How To: Dynamically Changing the Sort Order in Crystal Reports®

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Challenge:

Parameters are often used in Crystal Reports for record selection purposes. Report users are prompted to enter or select a criteria value each time the report is refreshed.

They can also be used to control the sort order of the information in a report. In theory, this should be a fairly easy addition to any report. But in reality it can be very challenging.

Alex, an IT manager, created a Purchase Order report with a parameter, intended to help his procurement and management team review purchases. He wanted to use a parameter to sort the information in the report one of three ways: By PO date, by PO Number, and by the Supplier.

The problem was the parameter allowed the report users to sort the information one of three ways: By PO date, Supplier, or by PO number.

However when he tried to insert the parameter into the report, Crystal Reports generated errors or denied him the use of the parameter in the record selection formula. He wanted to know why.

Solution:

Parameters can be used for record selection, but often require the use of a special formula to "translate" the user's criteria choice into a format that applies to the report database.

The formula utilizes a control structure to identify which database field the report should sort by, based on the user's selection in the parameter.

In Alex's case, here is the formula we came up with.

```
if {?Sort Order Selection} = "Date" then ToText({Purchase_Orders_.Date}, "MM dd yyyy") else
if {?Sort Order Selection} = "Number" then ToText({Purchase_Orders_.Purchase_Order}) else
{Purchase_Orders_.Supplier};
```

It determines which database field to sort by and uses the ToText function to convert the various choices to alphanumeric format.

Try It!

- Print the Dynamically Changing the Sort Order in Crystal Reports® instructions.
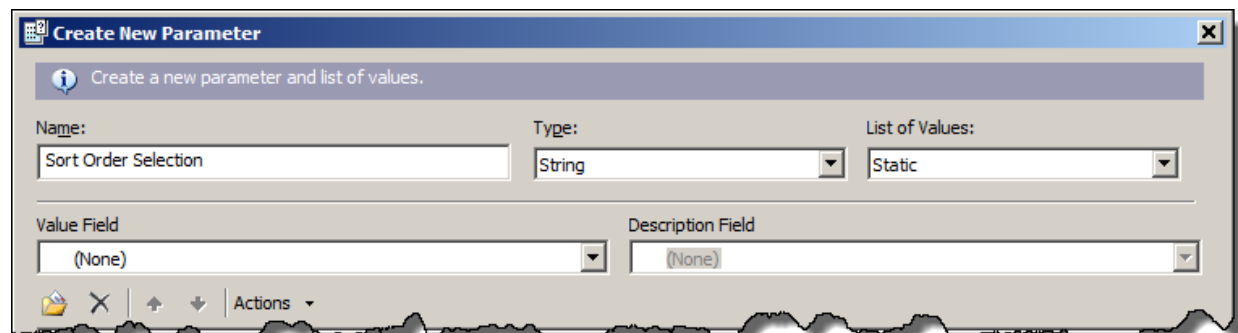- Download the constructionworkslt data source from the thorkolner.com web site.

Skills Covered:
A. Adding Parameter fields to a report.
B. Creating formulas in the Crystal Reports Formula Workshop.
C. Working with String functions.

How To:
1. Create a new report using the ConstructionWorks **Purchase_Orders** table (or your company's Purchase Order data table). Insert the **Date**, **Supplier**, **Purchase_Order**, **Item**, **Quantity Purchased**, and **Item_Total** columns into the report. Format the report as needed.

Date	Supplier	Purchase Order	Item	Quantity Purchased	Item Total
11/19/2012	AAA Industrial Supply	15005	1/4" PEA GRAVEL	100.00	$319
11/19/2012	AAA Industrial Supply	15005	3/8" PEA GRAVEL	50.00	$183
11/19/2012	AAA Industrial Supply	15005	1/2" PEA GRAVEL	75.00	$296
12/01/2012	Chicago Sand & Gravel	15007	1/4" PEA GRAVEL	50.00	$159
12/01/2012	Chicago Sand & Gravel	15007	1/2" PEA GRAVEL	250.00	$988
12/01/2012	Snoqualmie Concrete	15008	3/8" PEA GRAVEL	75.00	$274
01/15/2013	Builders Control Systems	15011	SURPLUS JERSEY BARRIERS	250.00	$31,250
01/15/2013	Chicago Sand & Gravel	15012	1/4" PEA GRAVEL	100.00	$319
02/10/2013	Chicago Sand & Gravel	15013	1/4" PEA GRAVEL	50.00	$159
02/10/2013	Chicago Sand & Gravel	15013	1/2" PEA GRAVEL	250.00	$988
02/28/2013	Snoqualmie Concrete	15014	3/8" PEA GRAVEL	75.00	$274
03/15/2013	Builders Control Systems	15016	SURPLUS JERSEY BARRIERS	250.00	$31,250
03/01/2013	Chicago Sand & Gravel	15017	1/4" PEA GRAVEL	100.00	$320
02/21/2013	Chicago Sand & Gravel	15021	1/4" PEA GRAVEL	50.00	$159

2. In the **Field Explorer**, right-click **Parameter Fields** and then click **New**.
3. In the Name field, enter **Sort Order Selection**. Choose the data type **String**, and set the List of Values to **Static**.

Create New Parameter

Create a new parameter and list of values.

