Introduction to Query
For Query Developers

Query is an ad-hoc reporting tool that allows you to retrieve data that is stored in the NUFinancials application. You use a series of query pages to specify what data to retrieve and the format in which results will be displayed. Query translates the information that you enter into SQL code to produce results which can be displayed in a browser window or downloaded to your workstation in an Excel spreadsheet.

There are two query access methods. Query Viewer allows execution of existing queries. Casual query users will only have access to queries via Query Viewer. Query Manager is used to create new queries or edit existing ones. It is also possible to execute queries from Query Manager. Query developers will have access to both query viewer and query manager pages.
Introduction to Query
For Query Developers

1. QUERY VIEWER .......................................................................................................................... 2
   A. EXECUTING QUERIES ............................................................................................................ 2
2. QUERY MANAGER ....................................................................................................................... 5
   A. WORKING WITH QUERIES ................................................................................................. 6
      Viewing Record Elements ........................................................................................................ 6
      Joining Records ..................................................................................................................... 8
      Create a new Query ............................................................................................................... 10
      Removing Records .............................................................................................................. 10
      Quick Join Options ............................................................................................................... 11
   B. WORKING WITH DATA FIELDS .......................................................................................... 15
      Reordering Fields ................................................................................................................. 15
      Specifying Column Order ..................................................................................................... 16
      Specifying Sort Order .......................................................................................................... 16
      Changing Field Headers ....................................................................................................... 17
      Translate Value Fields .......................................................................................................... 20
      Aggregating Data .................................................................................................................. 22
   C. WORKING WITH QUERY CRITERIA .................................................................................... 32
      Adding an expression ............................................................................................................ 32
      Adding a prompt ................................................................................................................... 44
   D. ORGANIZING QUERIES ....................................................................................................... 51
      Query Properties .................................................................................................................. 51
      Query Actions ....................................................................................................................... 54
   E. CREATING A QUERY ............................................................................................................ 55
CRITERIA CONDITION TYPES ....................................................................................................... 58

ADVANCED TOPICS ....................................................................................................................... 60

QUERY NAMING CONVENTION ....................................................................................................... 61

QUERY TERMINOLOGY .................................................................................................................... 62
1. Query Viewer

Navigation: Reporting Tools > Query > Query Viewer

Query Viewer is used for executing public queries in HTML or Excel.

A. Executing queries

Steps
1. Enter search criteria using Basic or Advanced Search (ex. QY_TRN).
2. Click Search.
   All queries with names that begin with the search characters that you entered in step a will be displayed in a results grid. You can use the % wildcard character to return queries that contain but don’t begin with the characters that you entered as search criteria. Private queries will be listed first alphabetically followed by Public queries.
3. Click on the HTML hyperlink to the right (ex. QY_TRN_04).
   A new browser window will be opened that will display the results.
4. Click on the **Excel Spreadsheet** hyperlink to download the query results to an Excel spreadsheet.

5. A download window will open providing options to open the Excel file, save it to your workstation or cancel the request. Click **Open**.

6. An Excel workbook will be opened in a new page, displaying your query results. Close the page by clicking on the red X icon in the upper right hand corner of the Excel page.
7. You can also download results to Excel directly from the search page without first displaying them in a browser window. Click on the **Excel** hyperlink to the right.
2. Query Manager
Navigation: Reporting Tools > Query > Query Manager

**IMPORTANT NOTE:** Query Manager is used for tailoring queries to specific result sets of data. In NUFinancials, there are many existing public queries. These queries are for use by all Query users. When using public queries, do not save any modifications you make as they will become part of the public query. If you want to capture specific modifications to a query, select **Edit** to open the query and then click **Save As** to save the modified query with a new name. You can choose to make the new query public or private.

**HOT Tip!** Save your queries into a Favorites folder by selecting them in the check box at the front of the row and using the **Action** drop down menu.

**HOT Tip!** Only Private queries can be saved to another user. You should save a Public query as a Private one and then can save/share it with another user using the **Action** drop down menu and User ID.
Navigation: Reporting Tools > Query > Query Manager

A. Working with Queries

Viewing Record Elements

Steps
1. Enter search criteria using Basic or Advanced Search (ex. QY_TRN).
2. Click Search.
   All queries with names that begin with the search characters that you entered in step a will be displayed in a results grid. You can use the % wildcard character to return queries that contain but don’t begin with the characters that you entered as search criteria.
3. Click Edit to the right (ex. QY_TRN_01). (It is not recommended to make changes to a public query. It is recommended to select Save As and make a public or private copy.)
4. Click the **Query** tab to view the records that have been added to this query.
5. Click the folder(s) to the left of Alias Record (ex. **JRNL_HEADER**) to see the fields that compose this record.

