Writing An Advanced Query Job Aid

User Role(s): *Agency Query Writer*
DFS Query Writer
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Overview

Query Writers can create or modify queries to extract precise information using the Query Manager tool in Florida PALM. This tool allows Query Writers to develop, run, and schedule queries without writing a Structured Query Language (SQL) statement. Before creating a new query, search for an existing query to use or modify to meet your needs. Existing queries can be found in the Reports Catalog on the Solution Tab of the Florida PALM website. View the *Running a Query* course in the *PALM TECH – Florida PALM Overviews* Learning Path in the People First Learning Management System to learn how to search for an existing query.

This job aid focuses on more advanced query writing aspects like using multiple records in the same query, adding prompts, creating "HAVING" criteria, and viewing a query's SQL. To learn the steps to write a simple query (e.g., how to fill out the query properties, name the query, and how to save the query), view *Writing a Simple Query* job aid. To see which data records hold the information you wish to extract, view the "Florida PALM Data Dictionary" (available in Smartsheet) to see a list of available records in Florida PALM.

How to Create a Query with Multiple Records

You will create a query with multiple records when information from more than one record is needed.

1. Navigate to the **Query Manager** page and find an existing query or create a new query.
    a. Path: NavBar > Menu > Reporting Tools > Query > Query Manager
2. On the **Records** tab, enter the name of the first record containing your desired data values using the **Search By** field.
3. Click the **Search** button.
4. Select the desired record by clicking the **Add Record** link.
    a. For performance reasons, it is important to use the hierarchical order of records (if it exists) when creating a query with multiple records.
    b. If complex logic is needed or a lot of joins are needed, contact the Solution Center to request a new report.

