SES Project
v 9.0

SES/CAESAR QUERY TOOL

Creating Queries

PS Query

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I - Introduction to Query:

PeopleSoft Query Overview:

PeopleSoft Query is an end user reporting tool that allows you to extract the precise information that you are looking for by using visual representations of the SES/CAESAR database, without writing Structured Query Language (SQL) statements. The queries that you write can be as simple or as complex as necessary; they can be one-time queries or queries that you use repeatedly. The query tool allows you to display query results on the page, run the results to excel, or schedule your query for a future run time.

Query Terminology:

Relational Database: A database system in which the database is organized and accessed according to the relationships between data items without the need for any consideration of physical orientation and relationship. Relationships between data items are expressed by means of tables (records).

Record: (Also referred to as a "**Table**") Records/Tables are the foundation of the Query tool. A record stores data that is arranged by rows (entries) and columns (fields). For example, a record/table containing data about "people" would have a row for each individual person and columns (fields) for each piece of data stored for that individual (ex: name, address, phone). Records can be added to a query from the "Records" tab.

Field: In a database context, a field is the same as a column. For example, a record of people could contain separate fields such as name, address, phone, etc.

Query: A query is a SQL SELECT statement that reads data from tables and views within the database, and returns the result set to the requester. Queries cannot change data within the database.

SQL: Structured Query Language (SQL) is a language that provides an interface to relational database systems. It was developed by IBM in the 1970s for use in System R. SQL is a de facto standard, as well as an ISO and ANSI standard. Some people pronounce SQL "sequel".

Criteria: Specifying criteria in your query allows you to set conditions which limit the results returned by the query to only those data that you are interested in. Criteria are viewed and maintained on the "Criteria" tab. Example: You may want to set criteria to limit your query to retrieve a relevant subset of data such as active undergraduate students as opposed to returning results for all active students.

Join: The process of combining data from two or more tables using matching columns.

Public Query: Public queries are viewable and editable by any user with access to Query Manager and the proper table access. Public queries are available for use by many different users, so please **do not save** any changes that you make to a public query.

Private Query: Private queries are only viewable by the individual who created the query.

Primary Key: A column in a table whose values uniquely identify the rows in the table. A primary key value cannot be NULL.

Foreign Key: A column in a table that does NOT uniquely identify rows in that table, but is used as a link to matching columns in other tables to indicate a relationship.

Definitions courtesy of http://www.orafaq.com/

Navigation to Query Manager:

From the Menu, Navigate to Reporting Tools Ą Query Ą Query Manager

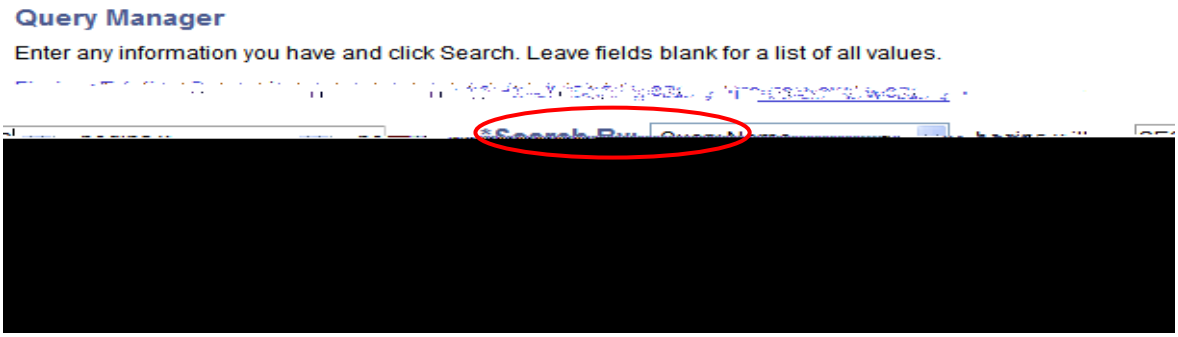
II – Using the Query Tool:

This section will cover:

- Searching for queries
- Running queries
  - Exporting results to Microsoft Excel or CSV
- Viewing/Editing Existing Queries
  - Using existing queries to create your own queries

Searching for an Existing Query:

1. To view/find an existing query, type your search criteria in the text box, as shown below. In this **example**, we are trying to find queries in which the name **begins** with "SES".



2. To change how you search for an existing query, you can change the **"Search By"** options by selecting a different value in the dropdown list as show below.

3. For even more search options you may click on the blue **Advanced Search** link shown below.

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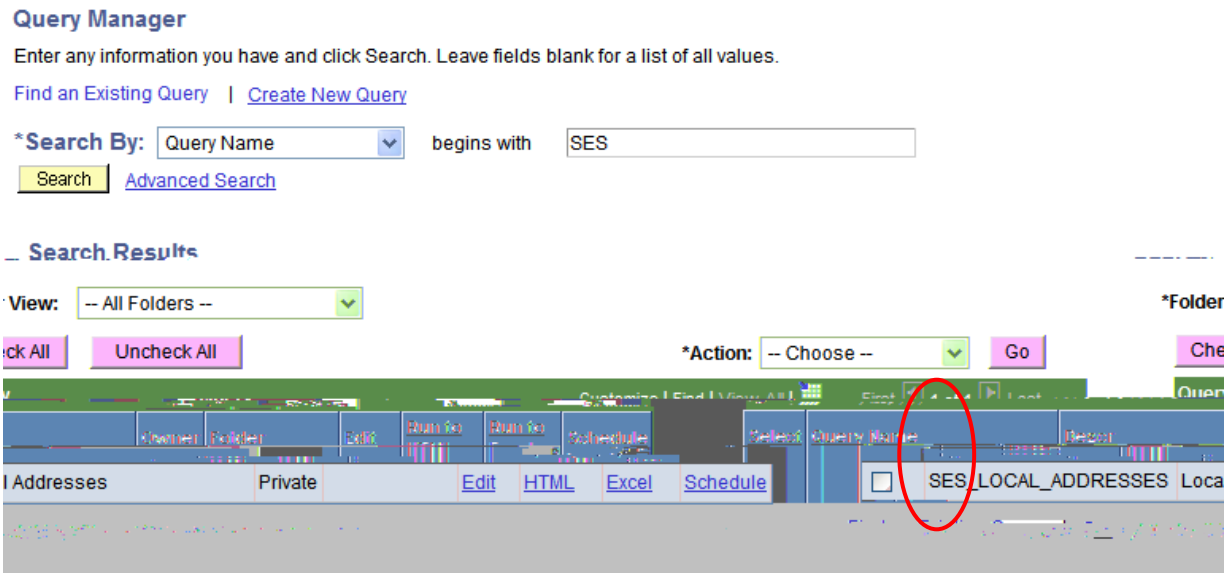
Running an Existing Query:

There are two ways to run a query:

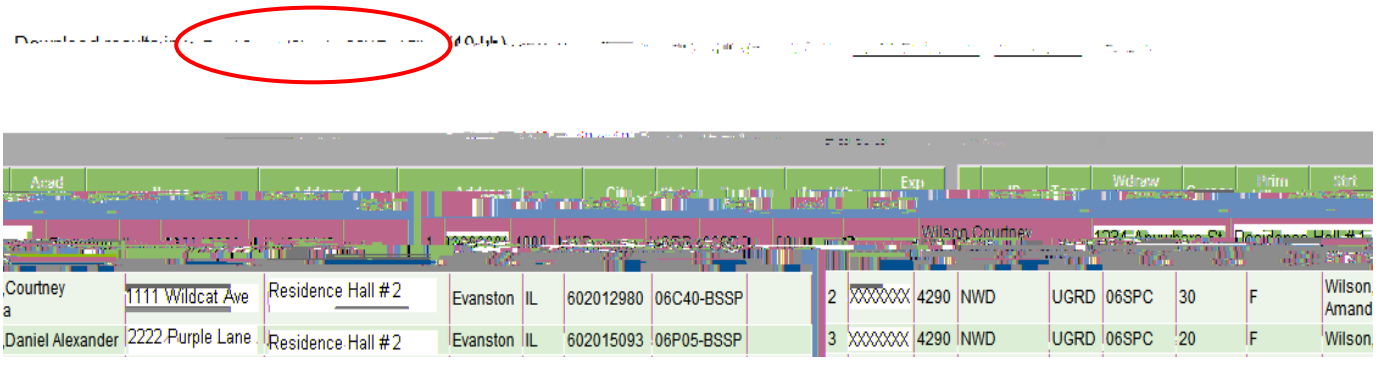
- From the Query Manager Search Results
- From Within Query Manager

