio/Hyperion/Oracle product for years to come.

## **Am I ready to work in Hyperion?**

---

If you can answer "YES" to the questions below, you are ready to work in Hyperion.

- Are you a state employee?**
- Do you have a RACF ID?**
- Do you have an IBM DB2 Open Database Connection (ODBC)?**
- Do you have proper security access to the Datamart?**
- Is Hyperion installed on your PC?**
- Have you set up an Open Catalog Extension (OCE) for Hyperion?**
- Have you completed Datamart training?**

## Exercise

---

1. What is the primary function of the Department of Administrative Services (DAS) Financial Datamart?
2. How often is the SFMA, OSPA, and PICS data updated with new information on the Datamart?
3. Name 3 resources for Datamart information:
4. What are four things I need before I can access the Datamart?
5. What is the name of the newest Brio/Hyperion version?

# *Lesson 2*

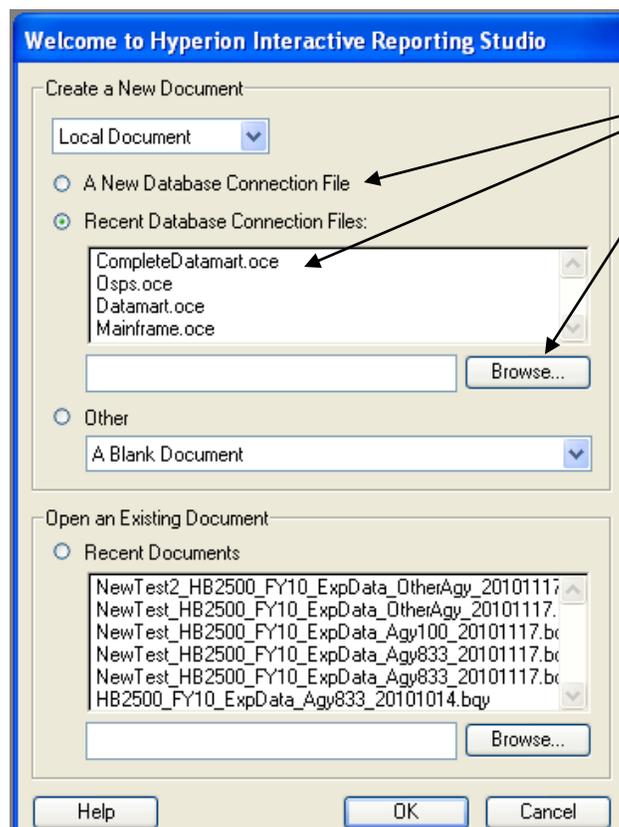
## **OCE's and Datamart Tables**

- ✓ **What is an Open Catalog Extension (OCE)?**
- ✓ **Setting up an OSPA Datamart OCE**
- ✓ **Setting up an SFMA Datamart OCE**
- ✓ **Modifying an OCE**
- ✓ **Tables on the Datamart**
  - **SFMA Financial Tables**
  - **General Ledger Detail Tables**
  - **General Ledger Summary Tables**
  - **Other Special Financial Tables**
  - **OSPA Datamart Tables**
- ✓ **The Repository**

## What is an Open Catalog Extension (OCE)?

In Hyperion, you use an Open Catalog Extension (OCE) whenever you perform tasks that require you to connect to a database. The OCE is simply a definition of the connection required to view a particular database.

When you open Hyperion to begin a work session (as shown below), you must select the correct OCE for the targeted database. You can select 'A New Database Connection File', 'Recent Database Connection Files' or 'Browse' from your directory.



You are allowed to save OCE's with any desired naming convention, thus the 'Recent Database Connection Files' listed, in the above diagram, will probably have different names than on your own computer directory. Standard practice is to title the OCE whatever name helps you associate with the database it will access.

## Setting up an OSPA Datamart OCE

---

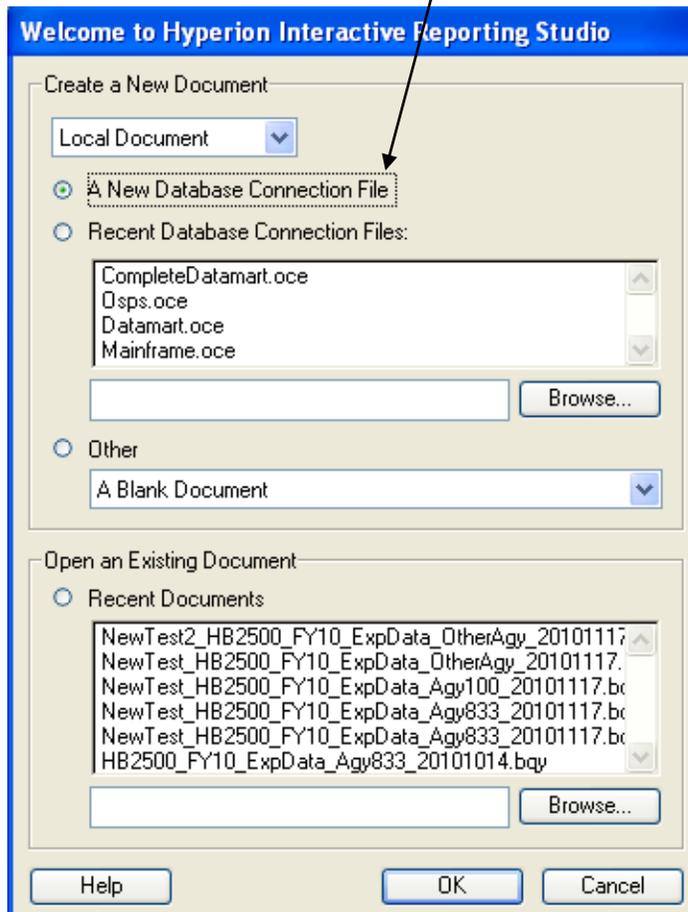
The following are steps to create an Open Catalog Extension (OCE) in Hyperion Interactive Reporting Studio - Version 11.

Within the initial instructions, you will discover how to create a standard connection to the OSPA Datamart.

- 1) Open the Hyperion application, you will see a similar “Welcome to Hyperion” dialog box, as shown below.

Select → **A New Database Connection File**

Select → **OK**



- 2) The “Database Connection Wizard” will display, as shown below.  
Select → **ODBC** from the ‘What connection software do you want to use?’  
Select → **DB2** from the ‘What type of database do you want to connect to?’

Check the following two boxes:

1. **Show Meta Connection Wizard**
2. **Show advanced options**

Select → **Next**

**Database Connection Wizard**

HYPERION®  
INTERACTIVE  
REPORTING  
STUDIO

ORACLE®  
ENTERPRISE PERFORMANCE  
MANAGEMENT SYSTEM

The wizard will help you create a Connection File that you can use to connect to a data source.

What connection software do you want to use?  
ODBC

What type of database do you want to connect to?  
DB2

Show Meta Connection Wizard

Show advanced options

Prompt for database name

Help Cancel <Back Next> Finish

- 3) In the box labeled "User Name", type your **Datamart User Name** (this is your RACF ID).

In the box labeled "Password", type your **Datamart Password** (not to be confused with the SFMA password).

From the 'Host' dropdown menu list select → **SFMSP**

Select → **Next**

**Database Connection Wizard**

HYPERION®  
INTERACTIVE  
REPORTING  
STUDIO

Connect to the data source.  
Enter your user name, password, and select your IP address  
or database host.

User Name:

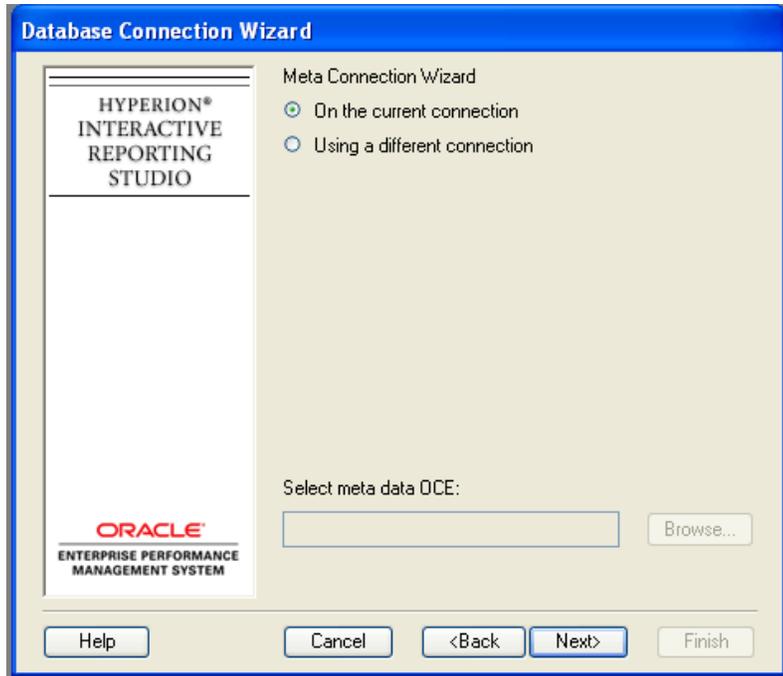
Password:

Host:  ▼

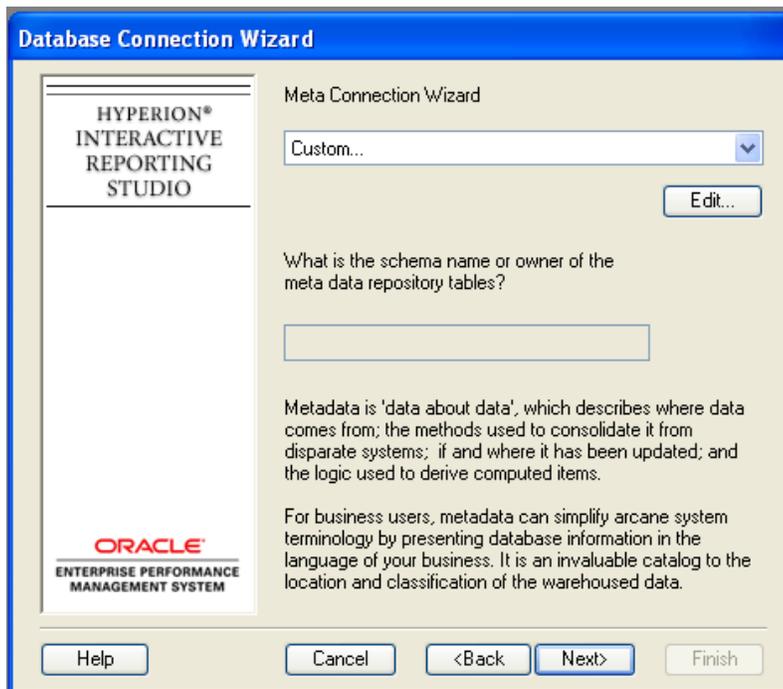
ORACLE  
ENTERPRISE PERFORMANCE  
MANAGEMENT SYSTEM

Help Cancel <Back Next> Finish

- 4) Leave this screen just as it is shown. The “**On the current connection**” selection is correct. Click ‘Next’, to continue.

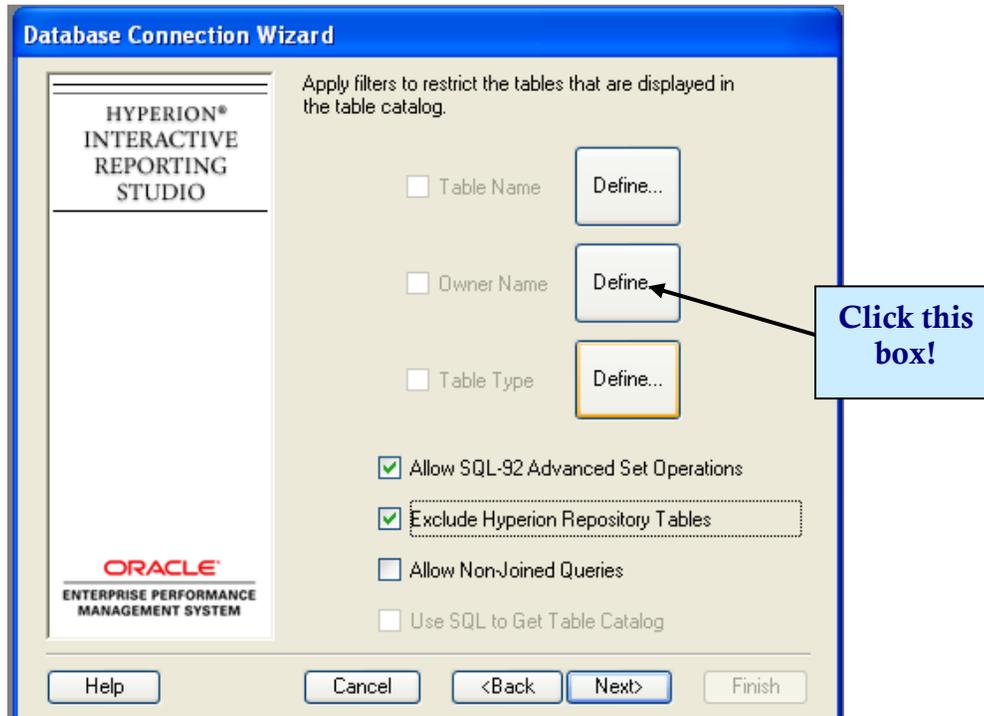


- 5) On the following “Meta Connection Wizard” screen, click ‘Next’.



- 6) Check the boxes for “Allow SQL-92 Advanced Set Operations” and “Exclude Hyperion Repository Tables”.

Next, select the middle **Define** button to the right of ‘Owner Name’.



- 7) The following screen is where you can select the table schema you want the OCE to display.

Select → **Show Values**

The 'Show Values' option displays all table schema available within the Datamart. You can select more than one table by using "**CTRL+Click**".

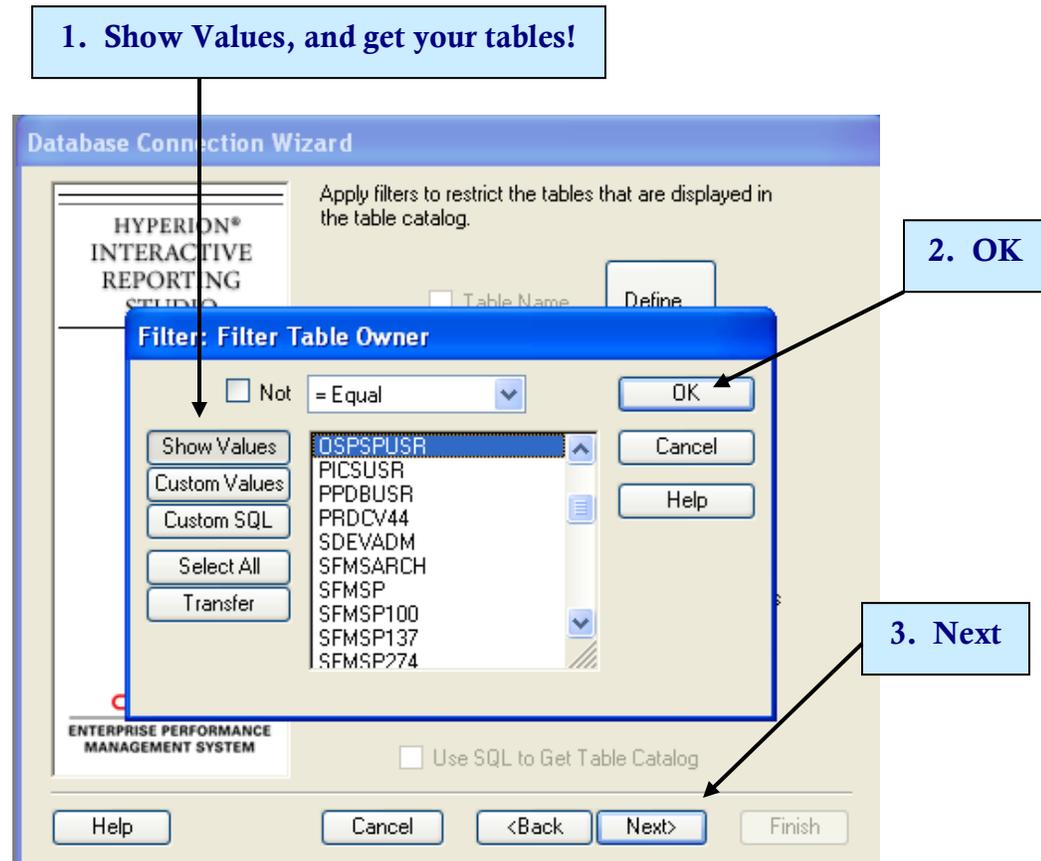
Select the following tables:

**OSPSPUSR** → All OSPA Tables

**YEAREND** → Year-End allows access to the Repository

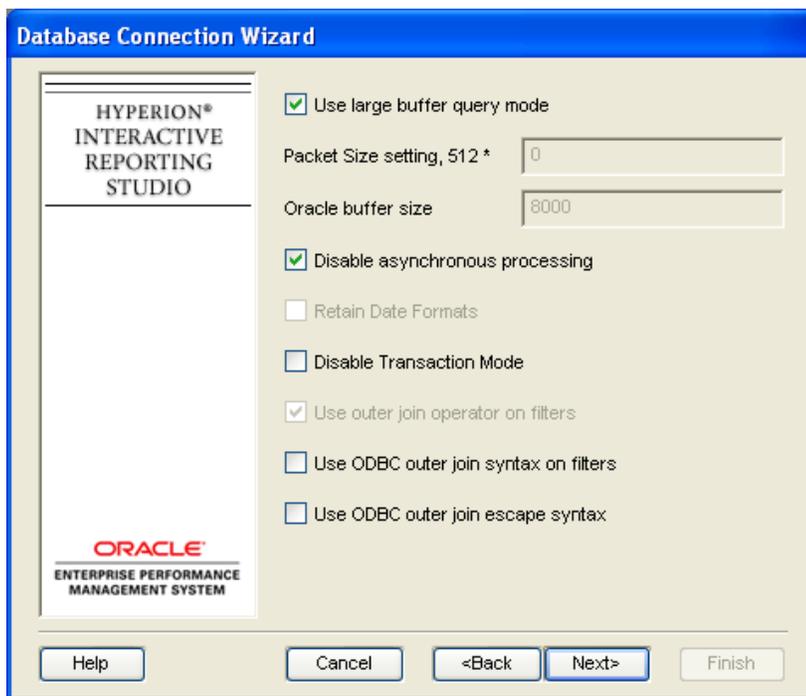
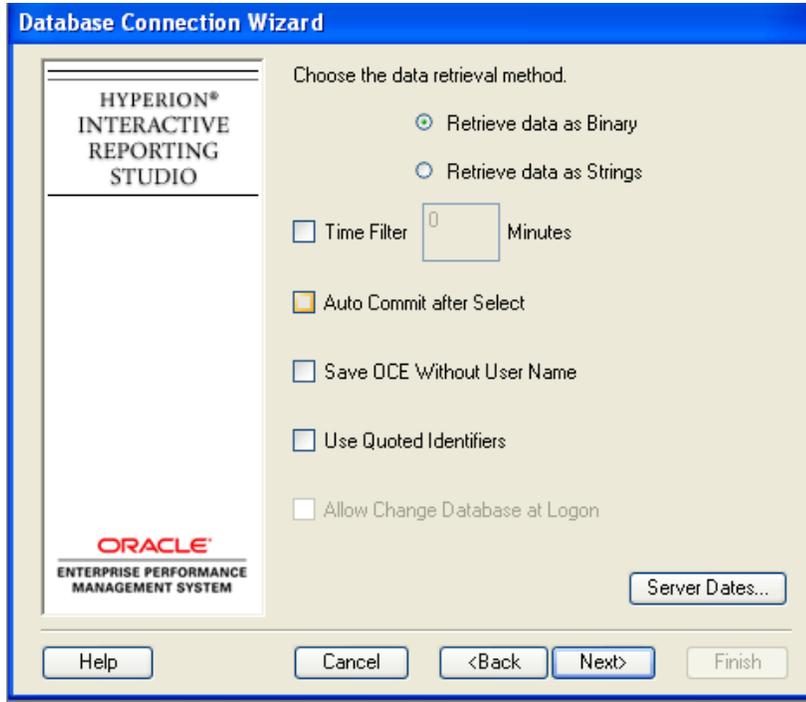
Select → **OK**

Then select → **Next** to continue

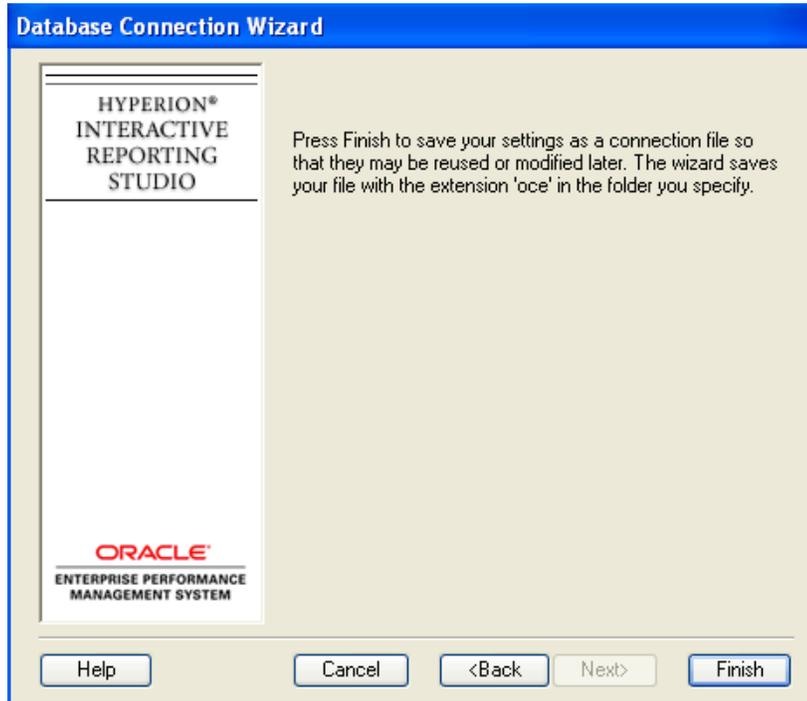


8) Update the next two screens as they appear below. Make changes as necessary.