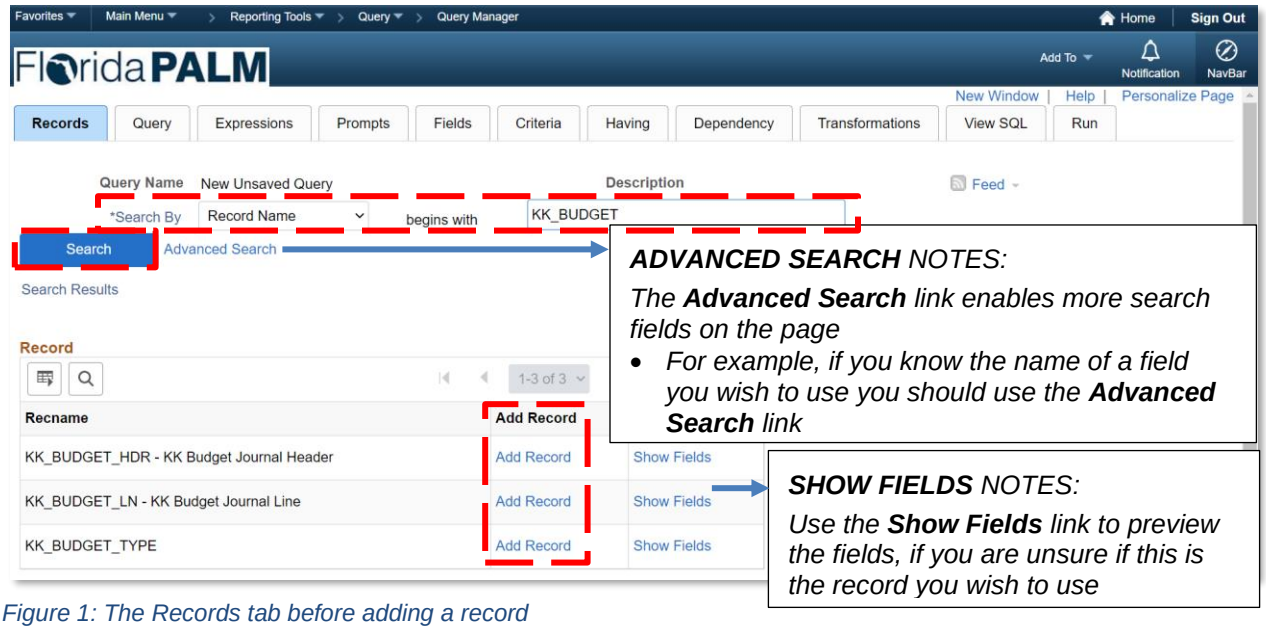

Figure 1: The Records tab before adding a record

5. Add all of your desired records and then join them by clicking the **Join Record** link.

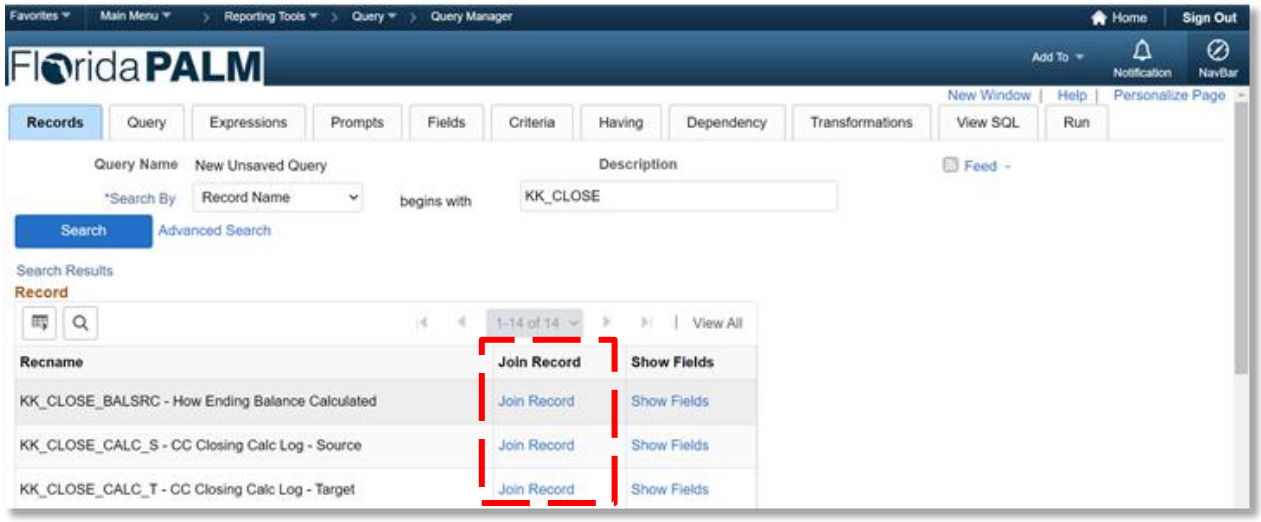

Figure 2: The Records tab after adding multiple records

6. Select the desired **Join Type** (see figure 4 for more information about the common types).
7. Click the **Join Record** link to select one of the previously added records to join.

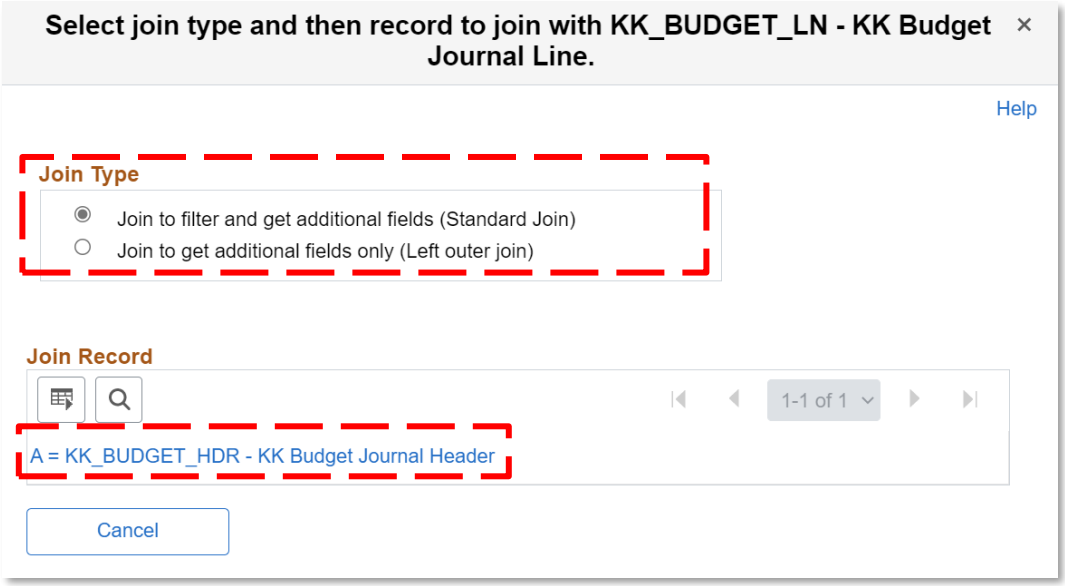

Figure 3: The Join Type and Join Record page

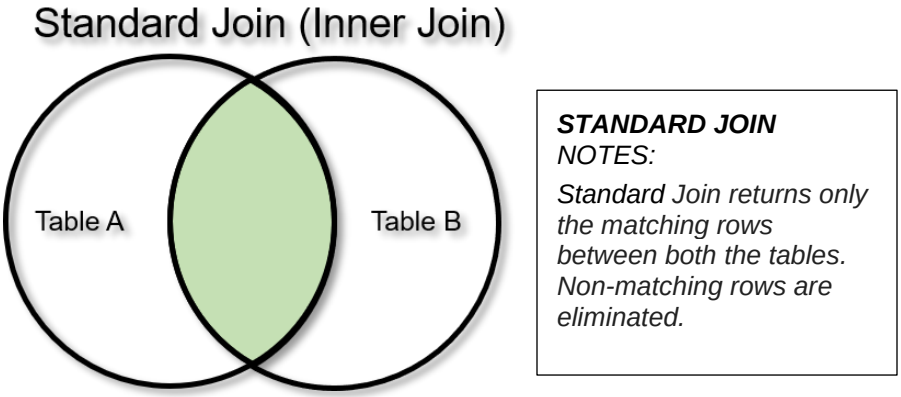

Figure 4: A visual representation of a standard join and which area is selected by the query