Query Manager Search Results

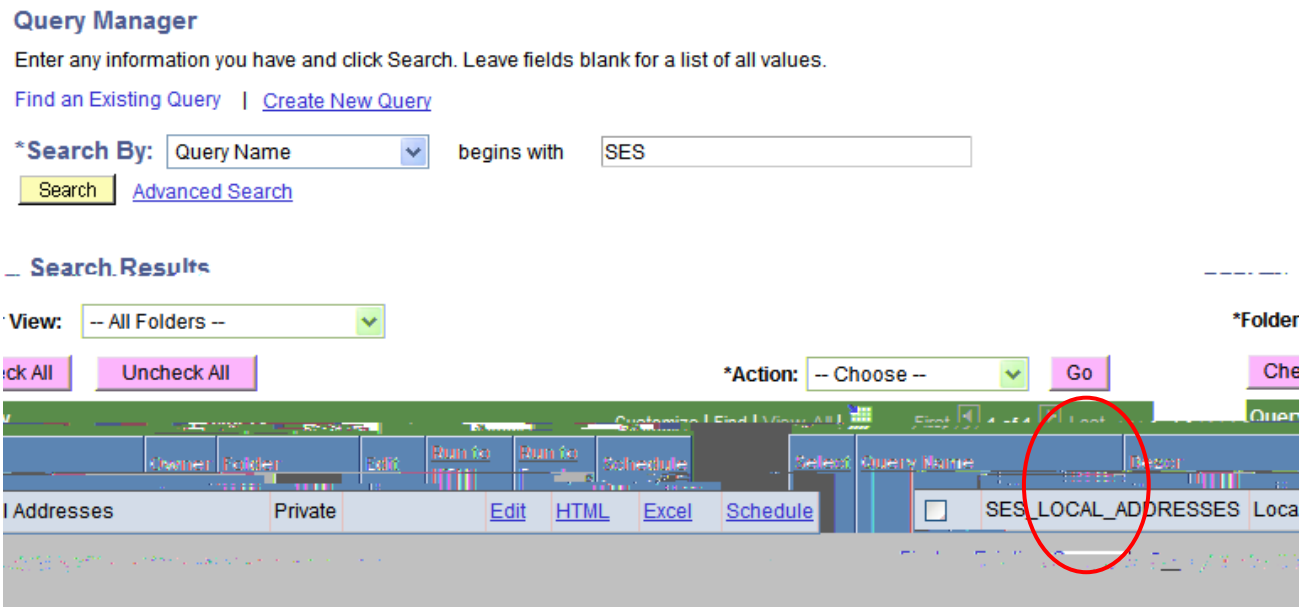
After you have successfully searched and found the query you are interested in, you can run the query by clicking on the blue **HTML** link under the "**Run to HTML**" heading. (See below) This will open up a new window and allow you view the query results in your web browser. Note: If there are run-time prompts associated with the query, they will be shown in the top-left corner of the new window. Prompts will be covered later on in this document.



a) To download the results to a Microsoft **Excel** spreadsheet, left-click on the **Excel Spreadsheet** link shown below. You will be prompted to open or save the file. You can also create a **comma-separated** file (or CSV) by clicking on the **CSV Text File** link.

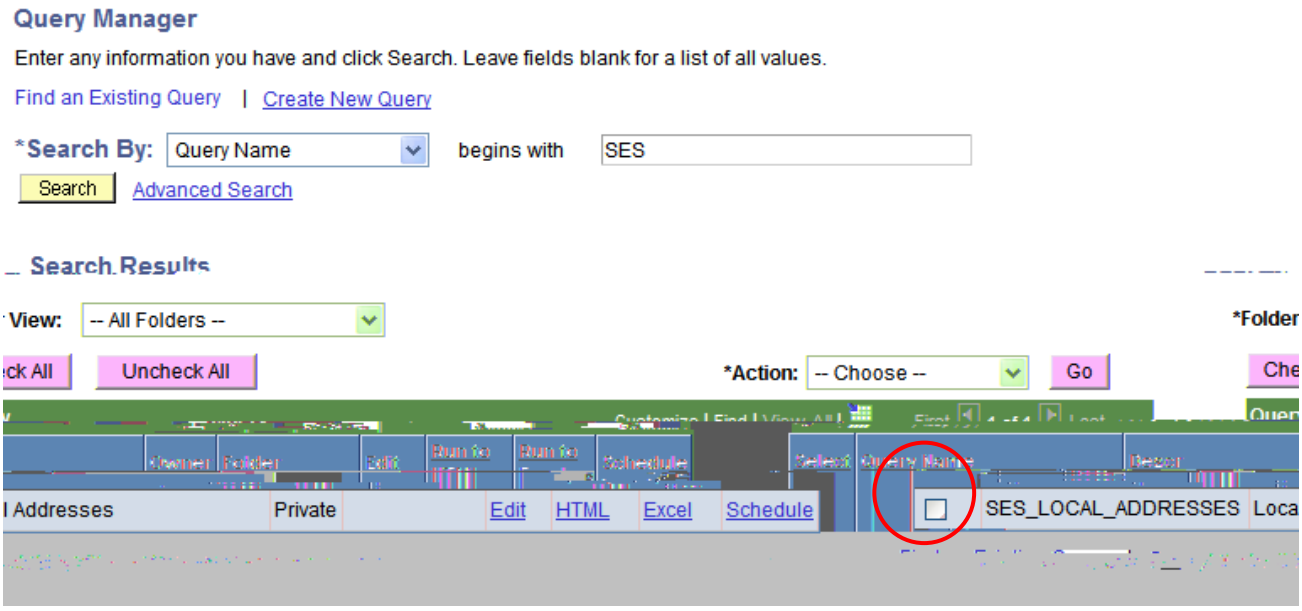


b) A query can also be run to Microsoft **Excel** spreadsheet directly from the search results screen as shown below. Left-click on the blue **Excel** link under the "**Run to Excel**" heading. (See below) You will be prompted to open or save the file.



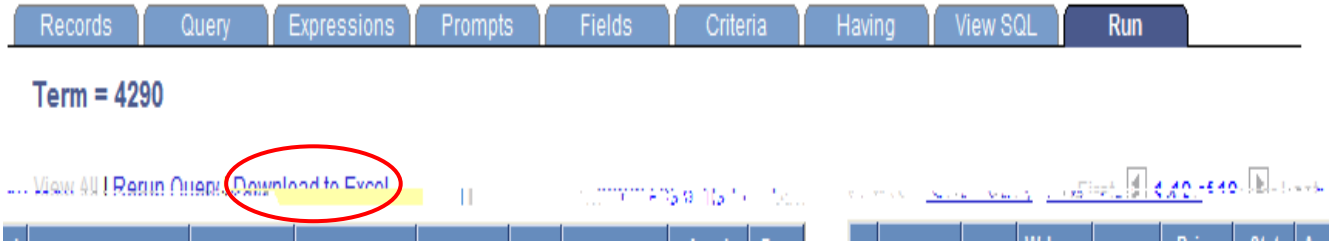
Query Manager

The query can also be run from inside Query Manager. Select the blue **Edit** link as shown below



Select the **Run** tab as shown below. If there are prompts, they will display on the top left-hand corner. The results of the query will be displayed in the same window.

To Export the query results to Excel while in Query Manager, you will need to **left-click on the blue "Download to Excel" link below, while holding down the CTRL button on your keyboard. Continue to hold the CTRL button as you choose to either open or save your file.**



Note: To return to the Query Manager Search page, click on the Return to Search button or use your left-hand menu to navigate to Reporting Tools Ą Query Ą Query Manager.

III – Getting Started Writing A Query:

Create New Query:

Adding Records:

The **Records Tab** allows you to add new records (tables) to your query. You can search for records using the search criteria below. Additional search criteria can be utilized by both clicking on the dropdown list to the right of