- The **fields that have a check mark to the left** of them will appear in your query results. Clicking on the **checkbox will toggle the selection** on and off.
- To **select all** fields to appear on the report click the **Check All Fields**.
- To **deselect all** fields from the report click the **Uncheck All Fields**.
- **Key fields** are indicated by a key symbol to the left of the field name. The combination of data in all key fields **defines a unique row within a record**. Key fields will be important when linking records together in more advanced queries.
- **Field Search tips**: Use 📚 to alphabetize field names, click a second time to return to original list order. Also note number of fields list and navigation to see more fields.
Joining Records

Often, not all of the information that you need in your query will be stored on a single record. If this is the case you will join additional records to your initial record. Once joined, the data fields on additional records can be selected in the same way that fields were selected on the initial record.

Joining records is the most sensitive aspect of query design as the join conditions affect the results that you will obtain and query performance. Up to five records can be joined within any query.

Records are joined by identifying common fields on each record and taking into account key fields and parent/child hierarchies between records. To help you identify valid join criteria, the query tool will recommend join conditions when you add a record to a query that already has at least one other associated record.

Records can be joined by Any Record Joins, Hierarchy Joins or Related Record Joins.

Any Record Joins:

6. Click on the Records tab.
7. Enter criteria (ex. JRNL_LN) in the record search criteria field.
8. Click Search.
9. Click on the Join Record hyperlink to the right of record (ex. JRNL_LN).
10. Keep the **default (Standard Join) Join Type**.
11. Select join record (ex. JRNL_HEADER).

12. **Query will detect common fields and suggest join conditions.** Use check boxes to unselect criteria or criteria can be modified later using the criteria tab. Click on the **Add Criteria** to accept the proposed join conditions.

If no join condition is found, query did not identify common fields between the records that you are attempting to link. You may need an intermediary record to join the records. If this is the case, contact support for guidance on how to develop a query that will provide you with the information that you require. **Attaching records to a query without join criteria can affect application performance and should not be done.**

13. Click on the **Query** tab to confirm that the joined record is now available for field selection.
Create a new Query

If you want to create a new query, select the Create New Query link and then search and add records, select fields, add prompts and criteria as desired. You can search for records by record name, records containing a Field name, or description using the Search By drop down menu. Make sure when you save the query, you set the properties of for Query name, Description, and Owner as Private. Select the Distinct check box to eliminate duplicate rows in the result set.

Removing Records

14. Click [icon] to the right of the record name on the Query tab to remove a record from the query. (ex. remove the JRNL_LN record from your query.) The application will prompt you for confirmation that you wish to delete the record. Click Yes to confirm deletion.
Quick Join Options

Hierarchy Joins:

There is a pre-established hierarchy between some records within the NU Financials application. A **Record Hierarchy Join** joins a parent table to a child table. (A child table is a table that uses all the same key fields as its parent, plus one or more additional keys.) As an example, there is a hierarchy between the Journal Header and Journal Line tables. For each row of data in the Journal Header table there must be one or more rows of corresponding data in the Journal Line table.

15. To facilitate joining records that have a hierarchy, Query provides a **Hierarchy Join** hyperlink on the **Query** tab. (ex. create a hierarchy join from the **JRNL_HEADER** table by clicking the **Hierarchy Join** hyperlink to the right of the record name.)

16. A listing of all tables that have a pre-established hierarchy with your initial table will be displayed. (ex. the **JRNL_LN** hyperlink to join this table to your query.)
Join criteria for hierarchy joins are pre-established and do not allow for modification. The join criteria between the records will be applied to the query and you will be brought back to the Query Manager Query tab.

Related Record Joins:

In addition to hierarchy relationships between tables, the NUFinancials application contains pre-defined relationships between fields that hold control codes on transaction tables and the records that contain identifying data about the control codes.

17. Click the file folder to the left of the record on a query to display the fields in the record (ex. JRLN_HEADER).
18. Scroll down and select a Lookup table hyperlink. (ex. the `SOURCE` field to link to the Join `SOURCE_TBL – Journal Sources`)

19. Accept the **Standard Join** default option by clicking **OK**.

20. You will get a popup message that **effective date criteria** have been added to your query. Effective dates are associated with records that allow users to modify values over time. The effective date on the row identifies the date that the row becomes active. The row is active through the date that another row of data with the same key values but a later effective date is added. **Query automatically creates join criteria to pull the active effective dated record for the date that the query is executed.** Click **OK** to acknowledge that the effective dated criteria has been added to the query.
You will be brought back to the Query Manager Query tab where you can confirm that the Lookup table has now been added to your query. (ex. SOURCE_TBL)
B. Working with Data Fields

Once you have joined records and selected the fields that will be included in your query there are several options for formatting results.

Reordering Fields

Steps
1. Click on the Fields tab to modify field formats.
2. By default, fields are ordered according to order that you join records and their respective order within those records. To modify the order of fields click Reorder/Sort.
Specifying Column Order

3. To change the order of fields, designate the modified field sequence number under the **New Column header** on the left side of the page. **Specify a New Column value for all fields**, not just those that you wish to modify.

Specifying Sort Order

4. If the query already has a sort order specified, the existing field sort priority will be specified under the **New Order By** column. A query may not have a sort order specified, so the column is blank. To specify a new sort order or to modify an existing one, indicate the priority of the sort for one or more fields in the **New Order By** column. (1 is the first priority sort followed by 2, etc., namely sort this column first, this column second.) By default, the sort will display results from lowest to highest value for each sort field.