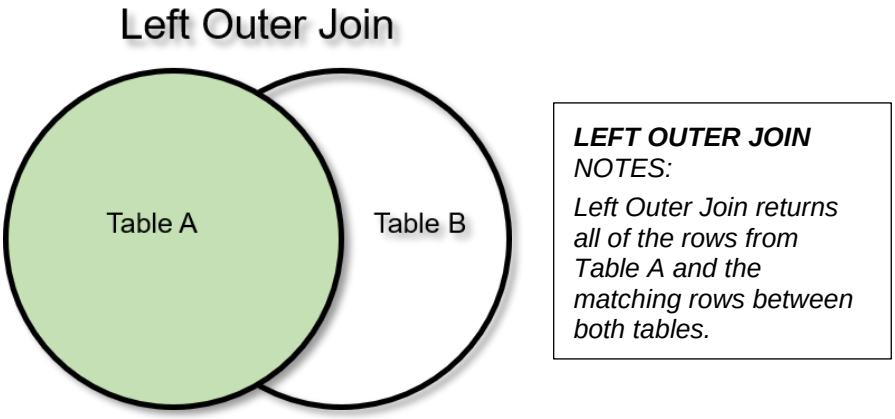

Figure 5: A visual representation of a left outer join and which area is selected by the query

8. In the **Auto Join Criteria** window, deselect any undesired criteria.
9. Click the **Add Criteria** button.
10. Repeat steps 5 – 11, until you have all the desired records.
    a. Be mindful of how many joins are added because joins have the potential to slowdown a query and make it harder to validate the data.

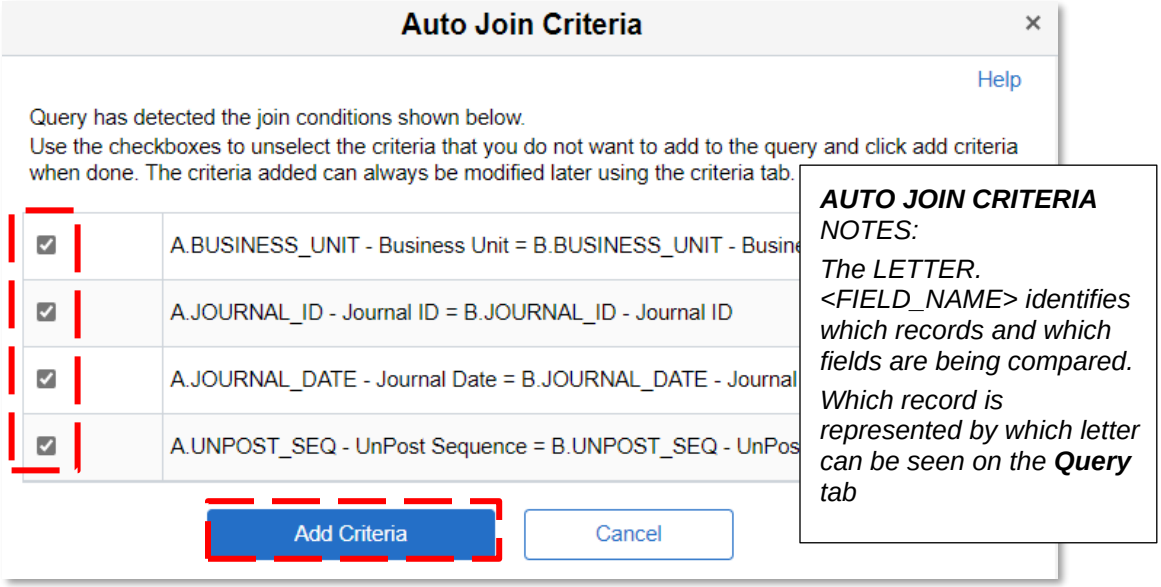

Figure 6: The Auto Join Criteria page

11. Click the **Save** button.

NOTE: Records can be removed from the query by clicking the **Query** tab and then clicking the **Delete Record (Minus)** icon for the desired record.

How to Create a Query with a Prompt

Adding a prompt to a query will require the end user running the query to enter the comparison value(s). This means queries with prompts will have to be run on an as needed basis and may not be scheduled.

1. Navigate to the **Query Manager** page and find an existing query or create a new query.
    a. Path: NavBar > Menu > Reporting Tools > Query > Query Manager
2. Click the **Records** tab and select the desired record(s).
3. Click the **Fields** tab.
4. Click the **Add Criteria** icon next to the desired field.