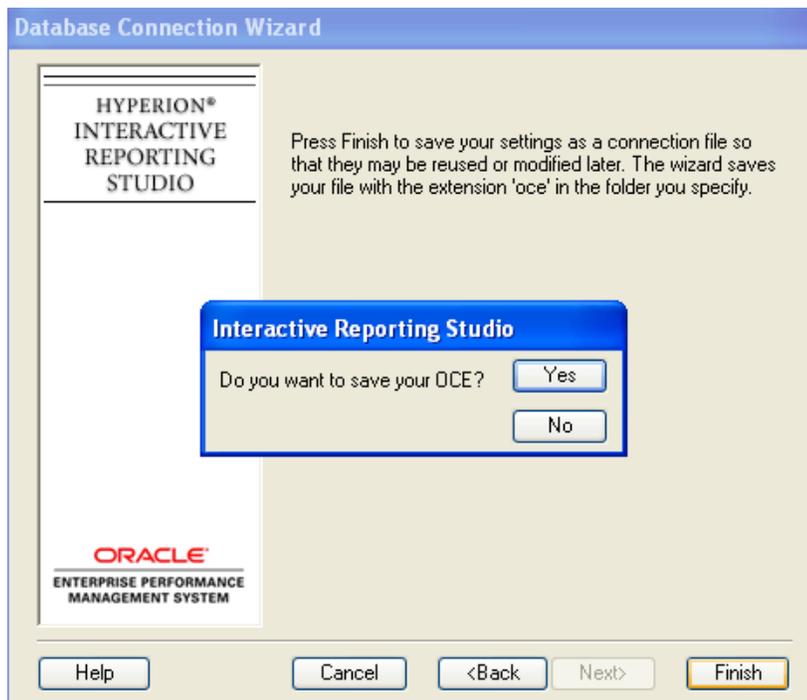
Select → **Next** after selecting the proper options and verifying each screen.



9) Select → **Finish** starting the completion of this process

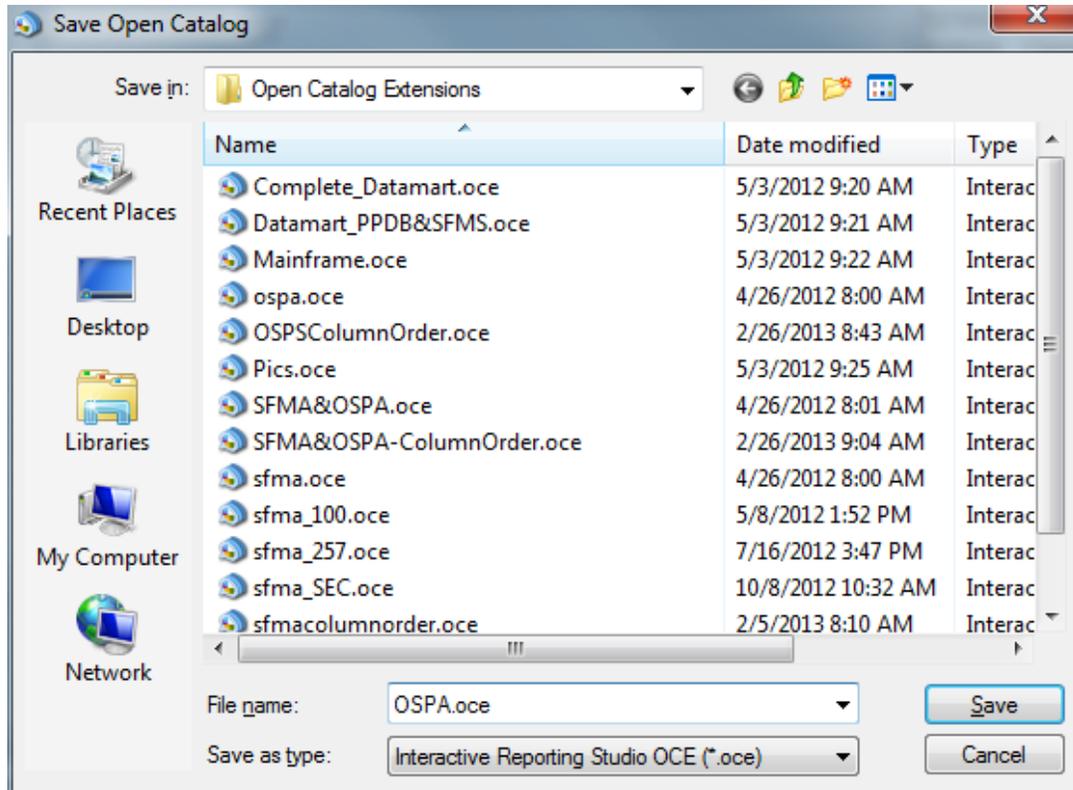


10) Select → **Yes** to save your OCE



11) Give your OCE a name in the **'File Name'** field, shown below.

Select → **Save** to finalize the saving of your OCE



**You can save Open Catalog Extensions in any directory but best practice is to save to a directory that is backed up. This allows for easy access to all OCE files and provides file reliability.**

**The standard OSPA & SFMA OCE's are downloadable from the Datamart website. (<http://dasapp.oregon.gov/datamart/>)**

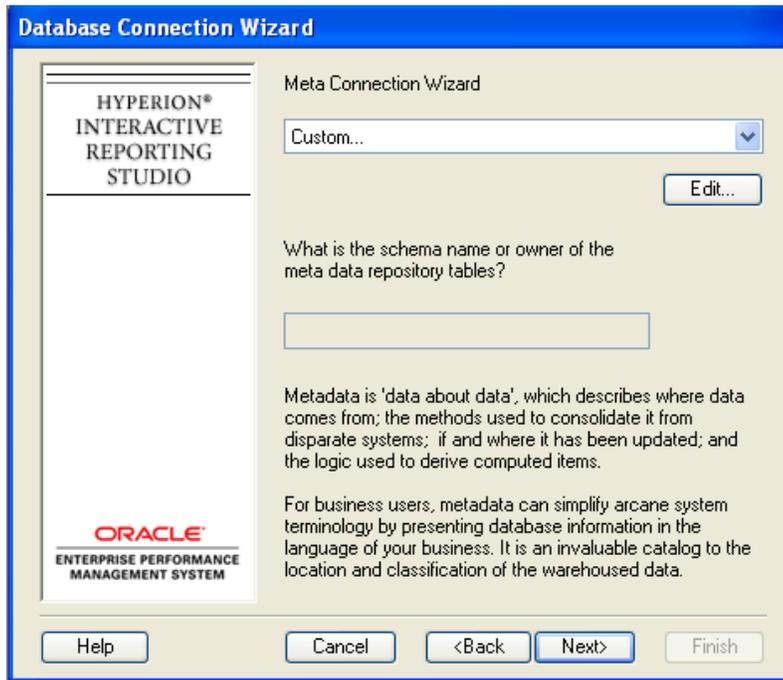
**You can set up where the application looks for oce files. This will allow for easy access.**

**Go to the 'Tools' menu, 'Options', 'Program Options', 'File Locations' tab, and update the 'Connections directory'.**

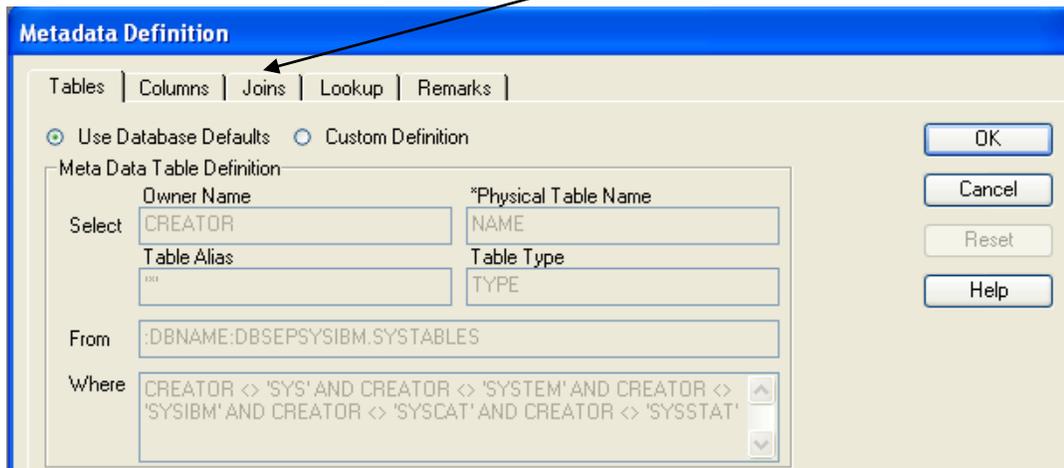
## Setting up an SFMA Datamart OCE

Follow the same steps as the OSPA Datamart OCE process through step 4.

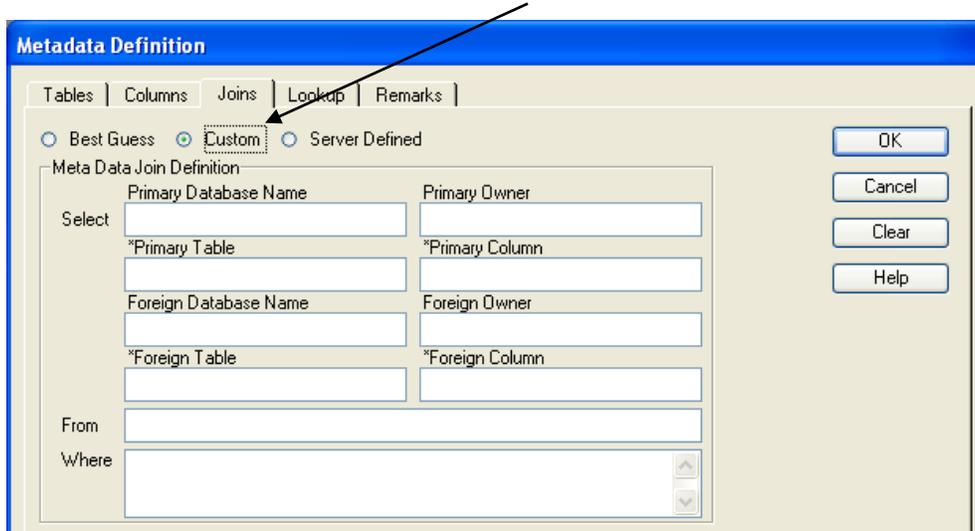
- 5) On this “Meta Connection Wizard” screen select ‘**Edit**’.



- 6) This next screen is the “Meta Data Table Definition”  
 Select the following tab from the top → **Joins**

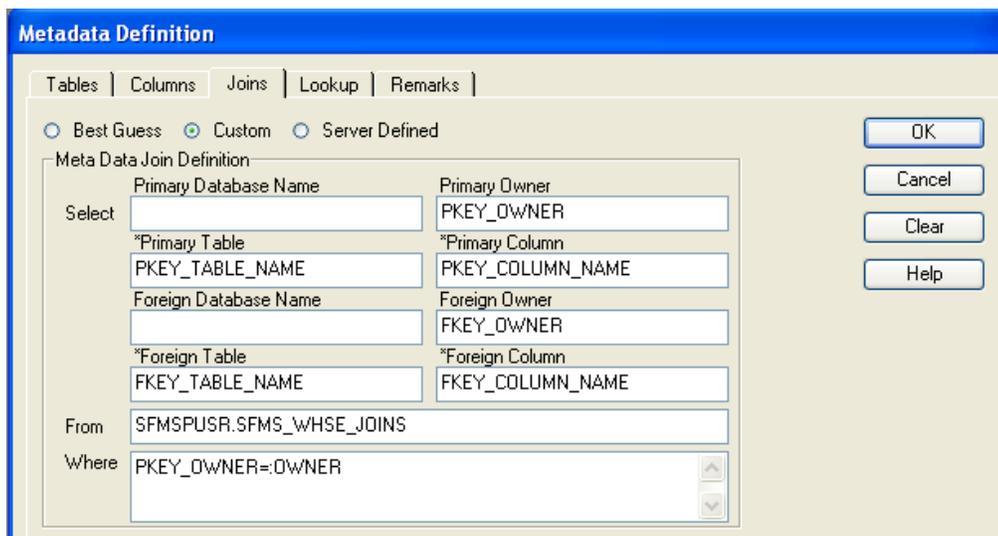


7) Select → **Custom** (The grayed out fields now become white for data entry.)

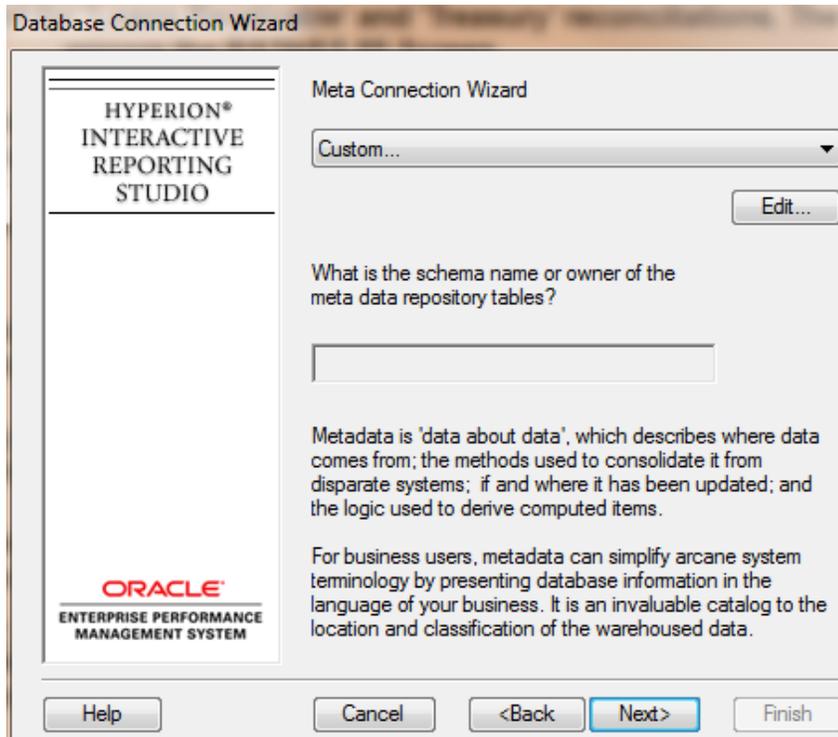


8) Fill in the fields accordingly:

Primary Owner	<b>PKEY_OWNER</b>
Primary Table	<b>PKEY_TABLE_NAME</b>
Primary Column	<b>PKEY_COLUMN_NAME</b>
Foreign Owner	<b>FKEY_OWNER</b>
Foreign Table	<b>FKEY_TABLE_NAME</b>
Foreign column	<b>FKEY_COLUMN_NAME</b>
From	<b>SFMSPUSR.SFMS_WHSE_JOINS</b>
Where	<b>PKEY_OWNER=:OWNER</b>



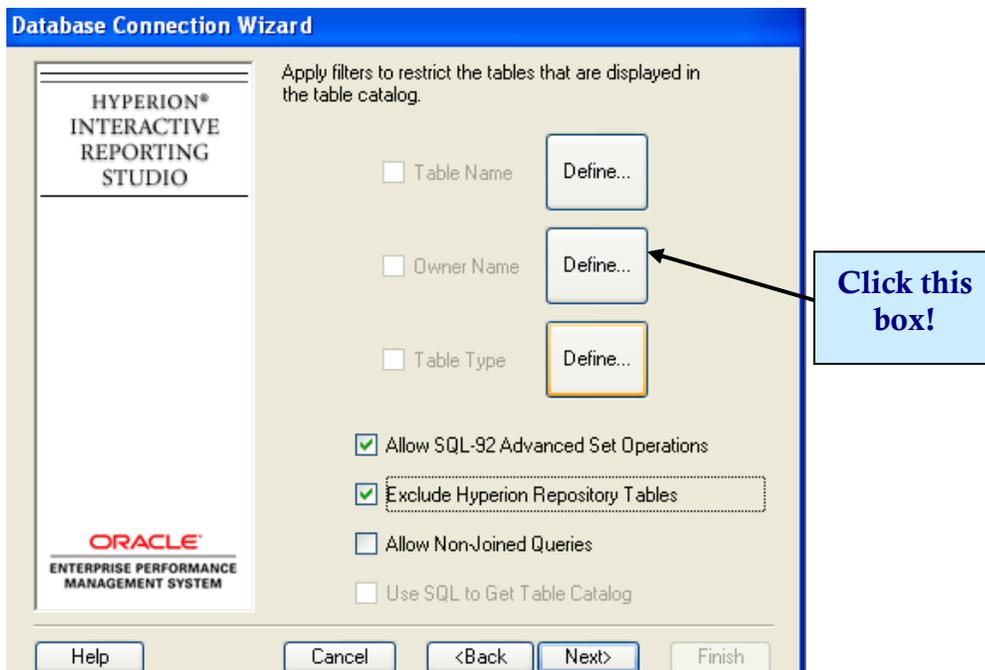
Once input is complete, select → **OK**.



Select → **Next** to continue

- 9) Check the boxes for “Allow SQL-92 Advanced Set Operations” and “Exclude Hyperion Repository Tables”.

Next, select the middle **Define** button next to ‘Owner Name’.



10) Select the tables you want your OCE to access.

Select→**Show Values**

Next, select the table names you desire. You can select more than one by using “**CTRL+Click**”.

Select the following tables for a standard SFMA oce:

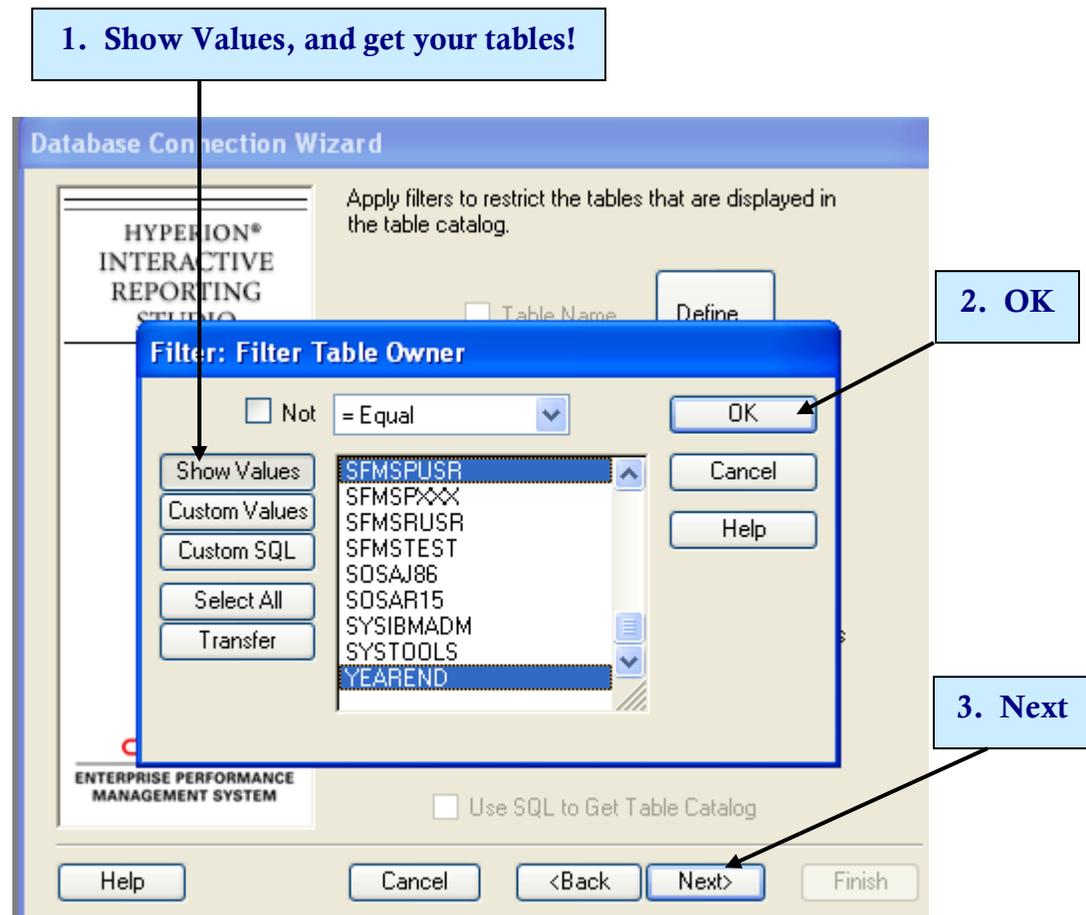
**SFMSPU**SR→SFMA Accounting Tables (no archived data)

**SFMS**ARCH→SFMS Archive Tables

**YE**AREND→Year-End allows access to the Repository

Select→**OK**

Then select→**Next** to continue



Finalize the SFMA oce process by continuing from step 8 of the OSPA oce process on page 2-9.

## Modifying an OCE

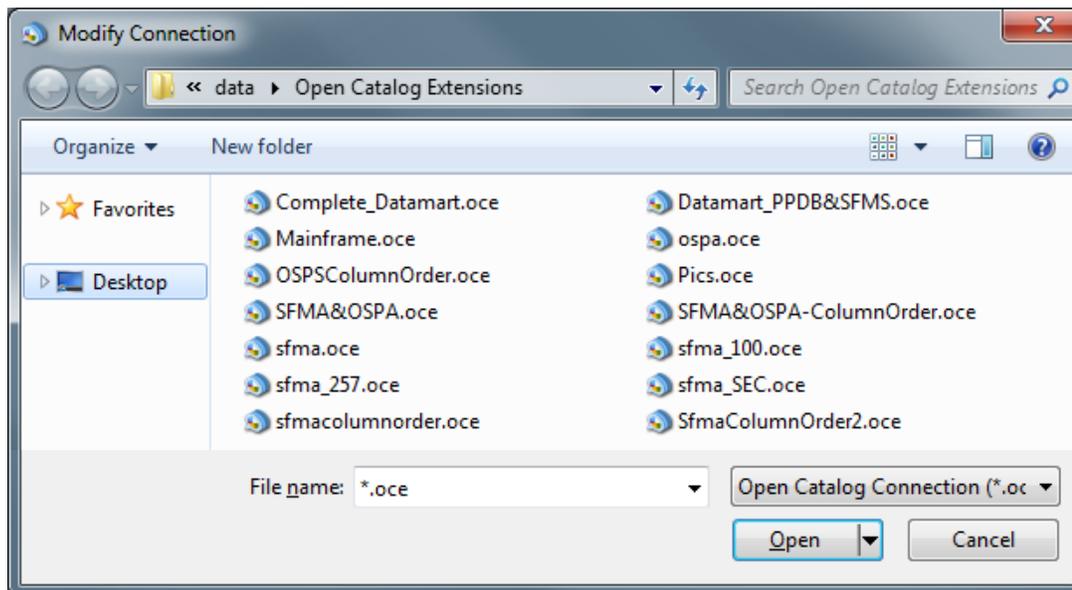
---

When you create an OCE, you establish a working database connection for querying. You may need to modify an OCE to reflect changes in your network or hardware configuration, or to manage other connection information.

### *To modify an OCE:*

- 1) Close any open Hyperion documents.
- 2) Select **Tools** → **Connection** → **Modify**

The Modify Connection dialog box appears.



- 3) Select the connection file you want to modify and select **Open**

The 'Database Connection Wizard' appears and displays the information for the OCE you selected.

- 4) Make any desired changes and then save the OCE when prompted.

**Note: You can save an oce wherever you desire; however, it is recommended to save it in a backed up directory.**

## **Tables on the Datamart**

---

There are two types of tables on the Datamart: *Financial* and *Profile*.

The main difference between the two tables is that financial tables contain financial information, such as General Ledger balances, and transaction amounts, while the profile tables provide titles for various data elements, or allow a roll-up of data to a higher level than the financial table can accomplish.