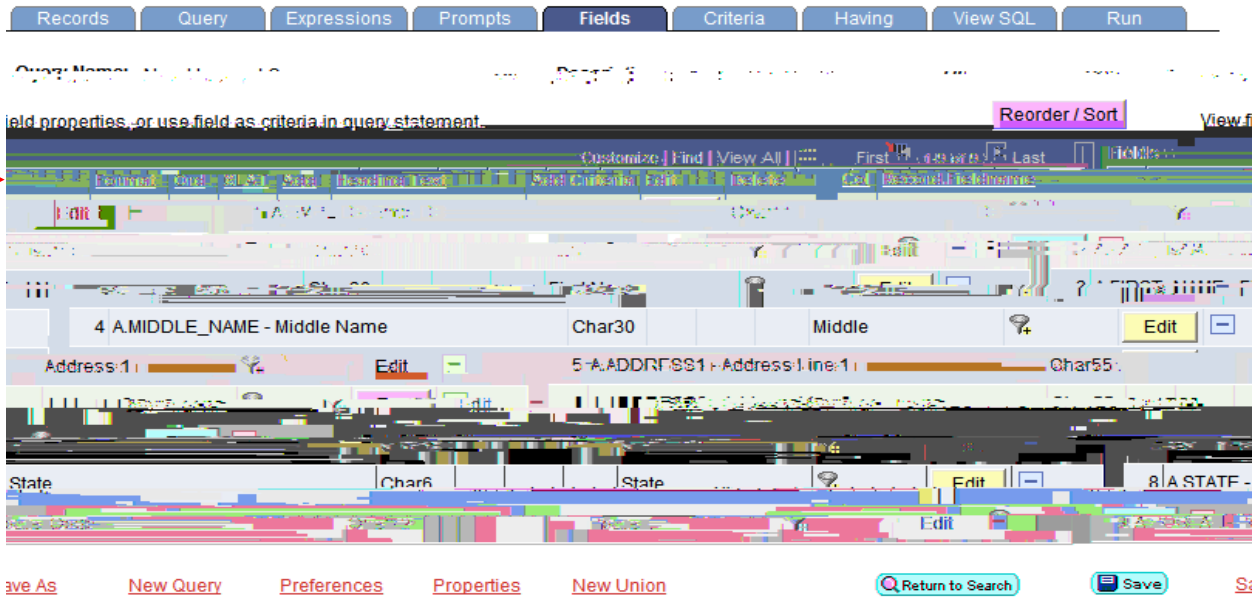
Selecting Fields:

To add fields to the query, place a checkmark in the box to the left of the field name. You can check all of the fields by clicking on the Check All Fields button or uncheck all of the fields by clicking on the Uncheck All Fields button.

Editing/Formatting Fields and Layout:

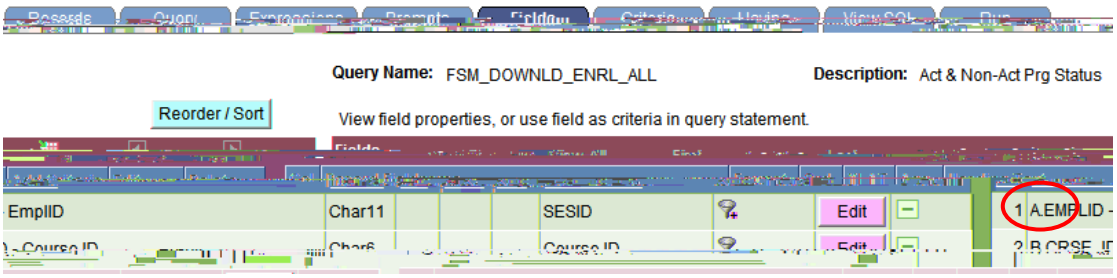
Fields Tab

The **Fields Tab** allows the user to view, edit, and format the fields (columns) that are used in the query.



- **Col –** The order in which the fields are displayed (left to right) when the query is run.
- **Record.Fieldname –** Record Alias (A, B, C, etc.) & Field Name separated by a period. The Record Alias refers to the records as they appear on the Records tab.
- **Format –** Field type and length
- **Ord –** Shows if the query results will be sorted and in what order (1, 2, etc.)
- **XLAT –** Specifies the translate value that you want to appear in the query results: N (none), S (short), or L (long). The table you are querying may include fields that use the translate table. If so, the field itself contains a short code of some kind, for which the Translate table provides a set of corresponding values.
- **Agg –** Will display if field is an aggregate (Sum, Count, Min, Max, Avg)
- **Heading Text** - The column name displayed in the query output.

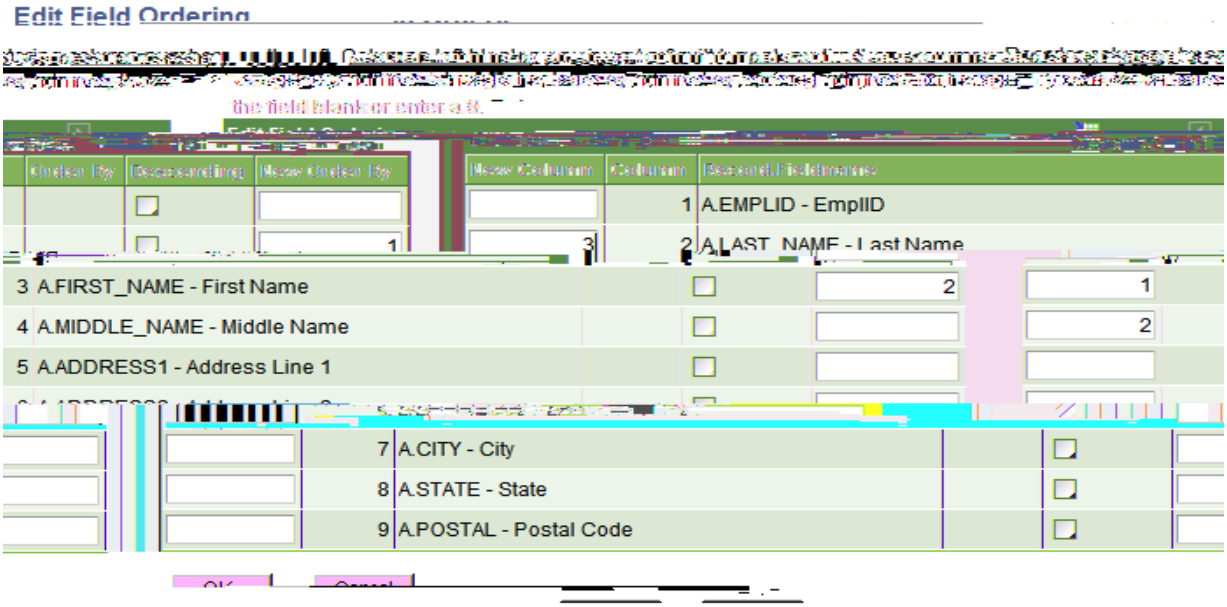
To remove a field from the output of the query, simply select the **Minus** button under the **Delete** heading as shown below.



Sorting & Reordering Columns

To **Sort** and/or **Order** the fields in a particular format, click on the Reorder / Sort button on the main Fields Tab page and the following page will open.

- To change the column (field) order (left to right); simply enter the new numbers on the left under the **New Column** heading. (In the example below the columns will change in order accordingly – First Name, Middle Name, Last Name)
- To change or create a new pattern for how the data is sorted; simply enter the numbers on the right under the **New Order By** column. Ascending (A-Z) order is the default. (In the screen shot below, the results will be sorted by Last Name, then by First Name)
- When you are finished, click on the OK button.



Field Headings

To change the **field heading text** in the output, click on the Edit button to the right of the field on the main Fields Tab page and the following page will open. Enter your new field name in the **Heading Text** box and choose the **Text** radio button as shown below. It is recommended that you do not change the

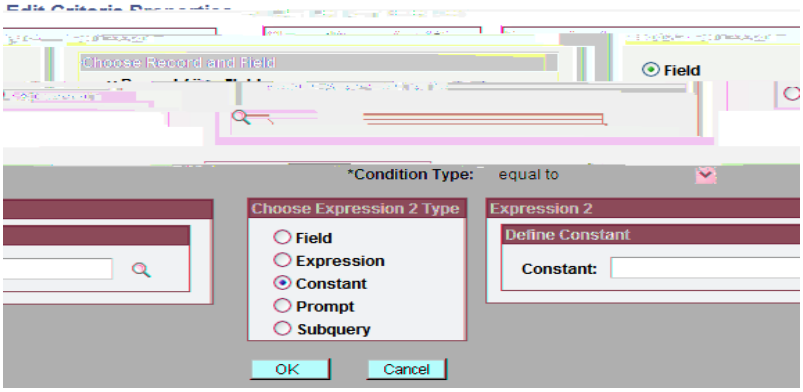
Translate Values

Some fields in PeopleSoft have what are called **translate values** associated with them. For example, in the query results displayed below, you will see that the **Career** and **Status** fields display codes (UGRD & AC) that respectively correspond to **undergraduate** and **active**. The latter are considered

Criteria Properties

After you have selected the Add Criteria button, the following page will open

Expression 1



Field - Select this option if you want to base the selection criterion (filter) on a field within one of your tables. To compare the values from fields in two different tables, you must join the records. When you select this option, you must then select a condition type.

Expression - Select this option if you want the PS Query to evaluate an expression that you enter before comparing the result to the value in the selected field. If you are entering an aggregate value,

The **condition type** determines how PS Query compares the values of the first (left-hand) expression to the second (right-hand) expression.