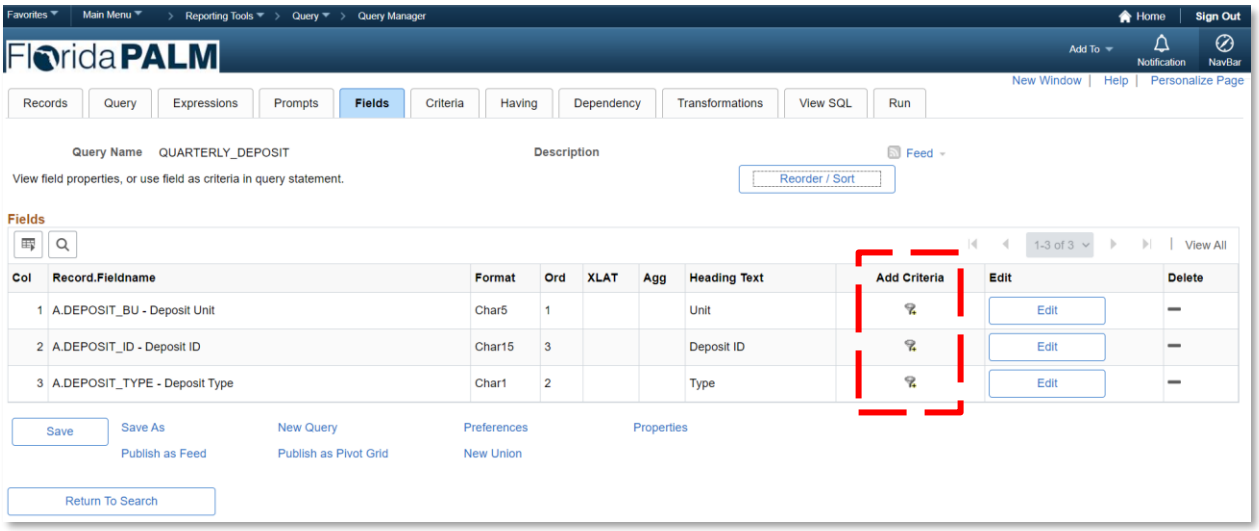

Figure 7: The Fields tab

5. In the **Choose Expression 2 Type** section, select the **Prompt** button
6. Click the **New Prompt** link.

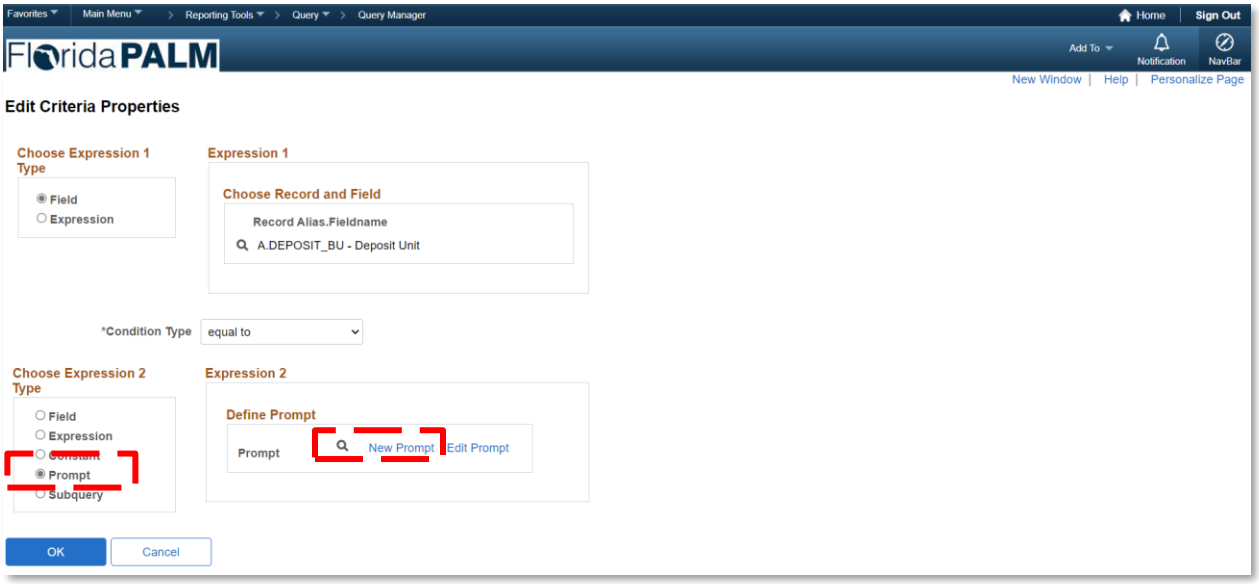

Figure 8: The Edit Criteria Properties screen

7. In the **Edit Type** dropdown, select the **'Prompt Table'** list item.
8. Click the **Prompt Table Look Up** icon.

