Enabling and setting parameters in MS Query

The MS Query component of Excel is a powerful tool to access data within Foundation’s Sequel Database. Many times when creating a query you may wish to parameter the query to limit values that are returned.

- Setting parameters based on maintenance items
- Setting Parameters based on dates
- Setting multiple parameters within a single query
- Linking cells within a spreadsheet to update / set parameters in a query.

The most common parameter is a parameter based on a maintenance item. Imagine we want to create a simple Job list that includes only jobs with the status of “Active”

Start with a simple query displaying the job number and description

We now need to set some parameters on the query to limit the data to the jobs with the status of “Active”.

![Microsoft Query: Query from Cas Scott](image)

<table>
<thead>
<tr>
<th>job_id</th>
<th>description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Office Overhead</td>
</tr>
<tr>
<td>2</td>
<td>Estimating</td>
</tr>
<tr>
<td>3</td>
<td>Design</td>
</tr>
<tr>
<td>4</td>
<td>Shop/Yard</td>
</tr>
<tr>
<td>5</td>
<td>Test New Budget</td>
</tr>
<tr>
<td>6</td>
<td>East Import</td>
</tr>
<tr>
<td>7</td>
<td>East2</td>
</tr>
</tbody>
</table>
Access the VIEW option on the toolbar and select CRITERIA to enable the criteria toolbar within the MS query tool.

You will now see the Criteria toolbar in the center of the MS query screen.

There are multiple “columns” that you may define criteria based on different fields. You can also define criteria with an “AND” or “OR” clause. If you stack the criteria within a single column, it will treat the criteria as an “OR” statement. If criteria is defined using multiple columns within the criteria window, MS query automatically creates an “AND” statement for the criteria. (More on this later)

Setting basic criteria requires a Criteria Field and a Value.
You may drag and drop the criteria field from the table in the top portion of the MS Query window.

Click and hold the item and drag it into the appropriate “Criteria Field” cell. You may double click the “Value” field below the field you selected to apply the criteria to.

This will open the edit criteria dialog box.
Use the dropdown arrow adjacent to the Operator option to see all the criteria parameters you may select.

Here is a list of the options in the operator field:

- EQUALS
- DOES NOT EQUAL
- IS GREATER THAN
- IS GREATER THAN OR EQUAL TO
- IS LESS THAN
- IS LESS THAN OR EQUAL TO
- IS ONE OF
- IS NOT ONE OF
- IS BETWEEN
- IS NOT BETWEEN
- IS NULL (is blank)
- IS NOT NULL (is not blank)
- IS LIKE
- IS NOT LIKE
- BEGINS WITH
- DOES NOT BEGIN WITH
- ENDS WITH
- DOES NOT END WITH
- CONTAINS
- DOES NOT CONTAIN

These options may be used against a particular field, or you may select multiple operators against multiple fields.

If we want to suppress the jobs with a status of Overhead, Inactive and Closed, we would select to only show the jobs with the status of ACTIVE. It is important to think about the criteria you are trying to set, choose the operator that will most efficiently allow or suppress the data. In this example it is easier to say the JOB_STATUS EQUALS ACTIVE as opposed to saying the JOB_STATUS DOES NOT EQUAL OVERHEAD, INACTIVE, CLOSED.
If you are not sure what values are contained within this field, you may click the “VALUES” button to display the values that are available in the selected field.

In this example, the Job_Status field consists of 5 options. A = Active, C = Closed, I = Inactive and O = Overhead. There may be another option. The field may be blank. This may be the situation when you are looking for any and all records that do not have a Project manager defined on the job record.

If we select the option “A” for Active jobs and click the OK button on the Select Value(s) dialog box, you will see that the criteria field has filled in with the text for the criteria.

Different criteria will fill in based on the Operator you choose. As you become more familiar with the criteria window, you may manually type this information in the Value cell.