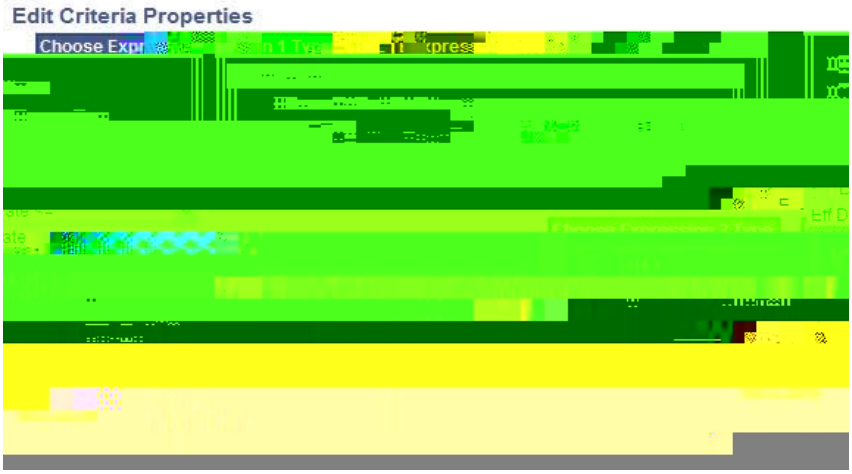
Below are the different condition types and how they are used.

Condition Type	Return Values
between	The value in the selected record field falls between two comparison values. The range is inclusive.
equal to	The value in the selected record field exactly matches the comparison value.
exists	This operator is different from the others, in that it does not compare a record field to the comparison value. The comparison value is a subquery. If the subquery returns any data, PeopleSoft Query returns the corresponding row.
greater than	The value in the record field is greater than the comparison value.
in list	The value in the selected record field matches one of the comparison values in a list.

In most cases, you do not want to see the history rows, which are no longer accurate, nor do you want to see future-dated rows, which are not yet in effect.

However, there may be cases where you may need to see some rows that are not currently in effect. You might want to see all the rows, regardless of their effective dates. Or you might want to see the rows that were effective as of some date in the past. These cases can be best described below.

Current	The data row with the date closest to—but not greater than—the system date. Only one row can be the current row.
History	Data rows that have effective dates earlier than the current data row.
Future	Data rows that have effective dates later than the system date.



The Options for Effective Date Criteria are below:

Expression 1	Condition	Expression 2
Eff Date	<	Field, Constant, or Current Date
Eff Date	<=	Field, Constant, or Current Date
Eff Date	>	Field, Constant, or Current Date
Eff Date	>=	Field, Constant, or Current Date
First Eff Date	Returns the row with the oldest effective date, usually the first row that is entered for an item	
Last Eff Date	Returns the row with the latest effective date, even if that date is still in the future	

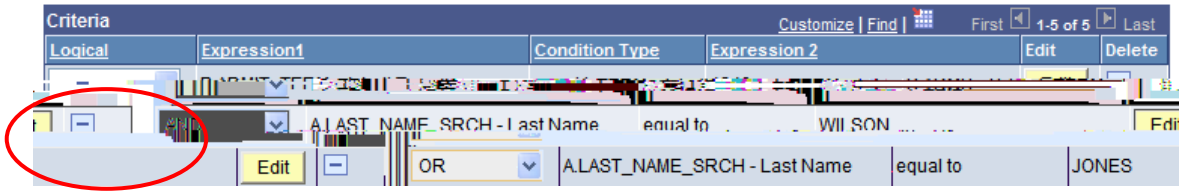
You will also notice that some effective-dated records use what is called an effective sequence. This is a sequencing number provided to further refine the effective date. For example, if a student has two rows created on the same date (same effective date) the sequence is how you determine which row is the most recent.

Grouping Criteria

When a query includes multiple criteria, PS Query checks them according to the rules of logic, which tell it to evaluate criteria linked by ANDs before those linked by ORs. When all the criteria are linked by ANDs, this order will always give you the correct result. When you mix in one or more ORs, however, it may not give you the result you want.

For example, let us say that we are trying to find students that were admitted in the Fall of 2006 with the last name of Wilson or Jones.

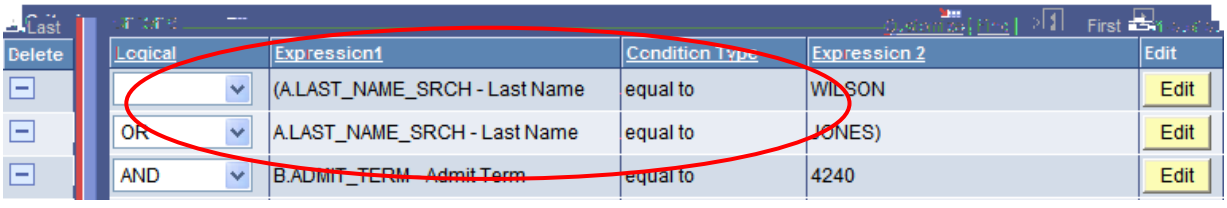
The following screenshot shows a common mistake made when using the "OR" logical operator. What the criteria below give us is a listing of students admitted in the Fall of 2006 with the last name of Wilson and ALL students with the last name of Jones.



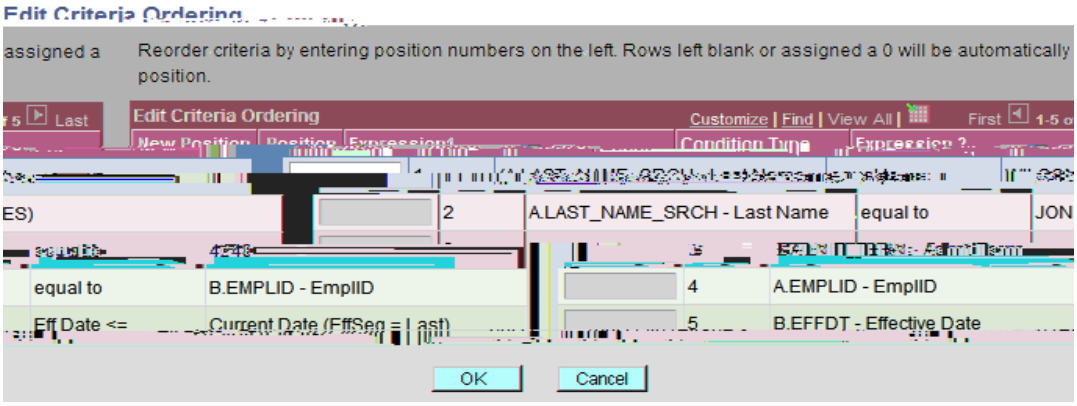
Because PS Query evaluates criteria in the order they appear, the criteria above do not return the results we are looking for. As written, the criteria above is looking for people admitted in the Fall of 2006 AND the last name of Wilson OR people with the last name of Jones.

What we want in this case is for PS Query to look for rows where the last name is Wilson **OR** Jones **AND** the admit term is 4240 (Fall 2006). That is, we want it to evaluate the OR before the AND. We can accomplish this by adding parentheses to the list of criteria. When a list of criteria includes parentheses, PS Query evaluates the criteria inside the parentheses before the criteria outside the parentheses.

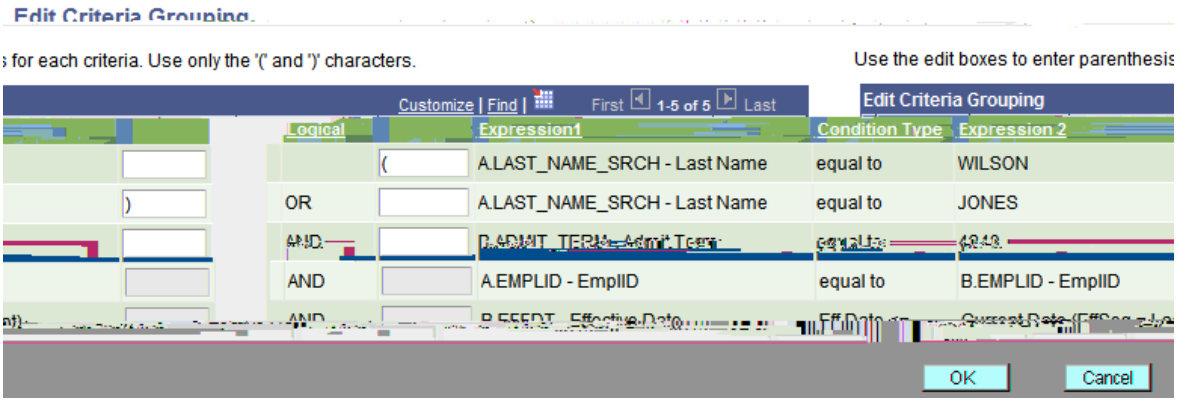
On the Criteria tab, the opening parenthesis appears just before the field name and the close parenthesis appears just after the comparison value. Below is the set of criteria that will give us the result we want.



If you need to reorder the criteria in order to line them up for grouping, you can click on the Reorder Criteria button and the following page will open.