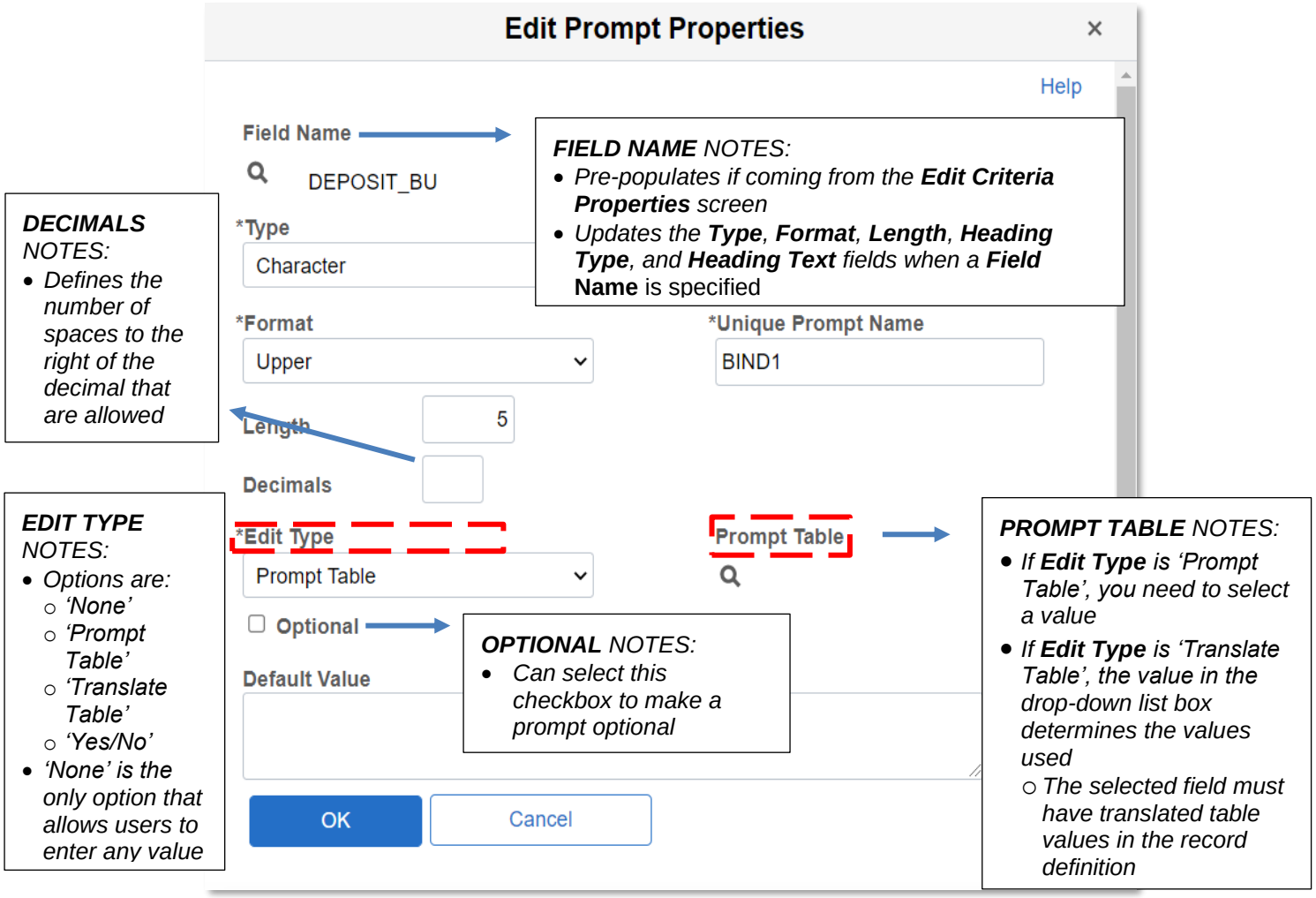

Figure 9: The Edit Prompt Properties screen

9. Select the link of the desired prompt table.

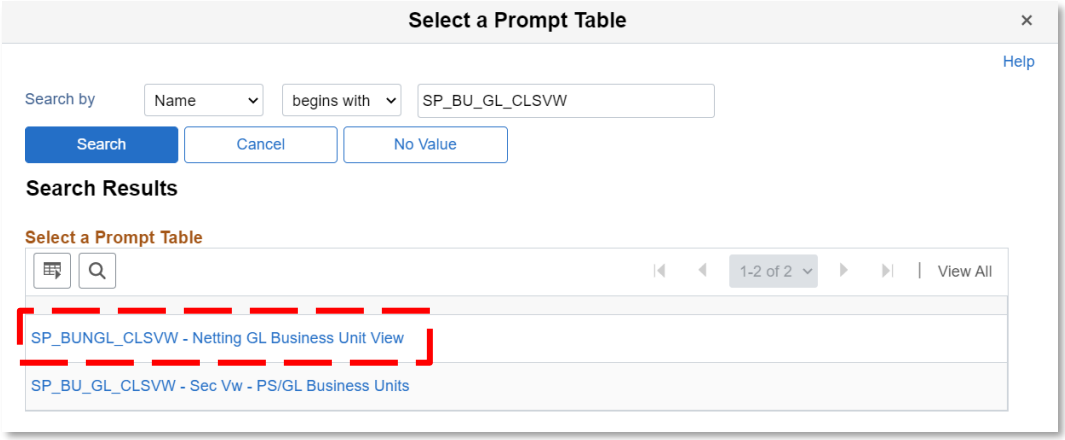

Figure 10: The Select a Prompt Table screen

10. Click the **OK** button on the **Edit Prompt Properties** screen.
11. Click the **OK** button on the **Edit Criteria Properties** screen.
12. Click on the **Prompt** tab.