To order results from highest to lowest value for a field, click the checkbox to the right of the field in the **Descending** column. (ex. sort the query on **JOURNAL_ID, JOURNAL_DATE** and **JRNL_HDR_STATUS** in that order of priority. Click the **Descending** checkbox for **JRNL_HDR_STATUS**.)

5. Click **OK**.
Changing Field Headers

6. Several records contain fields with default headers that are not sufficiently descriptive when combined with data from other records. To modify the column header for a field, click Edit to the right of the field. (ex. edit the DESCR field.)

Column headers default to a short description stored in the application. This description is displayed on the Edit Field Properties page.
7. The application also stores a long description for each field. To use the long description for your query column heading, select the RFT Long radio button and click OK.

8. Confirm that the Heading Text has been modified. (ex. the DESCR field which was originally Descr has been modified to Description. In this case, the column heading is longer but not more descriptive.)

9. To customize field text, click on Edit to the right of the field (ex. use DESCR field).
10. Select the Text radio button to specify a custom header description (ex. enter Header Descr in the Heading Text field).

11. Click OK to save your changes.

12. Confirm that the Heading Text for the field has been modified (ex. DESCR field which was set to Description has now been modified to Header Descr).
Translate Value Fields

An N in the XLAT column indicates that the no translation table description has been selected. The code value held in the record field will appear in the result set. This is the default format setting for XLAT fields. The edit options on XLAT fields allow you to select an application maintained short or long description instead of the default code.

13. Click the Edit to the right in the row (ex. use JRNL_HDR_STATUS row).

14. Click the radio button in the Translate Value box to replace the code for this field with a long or short description.

15. Click OK to accept the changes.
**Note** that the **XLAT value** for this field indicates what query results will include for this field.

- **L** to indicate the XLAT table long description.
- **S** to indicate the XLAT table short description.
- **N** to indicate no XLAT table description.

16. Click on the **Run** tab to execute the query.

17. The status field that previously contained a single letter code now contains the selected description associated with that code.
Aggregating Data

Aggregation functions allow you to consolidate multiple rows of data to get summary information. Query allows several options for aggregating field values across multiple rows of data. When aggregation options are indicated for one or more fields in a query a single result row will appear for each unique combination of non-aggregated field values. Aggregation is only performed on rows where all non-aggregated fields share identical values.

A recommendation would be to find and Save As or build a query that captures the desired data fields in raw form. Then save that raw data query as a new query to add aggregation summary criteria.

The strategy for adding aggregation is to review the raw data fields and remove extraneous fields (unselect in Query tab or delete in Fields tab) to just the ones needed to define the aggregation. Add the aggregation to the appropriate germane field(s). Then add back any fields as desired to enhance the aggregation. Remember: a single result row will appear for each unique combination of non-aggregated field values.

Below are the steps for reviewing and adding aggregation to a query, followed by a specific example:

18. Search and locate a query to which to apply aggregation. Click Edit. (It is not recommended to make changes to a public query. It is recommended to select Save As and make a public or private copy.)
19. Click the **Run** tab on the query definition page to see current query results.
20. Click on the **Fields** tab. Field aggregation will be indicated in the **Agg column** on this tab.

21. Click **Edit** to the right of the field to apply aggregation.

If the aggregate box option is set to **None**, individual row detail is displayed in the query result set since aggregation is not indicated.

22. Click a radio button in the **Aggregate** box for the appropriate type.
The following provides a description of all aggregation options.

**None**  
Will not use aggregate functions.

**Sum**  
Adds the values from each row and displays the total. (individual field value if no agg.)

**Count**  
Counts the number of rows. (individual field value if no agg.)

**Min**  
Checks the value from each row and returns the lowest value. (individual minimum field value if no agg.)

**Max**  
Checks the value from each row and returns the highest value. (individual maximum field value if no agg.)

**Average**  
Adds the values from each row and divides the result by the number of rows. (individual field value if no agg.)

23. Click **OK** to select the aggregate setting.
24. Review the **Agg column** to see that it now indicates a setting for the field.
25. Click the **Run** tab to generate query results.
Here is a specific example to demonstrate the aggregation strategy and implementation:

- Search and locate a query to which to apply aggregation. Click **Edit**. (Remember to save a query before making modifications!)

![Edit Query](image1.png)

- Click the **Run** tab on the query definition page. (ex. this query has a date prompt).

![Run Query](image2.png)

- Click **OK** to execute the query.

![Execute Query](image3.png)
The result set for this sample query is limited to journals **with journal dates within the selected date range**. In addition, this query limits results to Valid and Posted journals. Thirteen rows of data meet these criteria.

Click on the **Fields** tab. Field aggregation will be indicated in the **Agg** column on this tab. Currently there is no aggregation within this query so the column is blank for all fields.

Click **Edit** to the right of the **MONETARY_AMOUNT** Field.
The aggregate box option is currently set to **None**. Individual row detail is displayed in the query result set since aggregation is not indicated.