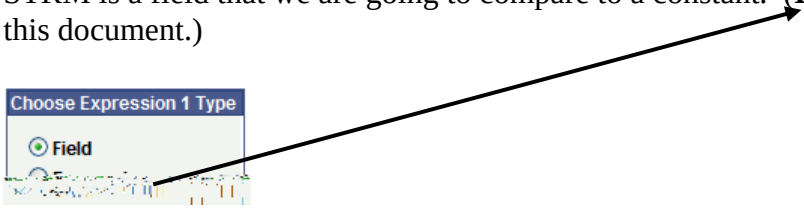
Click on the Group Criteria button to group the criteria on the Criteria tab. The following page will open and allow you to place parentheses around the criteria you would like to group.



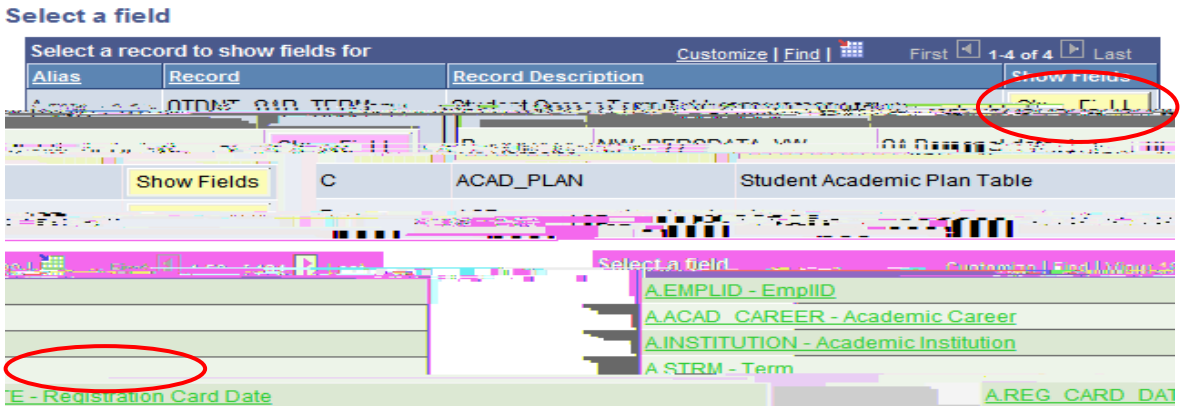
Adding Criteria - Example

We want to show how to create a criterion to limit our query results to only those data that relate to the Fall 2007 Term (4280). So, we are saying that **Term** should **equal 4280**. (4280 is the term code for Fall 2007) In this case, we are comparing the term field (STRM) to a constant (4280).

- **Expression 1 Type -** We want to choose the **Field** radio button, which is the default, because STRM is a field that we are going to compare to a constant. (**Expressions** will be covered later in this document.)



- **Expression 1 -** Click on the magnifying glass  and select the field that you want to use, which in this case is **STRM** (Term). Once you click on the magnifying glass, the following page will open. To view fields from the available tables, select the **Show Fields** button and the fields will display below. Select the appropriate field by clicking on the field name, which is shown as a blue hyperlink. (Below)



- Once you have selected the field, the **Expression 1** box you should look like this (below).

- **Condition Type -** In this case, we will want to choose **Equal To**

Working with Joins:

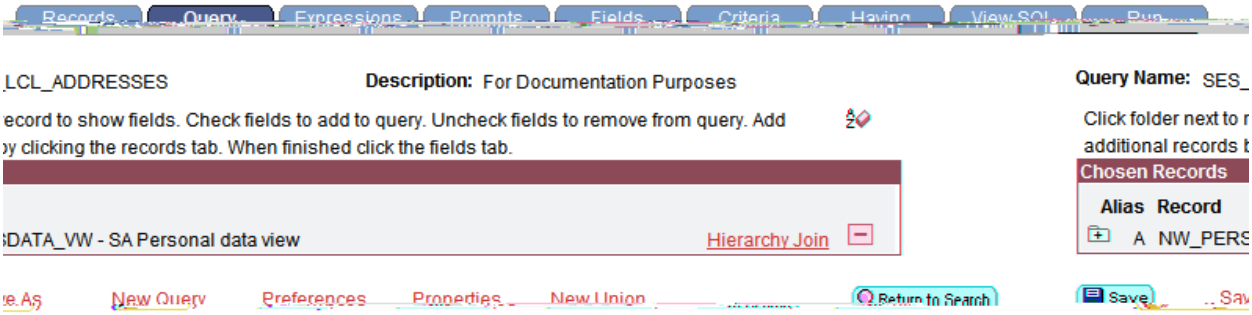
PS Query enables you to create queries that include multiple-table *joins.* Joins retrieve data from more than one table, presenting the data as if it came from one table. PeopleSoft Query links the tables, based on common columns (see key definitions on page 2), and links the rows between the two tables by common values in the shared columns.

Joins are what make relational databases relational. Using joins, you define relationships among fields when you query the records, not when you create the records. Because PeopleSoft records (tables) are highly normalized (they each describe one kind of entity), you can easily use Query Manager to create joins.

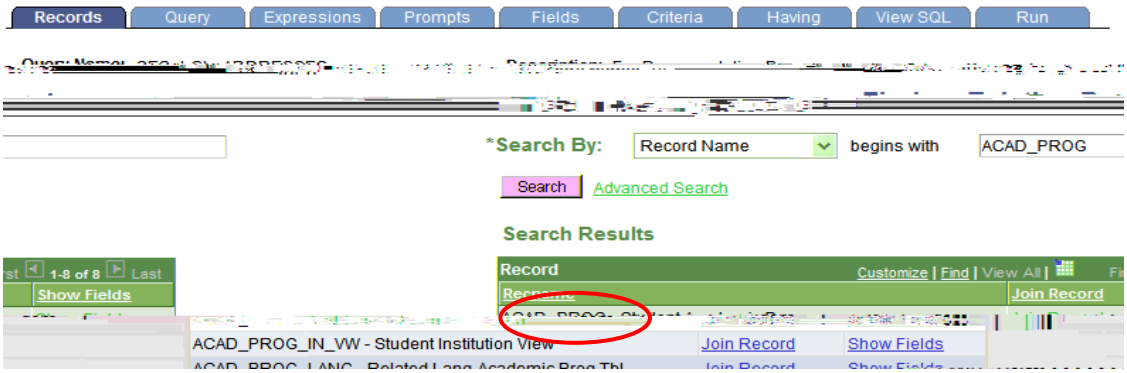
The procedure for joining tables differs depending on how the tables that are being joined are related to each other. In this document we will cover any record joins and related record joins.

Any Record Joins

The following query currently has one record (table) associated with it.

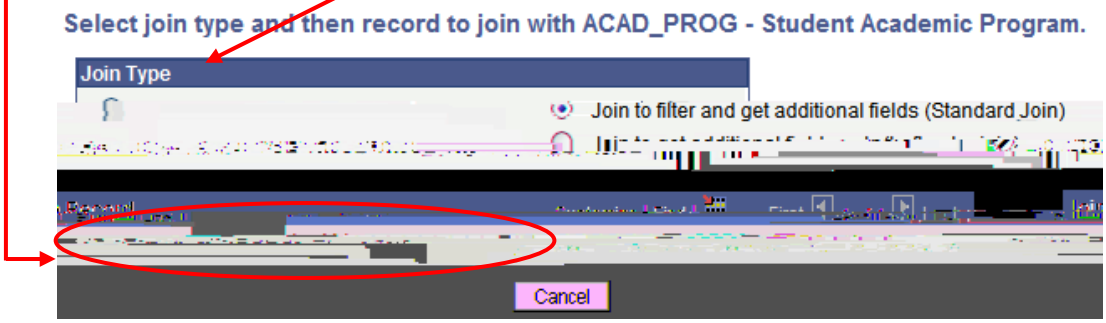


To join another record (table) to this query you can navigate to the **Records Tab** and search for the appropriate table using basic or advanced search criteria. Click on the Join Record hyperlink to join the record to the existing table.



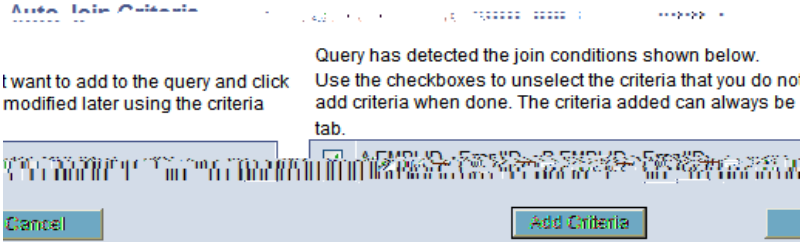
After you have clicked on the Join Record link, the following page will open and allow you to select the type of join you would like to use. The **default Join Type** is the **Standard Join** which is the first option below. **You always want to join with the record containing your main information**.

Once you have picked your join type, choose the **Join Record** by clicking on the blue hyperlink as shown below.