Here is an example of choosing the Job_Status of Active and Inactive. We will use the IS ONE OF operator. Select the Values button and click on the A and I values.
This will return the following text in the criteria section:

```
Criteria Field: job_status
Value: In ('A', 'I')
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Again, you may type this information in, but ultimately it is easier to double click the Value cell and use the MS Query prompts to choose your criteria.

This example shows all active jobs that do not have a project_manager_id entered on the job maintenance record.

The Job_Status field is set to EQUALS “A” and the Project_manager_id is set to IS NULL. This means is blank. These simple lists are a great way to make sure any and all appropriate data is being entered on maintenance records. Once the project manager field is entered on the job maintenance record, the job no longer shows on the job list based on the parameters set in the criteria fields.
We will now explore setting parameters on criteria with a prompt within the MS Query tool.

We can create an employee list with multiple criteria. The first criteria we will set is to suppress the employees with a status of “terminated”. We do this by selecting the field date_terminated and choosing IS NULL. In other words, show me all the employee records that do not have a terminated date entered.

We will also select to show the employees with a hire date in between a particular date range.

Choose the operator of IS BETWEEN

![Image of the Edit Criteria dialog box]

In the VALUE: cell, enter the following:

[Start Date],[End Date]

Basically, we are creating a prompt in the query by pacing text between brackets. This is free-form, you may use [Start],[End] or [S],[E]. Since there are two criteria fields, you need two prompts separated by a comma.

When you Click OK, you will be prompted for the parameters.

![Image of the Enter Parameter Value dialog boxes]

It is very important to enter the dates in the following format MM/DD/YY or MM/DD/YYYY. You must include the slashes in the date. Remember this is Excel, not Foundation, so the dates will not automatically format for you.
You may find it beneficial to add the field or fields into the query to validate that the criteria is/are working properly.

Once you have validated that the criteria is working properly, you may delete the field from the query if it is not needed.

Once the data is returned to Excel and the file is saved, the prompt will appear every time the file is opened, or any time the query is refreshed.

Return the data to Excel and select the DATA tab and click the REFRESH BUTTON. The criteria prompt will appear.

NOTE:
It is a very BAD idea to check this box, as it will default the value for this field when you refresh or update the sheet. If you select this option, you will no longer be prompted for the value, as it will become a default value within your query.

You can access the Query again and reset the value to prompt, but in general, you will more than likely never have a need to use this option.

Again – enter the Start Date and End Date in the appropriate format and the list will be refreshed.
In this example I entered 01/01/01 – 03/31/01 to see all the employees that had been hired in the first quarter of 2001.

One of the nice features with Excel 2007 is the table structure that will allow the same criteria within the dropdown menus within the table.

If we refresh the query to show all employees hired between 01/01/01 and 12/31/01, we can refresh use the dropdown arrow in the table in the date column to select certain dates within the returned data.
We can also set the parameters to update off a cell within a worksheet with the workbook that contains the query. In this example, we have inserted a couple of rows above the queried data and added a cell for Start Date and End Date.

Right click on a cell within the table, and select TABLE and PARAMETERS to open the Parameters dialog box.
This is the “public face” of the parameter defined in the Query. You will see that there a number of options in this box. Based on the way that we created the query, the user is being prompted for a value using the following string “Start”. Remember the text we placed in between the brackets? That is the text shown here. You may choose to change the text here, or leave the text as entered in the query.

If you select “Use the following value” and type in a value, you will no longer receive the prompt for the value. Again – bad choice.

The final choice will allow us to select a certain cell to get the data for the criteria.

Select the “Get the Value from the following cell” option and select cell B2 – this is where our Start Date will be entered.
Select the “End” value in the parameter name field, Set the “Get the Value from the following cell” to cell B3. Also check the box to “Refresh automatically when the cell value changes”. When the date is changed in this field, the query will refresh automatically.

NOTE: Do not set this option on the “Start Date” as we only want the data to update when the end date has been entered.

When the value in Cell B3 is CHANGED the query will refresh. If there is no change in the value, the query will not automatically update.
Bonus: Setting Validation on the date cells to ensure proper date entry.

Since the Date field must be entered in a proper date format that Excel can understand, you may “force” the user to enter a date in the proper date format.

Select the cells you wish to perform the data validation option. Select the DATA Tab, Data Validation

In this example, we are determining that the selected cells will “accept” a date in between a LARGE date range. Basically and date between 1999 and 2049. We need to allow the user to select any date, this function will ensure that they enter a valid date in the proper format.
Once the validation criteria is set, you may access the Error Alert Tab to enter a error when invalid data is entered in the cell.

If the user enters anything but a properly formatted date, the error message will appear.