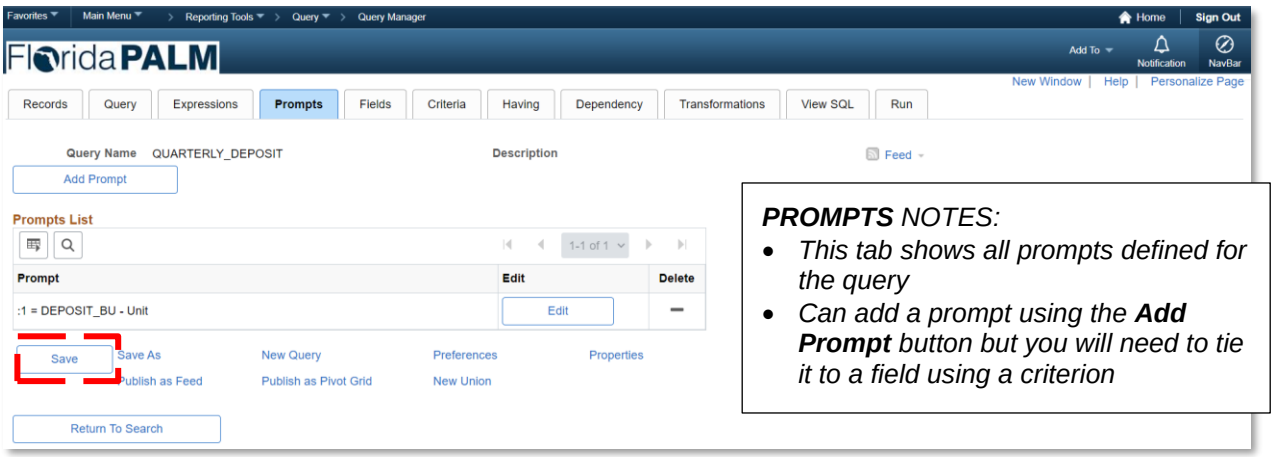

Figure 11: The Prompts tab

13. Click the **Save** button.

How to Create a Query with "HAVING" Criteria

Aggregate functions return a single value rather than multiple rows of data; they summarize your query results. Once you have added an aggregate function to a field, you cannot add standard criteria since they're based on SQL WHERE clauses. Instead, you'll use the Having tab to enter criteria (SQL HAVING clause). Florida PALM will then evaluate the summary values returned by the aggregate function rather than the individual rows. Creating HAVING criteria is very similar to adding criteria on the **Criteria** tab.

Remember that aggregate functions can be marked on the **Edit Field Properties** and the **Edit Expression Properties** screens.

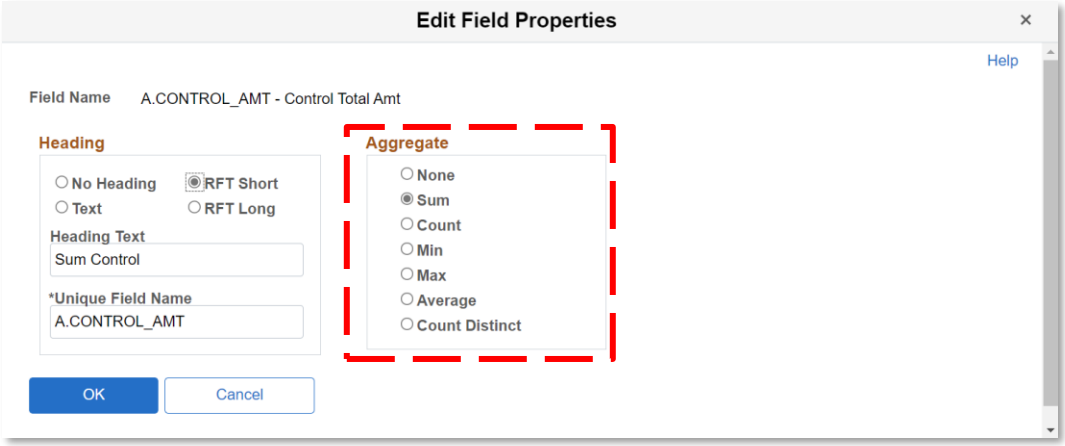

Figure 12: The Edit Field Properties screen for an aggregate field

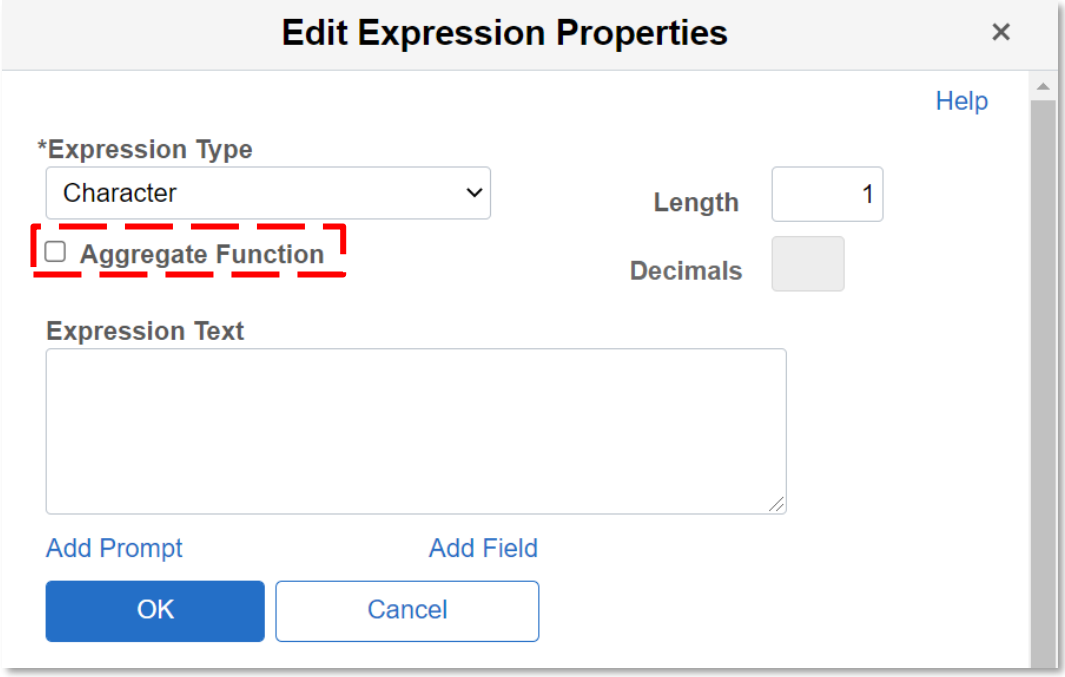

Figure 13: The Edit Expression Properties screen where an expression can be made into an aggregate expression

1. Navigate to the **Query Manager** page and find an existing query or create a new query.
   a. Path: NavBar > Menu > Reporting Tools > Query > Query Manager
2. Click the **Fields** tab.
3. Click the **Add Criteria** button for a field with a value in the **Agg** column.