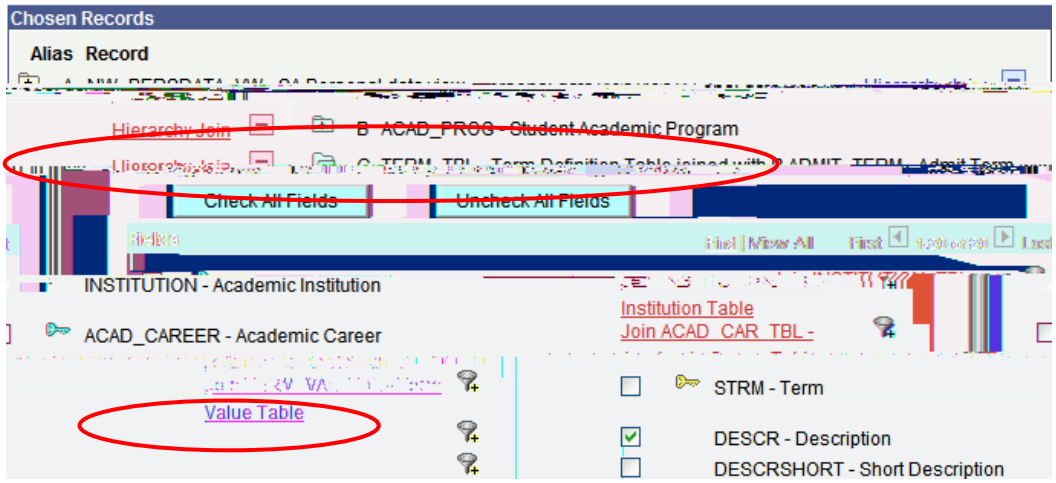
Once you click on the Join Record the following page will open describing the available join criteria between the two records (tables). In this example, the two tables are being joined by **Emplid**, which are common columns in each table. **For example, only rows in each table that contain the same value for Emplid will be shown in the query results**.

It is suggested that you always select the criteria provided. These automatic criteria elements are based upon key fields in each table that is needed to appropriately join the tables. If you click one of these criteria joins OFF, your query may not run properly.



Select the Add Criteria button to finish adding the record to your query and move to the **Query Tab**.

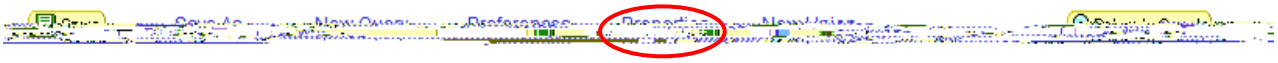
The following message will display when you add/join a record (table) that contains effective dated rows. **This is not an error. Select "OK". (See Effective Dates under the Establishing Criteria heading)**



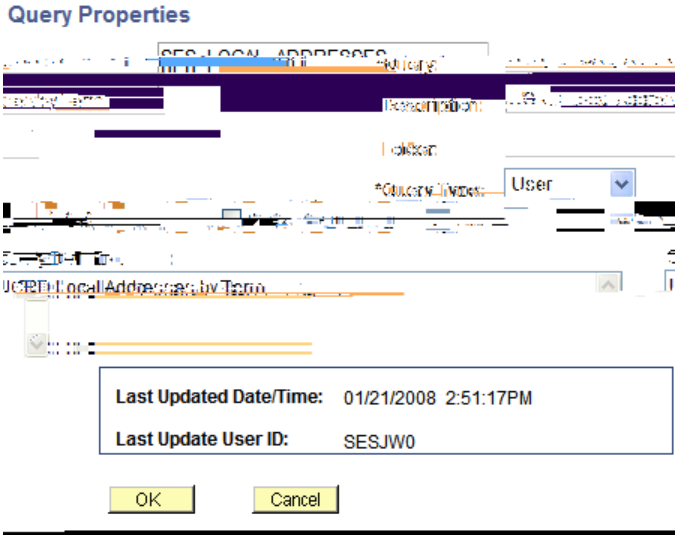
At this point, you may select the fields (in this case Description) you would like to add to the query output by checking the box to the left of the field name (above). To edit the field properties, navigate to the **Fields Tab**.

Query Properties:

To access and view the properties for any query, simply click on the Properties link on the bottom of the query.



The following page will open, allowing you to view each property.

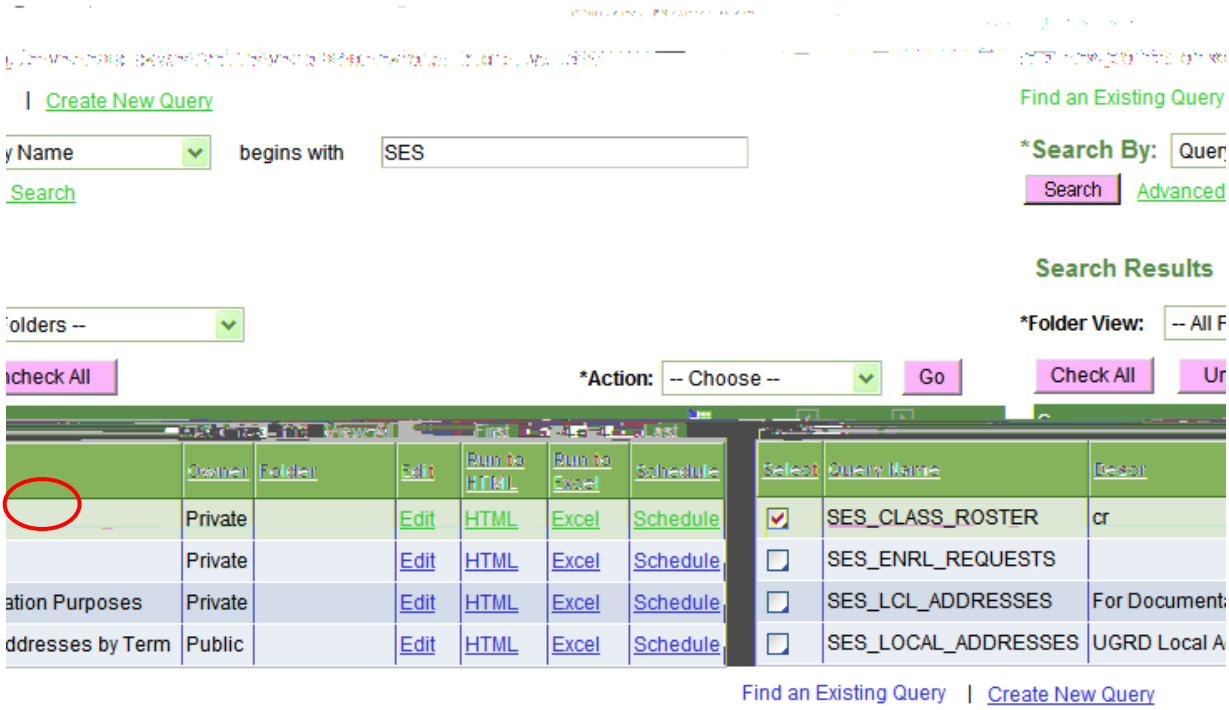


Saving Queries

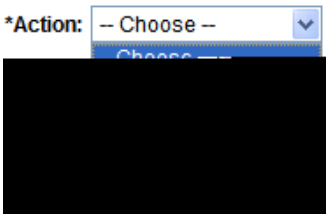
A query can be saved at any time after you have selected one record and at least one field for it.

Deleting Queries

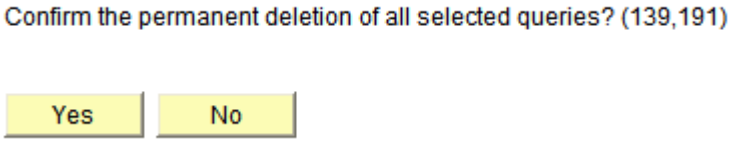
To delete a query or queries, search for the appropriate query using the page shown below.



Once you have found the query you wish to delete, place a check in the box to the left of the query name and choose **Delete Selected** from the **Action** drop down list. (Shown below)



Once you have done this, select the Go button. The following page will appear.

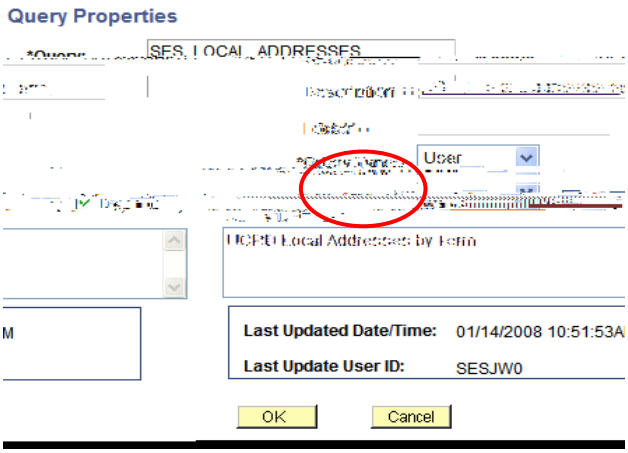


Select **"Yes"**

Making Query Results Distinct

By clicking on the **Distinct** checkbox, duplicate rows of output will be prevented from being created. Each row will have at least one unique feature.