If you desire detail finer than what is on any of the financial tables, you are not going to have much luck. The Datamart and the query tools can only slice and dice the data as deeply as the data goes. Let's say you want to get a subset of the comptroller objects. There is not a way to tie that subset together using data on the Datamart. You are going to be stuck (likely) having to go to the detailed records and the original documents. The following is an example of 'Meals and Lodging'. If you use comptroller object only (no agency object), you will not be able to get a report out of SFMA giving you a breakdown of Meal costs separate from Lodging. You might be able to get something based on vendor, but you also might not.

### **SFMA Financial Tables**

#### **Accounting Event Tables**

**Active Accounting Event**→ This table mirrors the data from the SFMA system. Data is reflective of the current 3 months of active transactions.

**All Accounting Event**→ This table mirrors the data from the SFMA system. Data is reflective of the current fiscal year and five prior years of transactions. This table may contain up to two years of addition information depending on the purge timetable.

**Archive Accounting Event**→ This table mirrors the data from the SFMA system. Data is reflective of the current fiscal year and seven prior years of transactions. This table may contain up to two years of addition information depending on the purge timetable.

**YE Active Accounting Event**→ This table mirrors the data from the SFMA system. However, the data on this table is updated *only the last three Thursdays during month 13 close*. This table is updated with the **current fiscal year only**. At other times of the year, this table contains zero data.

The accounting event tables are the lowest level of detail in the Datamart. All other financial tables are various summaries of this information.

**Note:** One thing to be aware, when dealing with 'Date' fields in the Datamart is that they are actual date fields, while 'Date' fields in SFMA are 'Text' fields. While the Datamart fields are edited to assure proper dates are being used, this allows SFMA to contain dates not on the calendar. Period 13 identified through effective date is the best example of this. In SFMA, period 13 is identified as 6/31/20XX. In the Datamart, date fields are not allowed to have dates not on the calendar – a data validation feature in DB2. In order for us to move data to the Datamart, we have to do some “data washing”. Dates like 6/31/20XX are changed to 6/30/20XX, a new data element is introduced called **Batch Date Ci**. The download program picks up the last digit in the month and records it in this field. This way, any time an incorrect date is entered into SFMA, it is corrected in the Datamart, and an indicator is provided.

**Note:** To go along with the date note above, there is another data field, in the Accounting Event tables, which will provide you with the fiscal month. The **Fiscal Month** field identifies the appropriate fiscal month, including month 13.

## **General Ledger Detail Tables**

**Arch GL Detail** → This table mirrors the data from the SFMA system. The period available is dependent on the date of agency implementation onto SFMA.

**General Ledger Detail** → This table mirrors the data from the SFMA system. This table summarizes General Ledger balances, and summarizes at the object and agency object level.

**YE General Ledger Detail** → This table mirrors the data from the SFMA system. However, the data on this table is updated only during month 13 close. During the period of mid-July to close in August, this table is updated with the balances in the **current fiscal year only**. At other times of the year, this table contains zero data. This table summarizes General Ledger balances, and summarizes at the object and agency object level.

## General Ledger Summary Tables

**Arch GL Detail**→ This table mirrors the data from the SFMA system. The period available is dependent on the date of agency implementation onto SFMA.

**General Ledger Summary**→ This table mirrors the data from the SFMA system. This table summarizes General Ledger balances, but does not contain any object level detail.

**YE General Ledger Summary**→ This table mirrors the data from the SFMA system. However, the data on this table updates only during month 13 close. During the period of mid-July to end of August, this table updates with the balances in the **current fiscal year only**. At other times of the year, this table does not contain data. This table summarizes General Ledger balances, but does not contain object level detail.

**Note:** The General Ledger Tables are a higher level of summarization in the Datamart from the Accounting Event tables. Balances for the tables are by month, and are **cumulative** by month. This means that a balance in **Month 03 Balance** will contain the **total** of months one, two and three in that field. Monthly information for nominal GL accounts, except for month just closed, must be created using calculated fields.

## Other Special Financial Tables

### **Appropriation Financial Table**

The Appropriation Financial table mirrors the data from the SFMA system. This provides information similar to the “62” screen on SFMA.

### **Contract Financial Table**

The Contract Financial table mirrors the data from the SFMA system. This provides information similar to the “68” screen on SFMA.

**Grant Financial Table**

The Grant Financial table mirrors the data from the SFMA system. This provides information similar to the “66” screen on SFMA.

**Project Financial Table**

The Project Financial table mirrors the data from the SFMA system. This provides information similar to the “80” screen on SFMA.

**Receipt Extr Sum Table**

The Receipt Extr Sum table mirrors the data from the SFMA system. This provides information similar to the “12/13” screen on SFMA.

**Document Financial Tables**

**Arch Doc Financial Table**→ mirrors the data from the SFMA system. This provides information similar to the “64” screen on SFMA.

**Doc Financial Table**→ mirrors the data from the SFMA system. This provides information similar to the “64” screen on SFMA.

**Payment Control Table**

The Payment Control table mirrors the data from the SFMA system. This provides information similar to the “47” screen on SFMA.

Currently, this table only contains archived data and is updated on a yearly basis. To obtain current payment control data, please contact Datamart Support.

**Profile Tables**

Agency	- D02 Screen
Agency Code 1	- D26 Screen
Agency Code 2	- D27 Screen
Agency Code 3	- D36 Screen
Agy GL	- D32 Screen
Agy Obj	- D11 Screen
Agy Obj Grp	- D25 Screen
Appn No	- 20 Screen
Appr Fund	- D22 Screen
Budget Obj	- D01 Screen
Cash Fund	- D73 Screen
Compt Obj	- D10 Screen
Compt Srce Grp	- D09 Screen (this ties to ORBITS data)
Contract	- 30 Screen
Fund D23	- D23 Screen
GAAP Fund	- D24 Screen
GL Acct	- D31 Screen
Grant No	- D47 Screen
Grant Obj	- D48 Screen
Grant Phase	- 29 Screen
Index No	- 24 Screen
Operator ID	- D96A/B Screen
Org Code	- D03 Screen
PCA	- 26 Screen
PCA Index Rel	- 21 Screen
Program Code	- D04 Screen (contains the ORBITS Cross-Reference Number)
Project No	- D42 Screen
Project Phase	- 27 Screen
State Fund Grp	- D20 Screen
Sub Grantee	- 31 Screen
TDate	- Generated - not on SFMA

**Note: There are 'special view' tables that agencies request be created to help lock or unlock specific data within the Datamart.**

**OSPA Datamart Tables**

The OSPA Datamart contains data processed through the Oregon Statewide Payroll Application. Data is updated monthly following the close of the payroll month, which is around the 14th of the following month. Check the OSPA Datamart Processing Calendar for specific dates.

The OSPA tables on the Datamart do not contain profile table data as the SFMA tables. These tables are each a flat-file database made from report output. This does make querying a bit more difficult, as you really have to know exactly what you are looking for, and where to find it.

**OSPA DED Tables**

OSPA Deductions

OSPA Ded	- Current Biennium
OSPA Ded B	- Current and Prior Biennium
OSPA Ded PB	- Prior Biennium
OSPA Ded PP	- Prior-Prior Biennium (2 prior biennia)

**OSPA JS Lab ADJ Tables**

OSPA Job Status, Labor and Gross adjustments

OSPA JS Lab ADJ	- Current Biennium
OSPA JS Lab ADJ B	- Current and Prior Biennium
OSPA JS Lab ADJ PB	- Prior Biennium
OSPA JS Lab ADJ PP	- Prior-Prior Biennium (2 prior biennia)

**OSPA Labor Cost Tables**

Labor Costs

OSPA Labor Cost	- Current Biennium
OSPA Labor Cost B	- Current and Prior Biennium
OSPA Labor Cost PB	- Prior Biennium
OSPA Labor Cost PP	- Prior-Prior Biennium (2 prior biennia)

**OSPA LV Accrual Tables**

Leave Accruals

OSPA LV Accrual	- Current Biennium
OSPA LV Accrual B	- Current and Prior Biennium
OSPA LV Accrual PB	- Prior Biennium
OSPA LV Accrual PP	- Prior-Prior Biennium (2 prior biennia)

**OSPA Net Pay Tables**

Net Pay amounts

OSPA Net Pay	- Current Biennium
OSPA Net Pay B	- Current and Prior Biennium
OSPA Net Pay PB	- Prior Biennium
OSPA Net Pay PP	- Prior-Prior Biennium (2 prior biennia)

**OSPA Work Sched Table**

## Work Schedule amounts

Note: The OSPA Datamart *does not* contain:

- Confidential Information, such as Social Security numbers, wage withholding, garnishment info, bank account information or certain insurance surcharges
- Data sourced from other applications such as salary range or employee addresses
- Detailed daily time information if not using Online Daily Time
- Furlough savings information

Note: When querying the OSPA tables, you must use a five-digit agency number in order to obtain the desired results. For example, DAS is agency 107 for SFMS, but 10700 for OSPA purposes. Another example is Parks & Recreation's agency number on SFMS is 634, but on OSPA, it is 63400.

**Note: The OSPA Datamart security access is locked down to the specific agency or agencies requested by the Agency Security Officer (ASO).**

## The Repository

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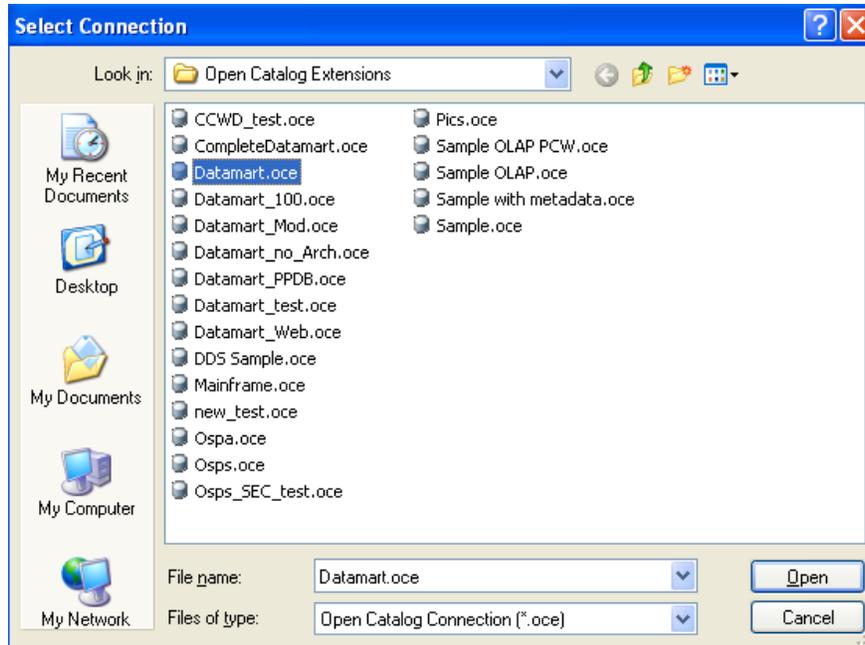
The 'Repository' is a great tool to help share standard reports with users on a statewide level. The purpose of sharing these reports is to allow agencies to have an outlet to access reports created by different agencies. The Datamart team cannot guarantee these reports will function properly for each agency, due to specific agency structure setups; however, please feel free to make modifications to suit your agency.

The Repository contains many files, which access data from SFMA, ORBITS, OSPA, etc. Thanks to users throughout the state, we continually obtain more reports to help with our daily operations.

Below are instructions for accessing the Datamart Repository.

1. Open Oracle Hyperion Interactive Reporting Studio (Formerly known as Brio). Click **Cancel** if you get a 'Welcome' dialog box requesting to open files or open a database connection.
2. Select **File > Open from Repository > Select**. Select the Open Catalog Extension (OCE) that connects to the Repository. ('Year End' table schema is selected)

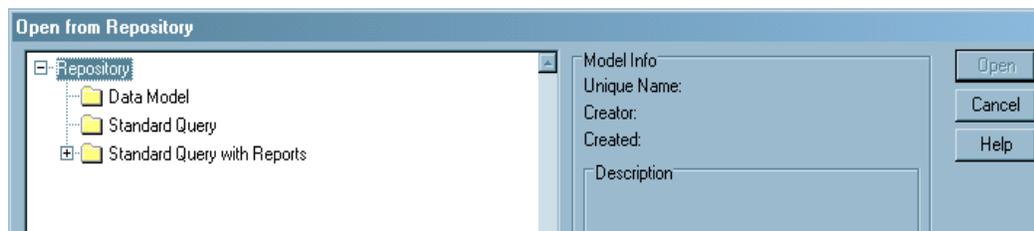
3. Select the proper OCE and click **Open**. In this example, the OCE is called "Datamart". Your OCE name may be different. You should see a screen similar to the following:



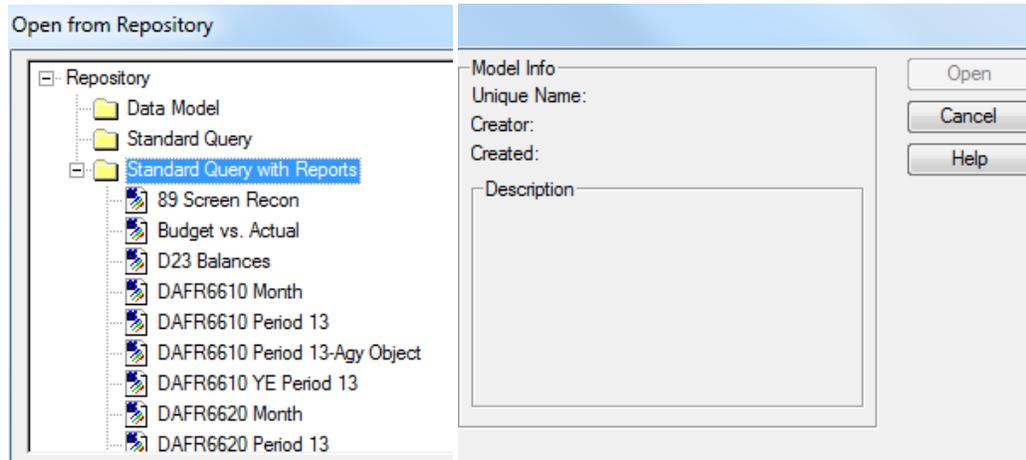
4. You will be prompted for your user name and password. Input your information and click **OK**. You should see a screen similar to the following:



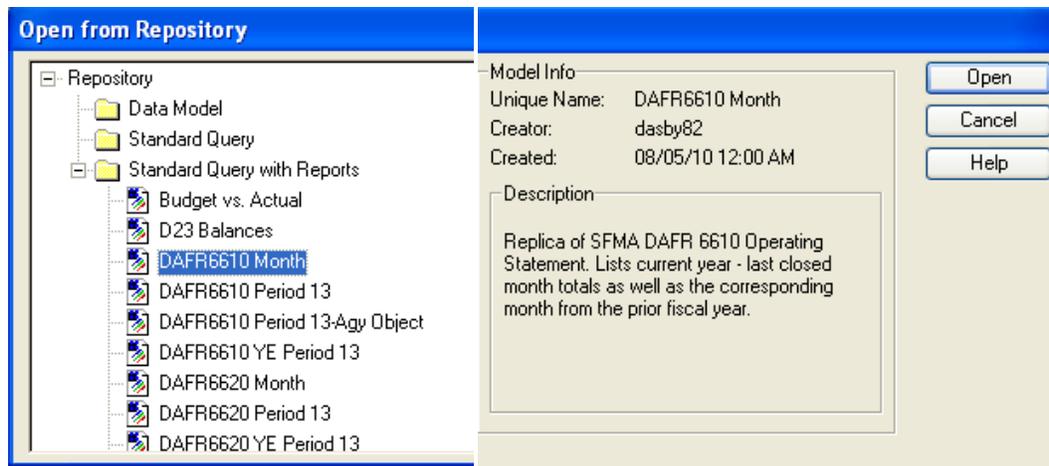
5. If no errors have occurred with your log in data, you should see a screen similar to the following:



- Click on the **+** next to **“Standard Query with Reports”**. Your screen should look similar to the following (This may be somewhat different depending on your OCE setup).



- Scroll down until you find the report you want to use. Once selected a description field for the file will be shown on the right side. Click **Open**. Your screen should look like the following:



Note: Once the Repository file is open, please review the ‘Dashboard Disclaimer’ information contained in the file, prior to running the query.

## **Exercise**

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1. What is an Open Catalog Extension (OCE)?
2. How many OCE's can I set up on my machine?
3. Can I modify an existing OCE on my machine?
4. Name the 2 types of tables on the Datamart.
5. Name 3 financial tables found in the Datamart.
6. Name 3 profile tables found in the Datamart.
7. Name 3 OSPA tables found in the Datamart.
8. Name two items the OSPA Datamart does not contain.
9. Name a resource, which provides a great tool to help share standard reports with users on a statewide level.

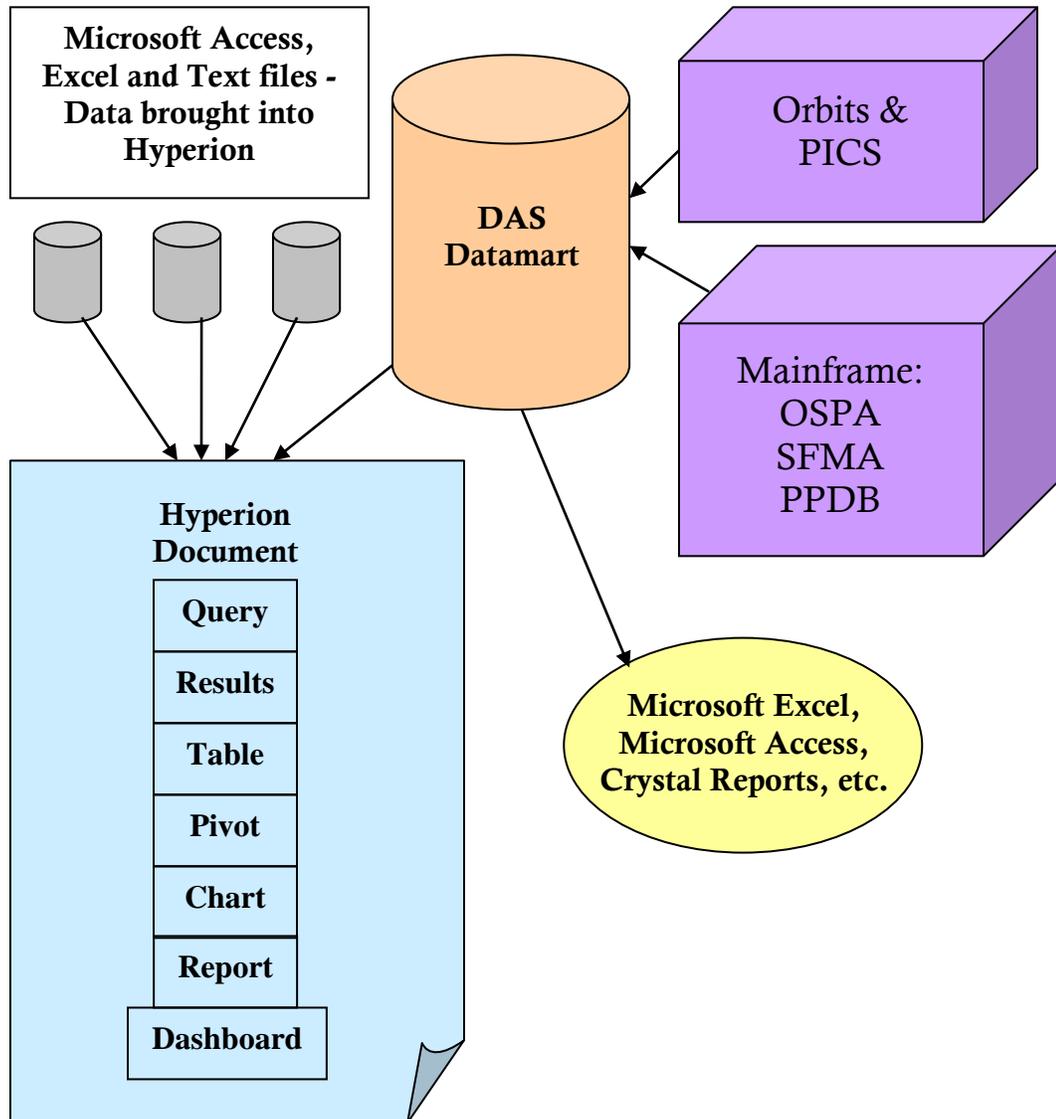
# *Lesson 3*

## **Hyperion Queries**

- ✓ **Datamart & Hyperion Spider Web**
- ✓ **BQY Documents, Sections, and Toolbars**
- ✓ **Online Help**
- ✓ **Opening and Saving BQY Documents**
- ✓ **Processing and Stopping Queries**
- ✓ **Adding, Duplicating, Renaming, and Deleting BQY Sections**
- ✓ **Hiding a BQY Section**
- ✓ **Sending BQY Documents as Email Attachments**
- ✓ **Printing BQY Sections**
  - **Adjusting the Page Margins in Print Preview**
  - **Adding Headers and Footers**
  - **Printing Sections**

## Datamart & Hyperion Spider Web

Let's talk about the flow of data from the financial world to the Datamart. How does it get to your machine and out on a piece of paper for your boss or meeting?



## **BQY Documents, Sections, and Toolbars**

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### **BQY Documents**

A BQY document is a reporting file created in Hyperion and has the file extension of .bqy. A .bqy can contain queries, results, tables, pivots, charts, reports, and dashboards.

### **BQY Sections**

**Queries**→ Used to create questions against the Datamart.

**Results**→ Used to display the rows returned/retrieved from a query built in the query section. You can take the results of the query and develop filters, sorts, computed items, and format.

**Tables**→ Used to create organized subsets of your query results. These are tabular-styled simple reports. You can develop filters, sorts, computed items, and format this data.

**Pivots**→ Used to create cross-tabular style reports in which you can analyze data. You can focus or drill-down on data items in this area. Data facts are combined in this area.