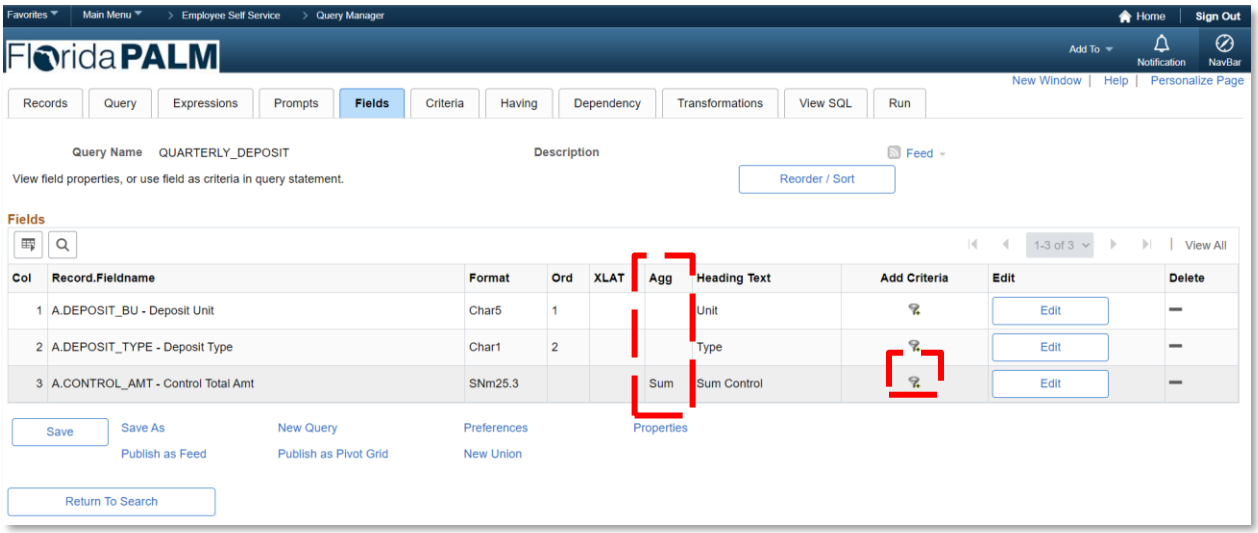

Figure 14: The Fields tab

4. Select the desired list item for the **Condition Type** dropdown.
5. Select the desired **Choose Expression 2 Type.**
6. Enter or select the desired value for **Expression 2.**
7. Click the **OK** button.