Try to use this feature to eliminate duplicate rows only when you absolutely need to, as it may have a negative impact on the performance of your query and/or hide the fact that the query contains incorrect logic. Try not to use **Distinct** until you have looked at the results *without* using **Distinct** and (if necessary) pulled in enough key fields from all essential tables to try and identify exactly which key fields are different among the "duplicate" rows.



Setting Query Preferences:

You are able to modify your Query Manager preferences by clicking on the **Preferences** link while in Query Manager.

The **Query Preferences** page allows you to control the display of records by either Description or Name and Description.

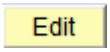
The "Enable Auto Join" checkbox is used to automatically determine the join conditions when a new record component is added. If you uncheck this option, you will need to determine the joins manually. It is recommended that you keep these settings as they are shown below.

More Advanced Query Techniques:

Working with Prompts

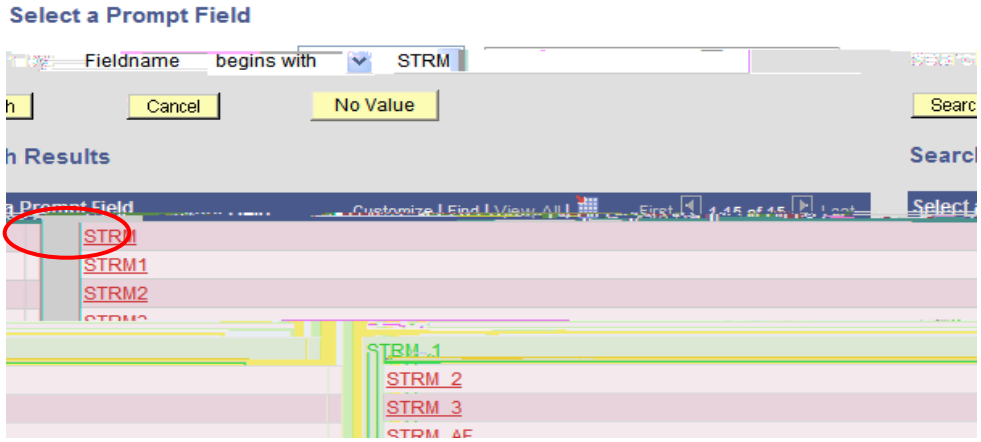
From the **Prompts Tab**, you can create or edit prompts that are executed when the query is run. The Prompt or Run-Time Prompt, as it is sometimes called, allows you to filter query results based on a specific value each time you run your query. For instance, in the following example, we can create a prompt that will allow us to change the term we want to use each time the query is run.

- To create a new prompt, select the 

button below
- To edit a Prompt, select the 

button below
-

You will need to click on the magnifying glass under the **Field Name** heading to search for the field you want to use in the prompt. Once you have found the field, select it by clicking on the field name, which is shown as a blue hyperlink. (Below)



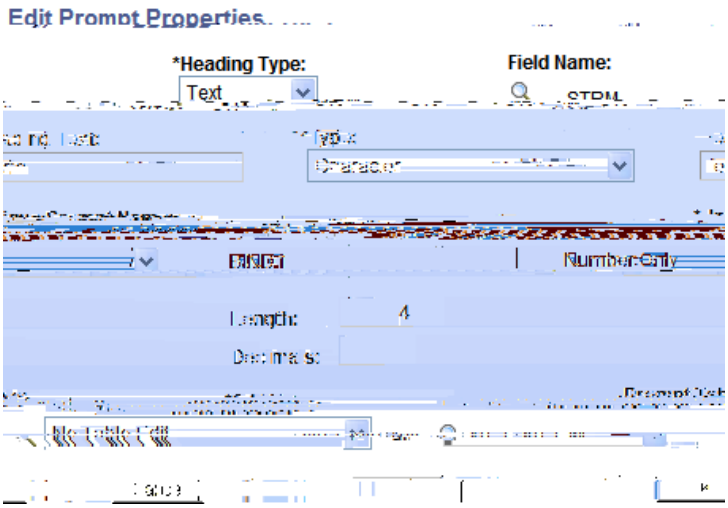
Once you have selected the field you want to use, PS Query will look to the Record (table) definition for information about this field and will automatically fill out the rest of the dialog box based on its (the field) properties.

Type - Indicates the type of the field.
Format - Specifies the field format. Several formats are available, including Name, Phone, Social Security Number, and Zip Code
Length - Indicates the field length
Decimals - Defines the number of decimals that are allowed.
Edit Type - Defines the type of field edit for the specified field. **No Table Edit** is the default. In general, you should use the same edit type that is used in the field record definition.
Heading Type - Select a heading type for the prompt from the following values:

- Text: The prompt heading is the free text that you have entered in the text box.
- RFT Short: The prompt heading is the short name from the record definition.
- RFT Long: The prompt heading is the long name from the record definition.

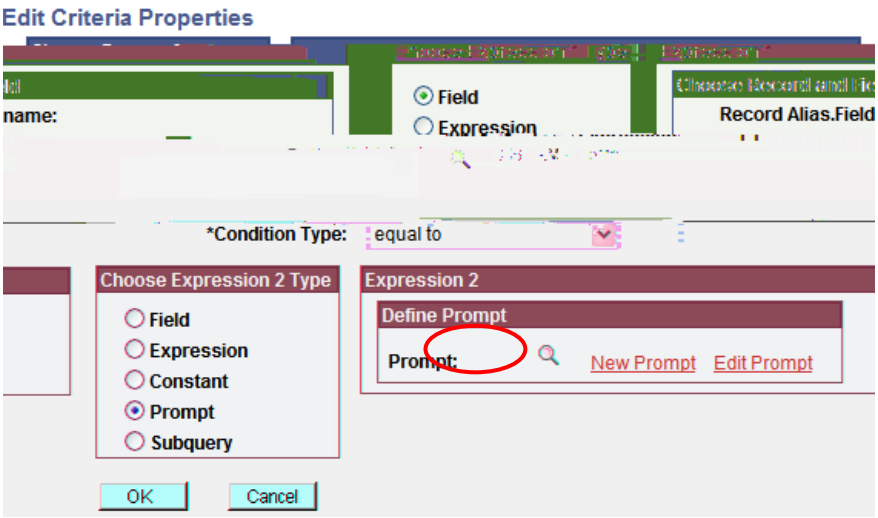
Heading Text - Displays the label for the text box where you enter the comparison value. To change the text, select *Text* from the Heading Type list box, and then enter the new label in the Heading Text text box
Unique Prompt Name – This is a default value generated by Query Manager.
Prompt Table - If the edit type is *Prompt Table*, you can select a prompt table to use. If the edit type is *Translate Table*, the value in the drop-down list box determines the values used. PeopleSoft Query assumes that the specified field has translate table values associated with it, and that the field is identified as a translate table field in its record definition

Note. When using a prompt table on a field from a record (table) with multiple keys, you must prompt for all higher-level keys before lower-level keys. PS Query needs values for the higher-level keys to generate the correct prompt list. Because of this complication, you should not use multikey prompt tables.



To make the Prompt usable in the query, you will need to link it to a criterion.

Click on the Add Criteria button on the **Criteria Tab** and the following page will open. In our example we are prompting for the **STRM** (Term) value.



Choose the **STRM** (Term) field for Expression 1 by using the lookup. Next you will want to choose the appropriate **Condition Type**. Finally, you will want to add the prompt that you created by using the lookup shown above. (For more detail on Editing Criteria Properties, see the Criteria section of this document)

Once you have edited the Criteria to incorporate your prompt, it should look like the screenshot below. The number displayed in the Expression 2 text box (below) is the unique number given to your prompt

Above is a simple example of how an expression can be calculated as an additional column in the query output. In this example, we are adding an output column to the query that will denote whether the term the query is run for is the student's first term. In the **Expression Text field**, we are saying that when the current term (supplied by prompt) is equal to the admit term for that student, then the student is a "New" student.