- Click the **Sum** radio button in the Aggregate box.
- Click **OK** to save the aggregate setting.

**Note:** the **Agg** column now indicates **Sum** for the **MONETARY_AMOUNT** field. Click on the **Run** tab to generate query results.
Note: there is no change in the result set that was returned. Aggregation had no impact on query results because each of the rows contains a unique combination of values in non-aggregated fields.

- Click the Fields tab.
- Click to the right of the JOURNAL_LINE to delete the field from the result set.
- Delete ACCOUNT, DEPTID, DESC, LINE_DESCR, JOURNAL_ID and JOURNAL_DATE fields.
- You will have four fields after completing deletions.

![Image of query fields with four fields highlighted]

- Click the Run tab to execute the query again. **Note** that only two lines are now returned in the result set. They represent the unique combinations of non-aggregated field values. The MONETARY_AMOUNT field shows the sum of the underlying lines for each combination.

![Image of query result set with two lines highlighted]

- Click the Fields tab.
- Click **Edit** to the right of the MONETARY_AMOUNT field.

![Image of query fields with edit option highlighted]
- Change the **Aggregate** radio button to **Count**.
- Click **OK**.

![](image)

- Click the **Run** tab to execute the query. **Note:** your result set still aggregated data based on unique combinations of non-aggregated fields. However, the **MONETARY_AMOUNT** field now contains a **count** of the rows that are included in each aggregated line.

![](image)
C. Working with Query Criteria

When you execute a query, the result set will include data for all rows in the record that you have selected. If multiple tables have been joined, the tool will return data for all rows that have an associated record in each joined table.

In most cases, you will want to filter your results to a subset of data. To accomplish this task, the query tool allows you to define criteria that define what data will be returned upon execution. To establish criteria, you will select a data field and indicate a range of values. Only rows of data where field values fall within this range will be returned when the query is executed. You can establish multiple criteria to limit results based on values in multiple fields.

Adding an expression

Steps
1. Search and locate a query (ex. QY_TRN_02) Click Edit to the right of query name to open. (It is not recommended to make changes to a public query. It is recommended to select Save As and make a public or private copy.)
2. Click on the **Run** tab to execute the query and review any criteria. (ex. this result set contains 81 rows of data as indicated above the query results.)

![Run tab](image)

Specific Date Range as Criteria

3. Click the **Criteria** tab. (ex. The journal header and journal line tables have been selected and joined. Query results include all data from these tables.) To limit the results to a **specific date range**, a specific range can be selected.

4. Click **Add Criteria**.

![Add Criteria](image)
5. In this course we will work with field based criteria. Confirm that the expression type is Field.

6. In the Expression 1 box, click the icon in the Choose Record and Field box to select the field against which the criteria will be applied (ex. this is an example of adding a range of dates as criteria).

7. A listing of the records that you have added to your query and associated fields will be displayed. By default the fields for the first record added to the query will be displayed. Click on the field name to select (ex. JOURNAL_DATE field).
8. You will be returned to the criteria definition page. (ex. Note that  
**JOURNAL_DATE** has now been identified as the active field for this  
criteria.)

**HOT Tip!** Here’s another way of navigating to the **Edit Criteria Properties**  
page and selecting the field name. From the **Fields** tab, click on ![Field Selection Icon] to go  
directly to the **Edit Criteria Properties** page with the field name already entered.

9. The **Condition Type** defines how valid values will be indicated. Click on  
the drop down box to select the condition type (ex. **between**). See  
**Appendix A** for definitions of condition types.

![Edit Criteria Properties Dialogue Box]

**Step 2.C.8**

**Step 2.C.9**

**Note:** Parameter fields for **Expression 2** have been modified to reflect that  
the **between** condition type requires an upper and lower limit to define a valid  
data range for the field specified in **Expression 1**.
10. In the **Expressions 2** box, click on ![button icon] in **Define Constant** and use the calendar to navigate to a specific date as the lower range of valid date values for these criteria.

![Diagram of Expressions 2 box with Define Constant selected]

11. In the **Expressions 2** box, click on ![button icon] in **Define Constant 2** and use the calendar to navigate to a specific date as the upper range of valid date values for these criteria.

12. Click **OK** to select the criteria.
Note: a criteria line has now been added to your query.

Reference:
- You can add a criteria line by clicking Add Criteria.
- You can edit a criteria line by clicking Edit to the right of the criteria line.
- You can delete a criteria line by clicking the delete symbol to the right of the line.

Define Constant Values as Criteria

13. Click Add Criteria to add another criteria line.

14. In the Expression 1 box, in the Choose Record and Field box, select the field against which the criteria will be applied (ex. this is an example of adding a constant value as criteria for JRNL_HDR_STATUS field).

15. In the Expression 2 box, in the Define Constant box, click the icon to get a list of the valid values for the Constant.
16. Click **Select Constant** to the right of the value to filter query results (ex. P, Posted to Ledger, Posted).

![Select A Constant](image1)

**Step 2.C.16**

**Note:** that the single constant value is now indicated as the valid range in **Define Constant** (ex. P is for the JRNL_HDR_STATUS).

