

Data from multiple tables can be included in the same query if we join the tables. An ID number or code is used to match the data between the two tables (emplid, department id, job code, etc.).

### Standard (Inner) Join vs. Left Outer Join

- There are two kinds of joins in Query Manager: Standard (also called Inner) Join and Left Outer Join
- Every time you join a table, you will need to choose which join type to use
- If you use Standard (Inner) Join, you will only see records that have data in both tables
- If you use Left Outer Join, you will see all records in the first table, even if there is no matching data in the second table
- Use a Standard (Inner) Join if:
  - You only want data that has a match in the two tables OR
  - You are confident that all data will match OR
  - You will filter based on a column in the second table
- Otherwise, use a Left Outer Join
- For a Left Outer Join, the order of the tables is important. The “main” table, from which you want all records, has to be added first.

### Example

- We want name, job title, and paycheck information
- One of our employees, Peter Purple, is new and hasn't received a paycheck yet
- NW\_EMPLOYEES table has name and job title (for current employees)
- NW\_GL\_TABLE table has paycheck information
- Look at the different results if you use Standard (Inner) Join vs. Left Outer Join

NW\_EMPLOYEES table

EMPLID	EMPL_RCD	NAME	JOBTITLE
1234567	0	Green,Gloria	Professor
2345678	0	Red,Robert	Prog Admin
3456789	0	Purple,Peter	Temporary Student

NW\_GL\_TABLE table

EMPLID	EMPL_RCD	CHECK_DT	NW_GL_AMT
1234567	0	6/30/2019	\$10,000
1234567	0	7/31/2019	\$10,000
2345678	0	6/30/2019	\$5,000
2345678	0	7/31/2019	\$5,000

### Query output after Standard (Inner) Join – Peter is not in the output

*NW\_EMPLOYEES.EMPLID = NW\_GL\_TABLE.EMPLID and NW\_EMPLOYEES.EMPL\_RCD = NW\_GL\_TABLE.EMPL\_RCD*

EMPLID	EMPL_RCD	NAME	JOBTITLE	CHECK_DT	NW_GL_AMT
1234567	0	Green,Gloria	Professor	6/30/2019	\$10,000
1234567	0	Green,Gloria	Professor	7/31/2019	\$10,000
2345678	0	Red,Robert	Prog Admin	6/30/2019	\$5,000
2345678	0	Red,Robert	Prog Admin	7/31/2019	\$5,000

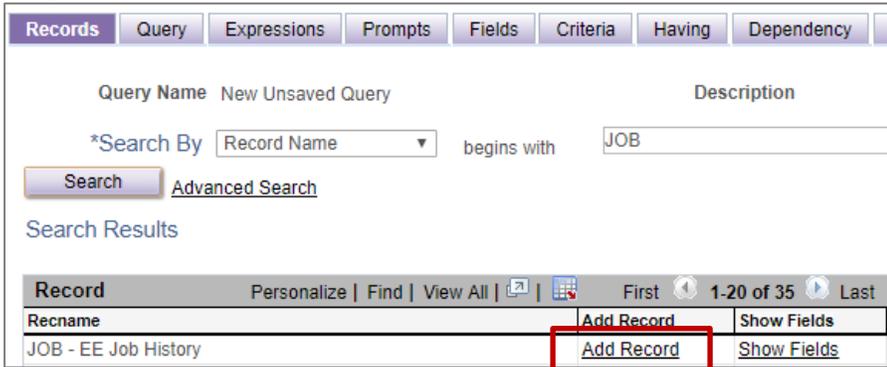
### Query output after Left Outer Join (NW\_EMPLOYEES added first) – Peter is in the output

