Users can count employees, sum payroll dollars, find most recent paycheck date, and calculate other aggregate values in Query Manager. Aggregates in Query Manager are similar to pivot tables in Microsoft Excel: they allow users to quickly summarize data.

The available aggregate functions are **Sum, Count, Minimum, Maximum, Average**, and **Count Distinct**.

Query results can be restricted by aggregate values using the **Having** tab. Aggregates can also be used in **Expressions**.

### Procedure for Aggregating a Field

1. Create your query with desired **Records**, **Fields**, and **Criteria**. The field you want to use as an aggregate has to be a field in your query. For example, if you want to count employees, the `EMPLID` field needs to be included in the query.

2. Go to the **Fields** tab.

3. Find the field that you want to summarize and click the **Edit** button on that row.

4. On the **Edit Field Properties** page, in the **Aggregate** box, select the aggregate function you want to use. The available options are **Sum, Count, Min, Max, Average**, and **Count Distinct**.
5. Click OK at the bottom of the **Edit Filed Properties** page to return to the **Fields** tab. On the **Fields** tab, the aggregate function is displayed in the column labeled **Agg**.

6. **Run** the query. The output will be summarized.

---

**Tip** Pay attention to the other (non-summarized) columns in the query. The report output will be one row per unique combination of the other columns. For example, if you have only department and you count employee IDs, the result will be one row per department. But if you add job title to the query, the report will now show one row per department per job title.
Procedure for Filtering by an Aggregated Field

1. Build the query with the aggregate field column.

2. When you filter using aggregated fields, the restriction will be under the Having tab, not under the Criteria tab. Otherwise, the two filters are similar: they have the same options for Condition Type and Expression 2.

3. Go to the Fields tab.

4. Click the Add Criteria funnel icon for the aggregated field.

5. On the Edit Having Criteria Properties page, select the Condition Type and Expression 2. Even though Expression 1 has just the field name and not the aggregated expression, the restriction will apply to the aggregated value.

6. Click OK at the bottom of the Edit Having Criteria Properties page.
7. The new restriction will be in the **Having** tab, not in the Criteria tab.

```
Having Criteria
Logical  A.EMPLID - Empl ID
Condition Type  greater than
Expression  10
```

8. Run the query. The report will only display rows where the aggregated value meets the restriction.

<table>
<thead>
<tr>
<th>Row</th>
<th>Dept</th>
<th>Count Distinct ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>109</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>16</td>
</tr>
</tbody>
</table>

**Tip** You can also create an aggregate filter directly from the **Having** tab using the **Add Having Criteria** button.

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**Procedure for Creating an Aggregate Expression**

1. Build the query with the aggregate field column. It's best to include all fields that will be part of the expression as columns in your query.

```
Fields
Field  Format  Ord  ALAT  Align  Heading Text  Add Criteria  Edit  Delete
1. A.DEPTNAME - Department  Char39  1  Dept  Count Distinct ID  2  Edit
2. A.EMPLID - Empl ID  Char11  1  Count Distinct ID  2  Edit
```

2. Go to the **Expressions** tab.

3. Click **Add Expression**.

4. On the **Edit Expression Properties** page, choose the **Expression Type** and fill in the **Length**.

5. Click the checkbox for **Aggregate Function**.
6. Type the expression into the **Expression Text** box. When you include the aggregated field, just put in the record alias and the field name. Do not repeat the aggregate function; Query Manager will automatically add it. For example, if A.EMPLID is aggregated with Count Distinct, you would type "case when A.EMPLID > 10" and not "case when count(distinct A.EMPLID) > 10."

7. Click **OK** at the bottom of the **Edit Expression Properties** page.

8. On the **Expressions** tab, select **Use as Field**.

9. On the **Fields** tab, rename the new field using the **Edit** button.

10. Run the query. The expression is now visible as a column in the output.

**Tip** You can filter based on an aggregate expression by clicking the **Add Criteria** funnel icon on the **Expressions** tab or the **Fields** tab. This action will create a **Having** filter.