17. Click **OK**. The additional criteria line has now been added to your query.

![Edit Criteria Properties](image2)

**Step 2.C.17**
18. Click the **Run** tab to execute the query with criteria (ex. with journal date and header status criteria).

**Note**: the query that produced a result set that contained many rows of raw data, now has the aggregated summary rows (ex. for this example, 81 rows before applying criteria now contains only 28 rows of data).
Define a Constant List of Values as Criteria

19. Click the **Criteria** tab (ex. this is an example of adding a list of constant values as criteria for **JRNL_HDR_STATUS** field).
20. Click **Edit** to add criteria (ex. **JRNL_HDR_STATUS**).

21. In the **Condition Type** drop down menu, select the **in list** option.
22. In the **Expression 2** box, click the **icon to select the values that will compose the list of valid values for inclusion on the query result set.**
23. Click **Add Value** next to each value to be added to the **Contant list** (ex. V, Valid-Edits Complete, Valid or P, Posted to Ledger, Posted). You can also add values by typing them into the **Value** field at the top of the page and clicking **Add Value** to the right of that field.

![Edit List](image1)

**Step 2.C.23**

**Step 2.C.24**

**Note:** the constant values have been added as to the list of valid list members. Also, you can select and delete list members with **Delete Checked Values**.

![Edit List](image2)

24. Click **OK** to select the list.
25. Click **OK** to select Criteria Properties.

Criteria tab now contains a list of values for the field.
26. Click on the Run tab to execute the query with the modified criteria.

Note: the query result set now includes the Constant List of values.
Other filters on Criteria tab:

**Logical Operator:** You can use the **Logical** column to further define the rows of criteria. The **Logical Operator** always defaults to **AND**. The first row of criteria will have a blank operator.

**Group Criteria:** You can use **Group Criteria** to control the order in which Query executes the criteria rows. To group criteria, select **Group Criteria** and type and open and close parenthesis into the columns surrounding the criteria. Click **OK**.

---

**Adding a prompt**

Query criteria that are defined with constants allow you to filter a query result set, but the criteria must be updated each time that the parameters change. To eliminate the need for frequent design changes and multiple variations of a single query, the query tool allows the creation of prompts. **Prompts are variables that accept values from the user at the time of execution.**

27. Click on the **Prompts** tab.
28. Click **Add Prompt** to create a new prompt.
29. The easiest way to define a prompt is by selecting the field that the criteria will be based upon and update heading text. Click icon under Field Name to select a prompt field from Edit Prompt Properties.

30. In Search by: Field Name, search for prompt field (ex. JOURNAL_DATE)
31. Click Search to retrieve field options.
32. Click on Prompt Field selection link (ex. JOURNAL_DATE).
You will be returned to Edit Prompt Properties. The field type, format, length and heading will default from the field that you selected. A Unique Prompt Name will be automatically assigned.

33. Modify the heading by selecting the **Heading Type** as **Text** from the drop down menu.
34. Enter heading text in the **Heading Text**: field (ex. **From Date**) and modify the **Unique Prompt Name** to make it more descriptive (ex. **FROM_DT**).
35. Click **OK** to select the prompt settings.

In this example, you would repeat steps 2.C.29 through 2.C.35 to add a second **JOURNAL_DATE** prompt for To Date.

36. Modify the heading by selecting the **Heading Type** as **Text** from the drop down menu.
37. Enter heading text in the **Heading Text**: field (ex. **To Date**) and modify the **Unique Prompt Name** to make it more descriptive (ex. **TO_DT**).
38. Click **OK** to select the prompt settings.
39. To apply the new prompts, click the **Criteria** tab.

40. To apply the new prompts, click **Edit** to the right of the criteria (ex. **JOURNAL_DATE**).
41. In the **Choose Expression 2 Types** box, select **Expr – Expr**.
42. In the **Expression 2** box, in the **Define Expression** box, click **Add Prompt** and select the prompt (ex. **From Date**). You will be returned to the **Edit Criteria Properties** page and the prompt sequence number (:1) will be added to the Expression definition.
43. In the **Expression 2** box, in the **Define Expression 2** box, click **Add Prompt** and select the prompt (ex. **To Date**). You will be returned to the **Edit Criteria Properties** page and the prompt sequence number (:2) will be added to the Expression 2 definition.
44. Click **OK** select criteria changes.

**Note:** For the example, the **JOURNAL_DATE** criterion was previously set as set specific dates. In the **Edit Criteria Properties** page, **Field** is already selected as **Expression 1 Type** and **JOURNAL_DATE** is already selected as **Record Alias.Fieldname**. Also, the **Condition Type** was previously set as **between**. If you are creating a prompt for the first time, you would need to make selections for **Expression 1 Type**, **Record and Field**, and **Condition Type**.
45. Click the **Run** tab to execute the query.

![Query interface](image)

You will be prompted to enter a value for each prompt that is used within query criteria.