*NW\_EMPLOYEES.EMPLID = NW\_GL\_TABLE.EMPLID and NW\_EMPLOYEES.EMPL\_RCD = NW\_GL\_TABLE.EMPL\_RCD*

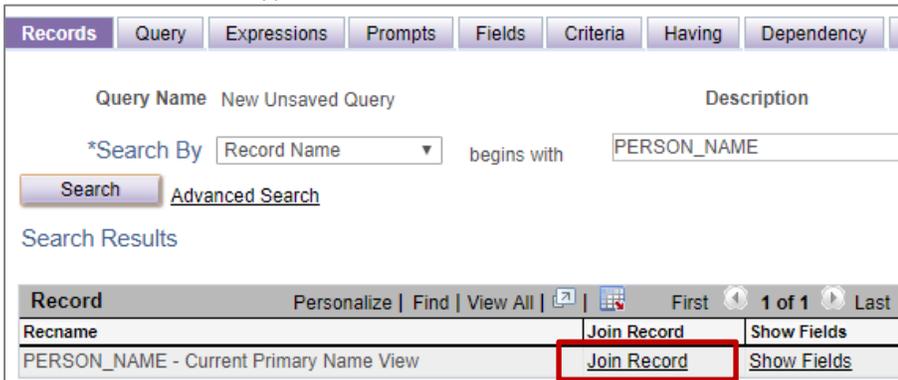
EMPLID	EMPL_RCD	NAME	JOBTITLE	CHECK_DT	NW_GL_AMT
1234567	0	Green,Gloria	Professor	6/30/2019	\$10,000
1234567	0	Green,Gloria	Professor	7/31/2019	\$10,000
2345678	0	Red,Robert	Prog Admin	6/30/2019	\$5,000
2345678	0	Red,Robert	Prog Admin	7/31/2019	\$5,000
3456789	0	Purple,Peter	Temporary Student		

**Procedure for Standard (Inner) Join Using Records Tab**

1. Click "Create New Query"
2. Search for the name of the first table (record) you want to add
3. Click the "Add Record" hyperlink next to the correct table. (An effective date criteria pop-up message may appear if the table is effective dated.)



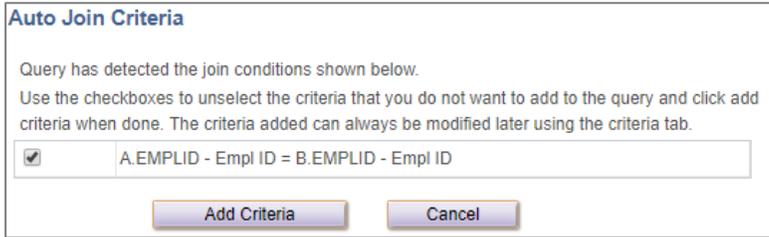
4. Go to the "Records" tab
5. Search for the name of the second table (record) you want to add
6. Click the "Join Record" hyperlink next to the correct table



7. Under "Join Type" select the "Join to filter and get additional fields (Standard Join)" option. This is the default option.
8. Click on the name of the table to which you want to join (the first table)



- Review the "Auto Join Criteria" page. If the join criteria are not correct, you can uncheck the box and edit the join conditions on the "Criteria" tab later.



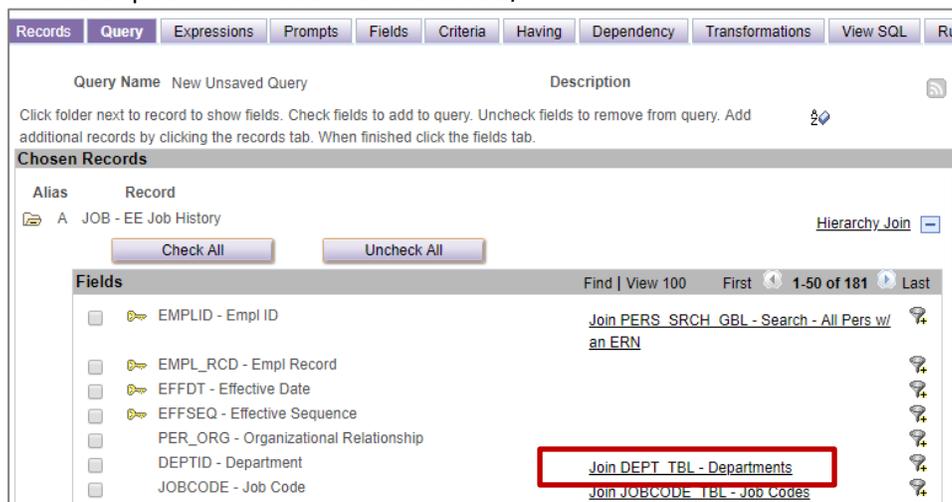
- Click the "Add Criteria" button. (An effective date criteria pop-up message may appear if the table is effective dated.)