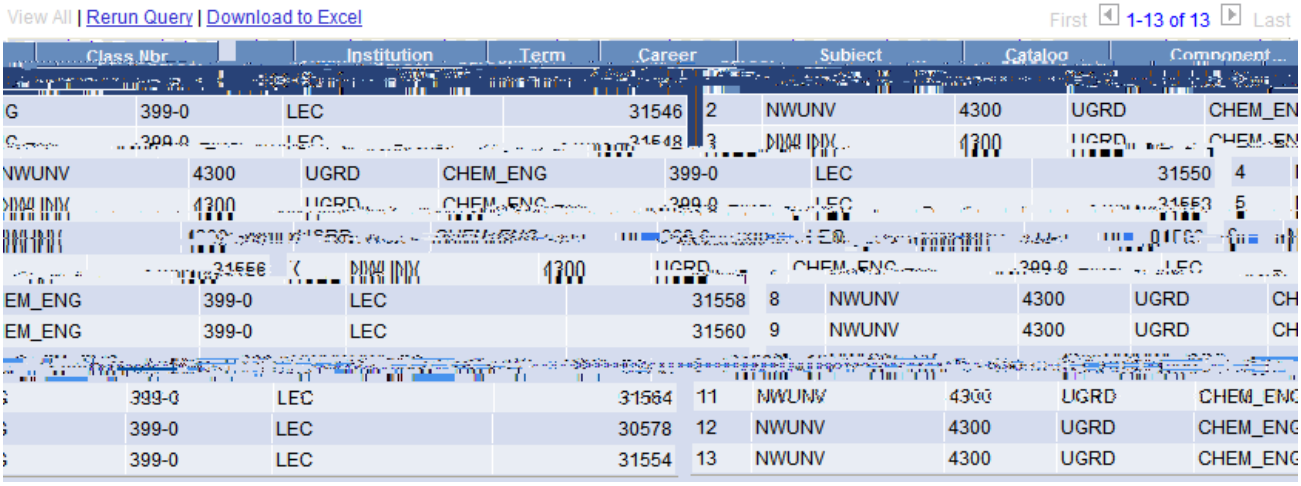
Aggregate Functions

An aggregate function is a special type of operator that returns a single value based on multiple rows of data. When your query includes one or more aggregate functions, PS Query collects related rows and displays a single row that summarizes their contents.

In a standard query, each row in the result set corresponds to an individual row in the table that you are querying. Sometimes you may want a summary of the information in multiple rows. For example, you might want to know how many class sections you have for each course. You can query for this kind of summary information using aggregate functions.

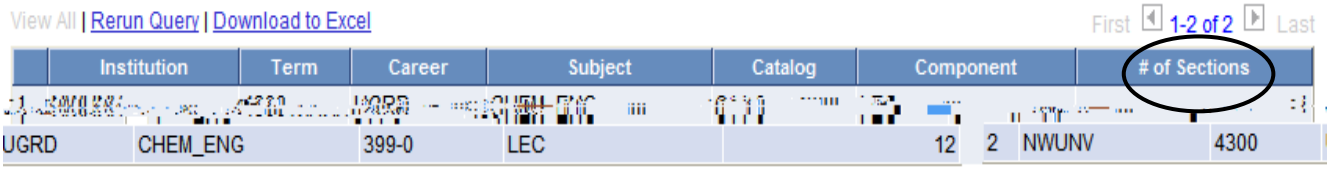
Below you will see how the Aggregate Function, **Count**, is used to display the number of Sections (Classes) by Course.

In the screen shot below, you will see a simple listing of Chemical Engineering classes.

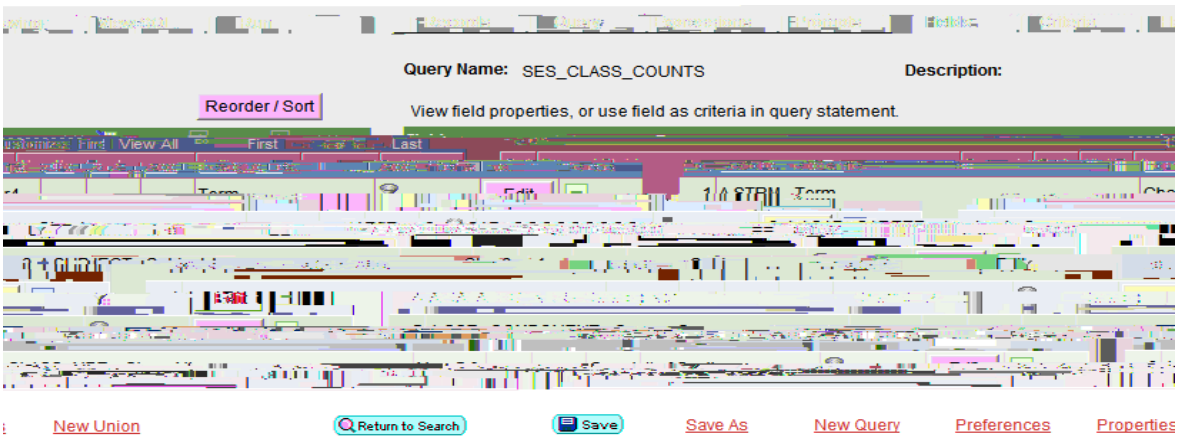


In the screenshot below, you will see what the aggregate version of this data looks like. We applied the aggregate, **Count**, on the Class_Nbr field in order to get a total number of classes offered for Chemical Engineering courses.

We chose to aggregate (count) on the Class_Nbr field because it makes each row unique.

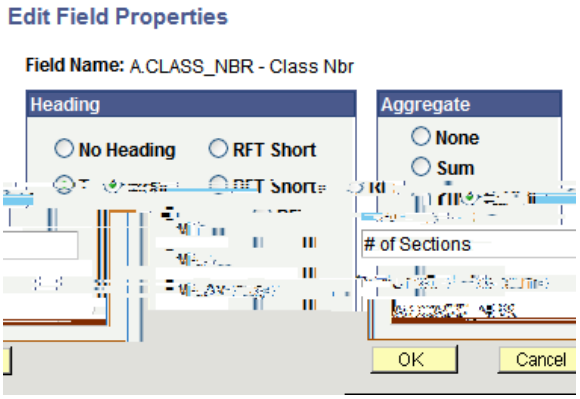


To apply an aggregate function to a field, navigate to the Fields Tab and click on the Edit button.



Once you have selected the Edit button, the following page will open, allowing you to edit the properties for this particular field.

Select the aggregate function that you want to use for this field by choosing the appropriate radio button. You may also want to edit the column heading text.

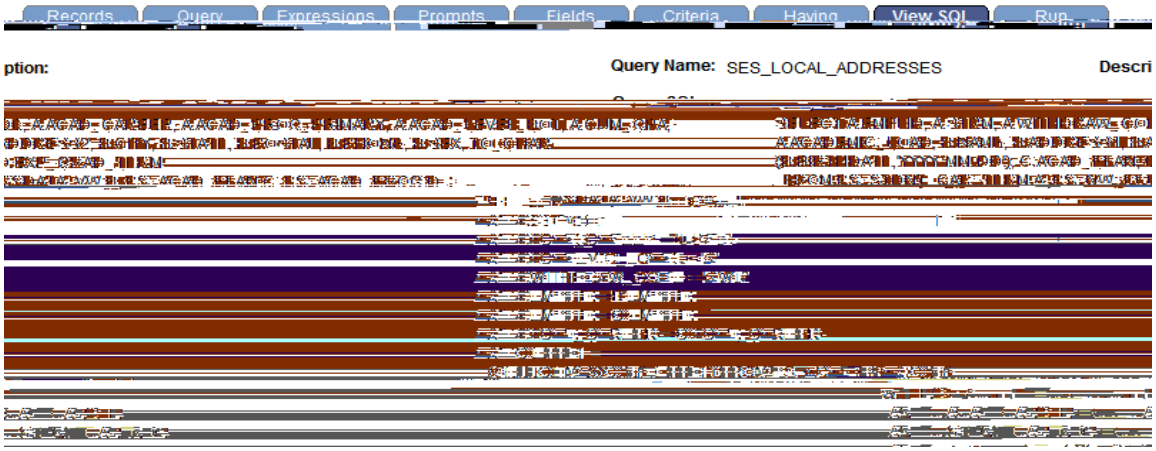


The following table lists the aggregate functions that you can apply to a field using PS Query.

Aggregate Function	Action
Sum	Adds the values from each row and displays the total.
Count	Counts the number of rows.
Min (Minimum)	Checks the value from each row and returns the lowest one

View SQL Tab

The View SQL tab displays the SQL statement created as you assemble your query. PS Query uses the SQL (Structured Query Language) syntax to generate the query. This tab is **view-only** and typically is not used by end-users. You may be asked to provide the SQL for your query if you need help troubleshooting a query. This tab is where you would find the SQL in order to copy and paste it into an email.



- Last Name, First Name

Edit/Remove the following Criterion:
- **Last Name –** Change to "Jones"
- **Career –** Change to "TGS"
- **Academic Load –** Remove this criteria

Edit/Save Query Properties
- Make sure your query is Private
- Be sure to provide meaningful text in the Description and Query Definition fields

Run Your Query and see if it works!