46. Enter a date as the **From Date** using the calendar drop down or by typing directly into the field.

47. Enter a date as the **To Date** using the calendar drop down or by typing directly into the field.

48. Click **OK** to execute the query.

![Date entry interface](image)
Query results match the results from the previous execution where constants were used instead of prompts. However, the query can now support reporting for any time period without modification.
D. Organizing Queries

Query Properties

Query properties define how a query is identified, where it is stored and who has access to view, modify and execute the query. Properties are initially set when a query is saved. However, it is possible to modify all properties other than the query name at a later date.

Steps
1. To access query properties for an existing query, search and click Edit to open query.
2. On any tab except the Run tab, note and click Properties at the bottom of the page.
In order to save a query you must specify three mandatory field values: Query (Name), Query Type, and Owner.

- The **Query** field stores the query name which may be up to 30 characters. Please adhere to the custom query naming conventions in Appendix A.
- **Query Type** will always be ‘User’
- **Owner** will be either Private or Public. If you specify Private you are the only person who will be able to access the query. If you specify Public all users with access to the query tool will be able to access the query.

In addition to the mandatory fields, it is recommended that you enter the following optional descriptive fields.

- **Description** is a 30 character short description
- **Query Definition** provides a place to store an extended description. It is recommended that you include the developer's name and the date that the query was last modified as well a brief description of the query including its intended use.
The following fields are also available on the **Query Properties** page:

**Distinct** is a formatting setting which will **eliminate duplicate rows of data in your query result set** when checked. Distinct queries provide a listing of unique field combinations that meet your query criteria. This option is similar to aggregation in that multiple rows returned by the query are presented as a single row in the query result set.

**Folder** is an organizational field that allows you to group related queries and to identify your queries from those created by other users. To place a query in a folder, enter the folder name in the Folder field. If the folder exists, the query will be added to it. If the folder does not exist, it will be created. Folders stay in existence as long as they contain at least one query.

Query Manager and Query Viewer search pages allow you to limit search results to a single folder or to search all folders.
Query Actions

There are several query maintenance actions that you can perform from the Query Manager search page.

- **Add to Favorites**
  Adds query to Favorite queries list, shown at the bottom of the query search page.

- **Copy to User (limited to private queries)**
  Copies private queries to another user allowing them to manipulate and execute the copy without affecting the original query.

- **Delete Selected**
  Removes obsolete queries. You should only delete your private queries or public queries over which you have maintenance authority.

- **Move to Folder**
  Moves queries to the folder specified.

- **Rename Selected**
  Allows renaming of selected queries.

Actions can be performed on one or many queries by executing the following steps and supplying the appropriate parameters for the selected action:

3. Select the checkbox to the left of the query name for each query affected.
4. Select the appropriate action from the Action drop down menu.
5. Click Go.
E. Creating a Query

What is your question?
Given that question, what fields on what tables will show you the results?
How do they need to be joined together?
Do you need expressions, prompts, sorts, criteria to include/exclude data?

Example: Show me a list of requisitions and their statuses for a range of DeptIDs (4001200 to 4001400) for a specific month (July 2009)

Click Create New Query from Search page:
What tables/records and fields do you need for this?
A.REQ_HDR record with the fields:
   REQ_ID,
   REQ_STATUS
B.REQ_LN_DISTRIBUT record with the fields:
   DEPTID

How should these tables be joined?
   Standard join on business unit, requisition ID
What expressions, prompts, sorts, criteria do you need?
   Create criteria for the department ID range.
   Create criteria for the requisition date range.
   Change XLAT table to short name.

Run Query!

See screenshots of this query on next pages.
Screenshots for example:

Query tab

Fields tab

Criteria tab
View SQL tab

```
SELECT A.REQ_ID, A.REQ_STATUS, B.DEPT_ID, TO_CHAR(SYSDATE, 'YYYY-MM-DD')
FROM PS_REQ_HDR A, PS_REQ_LINES DISTRIBUTE B
WHERE A.BUSINESS_UNIT = B.BUSINESS_UNIT
AND A.REQ_ID = B.REQ_ID
AND B.DEPT_ID BETWEEN '4001200' AND '4001400'
AND A.REQ_DT BETWEEN TO_DATE('2009-07-01', 'YYYY-MM-DD') AND TO_DATE('2009-07-31', 'YYYY-MM-DD')
```

Run tab (result set)

```
<table>
<thead>
<tr>
<th>Req ID</th>
<th>Requisition Status</th>
<th>Dept</th>
</tr>
</thead>
<tbody>
<tr>
<td>REQ0010694</td>
<td>Approved</td>
<td>4001200</td>
</tr>
<tr>
<td>REQ0010694</td>
<td>Approved</td>
<td>4001200</td>
</tr>
<tr>
<td>REQ0010694</td>
<td>Approved</td>
<td>4001200</td>
</tr>
<tr>
<td>REQ0010694</td>
<td>Approved</td>
<td>4001200</td>
</tr>
<tr>
<td>REQ0010694</td>
<td>Approved</td>
<td>4001200</td>
</tr>
<tr>
<td>REQ0010694</td>
<td>Approved</td>
<td>4001200</td>
</tr>
<tr>
<td>REQ0010694</td>
<td>Approved</td>
<td>4001200</td>
</tr>
<tr>
<td>REQ0010694</td>
<td>Approved</td>
<td>4001200</td>
</tr>
<tr>
<td>REQ0010694</td>
<td>Approved</td>
<td>4001200</td>
</tr>
<tr>
<td>REQ0010694</td>
<td>Approved</td>
<td>4001200</td>
</tr>
</tbody>
</table>
```
### APPENDIX A
**Criteria Condition Types**