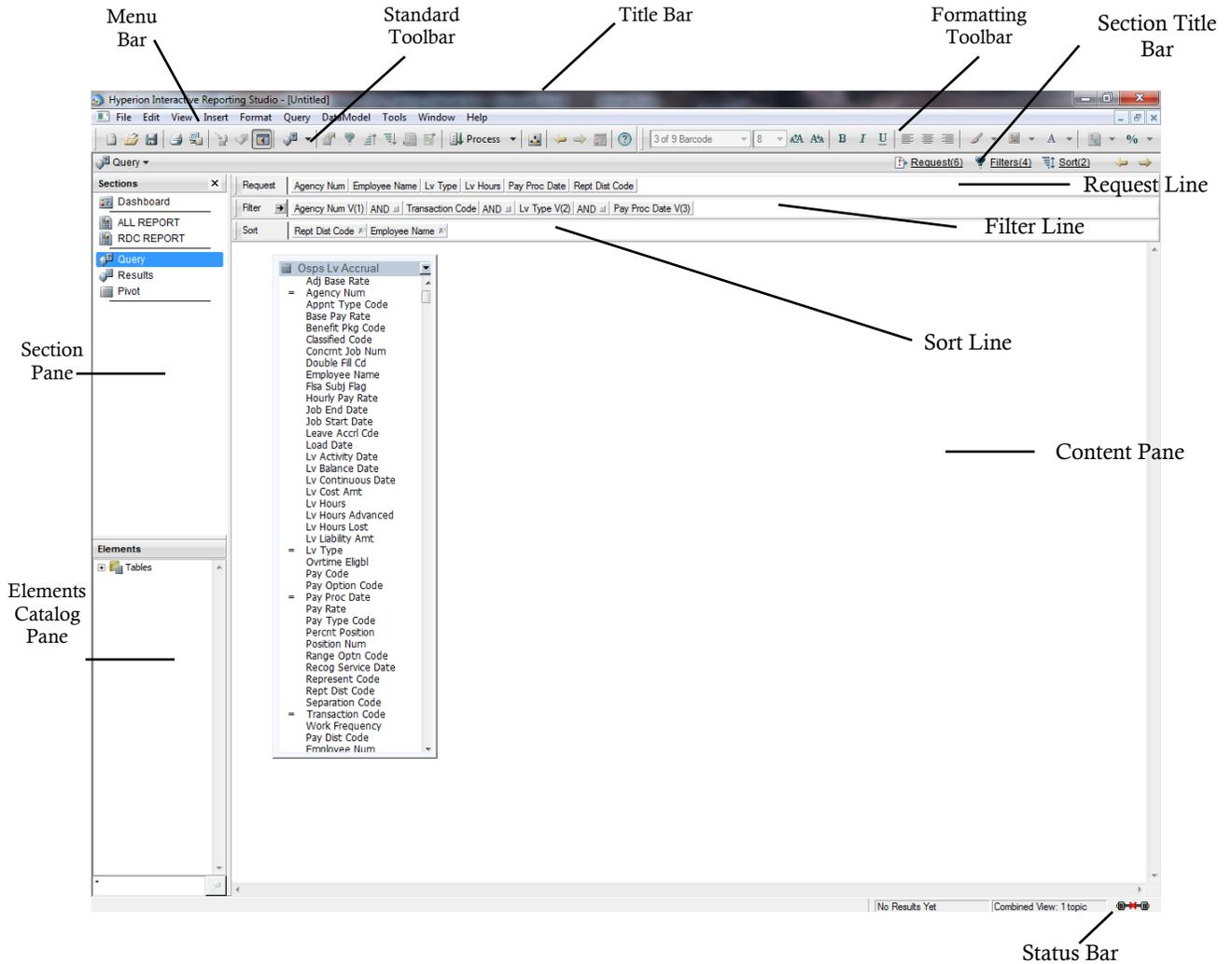
**Charts**→ Used to create various types of charts, such as horizontal, vertical bar, line, pie, cluster, scatter, and ribbon. You can format all areas of your charts.

**Reports**→ Used to develop free-form reports where result sets are displayed in a combined area. This is where you can integrate foreign results that have been imported into your .bqy with current information from the Datamart.

**Dashboards**→ Used to create an interactive user-friendly approach to querying and manipulating queries, pivots, charts, reports, etc. Users are able to check boxes, access drop-down lists, select radio buttons, and filter results based on their specific needs and criteria.

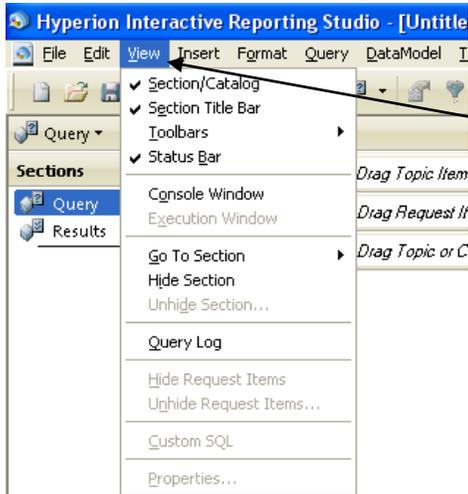
## BQY Toolbars

The following figure shows the sections and toolbars of a Hyperion .bqy.

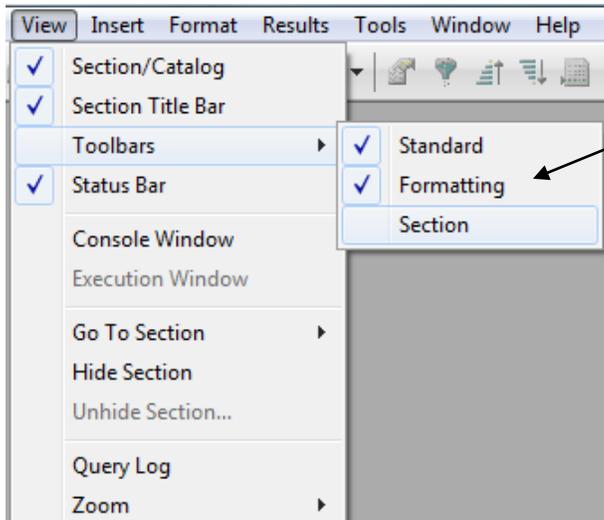


Your Section and Elements Catalog Pane will vary depending upon the .bqy you are developing.

The application allows you to hide and unhide the various sections as much as desired. If you can't visually see a toolbar or section, you can select **View** from the **Menu Bar** and choose what you would like to see.



You can view or hide sections and toolbars by selecting the 'View' menu option.



Additional view options are shown in the 'toolbars' section  
View → Toolbars

## **Online Help**

---

Online help is available through Hyperion.

*To access help:*

From the Menu Bar (Note: Must have bqry started)

**Help→Help on Content**

**Or**

**Select the 'F1' key**

This will take you to Hyperion online help. You can search for help by three methods:

**Contents→ Allows the user to search for help on a pre-defined topic**

**Index→ Search for help on predefined topics alphabetically**

**Search→ Type your help issue in the search box for results**

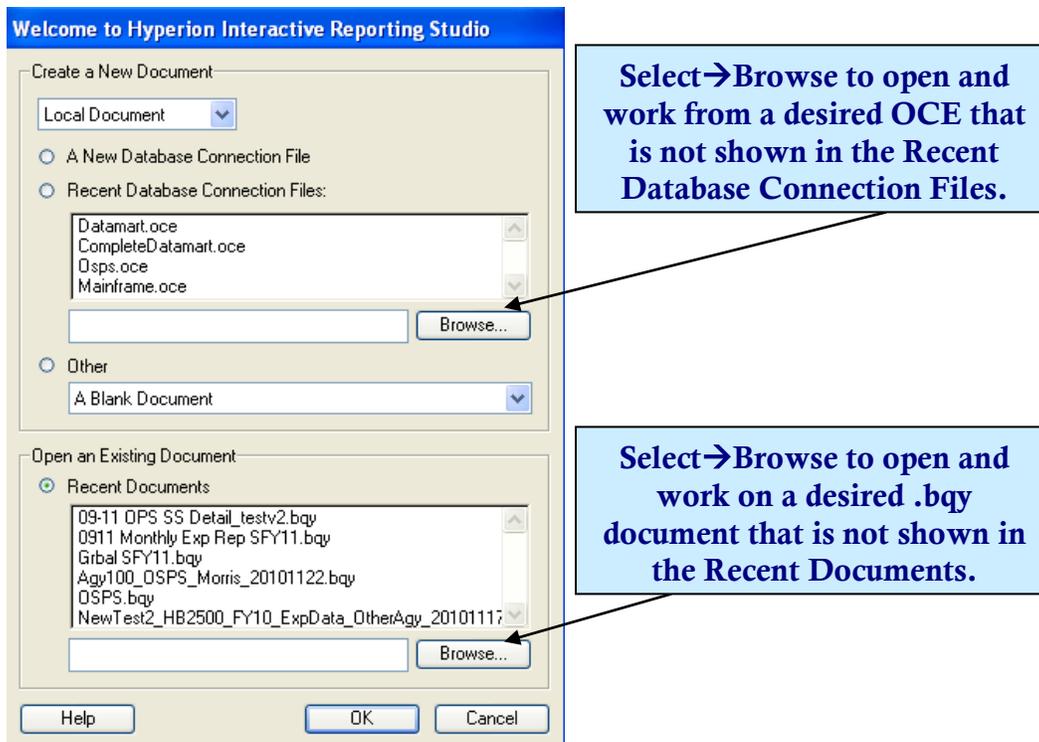
## Opening and Saving BQY Documents

---

A .bqy document is just like any other document you would create, edit, save, close, or open; only it lives in Hyperion. The .bqy is the file extension for a Hyperion document.

### Opening a BQY Document

You can double-click on an existing .bqy to open it or you can go through Hyperion. Below is an example of the opening dialog box you will see when you open Hyperion.



You can choose a Recent Document from the bottom half of this screen or open an OCE from the upper half of this screen.

***Starting a new .bqy using the OSPS.oci:***

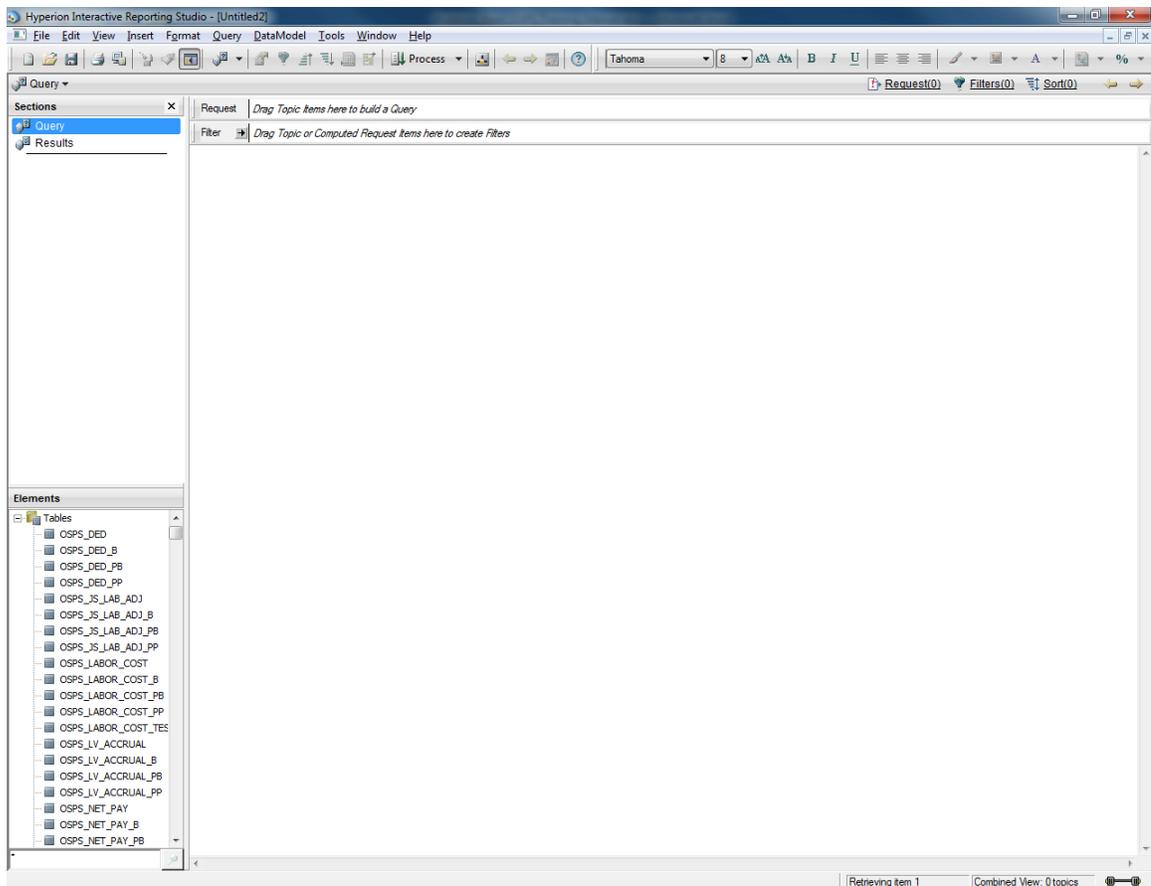
Open Hyperion from your Start Menu

Select → **Browse from Recent Database Connection File**

Select → **OSPS.oci** → **OK**

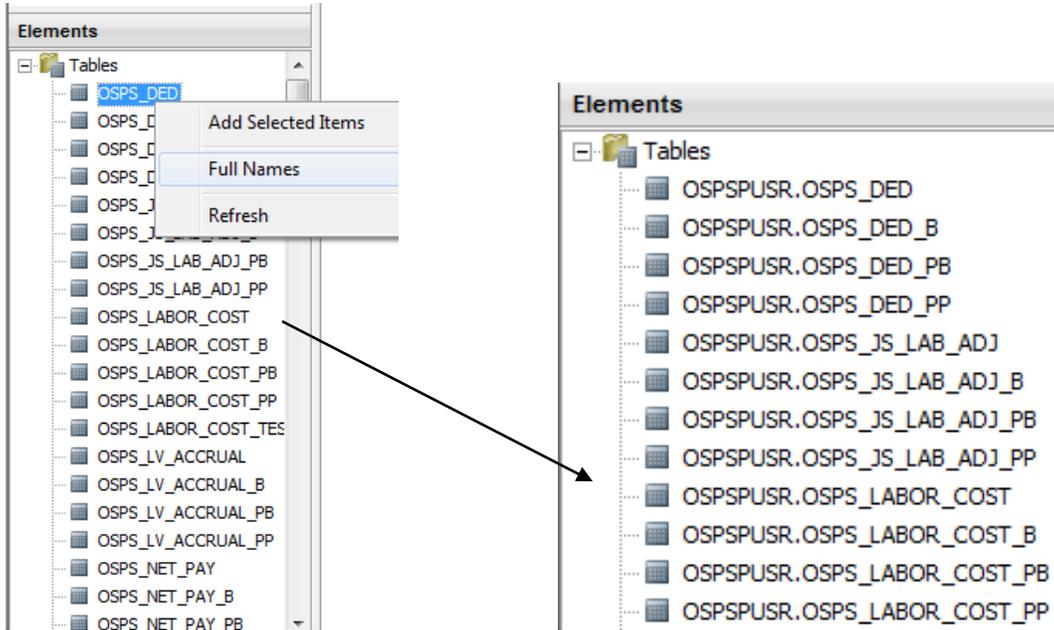
Type → **User Name** and **Password** (this is your assigned Datamart user name and password)

You should now see the following screen:



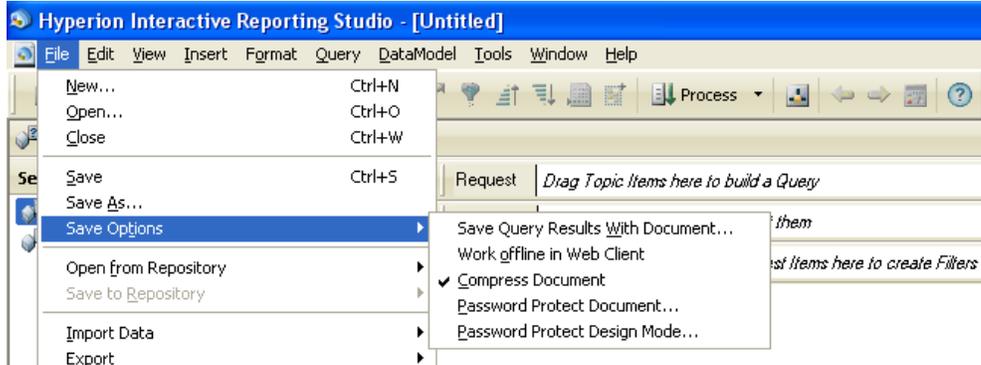
You will have to click on the + next to **Tables** folder within the 'Elements' catalog pane to see all the topics available to use.

You can also right-click on top of the tables to see their full names. This shows you what view or tables these topics are linked.



## Saving a BQY Document

Similar to other applications, you have several choices for saving your .bqy.



*You can save a .bqy by selecting the various options:*

### File→Save

This saves the .bqy under the existing name and updates any changes you have made to the opened document. This does not create a new .bqy document unless it is newly created.

### File→Save As

This takes an existing .bqy document and saves it as a new document with the changes you have made. Use this option when saving a .bqy for the first time or when you desire to keep the existing .bqy document and a new .bqy document.

### File→Save Options→Save Query Results With Document

Use this if you want to perform off-line data analysis of your .bqy.

### File→Save Options→Compress Document

This features results in smaller file sizes and enables you to send your file quickly through the email system.

### File→Save Options→Password Protect Document

Users will need a password to access this document. Be careful! You need to remember your password.

### File→Save Options→Password Protect Design Mode

Password protection used to guard Dashboard designs.

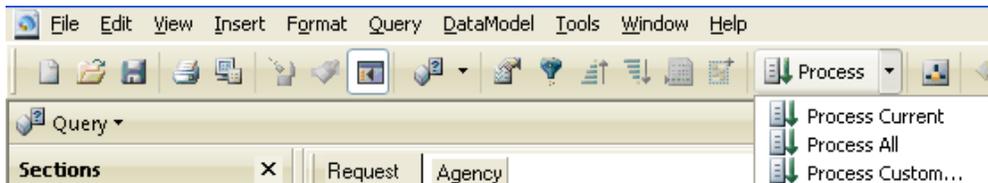
## Processing and Stopping Queries

---

### Processing Queries

This process refreshes the data in the .bqy document based on your requested items and filters specified. When a query is processed Hyperion goes back to the Datamart and retrieves this information for your query. The process time depends on the data you are asking the Datamart to retrieve and the power of the Datamart server and connection to the server.

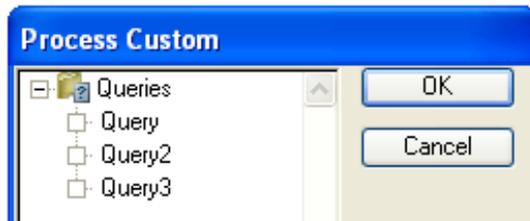
Because your .bqy document could have more than one query, there are three process options to choose from:



**Process Current** → Processes the query that is currently active.

**Process All** → Processes all queries that exist in the .bqy document.

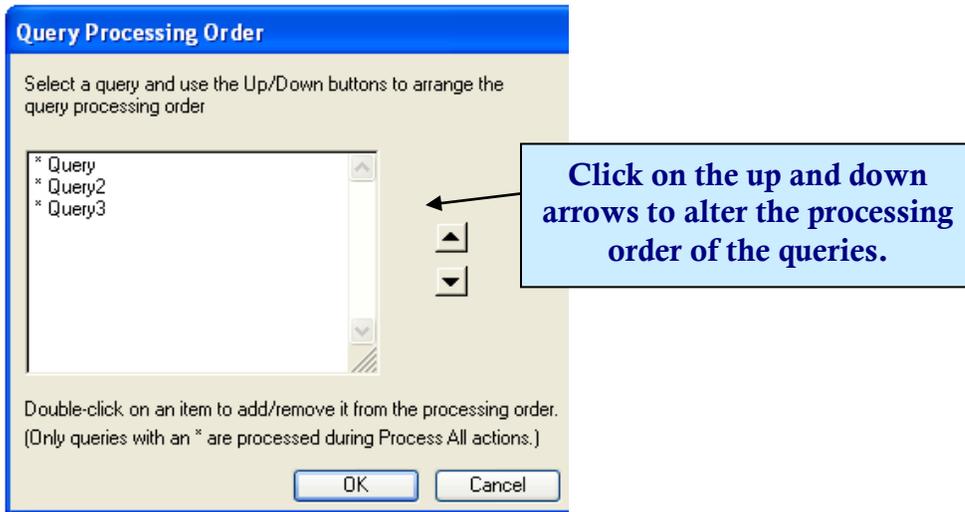
**Process Custom** → Opens a Process Custom dialog box so you can choose which queries to process. Simply put an **X** in the box next to the query.



### Process Order of Queries

It is important to remember how you develop your queries. If you create a .bqy with multiple queries and some of those queries depend upon others in that .bqy, you will want to make sure you order them to process in a certain order.

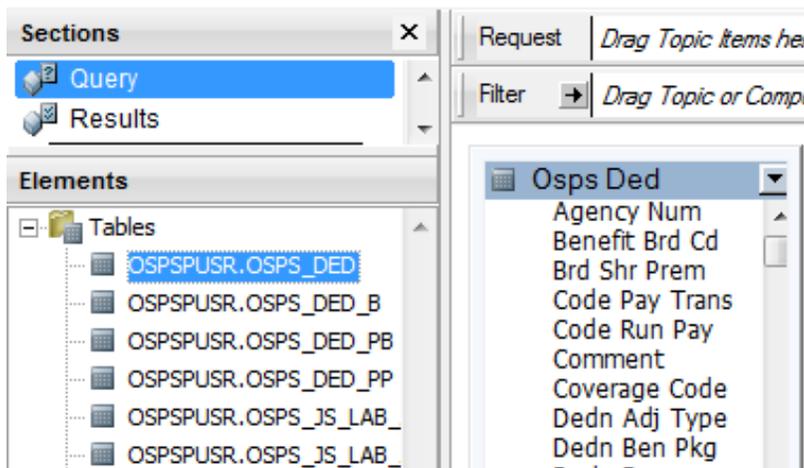
**Tools→Process Query→Process Order**



**Prior to processing a query, you must complete the following steps:**

*Add a 'Table' to your query section:*

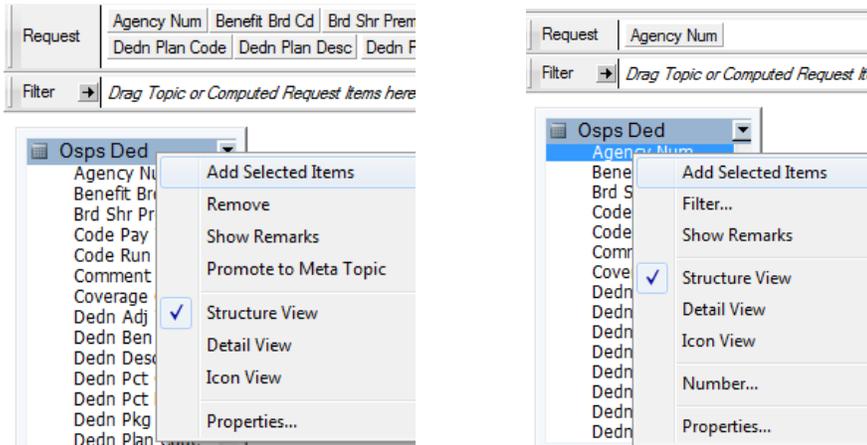
Bring a **Table** over from the **Elements Pane** to the **Content Pane**. You can drag and drop or double-click.