- The new table is now available in the "Query" tab

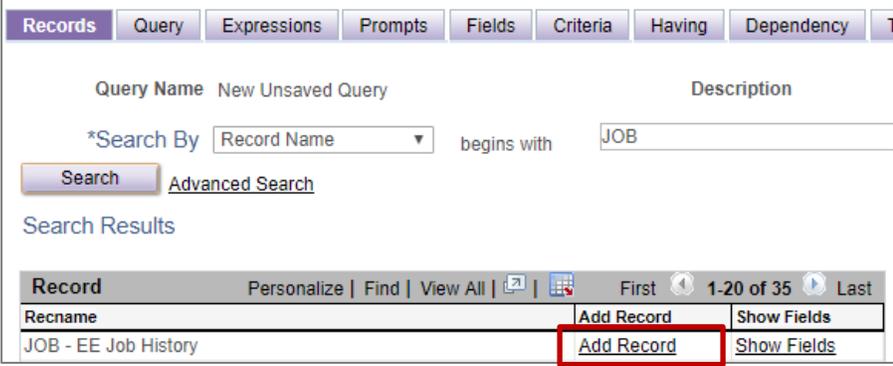
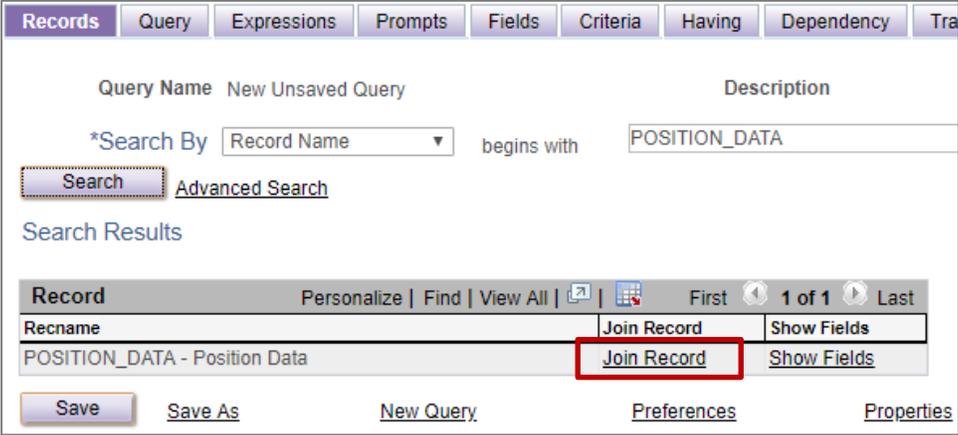
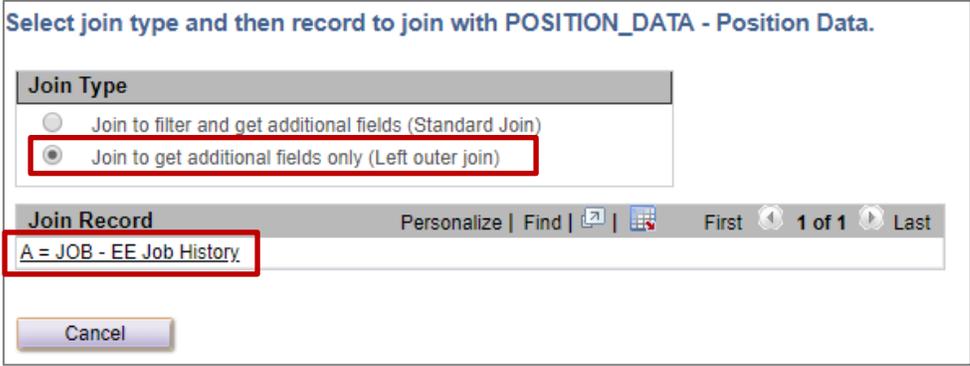
- Check and update the effective date criteria in the "Criteria" tab

### Procedure for Standard (Inner) Join Using Hyperlink in Query Tab

- Click "Create New Query"
- Search for the name of the first table (record) you want to add
- Click the "Add Record" hyperlink next to the correct table. (An effective date criteria pop-up message may appear if the table is effective dated.)
- Stay on the "Query" tab
- Find the hyperlink to the right of the field you are interested in. Often the hyperlinked tables contain description information for the codes / IDs.