<table>
<thead>
<tr>
<th>Condition Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>between</strong></td>
<td>The value in the selected record field falls between two comparison values. The range is inclusive.</td>
</tr>
<tr>
<td><strong>not between</strong></td>
<td>The value in the selected record field does not fall between two comparison values. The range is inclusive.</td>
</tr>
<tr>
<td><strong>equal to</strong></td>
<td>The value in the selected record field exactly matches the comparison value.</td>
</tr>
<tr>
<td><strong>not equal to</strong></td>
<td>The value in the selected record field does not exactly match the comparison value.</td>
</tr>
<tr>
<td><strong>greater than</strong></td>
<td>The value in the record field is greater than the comparison value.</td>
</tr>
<tr>
<td><strong>not greater than</strong></td>
<td>The value in the record field is not greater than the comparison value.</td>
</tr>
<tr>
<td><strong>less than</strong></td>
<td>The value in the record field is less than the comparison value.</td>
</tr>
<tr>
<td><strong>not less than</strong></td>
<td>The value in the record field is not less than the comparison value.</td>
</tr>
<tr>
<td><strong>in list</strong></td>
<td>The value in the selected record field matches one of the comparison values in a user specified list.</td>
</tr>
<tr>
<td><strong>not in list</strong></td>
<td>The value in the selected record field does not match one of the comparison values in a user specified list.</td>
</tr>
</tbody>
</table>
| **like**       | The value in the selected field matches a specified string pattern. The comparison value may be a string that contains wildcard characters. The wild-card characters that PeopleSoft Query recognizes are % and _.

  - % matches any string of zero or more characters. For example, C% matches any string starting with C, including C alone.
  - _ matches any single character. For example, _ones matches any five-character string ending with ones, such as Jones or Cones.

| **not like**    | The value in the selected field does not match a specified string pattern. The comparison value may be a string that contains wildcard characters. The wild-card characters that PeopleSoft Query recognizes are % and _.

  - % matches any string of zero or more characters. For example, C% matches any string starting with C, including C alone.
  - _ matches any single character. For example, _ones matches any five-character string ending with ones, such as Jones or Cones. |
<table>
<thead>
<tr>
<th>Condition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>exists</strong></td>
<td>Using subquery criteria is an advanced topic that will be addressed in supplemental query training. Please do not use the Exists or Does Not Exist condition types at this time.</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td><strong>does not exist</strong></td>
<td>Using subquery criteria is an advanced topic that will be addressed in supplemental query training. Please do not use the Does Not Exist condition types at this time.</td>
</tr>
<tr>
<td></td>
<td>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 does not return any data, PeopleSoft Query returns the corresponding row.</td>
</tr>
<tr>
<td><strong>in tree</strong></td>
<td>Using tree criteria is an advanced topic that will be addressed in supplemental query training. Please do not use the in tree or not in tree condition types at this time.</td>
</tr>
<tr>
<td></td>
<td>The value in the selected record field appears as a node in a tree created with PeopleSoft Tree Manager. The comparison value for this operator is a tree or branch of a tree that you want PeopleSoft Query to search.</td>
</tr>
<tr>
<td><strong>not in tree</strong></td>
<td>Using tree criteria is an advanced topic that will be addressed in supplemental query training. Please do not use the in tree or not in tree condition types at this time.</td>
</tr>
<tr>
<td></td>
<td>The value in the selected record field does not appear as a node in a tree created with PeopleSoft Tree Manager. The comparison value for this operator is a tree or branch of a tree that you want PeopleSoft Query to search.</td>
</tr>
<tr>
<td><strong>is null</strong></td>
<td>Please note, many fields in the Financials application are assigned a default value (0 for numerical fields and a single space for character fields) when an actual value is not specified. Is Null searches for fields that have no value. Null fields are not the same as zeros or blanks. Null fields have no data, whereas zeros and blanks are considered data. The selected record field does not have a value in it. You do not specify a comparison value for this operator. Key fields, required fields, character fields, and numeric fields do not allow null values.</td>
</tr>
<tr>
<td><strong>Is not null</strong></td>
<td>Please note, many fields in the Financials application are assigned a default value (0 for numerical fields and a single space for character fields) when an actual value is not specified. The selected record field does not have a value in it. You do not specify a comparison value for this operator. Key fields, required fields, character fields, and numeric fields do not allow null values.</td>
</tr>
</tbody>
</table>
APPENDIX B
Advanced Topics
(Will be addressed in an advanced Query course)

Left outer joins
Query limits results to data that has corresponding rows of data in all joined records. If a row of data in record A does not have at least one corresponding row of data in record B (based on record join conditions), results will not contain the data from record A.