**Add fields in a Table to the Request line:**

**All Fields:** Right-click→Table Name→Left-click→Add Selected Items

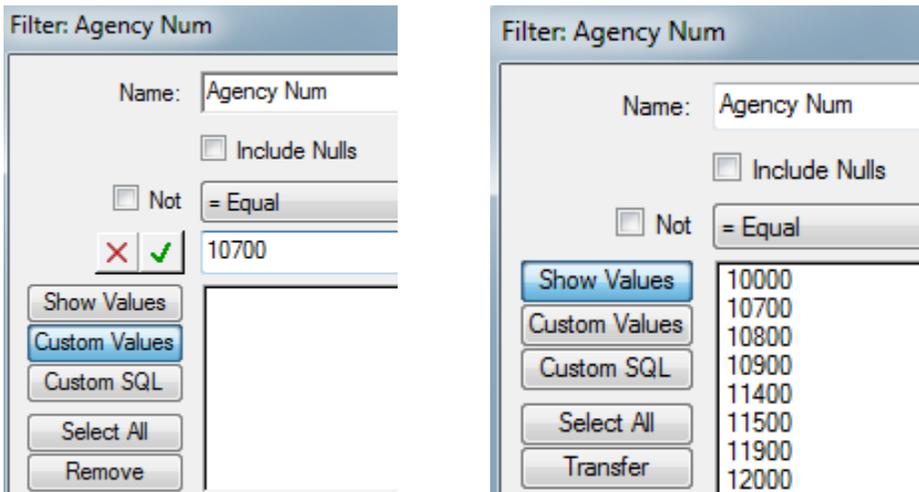
**Individual Fields:** Right-click→Field Name→Left-click→Add Selected Items

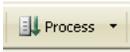


**Create a Filter for your query:**

Double-click→Field Name. A 'Filter' dialog box pops up.

Manually input a value in the 'Custom Values' section and Click→OK or;  
Click→Show Values→Select an option→Click→OK



Select→  from the Standard Toolbar

You will now see your results under the Results section of the Section Pane.

## Stopping Queries

Sometimes when you process a query or queries in a .bqy document you may find the data is not being returned from the Datamart in a timely manner. Users want to be conscious of their query/process time to keep up top performance. It is important that you use the process listed below to stop the query. Exiting out of Hyperion *does not stop* the query process to the Datamart and it will continue to use resources to process the query.

*To stop a query:*

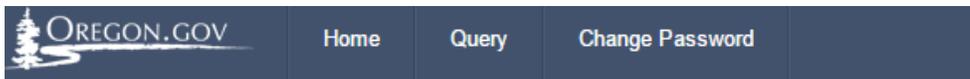
### Open the Internet

Go to → <https://dasapp.state.or.us/DatamartApp>

Log in using your Datamart user name and password

Select from top menu → Query

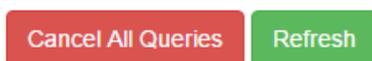
Select → **Cancel All Queries**



## Datamart

These are the queries currently running for **dasby82**

Rows Read	CPU Time (seconds)
255	0.002



Sometimes after you stop a query, you may notice a 'Results' set of data is returned. This is called 'partial data' and you must be careful because these results are *not* complete.

You can also stop a query once it starts providing results.

*Hold down the 'alt' key along with the 'End' key*

Hyperion application 'Status' bar: Sorting (Alt-End to cancel)

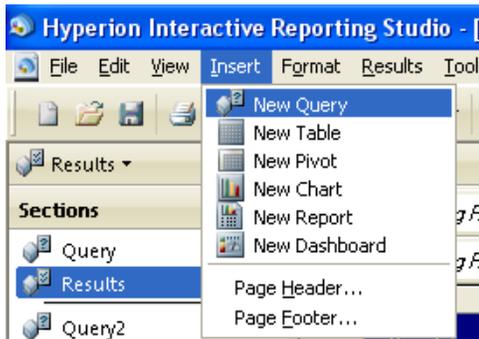
## Adding, Duplicating, Renaming, and Deleting BQY Sections

You can add, duplicate, rename, or delete a .bqy section at any time.

*To add a new section:*

**Insert** → **New** → Select the Section you want to add

Your choices are:

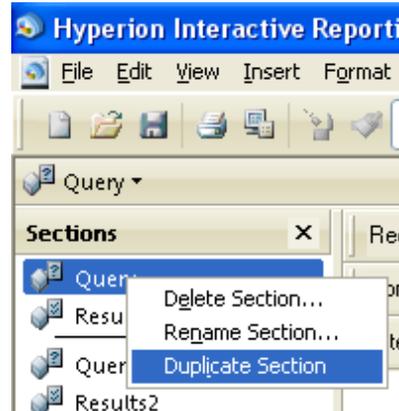


*To duplicate a new section:*

**Edit** → **Duplicate Section**

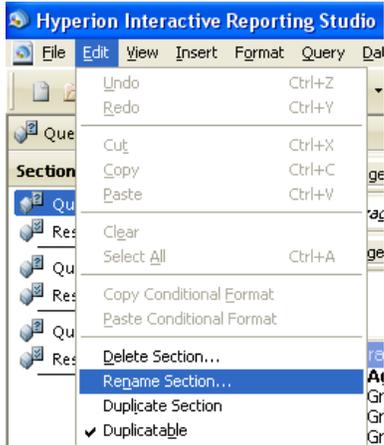


**Right-click on the Section you want to duplicate**

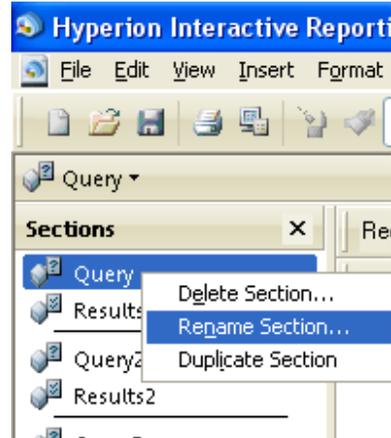


*To rename a section:*

**Edit→Rename Section**

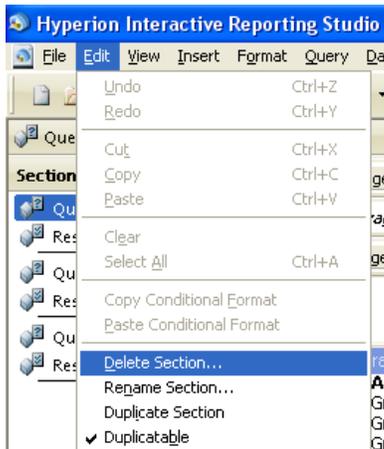


**Right-click on the Section you want to rename**

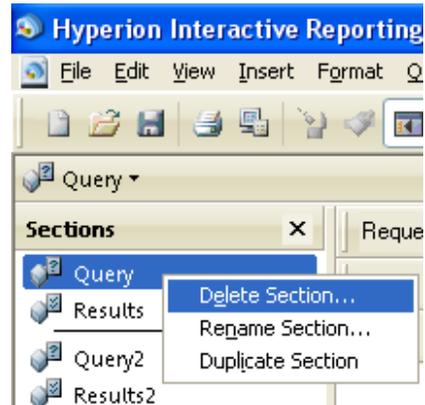


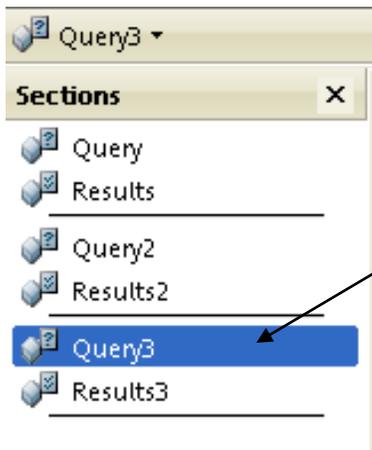
*To delete a section:*

**Edit→Delete Section**



**Right-click on the Section you want to delete**





**In the standard Hyperion application (version 11), you cannot re-arrange the various sections**

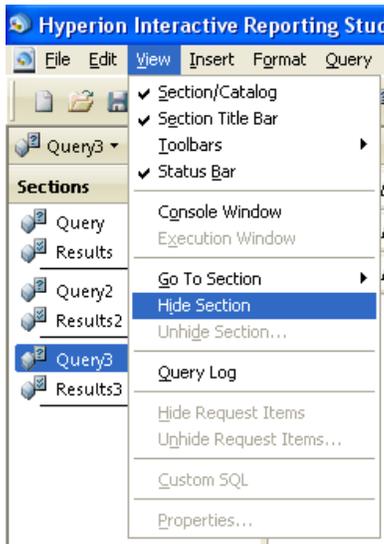
## Hiding a BQY Section

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Often it is helpful to hide a section on the Section Pane for security reasons or making your .bqy more user friendly for the end user.

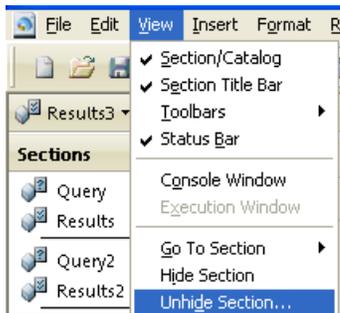
*To hide a section:*

Select **View**→**Hide Section**

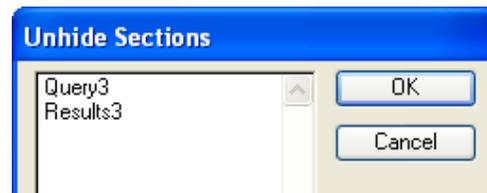


*To show your hidden section:*

Select **View**→**Unhide Section**



Select **Query**→**OK**

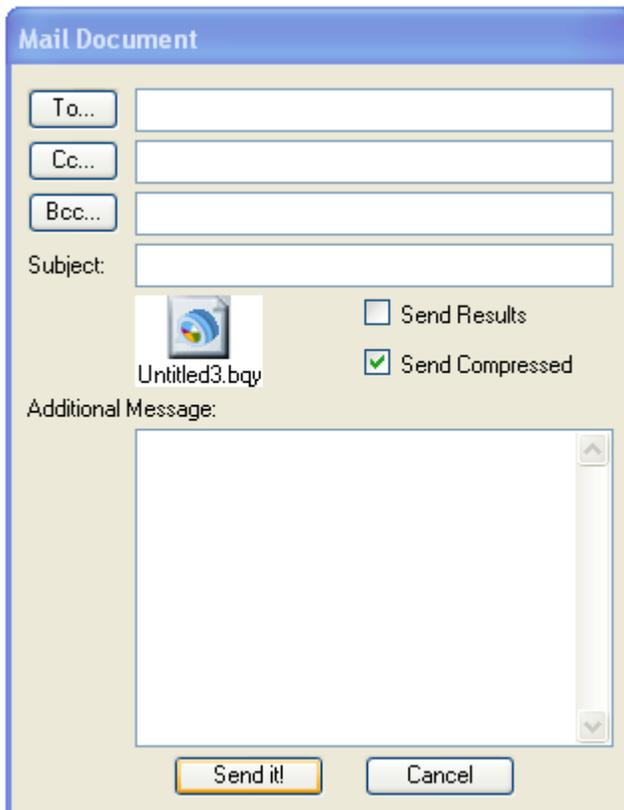


## Sending BQY Documents as Email Attachments

Hyperion Interactive Reporting Studio has the capability of sending .bqy as email attachments.

*To send a .bqy as an email attachment:*

Select **File**→**Send**



**Use To, CC, Bcc, and Subject the same way you do in your regular mail program.**

**Notice you can see the name of your .bqy in the middle of the screen.**

**Select 'Send Results' to include the results section with your file.**

**Select 'Send Compressed' to zip your file prior to email.**

**Notice, you can also type an Additional Message.**

**Send it!**

## Printing BQY Sections

### Adjusting the Page Margins in Print Preview

When your .bqy is complete, you may want to view your finished product and adjust the margins, add page numbers, and headers and footers before to printing or emailing. Prior to Print Preview, you must select the section you want to preview in the Section Pane. **Please note:** The Report & Dashboard Sections do not have a Print Preview mode.

*To Print Preview a section:*

**File**→**Print Preview**

*To adjust the page margins:*

Just put your mouse pointer over the dashed margin lines and click and drag to get your desired margins. You can do this both vertically and horizontally.



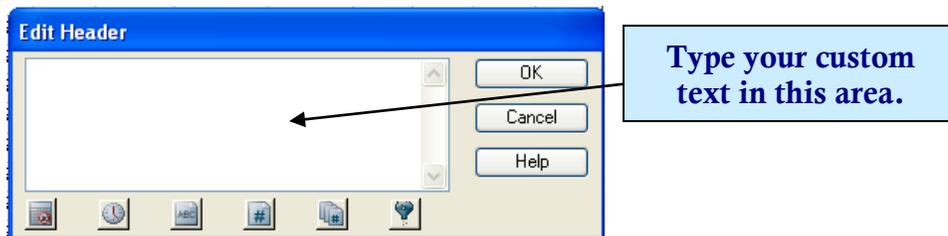
	Agency Num	Benefit Brd Cd	Brd Shr Prem	Code Pay Trans	Code Run Pay	Dedn Adj Type	Dedn Ben Pkg	Dedn Pkg	Dedn Plan Code	Dedn Type
1	10700	N	0.00	C	O		NN	XD	555	XDNN
2	10700	N	0.00	C	O		NN	AG	001	AGNN
3	10700	N	0.00	C	O		NN	AH	001	AHNN
4	10700	N	0.00	C	O		NN	AH	001	AHNN
5	10700	N	0.00	C	O		NN	DO		DONN
6	10700	N	0.00	C	O		NN	DO		DONN
7	10700	S	5.07	C	O		NN	KM	AAA	KMNN
8	10700	S	(154.00)	C	O		NN	OO	001	OONN
9	10700	S	(0.61)	C	O	F	NN	OT	102	OTNN

## Adding Headers and Footers

Adding a Header or Footer to your .bqy section gives you the opportunity to add page numbers, file names, date and time, and query filters.

*To add a Header or Footer:*

Select **Insert**→**Page Header** or **Page Footer**



Date	Time	File	Page	Page	Query
		Name	#	Total	Limits

## Printing Sections

You can print any section of your .bqy.

*To print a Section:*

Click **Section**→**Select File**→**Print**

You can select the correct printer, printer properties, number of copies, and range you would like to print.

## Exercise

---

Name the 6 sections you can create in a .bqy.

- a.
  - b.
  - c.
  - d.
  - e.
  - f.
- 

1. Start a new .bqy using an oce that accesses OSPS data.
2. Expand the Table list on the Element Pane.
3. Bring the 'OSPS Ded' Table over to the Content Pane.
4. Sort the table fields alphabetically. (Hint: Right-click on the title of the table and select properties).
5. Add the following Items to the Request Line:
  - a. Agency Num
  - b. Employee Num
  - c. Tax Year
  - d. Dedn Type
  - e. Dedn Desc
  - f. Dedn Plan Desc
  - g. Pay Dist Code
  - h. Ee Dedn Amt
6. Filter the following Items:
  - a. 'Agency Num' equal to your own agency
  - b. 'Tax Year' equal to the current year
  - c. 'Ee Dedn Amt' not equal to zero
  - d. 'Employee Num' equal to your own employee number.

7. Process the query. Does your query return proper data?

The screenshot shows a Hyperion query interface. At the top, there are fields for 'Request' (Agency Num, Employee Num) and 'Filter' (Agency Num AND Tax Year). Below the filter is a list of fields for the query 'Osp Ded', including Agency Num, Benefit Brd Cd, Brd Shr Prem, Code Pay Trans, Code Run Pay, Comment, Coverage Code, Dedn Adj Type, Dedn Ben Pkg, Dedn Desc, Dedn Pct Gross, Dedn Pct Net, Dedn Pkg, Dedn Plan Code, Dedn Plan Desc, Dedn Plan Distr, Dedn Type, and Ee Dedn Amt. To the right is a table of results with the following columns: Agency Num, Employee Num, Tax Year, Dedn Type, and Pay Dist Code. The table contains 20 rows of data, all for Agency Num 10700 and Tax Year 2013.

Agency Num	Employee Num	Tax Year	Dedn Type	Pay Dist Code
10700	OR0143639	2013	AENN	2001
10700	OR0002521	2013	ADNN	1131
10700	OR0003950	2013	ADNN	2009
10700	OR0010839	2013	ADNN	1120
10700	OR0014282	2013	ADNN	1131
10700	OR0016210	2013	ADNN	2003
10700	OR0018718	2013	ADNN	2021
10700	OR0020479	2013	ADNN	1130
10700	OR0022332	2013	ADNN	1131
10700	OR0025255	2013	ADNN	2006
10700	OR0028800	2013	ADNN	1869
10700	OR0029237	2013	ADNN	1140
10700	OR0031549	2013	ADNN	1134
10700	OR0032022	2013	ADNN	1240
10700	OR0033546	2013	ADNN	1131
10700	OR0040510	2013	ADNN	1600
10700	OR0046334	2013	ADNN	2022

8. Rename your *Query* section as “Query - OSPS Deduction” and rename your *Results* section as “Results - OSPS Deduction”.
9. Duplicate your “Query - OSPS Deduction” section. Notice it automatically alters the name of the new sections.
10. Add a page header to your ‘Results-OSPS Deduction’ section called “Results - OSPS Deduction”.
11. Alert the instructor after correctly completing the exercise. In addition, close the bqy document and do not save.



# *Lesson 4*

## **Hyperion Query Building Processes**

- ✓ **BQY Process**
- ✓ **Managing your Table**
  - **What can I do to the Table Properties?**
- ✓ **Append Queries**
- ✓ **Understanding Joins**
- ✓ **Building the Request Line**
- ✓ **Maximizing the Query Building Process**
  - **Setting Restrictions on your Query Properties**
  - **Estimating the Size of your Query**

## BQY Process

---

BQY documents are files you create and use to retrieve information from a database, analyze the information, and build reports. Because Hyperion is an integrated query, analysis, and reporting tool, documents have multiple sections, each of which governs one part of the query and reporting process. You create sections progressively: first, you query a database, then retrieve results, and last generate reports.

Documents can contain data from any number of relational databases queries, multidimensional database queries, and/or from imported data. Documents usually include one or more of the following items:

- A **DataModel**, which is a visual representation of the actual database tables.

Note: Using the ‘*Sync with Database*’ operation, within the ‘DataModel’ menu, can be very helpful to sync your query with the current database and make sure you have all fields available.

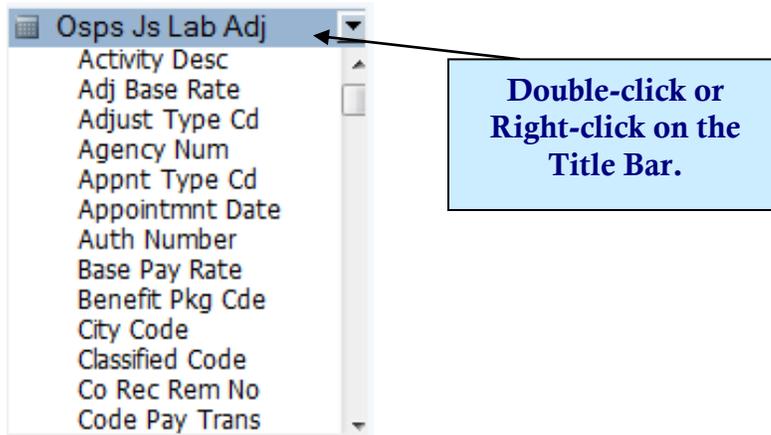
- A **query** or multiple queries for retrieving a subset of data from the database.
- **Join** options, including local joins between different data sets within a single document, local join filters, and optional join path generation.
- A **results and table** set displayed in a table-style format.
- Multidimensional **pivots** that permit drill-down analysis of data results.
- **Charts** that graphically display your query results and allow different angles of vision on the data.
- **Reports** presenting customized hierarchical views of your data.

Most Hyperion documents have at least one ‘query’ section and one ‘results’ section. From the results section, you can create multiple Table, Pivot, Chart, and Report sections to analyze and present data.

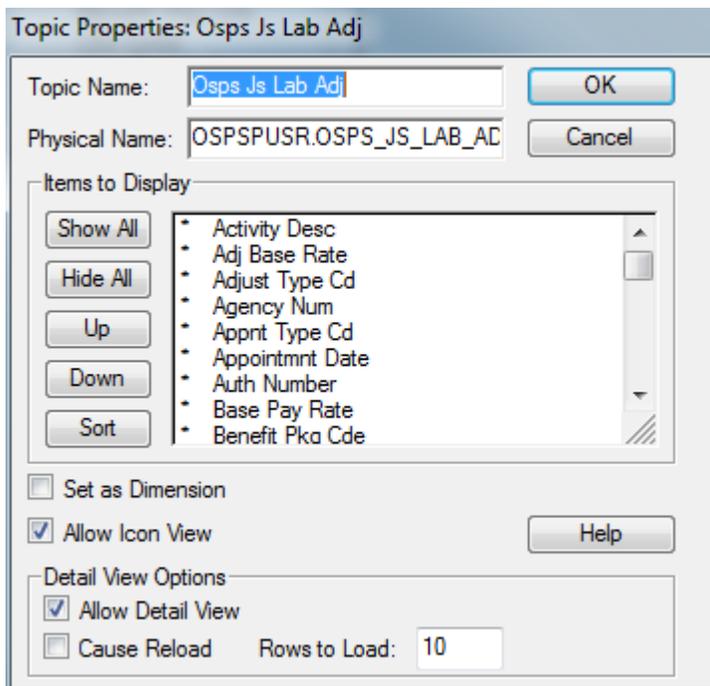
## Managing your Table

---

Shown below is a Table also known as a Topic. By double-clicking on the Topic Title Bar you will open the Properties of the particular Table. You can also right-click on the Title Bar to open the Properties.



Below you can see the Properties of the ‘**OSPS Js Lab Adj**’ table. Notice the Table Name is more user-friendly than the Physical Name. This is a transition change that happens when the data is uploaded from OSPA to the Datamart.



## **What can I do to the Table Properties?**

**Table Name**→ It is possible to change this name to something that is more understandable.

**Physical Name**→ Normally, you would not alter this name. This is the full name of the underlying database table.

**Hide/Show All**→ Hides or actively show all table items.

**Up/Down**→ Moves selected item up or down one space in the topic display.

**Sort**→ Alphabetically sorts listed items.

**Set As Dimension**→ Defines the drill-down path or hierarchy for dimensional analysis as shown in the data model.

**Allow Icon View**→ Enables the icon view option for the table.

**Allow Detail View**→ Enables the detail view option for the table.

**Cause Reload**→ Specifies automatic reloading of server values the next time 'Detail View' is activated.

**Rows to Load**→ Specifies the number of rows to be loaded and displayed in 'Detail View'.

**Icon View - Be Careful! Icon View deactivates a table and reduces it to an icon in the Content frame. This feature will break joins.**

**Detail View, Cause Reload & Rows to Load: If you choose 'Detail View', you will see the amount of rows identified in 'Rows to Load'. You will get an updated value if 'Cause Reload' is checked or 'Rows to Load' is altered.**

## Append Queries

---

When you need to view and merge multiple queries in a combined results set, there are four query operators that allow you to merge two or more separate queries. For example, you may need to merge the results within various OSPS tables. Due to OSPS data being split up by biennium, you need to obtain data from two tables. An append query can come in handy to combine the data. The query operators and their descriptions are:

Query Operator	Description
 Union	All distinct rows selected by either query are retrieved. No duplicate rows are retrieved.
 Union All	All rows selected by either query, including duplicate rows, are retrieved.
 Intersection	All distinct rows selected by both queries are retrieved.
 Except	All distinct rows selected by the first query but not the second query, are retrieved. (Oracle database servers refer to the Except operator as “Minus.”)