- Click on the hyperlink (e.g. "Join DEPT\_TBL – Departments")
- Under "Join Type," select the "Join to filter and get additional fields (Standard Join)" option.
- Click "OK." (An effective date criteria pop-up message may appear if the table is effective dated.)
- The new table is now available in the Query tab. Usually the field "DESCR" has the description.
- Check and update the effective date criteria in the "Criteria" tab

Procedure for Left Outer Join	
1.	Click "Create New Query"
2.	Search for the name of the first table (record) you want to add
3.	Click the "Add Record" hyperlink next to the correct table. (An effective date criteria pop-up message may appear if the table is effective dated.)
	 <p>The screenshot shows the 'Records' tab in Query Manager. The search criteria are set to 'Record Name' begins with 'JOB'. The search results table has two rows: 'JOB - EE Job History'. The 'Add Record' link for the first row is highlighted with a red box.</p>
4.	Go to the "Records" tab
5.	Search for the name of the second table (record) you want to add
6.	Click the "Join Record" hyperlink next to the correct table
	 <p>The screenshot shows the 'Records' tab in Query Manager. The search criteria are set to 'Record Name' begins with 'POSITION_DATA'. The search results table has one row: 'POSITION_DATA - Position Data'. The 'Join Record' link for this row is highlighted with a red box.</p>
7.	Under "Join Type," select the "Join to get additional fields only (Left Outer Join)" option
8.	Click on the name of the table to which you want to join (the first table)
	 <p>The screenshot shows a dialog box titled 'Select join type and then record to join with POSITION_DATA - Position Data.' Under the 'Join Type' section, the radio button for 'Join to get additional fields only (Left outer join)' is selected and highlighted with a red box. Below, the 'Join Record' section shows 'A = JOB - EE Job History' selected and highlighted with a red box. A 'Cancel' button is at the bottom.</p>
9.	Review the "Auto Join Criteria" page. If the join criteria are not correct, you can uncheck the box and edit the join conditions on the "Criteria" tab later.
10.	Click the "Add Criteria" button.

- 11.** If you get a pop-up Message, "An effective date criteria has been automatically added for this effective dated record," take the following steps:
- Click "OK" to remove the message
  - Note the "Alias" of the new table. This is a capital letter (A, B, C, etc.) next to the table name in the "Query" tab.
  - Go to the "Criteria" tab
  - Find the newly-added criteria row for the effective date of the new table
  - Click "Edit" on that criteria row
  - Under "This criteria belongs to," change the pull-down menu selection to "ON clause of outer join B." If you have several left outer joins in the same query, make sure you select the correct table alias letter (B, C, etc.).
  - Check and update Expression 2 as needed. For example, you may want "Current Date" instead of A.EFFDT.
  - Click "OK"
  - It is essential that you change the "This criteria belongs to" selection. Otherwise your Left Outer Join becomes a Standard (Inner) Join and you will lose non-matching records.

**Edit Criteria Properties**

**Choose Expression 1 Type**

Field  
 Expression

**Expression 1**

**Choose Record and Field**

Record Alias.Fieldname  
B.EFFDT - Effective Date

\*Condition Type  ▼

**Choose Expression 2 Type**

Field  
 Expression  
 Constant  
 Current Date

**This criteria belongs to**

▼

- 12.** If you want to add other criteria:
- Note the "Alias" of the new table. This is a capital letter (A, B, C, etc.) next to the table name in the "Query" tab.
  - Add the new criteria using the "Query," "Fields," or "Criteria" tab
  - On the "Edit Criteria Properties" page, under "This criteria belongs to," change the pull-down menu selection to "ON clause of outer join B." If you have several left outer joins in the same query, make sure you select the correct table alias letter (B, C, etc.).
- 13.** You can also use Left Outer Join with the hyperlinks in the "Query" tab. Select the "Join to get additional fields only (Left Outer Join)" option on the "Join Type" page.