Establishing a left outer join between the records allows you to include all rows of data from record A even when there are no corresponding rows in record B. Result fields from record B will be blank. Left outer joins introduce some limitations when establishing field criteria.

Unions
Unions allow the results of two queries to be combined into a single result set. They are useful when you wish to view data that meet either of two distinct criteria conditions.

Subqueries
Subqueries are used within criteria to dynamically identify a valid range of values. Using a subquery you could limit results to rows of data that

Expressions
Expressions allow you to manipulate field data. Expressions require the use of mathematical operators or Oracle commands.

Tree Criteria
Financials uses a structure called a tree to identify hierarchy relationships between data. For example, accounts may be grouped into an account category or departments grouped into divisions. Specifying criteria based on tree values allow you select a range of data that falls within an aggregate tree grouping. Using tree criteria eliminates the need to specify specific data values and to modify the criteria if the data changes.

Having Criteria
Query applies criteria on a row by row basis to determine the data that will be included in the query result set. Having criteria allow you to apply criteria based on aggregated data across several rows of data that share a common field value.

Using having criteria you could return a listing of all purchase orders by departments and limiting results to departments that have ordered more than $50,000 in total purchases within a specified time period.

AND/OR criteria
Logical operators expand criteria development capabilities and introduce a level of complexity based on the grouping and placement of individual criteria.
APPENDIX C
Query Naming Convention

Queries names can be up to 30 characters in length and cannot contain spaces. They should adhere to the following nomenclature. Please note that the organizational dispositions listed below are intended to support initial query developer access. Additional designations will be identified as needed. Please contact the help desk at consultant@northwestern.edu if you do not see an appropriately designation.

**NU_XX_Y(24)**

- Where **NU** is a constant that identifies the query as a custom object
- **XX** identifies the organizational disposition of the developer according to the following chart

<table>
<thead>
<tr>
<th>Organizational Disposition</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Office</td>
<td></td>
</tr>
<tr>
<td>Grants (OSR &amp; ASRSP)</td>
<td>GM</td>
</tr>
<tr>
<td>Budget Office</td>
<td>BD</td>
</tr>
<tr>
<td>Facilities Management</td>
<td>FM</td>
</tr>
<tr>
<td>University Services</td>
<td>US</td>
</tr>
<tr>
<td>Purchasing Resource Services</td>
<td>PR</td>
</tr>
<tr>
<td>Financial Operations</td>
<td></td>
</tr>
<tr>
<td>Accounting Services</td>
<td>AS</td>
</tr>
<tr>
<td>Accounts Payable</td>
<td>AP</td>
</tr>
<tr>
<td>Financial Systems</td>
<td>FS</td>
</tr>
<tr>
<td>Treasury Operations</td>
<td>TR</td>
</tr>
<tr>
<td>Schools/Units</td>
<td></td>
</tr>
<tr>
<td>Feinberg</td>
<td>FB</td>
</tr>
<tr>
<td>Kellogg</td>
<td>KG</td>
</tr>
<tr>
<td>McCormick</td>
<td>MC</td>
</tr>
<tr>
<td>Medill</td>
<td>ME</td>
</tr>
<tr>
<td>Weinberg</td>
<td>WB</td>
</tr>
</tbody>
</table>

- Y(24) allows up to 24 characters to enter a meaningful query identifier.
APPENDIX D
Query Terminology

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Query</td>
<td>Query gives users the ability to produce a report of information from a database.</td>
</tr>
<tr>
<td>Database</td>
<td>A database is a collection of related data.</td>
</tr>
<tr>
<td>Record/Table</td>
<td>Within any database, data is organized into groupings called Records/Tables. The records/tables are the building blocks of the database. Each record contains related information. Examples of records include: - Journal information - PO information - Grant information Please Note: The terms records and tables are used interchangeably.</td>
</tr>
<tr>
<td>Fields</td>
<td>Fields are the separate pieces of information contained within a record. Fields are also the column headings of an Excel Spreadsheet. Key Fields uniquely identify a row of data and are identified with a key icon. A key field is also used to join one record to another when both records share the same key field. Some examples include: Journal ID, Budget Status, or Accounting Period</td>
</tr>
<tr>
<td>Joins</td>
<td>Joins retrieve data from more than one table, presenting the data as if it came from one.</td>
</tr>
<tr>
<td>Criteria</td>
<td>Criteria are used to filter data from the database. Criteria helps to extract the specific information you would like to pull from the database. A criterion can include and/or exclude data. For an example you can specify a criterion to bring back data for a specific department number. This includes data for the desired department number and excludes all the rest.</td>
</tr>
<tr>
<td>Public vs. Private Queries</td>
<td>When a user saves a query they choose to save their query as either public or private. - Public can be seen by others - Private will only be seen by the person who created the query We have Public Queries created that users are more than welcome to use. If you do use public query you are REQUIRED to rename and save under your name.</td>
</tr>
</tbody>
</table>