To specify an evaluation order, you can click  to add parentheses to an expression, which includes two queries or more. The default evaluation order is left to right.

Note: If your database supports the ‘Intersection’ and ‘Except’ operators, but they are not available in the Operator drop-down list, check the ‘Allow SQL-92 Advanced Set Operations’ within the open catalog extension preference.

The rules governing the use of these operators are:

- The number of columns in the Select clause in both queries *must be equal*.
- The data type returned in the columns in both queries *must match*. For example, if Column 1 in the first query is a date, Column 1 in the second query must also be a date.

Note: Items on the Union line can be repositioned to see the results of different intersections.

To append a query:

1. Verify data types and associated column(s). This ensures that you know how to merge data in the second query.
2. Build the first query. Add tables to the content pane and update the request line, include filters, data functions, and computations, as needed.
3. On the ‘**Query**’ menu, click ‘**Append Query**’.  
Note: A drop-down list and a second query tab is added below the Request, Filter, and Sort lines. The drop-down list shows whether the queries are linked by way of an Append query (union, union all, intersection, or except).

4. Build the second query. Note: Do not alter the original query; you only need to add the append information next to the first.
5. Select the appropriate Append query operator to use from the Operator drop-down list.
6. Click the **Process** button.

## Understanding Joins

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Tables in relational databases share information through a conceptual link, or *join*, between related columns in different tables. These relationships are displayed in Hyperion through visual join lines between fields.

Joins enable you to connect or link records in two tables by way of a shared data field. Once a data field is shared, other data contained in the joined tables can be accessed. In this way, each record can share data with another record; however, it does not store and duplicate the same kind of information.

Joins can be automatically created for you, or you can manually join topics.

To manually create a join:

1. Select a field within a table to join. The field must have a relationship or link to another chosen field.
2. Drag the desired field from the initial table to the other table and drop it on the other common field. This automatically creates a 'simple' join type.

**Join types** determine how data is retrieved from a database; however, not all database servers support all join types.

To specify a join type:

1. Select a join line and select the 'View' menu, then 'Properties' or select a join line, right-click on the join line and select 'Properties'. The 'Join Properties' dialog box is displayed.
2. Select a join type and click OK.

Four types of joins are supported:

- Simple join (=, <>, <, >, >=, <=): A simple (linear) join retrieves the records in both tables that have an identical data in the joined columns. You can change the default join setting for simple joins by choosing an operator from the drop-down box. The default setting, Equal, is preferred in most situations.
- Left join (+=): A left join retrieves all rows from the topic on the left and any rows from the topic on the right that have matching values in the join column.

- Right join (=+): A right join retrieves all rows from the topic on the right and any rows from the topic on the left that have matching values in the join column.
- Outer join (+|=+): An outer join combines the impact of a left and right join. An outer join retrieves all rows from both tables matching joined column values, if found, or retrieves nulls for non-matching values. *Every row represented in both topics is displayed at least once.*

## **Building the Request Line**

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As you build your query, you can reorder, remove, or hide items on the Request line. This allows you to change the way in which the query processes and displays.

### ***Reordering Request Items***

You can move Request items to reorder them for viewing results.

- To reorder items on the Request line, select the item to be moved and drag it to a new location on the Request line.

### ***Removing Request Items***

You can remove items from the Request line to exclude the data from your query or Results set.

- To remove an item from the Request line, select the desired item and complete one of the following actions:
  - Click the Delete button on the standard toolbar.
  - Click Remove on the shortcut menu.
  - Press the Delete key.

If you have not yet processed the query, Interactive Reporting removes the item from the Request line.

If you have previously processed the query, the Report Refresh dialog is displayed with this message: “The section XXXX (section) references the following removed column(s): XXXX (column name). Do you want to keep references to these columns or turn off auto-refresh or remove them with the query is next processed?” You can select to keep the references, or remove them.

**Caution!** Remove items with caution as a computed item or report may draw data from the item you delete.

### ***Hiding Request Items***

You can hide items that are displayed on the Request line. This allows you to incorporate data in the results set without displaying it. Hidden request items cannot be referenced for computations.

- To hide a request item, complete one of the following actions:
  - Select the item and click Hide on the shortcut menu.
  - Select the item and choose View, then Hide Request Items.
  
- To show a hidden request item:
  1. Complete one of the following actions:
    - Right-click in the Request line and click Unhide on the shortcut menu.
    - Select the 'View' menu, and then select 'Unhide Request Items'.

The Unhide Columns dialog box is displayed.

2. Select the items to unhide and click →OK.

When you have identified the fields to include in the query, you can perform a number of other operations before processing the query. You can add filters to the filter line, as well as, add computed items to the Request line, or you can use a Request line fields to specify a sort order within the Sort line.

## **Maximizing the Query Building Process**

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It is good practice to routinely manage your query process. Often, you may be processing a query for the first time and will be unsure of your results and want to prevent a runaway query. There are properties you can control in order to view smaller datasets of your query.

### **Setting Restrictions on Your Query Properties**

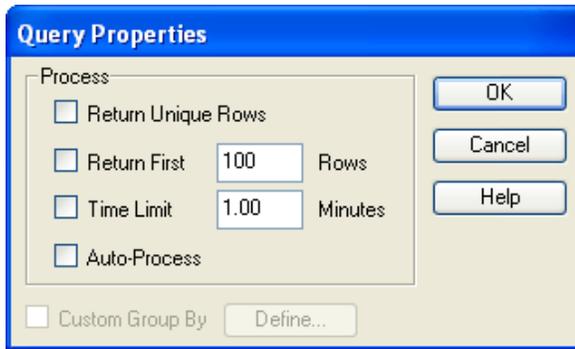
This process allows you to put restrictions on your query process prior to running the query. You can set a temporary constraint on the query to return a specific number of rows or to process for a specific number of minutes and then stop. You can also set the query to return only unique rows.

*To access Query Properties:*

Select **Query** → **Query Options**

Or

Double-click → **Request** on the **Request Line**



**Return Unique Rows** → Eliminates duplicate rows from the dataset retrieved by the query. Only unique rows are returned.

**Return First** → Filters the number of database rows retrieved to the number entered. You must enter a row filter and check mark the box.

**Time Limit** → Limits the amount of time the query is allowed to run to the number entered. Seconds are entered as a decimal number. Time limits work for asynchronous (having only each operation started only after the preceding operation is completed) database connections and cancel at the earliest opportunity for non-asynchronous connections.

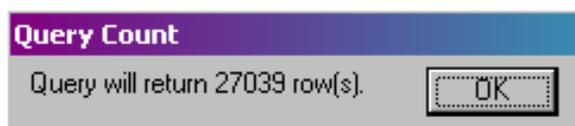
### Estimating the Size of Your Query

Queries that sift through and retrieve enormous amounts of data can take a long time to process, and may consume unnecessary system and server resources. If you suspect these factors exist, you may want to limit the size of your query before you hit the process button.

The 'Estimate Query Size' feature queries the database to see how many records your query will retrieve. You can use this feature to test a questionable query or to decide whether to prevent or postpone processing a large dataset during peak times. The estimating process will return a count very quickly.

*To Estimate the Size of Your Query:*

Select **Query** → **Estimate Query Size**



## Exercises

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### 4A)

1. Start a new .bqy using an oce that accesses OSPS data.
2. Bring the 'OSPS Labor Cost' table over to the Content Pane.
3. Open the 'Properties' dialog box for the 'Labor Cost' table and sort the fields alphabetically.
4. Hide any fields starting with a letter "S". (Hint – Individually click on the \* in front of each item name.)
5. Enter 15 as the value of 'Rows to Load' and check the 'Cause Reload' box.
6. Select OK.
7. Display the Table in 'Detail View'. You should see 15 total rows of data. Expand the table to view multiple columns.
8. Display the Table in 'Structure View'.
9. Unhide or show the previously hidden fields from step 4. (Hint: Table properties and click the 'Show All' button).
10. Add all the fields, in the OSPS Labor Cost table to the Request Line.
11. Estimate the size of this query. (Discuss answer with instructor)
12. Remove the Table from the Content Pane. This removes the fields from the Request Line.
13. Once complete, close the bqy document and do not save. Continue to the next exercise.

4B)

1. Open an existing bqry file titled 'OSPS-Lesson4b'. (See instructor for location.)
2. Click on the 'Query' section and log into the Datamart using an account, which accesses both OSPA and SFMA data. (See instructor for location.)
3. Expand the Tables folder within the Elements section and add the SFMS 'Agency' table to the Content Pane.
4. Join the 'Agency' (profile) table to the 'OSPS Labor Cost' table. Create a 'simple join' from 'Sfms Agency' (OSPS Labor Cost) to 'Agency' (Agency table). (Hint: Drag and Drop).
5. Add the following Items to the Request Line:
  - a. Agency table
    - i. Agency Title
  - b. OSPS Labor Cost table
    - i. Agency
    - ii. Appn Year
    - iii. Employee Num
    - iv. Number of Hours
6. Reorder the items on the Request Line to the following: Agency, Agency Title, Appn Year, Employee Num, Number of Hours, and (Sum) Trans Amt.
7. Hide the 'Employee Num' field from the Request Line.
8. Process the query. (Note: This file contains a variable filter on OSPS-Agency, which will need updated based on the user's current agency. Input 5 digit OSPS agency code) (Note: The file is set to only retrieve 100 rows. A pop-up window will appear and let you know when this limit is reached.)
9. Once complete, close the bqry document and do not save. Continue to the next exercise.

4C)

1. Start a new .bqy using an odc that accesses OSPS data.
2. Insert the 'OSPS Net Pay B' table onto the Content Pane and sort the table fields.
3. Add the following Items to the Request Line:
  - a. Agency Num
  - b. Retire Sub Incl – (Note: PERS Subject Wages)
  - c. Retire Sys Cd1 – (Note: PERS Tier Code)
  - d. Pay Period End
  - e. Load Date
4. Filter the following Items:
  - a. 'Agency Num' equal to your own agency
  - b. 'Pay Period End' greater than or equal to 07/01/09 (Hint: This is a custom value, which needs manually entered.)
  - c. 'Retire Sub Incl' not equal to zero
5. Select the 'Query' menu, then 'Append Query'. Verify the 'Query Operator' is set to 'Union All'.
6. Build the second query. This includes adding the 'OSPS Net Pay PP' table to the Content Pane. In addition, repeating all the request line items and filters added from steps 3 & 4 above; however, this time use the fields from the 'OSPS Net Pay PP' table.

Note: All fields on the request and filter lines must be in the same order as the original query information.

7. Process the Append query.
8. Sort the 'Results' section by 'Pay Period End'.
9. Alert the instructor after correctly completing the exercise.



# *Lesson 5*

## **Filters and Sorts**

- ✓ **Filtering Queries**
  - **Setting Filters**
  - **Creating Custom Values List**
- ✓ **Modifying Filters**
  - **Ignoring Filters**
  - **Removing Filters**
  - **Filter Line Logic and Order of Operations**
- ✓ **Variable Filters**
  - **Customizing Variable Filters Dialog Box**
- ✓ **Sorting Data**
- ✓ **Data Functions on the Requested Items**

## Filtering Queries

---

For most queries it is necessary to set a filter on the amount of data to be returned. The Datamart contains massive amounts of data, and you want to avoid requesting unnecessary information. Before processing a query, set the appropriate filters in the Query Section.

**In the Query Section, you can:**

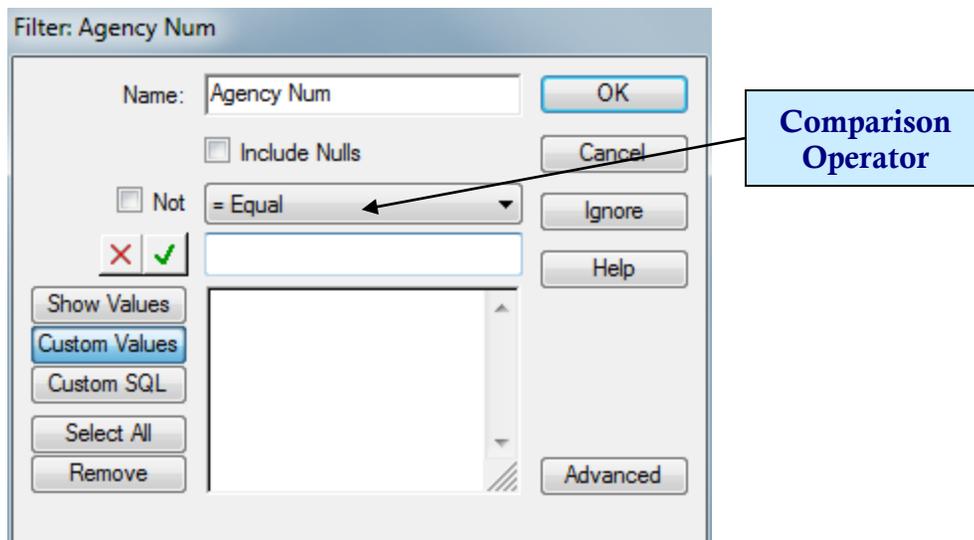
1. Manually specify filter values
2. Query the Datamart for filter values
3. Create custom lists of filter values
4. Define compound filter formulas on the Filter Line
5. Set filters as variables to prompt the user to select certain values

### Setting Filters

*To set a filter:*

- 1) To show the Filter Line: Select **Filters(0)** from the **Section Title Bar**
- 2) Drag and drop the **Table field** you want to filter to the **Filter Line** or double-click the **Table field**

The Filter dialog box will now be displayed on your screen, if your OCE is active. Otherwise, you must log into your OCE, prior to moving forward.



- 3) From the drop-down list → Select a **Comparison Operator**
- 4) In the Edit text box → **Type Values** – Separated by *commas*
- 5) Select → **Green** ✓ to add the values in the Edit text box to the Custom Values List
- 6) Select → One or more **values**
- 7) Select → **OK**

**Name** → Displays the name of the filter – it defaults to the field name but you can modify it to say whatever you like.

**Include Nulls** → Check mark this box to include null values.

**Operator** → Select an operator function from a drop-down list.

<b>Operator</b>	<b>Description</b>
Equal =	Retrieves records where the filtered item equals the specified value(s).
Not Equal (≠)	Retrieves records where the filtered item does not equal the specified values(s).
Less Than (<)	Retrieves records where the filtered item is less than the specified values(s).
Less or Equal (<=)	Retrieves records where the filtered item is equal to or less than the specified value(s).
Greater Than (>)	Retrieves records where the filtered item is greater than the specified value(s).
Greater or Equal (>=)	Retrieves records where the filtered item is equal to or greater than the specified value(s).
Begins With	Retrieves records where the filtered item begins with the specified value(s) up to and including the end value.
Contains	Retrieves records where the filtered item contains the specified value(s) regardless of location.
Ends With	Retrieves records where the filtered item ends with the specified value(s).
Like (with wildcards)	Retrieves records where a text string appears and reflects the placement of the specified values(s).  For example: Names Like %LI_ would retrieve records for all employees whose names have the letters <b>li</b> followed by a single character at the end.

	So, “%” represents multiple characters and “_” represents a single character.
Is Null	Retrieves records where the filtered item has no value; for example, a field in which no data has been entered.
Between	Retrieves records where the value of the filtered item lies between (and including) the specified values.
Not (with operator)	Negates the operator it precedes, reversing the results of the equation.

**Not**→ Reverses (inverts) the operator selected from the drop-down list. For example, if you select ‘Equal’ from the operator list and then choose **Not**, the operator is effectively changed to ‘Not Equal’.

**Edit Line**→ Enter a value or multiple values (**separated by a comma, no spaces**) and select the green ✓ to add the item(s) to the custom values list to complete the filter information. Select the red X to erase the contents of the Edit field.

**Show Values**→ Retrieves a list of values from the Datamart (or from the dataset in the Results section) and allows you to choose a value based on the data available. ‘Show values’ cannot be used for filtering computed or aggregated items.

**BE CAREFUL! Since ‘Show Values’ goes directly to the Datamart and searches for the specified values it may take a while to return information. This means it searches all the data for exact values. If you think what you are asking for might be large, don’t select ‘Show Values’; manually type your request in the Edit Line.**

**If you are setting a filter while in the Result Section don’t hesitate to use Show Values. Using Show Values in the Results Section only searches the information within your file.**

**Transfer**→ Displays after you’ve selected Show Values – moves values from the Show Values section to the Custom Value list window, allowing the user to select the value from a list.

**Custom Values**→ This is the default value when you set a filter. One reason to use custom value lists within a document is many data items rarely change, if at all. For example, an Agency field should stay constant when obtaining your own agency data, while the Agency Object field may change periodically. When data stays constant, it makes sense for users to select from a custom values list, rather than continuously querying to show updated Datamart values.

**Select All**→ Selects all values displayed in the displayed value area.

**Remove**→ Removes highlighted values from the custom value list or a filter.

**Ignore**→ Temporarily suspends a filter without deleting it.

**Custom SQL**→ Displays the custom SQL dialog box for coding Filters directly in SQL. The Custom SQL button appears only if you access the Filter dialog box from the Query Section.

**Advanced**→ Displays Loaded Value settings and Subquery Options.

**Loaded Values Settings**→ Toggles a custom values list to be read from a file or from the Datamart. Change File allows you to specify the file name. If you read values from a text file, vertical tabs or paragraph markers must delimit each value. Use Show Values to display the file contents.

## Creating Custom Values List

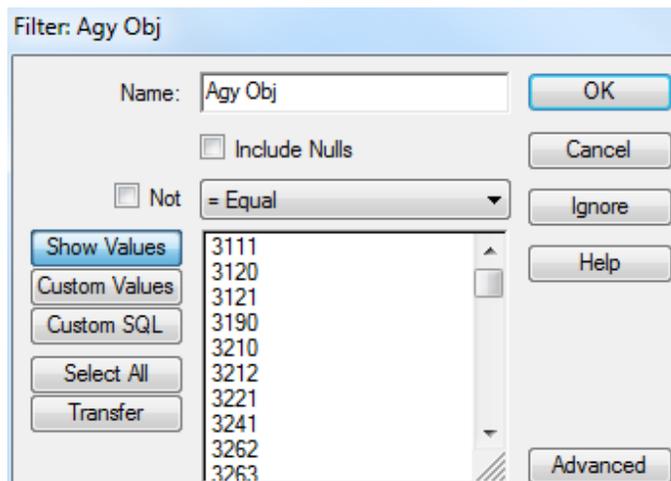
When creating a custom value list, you do not always have to know your filters prior to setting them up. You can directly query the Datamart for specific values to filter. It is **recommended to only use this on fields that rarely change**.

Once filter values are retrieved from the Datamart, you can transfer them to a Custom Values list so they are stored locally within the .bqy. Again, you should only do this if the filter values rarely change. However, if those values change occasionally, you will need to renew the Custom Values list to keep it current with the values in the Datamart.

### *To create a Custom Values List:*

- 1) Drag and drop the **Table Item** you want to filter to the **Filter Line** or double-click the **Table Item**

The Filter dialog box will now be displayed on your screen, if your OCE is active. Otherwise, you must log into your OCE prior to moving forward.



- 2) From the drop-down list → **Select a Comparison Operator**
- 3) Select → **Show Values**
- 4) Select → **Select All** or Select the specific values you want
- 5) Select → **Transfer**
- 6) Select → **Values you want for the Filter**
- 7) Select → **OK**

## **Modifying Filters**

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A Filter can always be modified. You can change the values and settings permanently, temporarily ignore it, or delete it.

*To modify a Filter Item:*

- 1) In the Query Section → **Double-click the Filter Item**
- 2) Make your changes to the Filter dialog box
  - Operator**
  - Type and select new values**
  - Show Values and select from a new values list**
  - Remove values from the Custom Values List**
- 3) Select → **OK**

## **Ignoring Filters**

You can temporarily ignore a filter without deleting it.

*To ignore a Filter Item:*

- 1) In the Query Section → **Double-click the Filter Item**
- 2) Select → **Ignore**

## **Removing Filters**

You can permanently remove a Filter Item.

*To remove a Filter Item:*

Select the **Filter** → Right-click → Select **Remove**

## Filter Line Logic and Order of Operations

The Filter Line in the Query Section provides 'AND' and 'OR' operators, as well as, parentheses to control the logic and order of operations of the filters. These features are available only in the Query Section so keep this in mind when creating a query.

By using 'AND', 'OR', and parentheses, you can create complex filters and use an item on the Filter Line as many times as needed. When you add duplicate items on the Filter Line they are numbered consecutively.

Request	Agency Num	Employee Name	Transaction Code	Lv Type	Lv Hours	Pay Proc Date	Rept Dist Code		
Filter	Agency Num	AND	Transaction Code	AND	Lv Type	AND	Pay Proc Date	OR	Pay Proc Date2

**The Filter Line above is asking for Transaction Code = 90, Lv Type = SL 'AND' Pay Proc Date equal to 4/30/12 'OR' Pay Proc Date2 equal to 5/31/12.**

**After processing this query and reviewing the Results section, you may be surprised by the final data.**

**The results return the proper limited data for 4/30/12 based the filters above; however, the data returned for 5/31/12 showed all the Transaction Codes and Lv Types, due to standard operation of the 'OR' function.**

The following rules apply to all **Filter** Line expressions:

→By default, *all equations are solved from left to right*, when enclosed sub-operations evaluated first.

→**AND** is evaluated before **OR**.

→The **AND** operator retrieves data that meets **both** conditions. Both conditions have to be true to get information returned. For example, if you query agencies, and filter 'Agency Num' to '10000' AND '10700', the dataset returned will include both agencies.

→The **OR** operator retrieves data that satisfies **either** of two condition. For example, if you filter 'Agency Num' to '10000' OR Transaction Code to '90', the dataset returned would include Agency 10000 and information about Transaction code 90.

→Sub-Operations override the default evaluation order and may be required for certain operations that involve both 'AND' and 'OR' operators.

*To set AND, OR, or parentheses on the Filter Line in the Query Section:*

1) **Drag** two or more **table items** to the **Filter Line**→Define individual filters in the Filters dialog boxes. **(The AND operator is displayed by default.)**

2) Select →  on the left side of the Filter Line

3) Select from the filter controls to complete the equation  
To toggle from 'AND' and 'OR', click the operator.  
To enclose Sub-Operations, select items to be enclosed and then click the parentheses button.  
To remove parentheses, select them and click the parentheses button.

## Variable Filters

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Once a filter is created in the Query Section, you can construct it using the variable filter feature to prompt for values when the query is processed. Using variable filters eliminates the need for multiple queries using different filter values. You can use one query to return multiple datasets for different users.

Variable filters work great with Custom Values Lists. If a Custom Values List is created, you can answer the prompt with a choice from the Custom Values List. Each time a user processes the query, the filters are selected from the Custom Values List rather than being recreated.