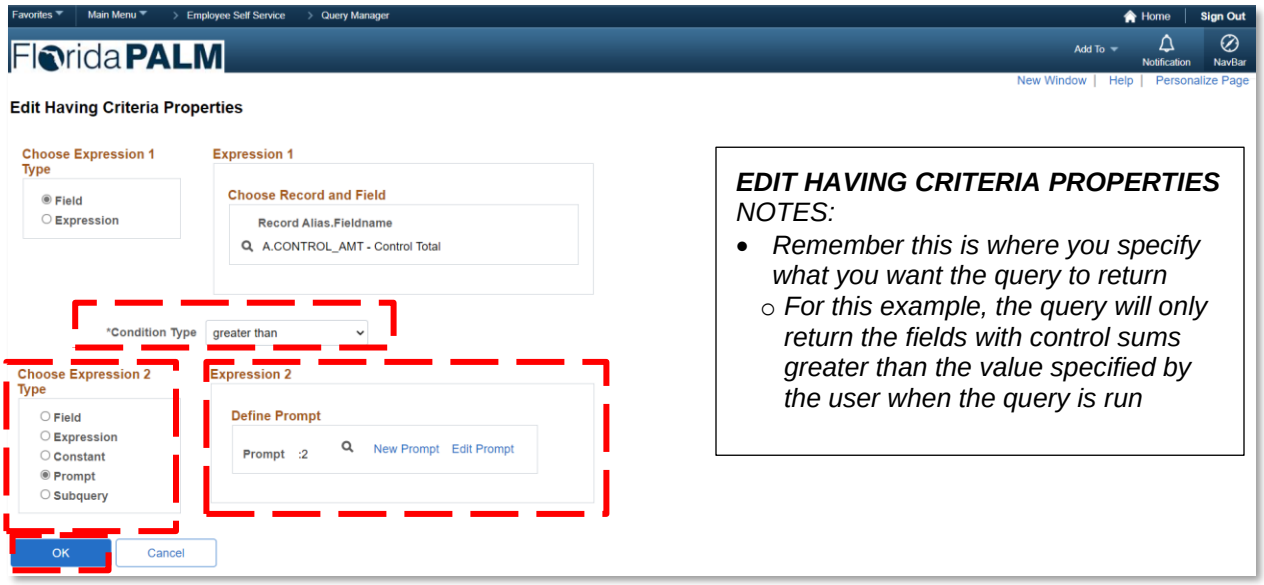

Figure 15: The Edit Having Criteria Properties page

8. Click the **Having** tab to view the criteria that was just added.

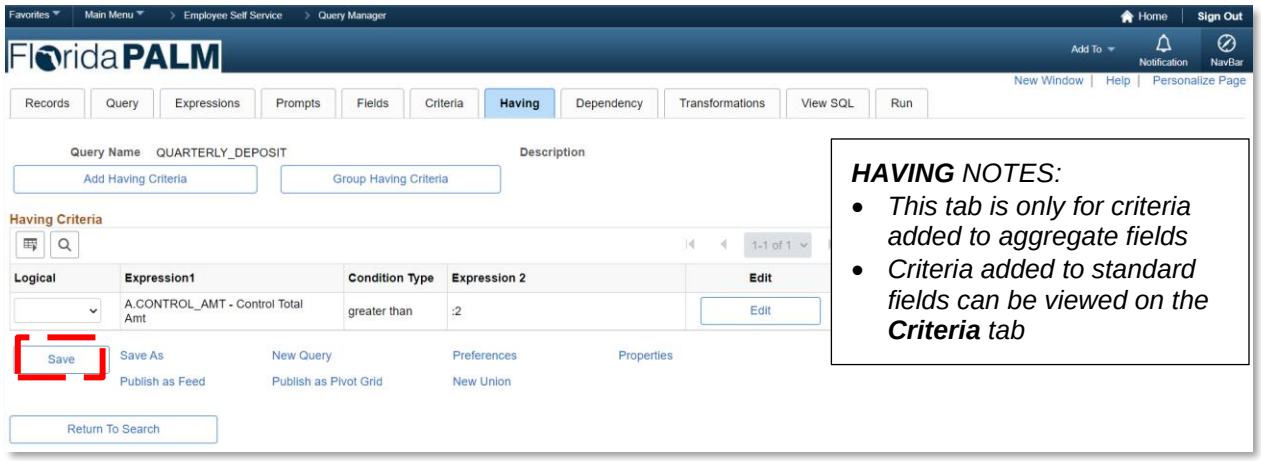

Figure 16: The Having tab

9. Click the **Save** button.

How to View a Query's SQL

The View SQL tab allows you to view the underlying SQL code Query Manager generated based on the query definition you have provided. The SQL code cannot be modified on this page.

1. Navigate to the **Query Manager** page.
    a. Path: NavBar > Menu > Reporting Tools > Query > Query Manager
2. Click the **Create New Query** link.
3. Click the **Properties** link and fill in the query properties to name your query and save it as a public or private query.
    a. See the Writing a Simple Query Job Aid for more details.
4. Click the **Records** tab and select the desired record(s).
    a. See the Writing a Simple Query Job Aid or the How to Create a Query with Multiple Records section for more details.
5. Add any desired expressions, prompts, criteria, dependencies, and transformations.
6. Click the **View SQL** tab.

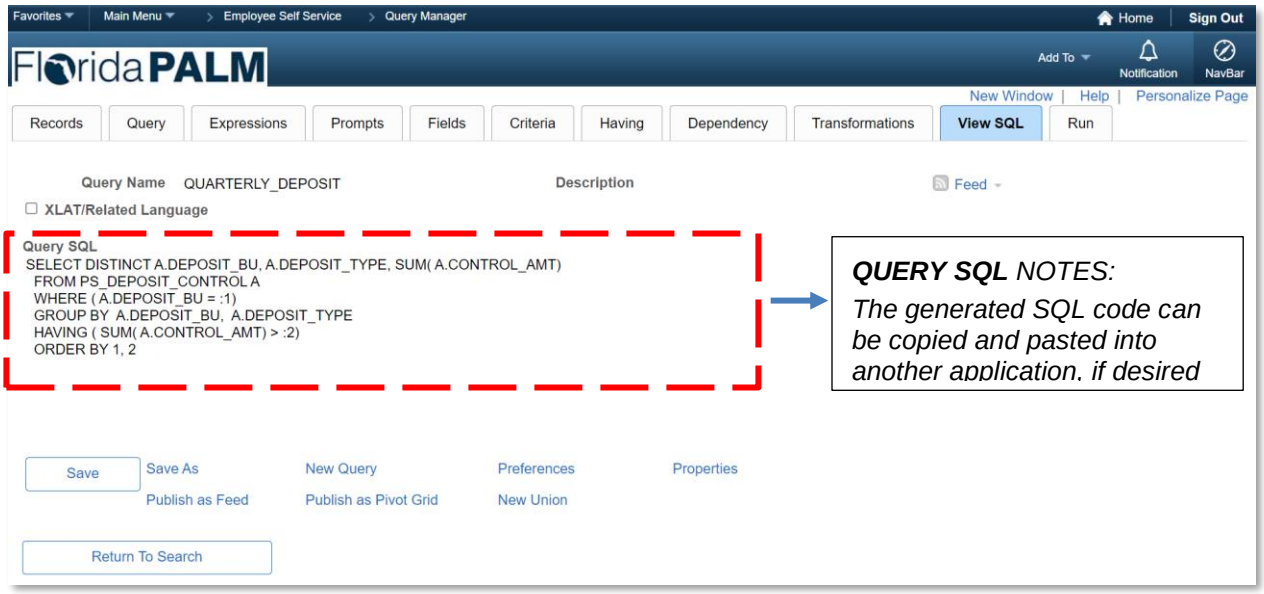

Figure 17: The View SQL tab

Still have questions?
Please contact the **Florida PALM Solution Center**.