### *To create a Variable Filter:*

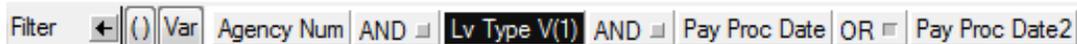
- 1) In the Query Section make sure to display the Filter Line

- 2) Select →  Filter →

- 3) Select → **Filter Item** → **Var** on the Filter Line

Or

Right-click the Filter Item → Select **Variable Filter**



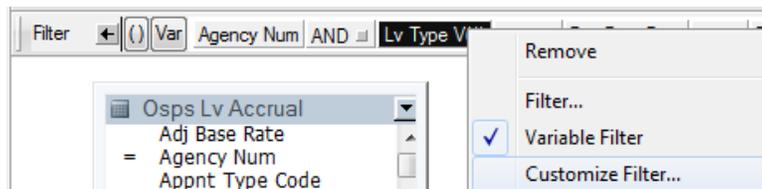
The Filter Item is displayed with a V(1) next to it. If you increase the Variable Filters, they incrementally change to V(2), V(3), etc.

## Customizing Variable Filters Dialog Box

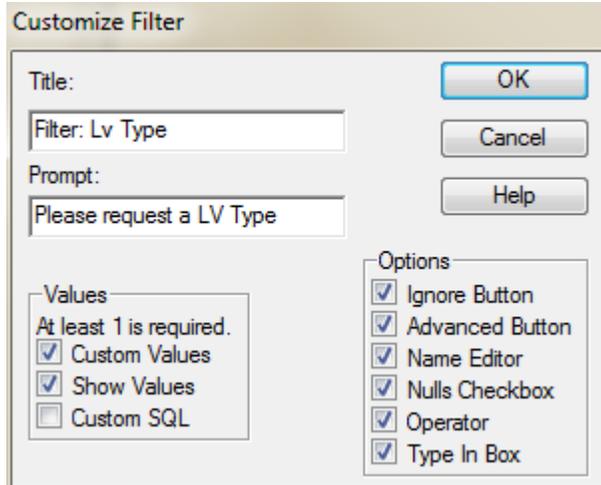
The Custom Filter dialog box allows you to control access to the features available in the Filter dialog box. This is useful when you distribute the .bqy to end users. It may be preferable to disable or even remove such features as the 'Ignore Button' or the 'Custom SQL' option. However, don't forget that *customizing only affects a single filter*.

*To customize a variable filter:*

- 1) Display the Filter Line in the Query Section
- 2) Select → Variable Filter Item to be customized → Right-click → Select **Customize Filter**



- 3) From the **Customize Filter** dialog box shown below you can do the following:



**Prompt** → It adds a user-friendly message for display when prompted.

**Values** → Select Values you are giving end users access to use.

**Options** → If these are check marked, you are giving the end user access to complete these options.

## Sorting Data

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Use the Sort Line in the Query Section to sort data before it is returned from the Datamart. You can only include items on the Sort Line that also exist on the Request Line.

The appearance and functionality of the Sort Line is nearly identical in the Query, Results, and Table Sections. In each section, the Sort Line uses a drag-and-drop method similar to the Request and Filter Lines. Data sorted in the Results and Table Sections are sorted on your desktop and not directly from the Datamart.

Request	Agency Num	Employee Name	Transaction Code	Lv Type	Lv Hours	Pay Proc Date	
Filter	→ Agency Num	AND	Lv Type V(1)	AND	Pay Proc Date	OR	Pay Proc Date2
Sort	Rept Dist Code	Employee Name					

*To use the Sort Line in the Query, Results, or Table Sections:*

- 1) Make sure to display the **Sort Line** if needed by selecting 'Sort' on the Section Title Bar
- 2) Select → Table Item on the Request Line you wanted sorted → Drag-and-drop this Table Item onto the Sort Line
- 3) Select →  on the Standard Toolbar or → Double-click the **Table Item** on the **Sort Line** to toggle **sort ascending** or **sort descending**
- 4) **Review your Sorted Data**
  - If you are sorting in the Query section, the data is sorted by the Datamart server when you process the query.
  - If you sort in ascending order, an up arrow appears to the right of the item name on the Sort Line; if you sort in descending order, a down arrow appears.
  - If you are sorting in the Results or Table Section, the 'Sort Now' button must be selected before the data order is altered.

Sort Now	Agency Num	Employee Name	Lv Type	Pay Proc Date
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## **Data Functions on the Requested Items**

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You can apply a data function to an Item on the Request Line in the Query Section to compute an aggregated value. An *aggregated* value is a summarized value. You can summarize items to show averages, sum, minimum, maximum, and count functions to name a few. By setting these aggregated data functions in the request area you are creating a smaller result group and demanding less of the Datamart.

If you need both summary data and increasing levels of detail breakdown in your reporting or analysis, do not aggregate data in the Query Section.

Listed below are the data functions you can choose from using Hyperion. Although most data functions are applied in the Query Section, you can use many of them in the Pivot, Chart, or Results Sections. You cannot apply data functions to the Table Section. In Report Sections, you can apply data functions only if you select a single fact column. You can also change the way data functions are computed.

<b>Data Function</b>	<b>Description</b>	<b>Where Can I Use This?</b>
None	Returns unaggregated values as stored in the database. This is the default option in the Query Section.	Query
Sum	Returns sum of underlying values.	Query, Pivot, Chart, Results, Report
Average	Return average of underlying values.	Query, Pivot, Chart, Results, Report
Minimum	Returns lowest of underlying values.	Query, Pivot, Chart, Results, Report
Maximum	Returns highest of underlying values.	Query, Pivot, Chart, Results, Report
Count	Returns number of underlying values.	Query, Pivot, Chart, Results, Report
Count Distinct	Returns the number of distinct values in a column. This function is not supported by all database servers.	Query, Pivot, Report
Weight	Use for computing weighted items in pivot tables.	Query

Null Count	Returns number of nulls among underlying values	Pivot, Chart, Report
Non-Null Count	Returns number of underlying values; null values excluded.	Pivot, Chart, Report
Non-Null Average	Returns average of underlying values; null values excluded.	Pivot, Chart, Report
Standard Deviation	Returns standard deviation of values. This function is not supported by all database servers.	Query
Variance	Returns variance of values. This function is available through Oracle servers only.	Query
% of Column	Returns sum of all underlying values as a percentage of their respective surface column.	Pivot
% of Row	Returns sum of underlying values as a percentage of their respective surface row.	Pivot
% of Grand	Returns sum of underlying values as a percentage of all surface values in the report.	Pivot, Chart
% of Category	Returns group total percentage of the selected value.	Report
Increase	Calculates the increase between the previous two rows or columns.	Pivot
% Increase	Calculates the percentage increase between the previous two rows of columns.	Pivot
Title	Returns column names.	Report

*To use apply a data function on a Request Line Item in the Query Section:*

- 1) Right-click on the **Item on the Request Line** → **Select Data Function** → Select desired Data Function

Here are some examples of non-aggregated data vs. aggregated data:

**Example 1**

This query shows non-aggregated data using the OSPS Labor Cost table.

Request	Agency	Pca	Appn Year	Trans Amt	Agy Trans Date		
Filter	→ Agency	AND	Employee Num	AND	Trans Amt	AND	Pay Period End

	Agency	Agy Trans Date	Appn Year	Pca	Trans Amt
1	10700	02/28/13	13	42020	5,304.00
2	10700	02/28/13	13	42020	1.70
3	10700	02/28/13	13	42020	0.95
4	10700	02/28/13	13	42020	1,385.71
5	10700	02/28/13	13	42020	98.10
6	10700	02/28/13	13	42020	1.79
7	10700	02/28/13	13	42020	398.01
8	10700	02/28/13	13	42020	337.96
9	10700	02/28/13	13	42020	830.21

**Example 2**

This query shows a 'Sum' Data Function on the 'Trans Amt' Item within the OSPS Labor Cost table.

Request	Agency	Pca	Appn Year	SUM(Trans Amt)	Agy Trans Date		
Filter	→ Agency	AND	Employee Num	AND	Trans Amt	AND	Pay Period End

	Agency	Agy Trans Date	Appn Year	Pca	Trans Amt
1	10700	02/28/13	13	42020	8,358.43

## Exercises

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### 5A)

1. Start a new .bqy using an oce that accesses OSPS data.
2. Expand the Table Elements and add the 'OSPS\_Lv\_Accrual\_B' table to the Content Pane. (Sort the table fields alphabetically)
3. Add the following Items to the Request Line:
  - a. Agency Num
  - b. Employee Num
  - c. Pay Proc Date
  - d. Transaction Code
  - e. Lv Hours (Use the '*Sum*' data function)
  - f. Lv Type
4. Filter on 'Agency Num' equal to your current agency, 'Lv Type' equal to 'VA', and 'Transaction Code' equal to 90.
5. Filter the maximum rows returned to 100 (\*\*Hint: Lesson 4 – '*Return First*'; p.4-8 & 4-9).
6. Process the query.
7. Sort the Results Section by 'Employee Num' and 'Pay Proc Date'.
8. Remove the 'Return First - 100 Rows' feature.
9. In the Query section, add a filter for 'Pay Proc Date'. Use the 'Between' data function to show data between the current month and two months prior. (Note: You can manually type in the dates, separated by a comma or select dates from the 'Show Values' button.)
10. Process the query.
11. In the Results section, add a filter of 'Lv Hours' not equal to zero.
12. Once complete, close the bqy document and do not save. Continue to the next exercise.

5B)

1. Start a new .bqy using an odc that accesses OSPS data.
2. Expand the Elements Pane and bring the 'OSPS Js Lab Adj PB' table to the Content Pane.
3. Sort the fields in the table alphabetically.
4. Add the following fields to the Request Line:
  - a. Agency Num
  - b. Pay Type Code
  - c. Pay Period End
  - d. Number of Units (Use the '*Sum*' data function)
  - e. Classified Code
  - f. Hourly Pay Rate
5. Filter the 'Agency Num' to your current agency and 'Pay Period End' equal to the final month in the table.
6. Process the query.
7. In the Results section, set a Filter of 'Number of Units' not equal to zero.
8. Go back to the Query section and create a Filter on 'Pay Type Code' equal to 'RG', 'VA', and 'SL'.
9. Process the query.
10. In the Results section, sort by 'Classified Code' and then 'Pay Type Code' in Ascending order.
11. Go back to the Query section, add 'Pay Type Descr' to the Request Line.
12. In the Query section, set a Variable Filter on 'Classified Code'.
  - a. Set the 'Custom Value' to Begins with 'C' and click 'ok'.
  - b. Right-click on the 'Classified Code' Filter and select 'Variable Filter'.

13. Process the query. (The Variable filter window for 'Classified Code' will pop up. Verify step 12 is complete and click 'ok')
14. Alert the instructor after correctly completing the exercise.



# *Lesson 6*

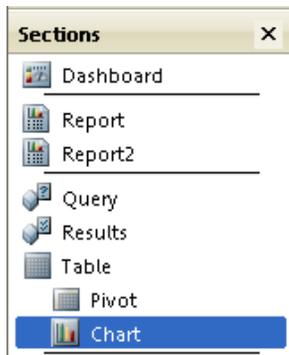
## **Tables and Formatting**

- ✓ **What's the difference between Results and Table Sections?**
- ✓ **Formatting Data in Results and Table Sections**
- ✓ **Sorting Data in a Table Section**
- ✓ **Suppressing Duplicate Values**
- ✓ **Setting and Removing Local Filters in Results and Table Sections**
- ✓ **Creating Date Groups**
- ✓ **Creating Grouping Columns**
- ✓ **Removing and Hiding Data**
- ✓ **Creating Grand Totals and Break Totals**

## What's the difference between Results and Table Sections?

The Results and Table Sections are identical in functionality and appearance. Therefore, what is the difference? Let's consider the Results Section is the gas tank for your .bqy. This is where all your queried data lives. The Results Sections allows you to review your data produced by the Query. The Table section, on the other hand, allows you the option to separate the Results data into smaller sections. Think of a Table Section as a filing cabinet with different files. It is a way to organize your data into smaller sub-sections and then develop Pivots, Charts, and Reports from these sub-sets. In other words, a Table keeps you better organized.

### *Sections Structure:*



**Notice the indenting or non-indenting for the different Sections. It is good practice to rename your sections for easier identification.**

**Dashboard**→ This section does not indent and can contain information from multiple Queries, Results, Tables, Pivots, Charts, and Reports. It appears at the top of the Section Catalog.

**Report**→ This section does not indent and can contain information from multiple Results, Tables, Pivots, and Charts. It appears directly below Dashboard Sections and above all other sections.

**Query**→ This section does not indent and is a stand-alone section in your .bqy. This section comes straight from the Datamart and is the building block for all the other sections.

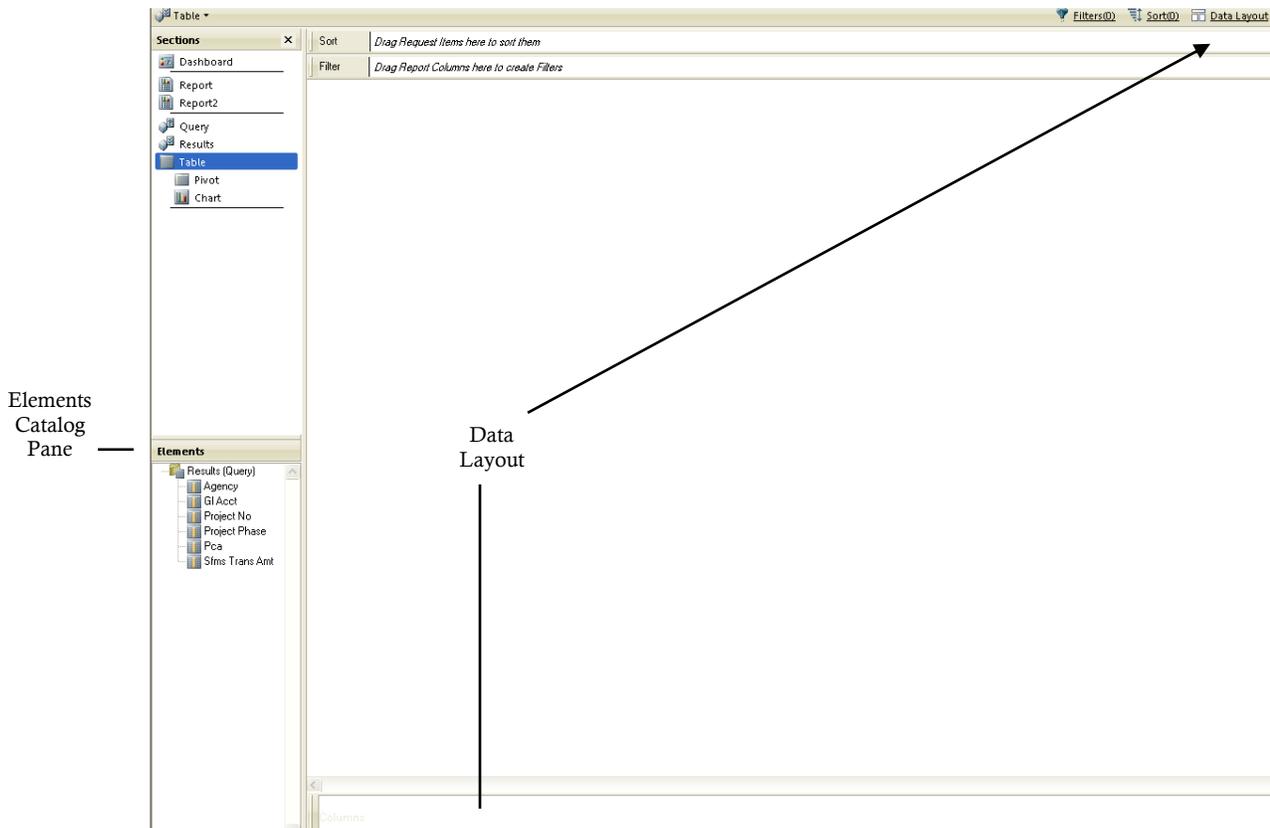
**Results**→ This section does not indent but resides directly below the Query Section it is dependent upon. This section is directly related to the Query Section.

**Table**→ This section does not indent and resides directly below the Results Section it is associated with. You can have more than one Table Section related to a Results Section. Used primarily for creating tabular-style reports.

**Pivot**→ This section does indent and resides below the Table Section it is associated with. You can have more than one Pivot Section related to a Results Section. The Pivot Section is used to create cross-tabular style reports called Pivot Reports.

**Chart** → This section does indent and resides below the Table and/or Pivot Section it is associated with. You can have more than one Chart Section related to a Results Section. Chart Reports are fully interactive, three-dimensional views of data.

Below shows a Table Section before any data is added to the Content Pane. Notice the Data Layout Section.



***To create a Table Section (based on the Results section data):***

- 1) From the Results section, select **Insert** → **New Table**
- 2) If the table Data Layout is not already displayed → Click **Data Layout** on the Section Title Bar
- 3) Drag Result fields from the Elements Catalog Pane to the Data Layout area to build your Table. (Hyperion automatically populates the table columns.)

## Formatting Data in Results and Table Sections

Use the following techniques to format data in both a Results and a Table Section.

<b>Format</b>	<b>Options</b>
Resize a column	<ul style="list-style-type: none"> <li>✓ To resize a column manually, drag the right margin of the column.</li> <li>✓ To auto size a column, double-click the column margin or select <b>Format→Column→Auto-Size Width</b> (or <b>Standard Width</b>).</li> </ul>
Resize a row	<ul style="list-style-type: none"> <li>✓ To resize a row manually, select a row (click in the left margin), position the cursor on the bottom of the row, and then drag the margin up or down.</li> <li>✓ To resize a row to a standard size, select a row and then select <b>Format→Row→Standard Height</b>.</li> </ul>
Modify the font	<ul style="list-style-type: none"> <li>✓ Select a column, select <b>Format→Font</b>, and then select a font type, style, size, and effect. Columns can have different fonts.</li> </ul>
Modify a number, date, or time format	<ul style="list-style-type: none"> <li>✓ For numeric formatting only, select a column and then on the Formatting toolbar, select numeric formatting options.</li> <li>✓ For a complete set of formatting options, select a column, select <b>Format→Number</b>, and then in the <b>Category</b> group box, select a format.</li> </ul>
Justify data	<ul style="list-style-type: none"> <li>✓ Highlight columns, and then on the Formatting toolbar, click a justification button.</li> </ul>
Display row numbers	<ul style="list-style-type: none"> <li>✓ To toggle row numbers on and off, select <b>Format→Row Numbers</b>.</li> </ul>
Format grid lines	<ul style="list-style-type: none"> <li>✓ Select <b>Format→Grid Lines</b>, and then select properties for horizontal and vertical grid lines.</li> </ul>
Display or hide column titles	<ul style="list-style-type: none"> <li>✓ Select <b>Format→Column Titles</b>.</li> </ul>
Wrap text in a column	<ul style="list-style-type: none"> <li>✓ Select a column, and then select <b>Format→Text Wrap</b>.</li> </ul>
Modify the border around a table	<ul style="list-style-type: none"> <li>✓ Select <b>Format→Border and Background</b>, select properties for the border, and then click <b>OK</b>.</li> </ul>

Modify the table fill	✓ Select a column, multiple columns, or the entire table, select <b>Format</b> → <b>Border and Background</b> , select background properties, and then click <b>OK</b> .
Modify the text color of a column	✓ Select a column, and then on the <b>Formatting</b> toolbar, select a text color.

The following table provides a listing of commands available on the Format Menu.



<b>Format Menu Command</b>	<b>Function</b>
Font	✓ Opens the Font page of the Properties dialog box.
Style	✓ Choose between Plain, Bold, Italics, Underline, Overline, Double Underline.
Number	✓ Opens the Number page of the Properties dialog box.
Justify	✓ Choose between Left, Center, Right and Top, Middle, Bottom.

Column	<ul style="list-style-type: none"> <li>✓ By default, Results columns are evenly sized without regard to the length of data. Numeric data that does not fit is replaced with pound signs (#).</li> <li>✓ To manually resize a column, drag the right edge of the column to a new position.</li> <li>✓ To automatically size all columns so that the column width fits its contents, press <b>[Ctrl+A] [Ctrl+E]</b>.</li> </ul>
Auto-Size Width	<ul style="list-style-type: none"> <li>✓ Resizes the selected column to the width of the contents.</li> </ul>
Standard Width	<ul style="list-style-type: none"> <li>✓ Resizes the selected column to the standard column width.</li> </ul>
Row	<ul style="list-style-type: none"> <li>✓ Resizes all rows to the standard row height.</li> <li>✓ To resize all rows in a table, drag the bottom edge of a row to a new position. All rows in the table are resized.</li> </ul>
Column Titles	<ul style="list-style-type: none"> <li>✓ Toggles the display of column titles.</li> </ul>
Row Numbers	<ul style="list-style-type: none"> <li>✓ Toggles the display of row numbers. Row numbers are printed on reports, but are not copied to the clipboard or exported to a file.</li> </ul>
Text Wrap	<ul style="list-style-type: none"> <li>✓ Wraps text in a column.</li> </ul>
Suppress Duplicates	<ul style="list-style-type: none"> <li>✓ Suppresses duplicate values in a column. Use this feature if you want to display only the first instance of a duplicate value when individual database records include redundant information.</li> </ul>
Grid Lines	<ul style="list-style-type: none"> <li>✓ Opens the Gridlines page of the Properties dialog box.</li> </ul>
Border and Background	<ul style="list-style-type: none"> <li>✓ Opens the Border and Background page of the Properties dialog box.</li> </ul>
Conditional Formatting	<ul style="list-style-type: none"> <li>✓ Opens the Conditional Formatting dialog box. Use to highlight important values.</li> </ul>
Export Properties	<ul style="list-style-type: none"> <li>✓ Opens the Export Properties dialog box. Use to set the number of rows that should be included on an HTML page before the data breaks to another page, and to export data that does not contain any quote to a tab-delimited text file.</li> </ul>

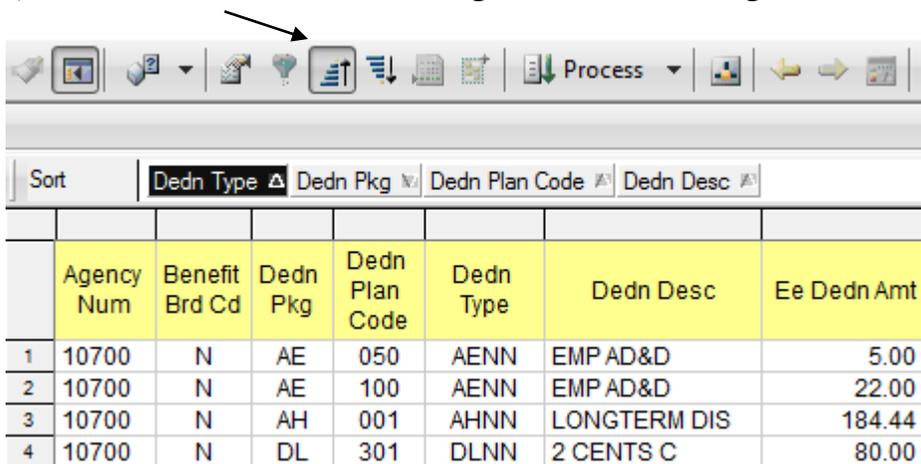
## Sorting Data in a Table Section

You can sort data in the Table Section using the sort options on the Standard Toolbar or the Sort Line.

*To sort data using the Standard Toolbar:*

1) Select → **Column** you want sorted

2) Select →  **Sort Ascending** or **Sort Descending**



*To sort data using the Sort Line:*

1) Make sure the Sort Line is visible; if it isn't select → **Sort** on the **Section Title Bar**

2) Drag and drop Items from the Content Pane to the Sort Line. By default items will be sorted in ascending order.

3) Double-click → **Table Item** on the **Sort Line** to toggle **sort ascending** or **sort descending**

4) Select → **Sort Now** on the Sort Line



## Suppressing Duplicate Values

You use the 'Suppress Duplicates' option to suppress duplicate values in a column. Use this feature if you want to display only the first instance of a duplicate value when individual database records include redundant information. In order to use this feature correctly, you must first sort your data.

	Sort	Dedn Type	Dedn Pkg	Dedn Plan Code	Dedn Desc		
	Agency Num	Benefit Brd Cd	Dedn Pkg	Dedn Plan Code	Dedn Type	Dedn Desc	Ee Dedn Amt
1	10700	N	XD	555	XDNN	DIRECT DEP	34,786.56
2		S	VS	DDD	VSNN	VSP	5.04
3		N	UM	020	UMNN	SP/DP 40-44	30.30
4			UB	CCC	UBNN	EMP LF/35-39	46.56
5			UA		UANN	EMP LF/30-34	8.04
6			TD	111	TDNN	SEIU 503 ISS	33.87
7				112			3.45
8		S	SW	DDD	SWNN	PSWP	354.52
9		N	ST	001	STNN	SHORTERM DIS	216.53
10		S	SP	DDD	SPNN	PSWP P/T	626.71
11		N	SL	001	SLNN	BASIC LIFE	0.80
12			PK	333	PKNN	PARK PRETAX	71.00
13				444			977.00
14		S	OT	DDD	OTNN	ODS TRD DENT	28.77
15			OQ	AAA	OQNN	ODS DENT P/T	58.35
16				CCC			36.96
17		N	LT	001	LTNN	DEP LIFE	24.51
18			DS		DSNN	SEIU 503 F/S	67.73
19			DO		DONN	SEIU 503 DUE	719.10

*To suppress duplicate values:*

- 1) Sort the data in the Results or Table Section
- 2) Select the columns you want to suppress values on → Right-click  
→ Select **Suppress Duplicates**

## Setting and Removing Local Filters in Results and Table Sections

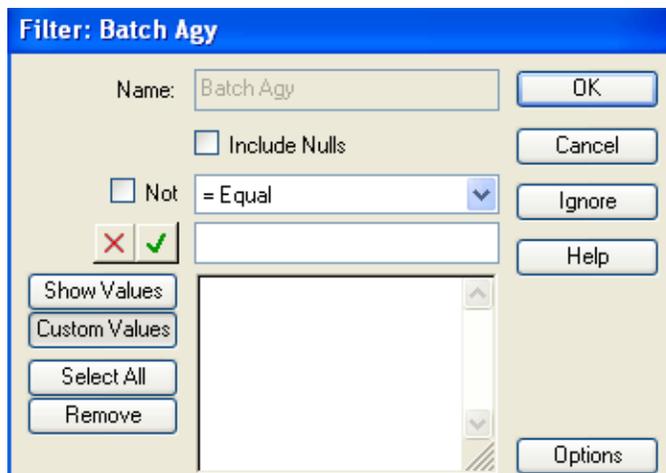
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When you set a filter in the Results or Tables Section, you can locally filter the dataset returned from a query. You are not accessing the Datamart. This is different from setting a filter in a Query Section. When you set a filter in a query, you are sending this filter directly to the Datamart. Because local filters only hide data, it is a good way to test hypothetical situations without accessing the Datamart. You can always reverse the effects of your filter and bring your query back to its original state.

### *To set a filter in a Results or Table Section:*

- 1) In a Results or Table section, double-click a column and a Filter dialog box is displayed. Or, drag and drop the Table Item you want to filter to the Filter Line

The Filter dialog box will now be displayed on your screen.



- 2) From the drop-down list → Select a **Comparison Operator**
- 3) In the **Edit text box** → **Type Values** – Separated by commas
- 4) Select → **Green** ✓ to add the values in the Edit text box to the **Custom Values List**
- 5) Select → **OK**

*To remove a filter in a Results or Table Section:*

- 1) Right-click the **Filtered Item** → Select **Remove**

*To remove all filters in a Results or Table Section:*

- 1) Right-click the  icon on the **Filter Line** → Select **Remove**

## Creating Date Groups

---

This feature separates regular date type columns into Month, Year, and Quarter columns. This feature only works on columns of a date type. Please notice the before and after diagrams shown below.

### Before Date Groups

	Pay Proc Date	Lv Type	Lv Hours
1	08/31/12	VA	14.59
2	09/30/12	VA	22.93
3	10/31/12	VA	24.27
4	11/30/12	VA	33.11
5	12/31/12	VA	34.45
6	01/31/13	VA	41.79
7	02/28/13	VA	39.13
8	03/31/13	VA	42.97

**The first diagram is without Date Grouping.  
The second diagram creates the Date Group and now contains additional columns broken out by Month, Year, and (calendar year) Quarter.**

### Date Groups Applied

	Pay Proc Date	Lv Type	Lv Hours	Pay Proc Date Month	Pay Proc Date Year	Pay Proc Date Quarter
1	08/31/12	VA	14.59	Aug	2012	Q3
2	09/30/12	VA	22.93	Sep	2012	Q3
3	10/31/12	VA	24.27	Oct	2012	Q4
4	11/30/12	VA	33.11	Nov	2012	Q4
5	12/31/12	VA	34.45	Dec	2012	Q4
6	01/31/13	VA	41.79	Jan	2013	Q1
7	02/28/13	VA	39.13	Feb	2013	Q1
8	03/31/13	VA	42.97	Mar	2013	Q1

*To create a date group:*

- 1) Select a regular Date column in the Results or Table Section
- 2) Right-click → **Add Date Groups**

## Creating Grouping Columns

Grouping columns is a way of creating new data in your results set by grouping data from a column. You can use grouping columns to consolidate non-numeric data values into more general group values and map the group values to a new column in the data set. Grouped columns are new items added to the Results Section and are available for use in Report Sections.

### Steps to create a Grouping Column:

- 1) Notice the Table Section below. The goal is to create an additional new column called Quarter.
- 2) Select the Column you want to group → Right-click → Select **Add Grouping Column**

	Pay Proc Date	Lv Type	Lv Hours	Pay Proc Date Month	Pay Proc Date Year	Pay Proc Date Quarter
1	08/31/12	VA	14.59	Aug	2012	Q3
2	09/30/12	VA	22.93	Sep	2012	Q3
3	10/31/12	VA	24.27	Oct	2012	Q4
4	11/3				012	Q4
5	12/3				012	Q4
6	01/3				013	Q1
7	02/2				013	Q1
8	03/3				013	Q1

- 3) The Grouping Column dialog box opens

Pay Proc Date	Lv Type	Lv Hours	Pay Proc Date Month	Pay Proc Date Year	Pay Proc Date Quarter
08/31/12	VA	14.59	Aug	2012	Q3
09/30/12					
10/31/12					
11/30/12					
12/31/12					
01/31/13					
02/28/13					
03/31/13					

**Column Name**→ Names the new grouping column in the Results/Table window. This is the column header.

**New Group**→ Creates a custom group to be displayed as a value in the new grouping column.

**Groups**→ Select a custom group to define by adding or removing items.

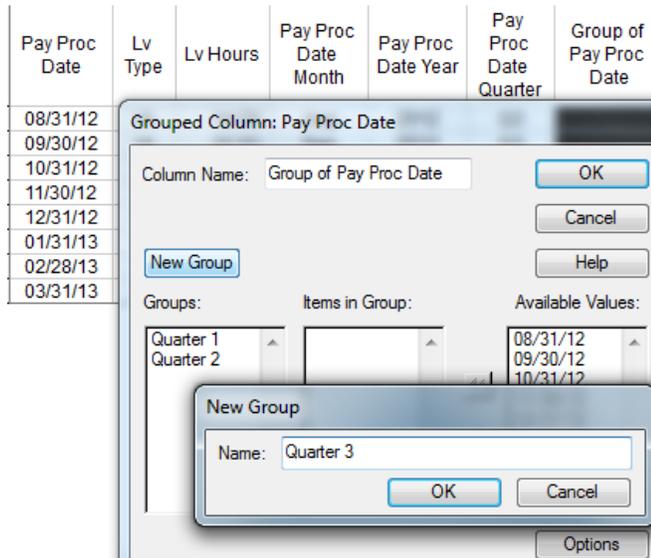
**Items in Group**→ Removes an item from a selected custom group.

**Available Values**→ Add items to a selected custom group.

**Options**→ Indicates how to signify unassigned values within the grouping column. Options include:

- Null**→ Leaves the values ungrouped and unaggregated.
- Default**→ Allows you to specify a default name to assign to all ungrouped values.
- Individual Group**→ Assigns each ungrouped value the name originally assigned to it.

- 4) In the Column Name field→**Name your Grouping Column**
- 5) Select **New Group**→Enter New Group Name→**OK**  
Do this process until you have all the new groups set up.



- 6) Select **Group** in Group Column→Move Available Values by selecting them and click on **←** to move them over to the **Items in Group Column**. Continue this process until you have all your groups set up.

## 7) Select→OK

Pay Proc Date	Lv Type	Lv Hours	Pay Proc Date Month	Pay Proc Date Year	Pay Proc Date Quarter	Group of Pay Proc Date
08/31/12	VA	14.59	Aug	2012	Q3	Quarter 1
09/30/12	VA	22.93	Sep	2012	Q3	Quarter 1
10/31/12	VA	24.27	Oct	2012	Q4	Quarter 2
11/30/12	VA	33.11	Nov	2012	Q4	Quarter 2
12/31/12	VA	34.45	Dec	2012	Q4	Quarter 2
01/31/13	VA	41.79	Jan	2013	Q1	Quarter 3
02/28/13	VA	39.13	Feb	2013	Q1	Quarter 3
03/31/13	VA	42.97	Mar	2013	Q1	Quarter 3

*To modify a Grouping Column:*

- 1) Right-click the Grouping Column→**Modify Column**

## **Removing and Hiding Data**

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You can either Remove or Hide items from your Query, Results, and/or Table Sections. **Use caution when removing items from any section!** Once an item is removed, you can't use it in a Pivot, Chart, or Report. If you hide an item it is still usable in all these sections.

*To remove an item in the Query or Table Section:*

Remove the Table Item from the Request Line from the Query Section or the Data Layout Section in the Table Section.

*To hide an item in the Results or Table Section:*

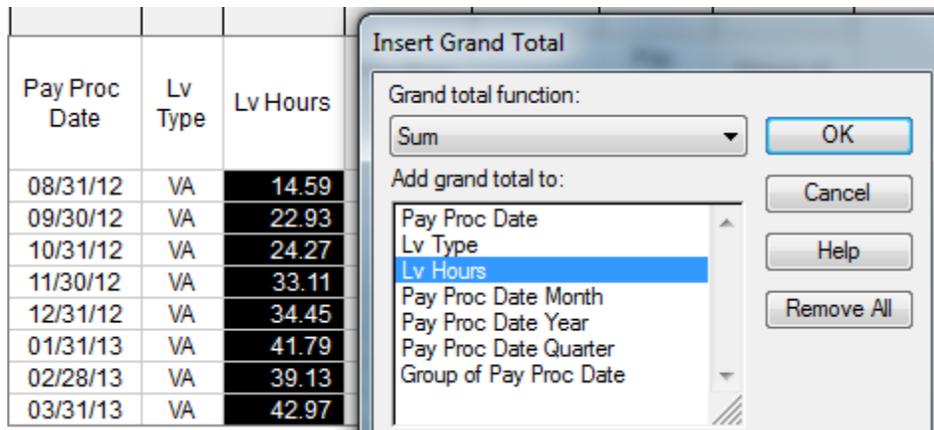
Select the Column→Right-click→**Hide Column**

## Creating Grand Totals and Break Totals

Results and Table Sections can display grand totals and break totals. You can display multiple totals each utilizing a different data function. While a grand total would appear at the bottom of a column, a break total will appear at a specified break in the dataset.

*To display a grand total:*

- 1) Select column you want to total → Right-click → Select **Grand Total**  
The Insert Grand Total dialog box appears.



You have a choice of Grand and Break Total functions:

Function	Description
Sum	Returns sum of underlying values.
Average	Returns average of underlying values.
Minimum	Returns lowest of underlying values.
Maximum	Returns highest of underlying values.
Count	Returns number of underlying values.
Other	Allows you to create a custom function using JavaScript.

- 2) Select → 'Grand total function', you desire
- 3) Select → Where to 'Add grand total to'
- 4) Select → **OK**

Pay Proc Date	Lv Type	Lv Hours	Pay Proc Date Month	Pay Proc Date Year
08/31/12	VA	14.59	Aug	2012
09/30/12	VA	22.93	Sep	2012
10/31/12	VA	24.27	Oct	2012
11/30/12	VA	33.11	Nov	2012
12/31/12	VA	34.45	Dec	2012
01/31/13	VA	41.79	Jan	2013
02/28/13	VA	39.13	Feb	2013
03/31/13	VA	42.97	Mar	2013
		<b>253.24</b>		

**You may find that you need to format your numbers during this process. Do you remember how to do this?**

*You can also create a SUM grand total using an icon on the Standard Toolbar:*

- 1) Select → Column you want to total
- 2) Select →  on the Standard Toolbar

*To remove a grand total row:*

- 1) Select → Row containing the grand total
- 2) Right-click → **Remove Row**

Pay Proc Date	Lv Type	Lv Hours	Pay Proc Date Month	Pay Proc Date Year	Pay Proc Date Quarter	Group of Pay Proc Date
08/31/12	VA	14.59	Aug	2012	Q3	Quarter 1
09/30/12	VA	22.93	Sep	2012	Q3	Quarter 1
10/31/12	VA	24.27	Oct	2012	Q4	Quarter 2
11/30/12	VA	33.11	Nov	2012	Q4	Quarter 2
12/31/12	VA	34.45	Dec	2012	Q4	Quarter 2
01/31/13	VA	41.79	Jan	2013	Q1	Quarter 3
02/28/13	VA	39.13	Feb	2013	Q1	Quarter 3
03/31/13	VA	42.97	Mar	2013	Q1	Quarter 3
		<b>253.24</b>				

Add Computed Item...

**Remove Row**

Font...

*To add a custom title in the grand total row, not the grand total cell:*

- 1) Double-click on a cell in the same row as the grand total
- 2) In the Custom Function dialog box enter the title you desire surrounding by quotes “” as shown below:

Pay Proc Date	Lv Type	Lv Hours
08/31/12	VA	14.59
09/30/12	VA	22.93
10/31/12	VA	24.27
11/30/12	VA	33.11
12/31/12	VA	34.45
01/31/13	VA	41.79
02/28/13	VA	39.13
03/31/13	VA	42.97
		253.24

Custom Function

"Total Lv Hours: "

3) Select → **OK**

4) From the **Modify Total Function** dialog box select → **Other**

Modify Total Function

Grand total function:

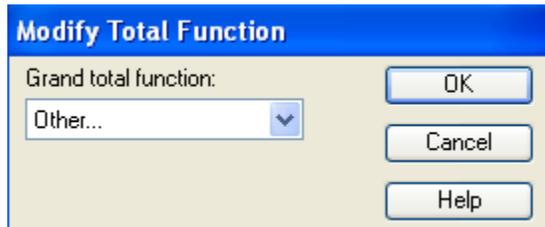
Other... ▼

5) Select → **OK**

Pay Proc Date	Lv Type	Lv Hours	Pay Proc Date Month	Pay Proc Date Year	Pay Proc Date Quarter
08/31/12	VA	14.59	Aug	2012	Q3
09/30/12	VA	22.93	Sep	2012	Q3
10/31/12	VA	24.27	Oct	2012	Q4
11/30/12	VA	33.11	Nov	2012	Q4
12/31/12	VA	34.45	Dec	2012	Q4
01/31/13	VA	41.79	Jan	2013	Q1
02/28/13	VA	39.13	Feb	2013	Q1
03/31/13	VA	42.97	Mar	2013	Q1
<b>Total Lv Hours:</b>		<b>253.24</b>			

*To add a custom title in the grand total cell:*

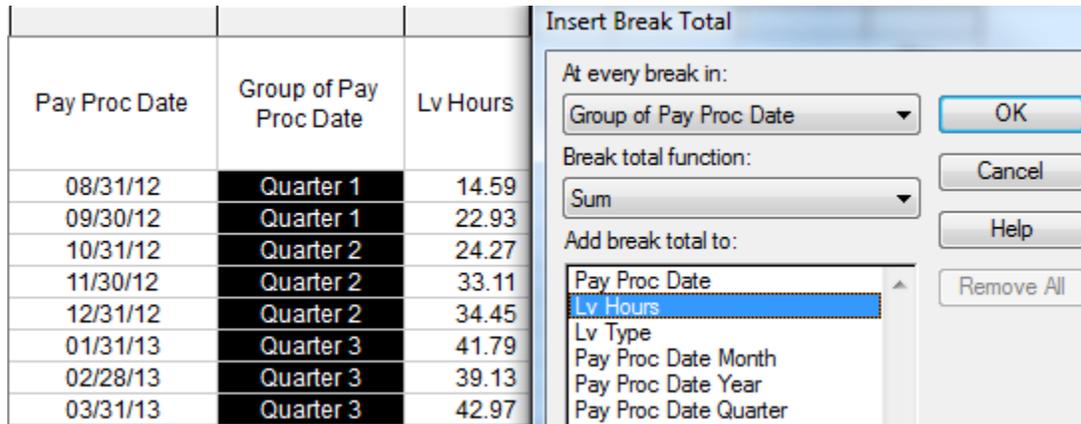
- 1) Double-click on the grand total cell
- 2) From the **Modify Total Function** dialog box → Select **Other**



- 3) Enter your desired title surrounded by quotes “”, for example **“Total: ”**.  
**Make sure to insert a space after your title!**
- 4) **Concatenate** text and functions with a **plus sign (+)**  
**“Total: ”+Round(Sum(Lv\_Hours),2)**
- 5) Select → **OK**
- 6) In the Modify Total Function dialog box → Select **OK**

*To display break totals:*

- 1) Select column you want to total → Right-click → Select **Break Total**  
The 'Insert Break Total' dialog box appears.



- 2) **At every break in drop-down** → Select your break column criteria
- 3) **Break total function** → Select function
- 4) Select one or more columns → **Add Break total to**
- 5) Select → **OK**

Pay Proc Date	Group of Pay Proc Date	Lv Hours	Lv Type	Pay Proc Date Month	Pay Proc Date Year	Pay Proc Date Quarter
08/31/12	Quarter 1	14.59	VA	Aug	2012	Q3
09/30/12	Quarter 1	22.93	VA	Sep	2012	Q3
	<b>Total Quarter 1</b>	<b>37.52</b>				
10/31/12	Quarter 2	24.27	VA	Oct	2012	Q4
11/30/12	Quarter 2	33.11	VA	Nov	2012	Q4
12/31/12	Quarter 2	34.45	VA	Dec	2012	Q4
	<b>Total Quarter 2</b>	<b>91.83</b>				
01/31/13	Quarter 3	41.79	VA	Jan	2013	Q1
02/28/13	Quarter 3	39.13	VA	Feb	2013	Q1
03/31/13	Quarter 3	42.97	VA	Mar	2013	Q1
	<b>Total Quarter 3</b>	<b>123.89</b>				

## Exercise

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1. Start a new .bqy using an oce that accesses both OSPS and SFMA data. (Ask instructor for oce location.)
2. Expand the Elements Pane and bring the 'OSPS Labor Cost', *SFMS* 'Agency' and 'Pca' table to the Content Pane.
3. Sort the fields in all the tables alphabetically.
4. Join the SFMS and OSPS tables as follows:
  - a. *Labor Cost*: 'Sfms Agency' to *Agency*: 'Agency'
  - b. *Labor Cost*: 'Sfms Agency' to *Pca*: 'Agency'
  - c. *Labor Cost*: 'Pca' to *Pca*: 'Pca'
  - d. *Labor Cost*: 'Sfms Appn Year' to *Pca*: 'Appn Year'
5. Add the following fields to the Request Line:
  - a. Labor Cost - table:
    - i. Agency
    - ii. Appn Year
    - iii. Pca
    - iv. Pay Period End
    - v. Number of Hours
    - vi. Trans Amt (Use Data Function: **Sum**)
  - b. Agency - table:
    - i. Agency Title
  - c. Pca - table:
    - i. Pca Title
6. Arrange the fields from step 5 on the 'Request Line' to look like the following:

Request	Agency	Agency Title	Appn Year	Pca	Pca Title	Pay Period End	Number Of Hours	SUM(Trans Amt)
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4. Filter the query to OSPS Labor Cost: 'Agency' equal to your current agency and 'Pay Period End' equal to the current pay period.

5. Process the query.
6. Filter the 'Results' Section to 'Number of Hours' greater than zero.
7. Insert a new 'Table' Section.
8. Drag and drop the following fields to the 'Data Layout' section to allow the data to show on the Content Pane of the 'Table' Section:
  - a. Agency
  - b. Pca
  - c. Pca Title
  - d. Pay Period End
  - e. Number of Hours
  - f. Trans Amt
9. Within the Table section:
  - a. Sort by 'Pca' & 'Number of Hours', in Ascending Order.
  - b. Change the font of every column on your Table to Arial - size 10 and auto size the width of your columns. (Hint: To auto size use 'Ctrl A' & 'Ctrl E').
  - c. Suppress Duplicate values of the 'Agency', 'Pca', 'Pca Title' and 'Pay Period End' columns.
10. Within the Table section:
  - a. Add a 'Date Group' using the 'Pay Period End' column.
  - b. Move the 'Pay Period End Quarter' column next to 'Pay Period End'.
  - c. Format the justification of each new column to 'Center'.
  - d. Format all column titles to 'underline' with black font. In addition, add a background color (your choice).
11. Within the table section, create a 'Grouped column' called 'Pca Groups', based on the 'Pca' column.

12. Create the following 'New Group' names within the grouped column:
  - a. Pca-1
  - b. Pca-2
  - c. Pca-3
  - d. Pca-4
  - e. Pca-5+
  
13. Next, assign the 'Available Values' to the New Groups as follows:
  - a. Pca-1: All Pca beginning with 1
  - b. Pca-2: All Pca beginning with 2
  - c. Pca-3: All Pca beginning with 3
  - d. Pca-4: All Pca beginning with 4
  - e. Pca-5+: All Pca beginning with 5 through 9
  
14. Within the pop up window for the 'Group of Pca' grouped column, click on the 'Options' button. Update the 'Grouping Options for Ungrouped Columns' to show all unassigned values as Default→'Other'. Click 'Ok' when finished.  
  
*Note:* This will allow any unassigned 'Available Values' to show within an 'Other' category, so that you do not forget to assign the value.
  
15. Select 'Ok' to finalize the grouped column creation, then format the new column the same as step 10c & 10d.
  
16. Within the 'Table' section, under the 'Trans Amt' column, input a summed 'Grand Total'.
  
17. Alert the instructor after correctly completing the exercise.