Name:	Type:	List of Values:
Sort Order Selection	String	Static

Value Field
(None)

Description Field
(None)

Actions ▾

4. In the Values area of the New Parameter window, enter the following sort options:

Value	Description
Date	Purchase Order Date
Number	Purchase Order Number
Supplier	Purchase Order Vendor
Click here to add item	

5. In the Values Options area, change set **Prompt with Description Only** to True, **Allow custom values** to False, and then click **OK**.

Click here to add item

Value Options:

Option	Setting
Prompt With Description Only	True
Optional Prompt	False
Default Value	
Allow custom values	False
Allow multiple values	False

OK   Cancel   Help

6. Create a new Formula field called **Report Sort Order**.
7. On the **Operators** tree, expand the **Control Structures** folder and add select **if x then y else z** to the formula editor.
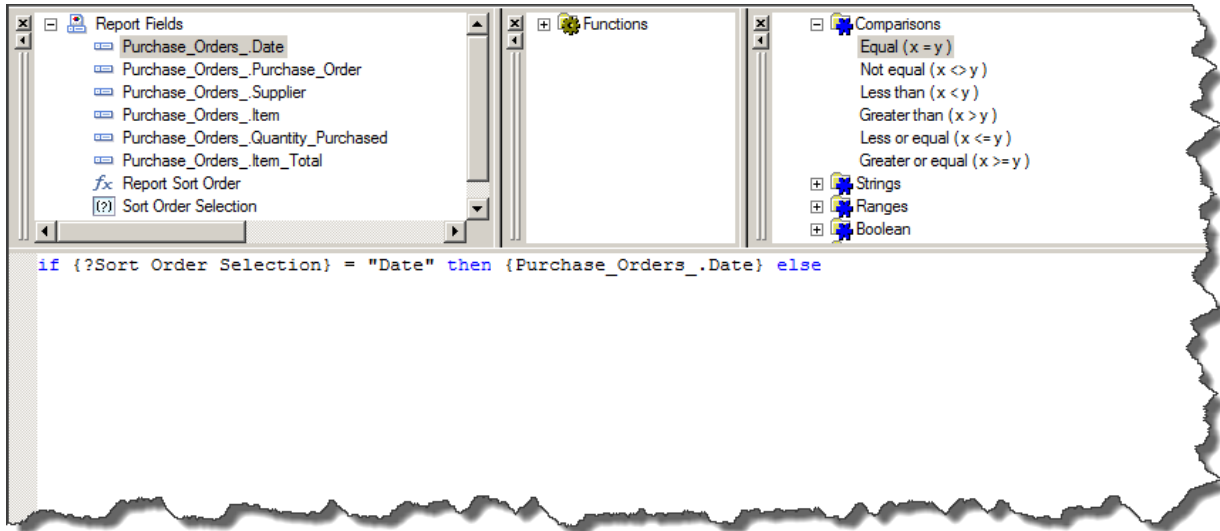
Report Fields
- Purchase_Orders_.Date
- Purchase_Orders_.Purchase_Order
- Purchase_Orders_.Supplier
- Purchase_Orders_.Item
- Purchase_Orders_.Quantity_Purchased
- Purchase_Orders_.Item_Total
- *fx* Report Sort Order
- [?] Sort Order Selection

Functions
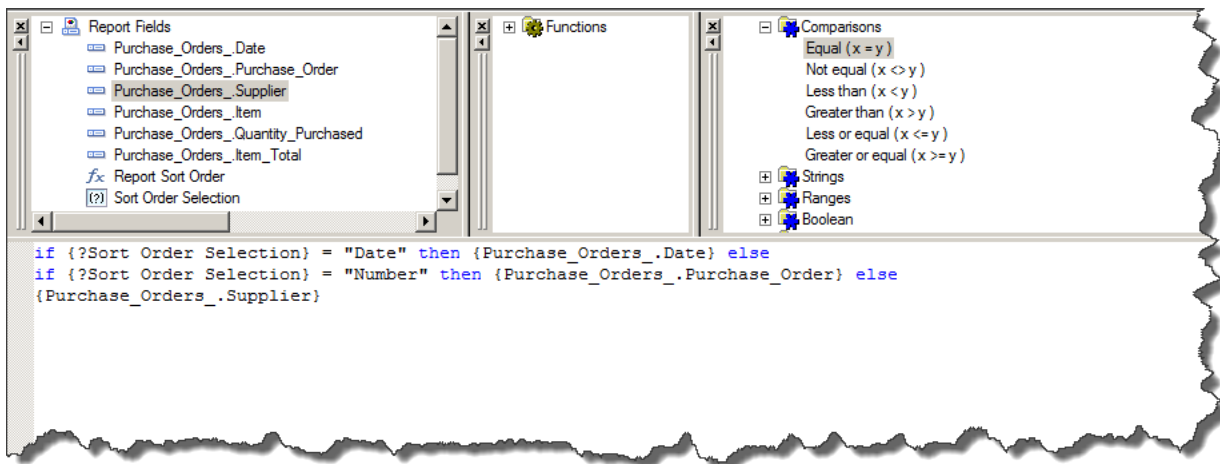
Pattern
Control Structures
- if x then y else z
- select x case a : y default : z
- for i := a to b step c do z
- exit for
- while x do y
- do x while y
- exit while
- option loop maxIterations

```
if  then else
```
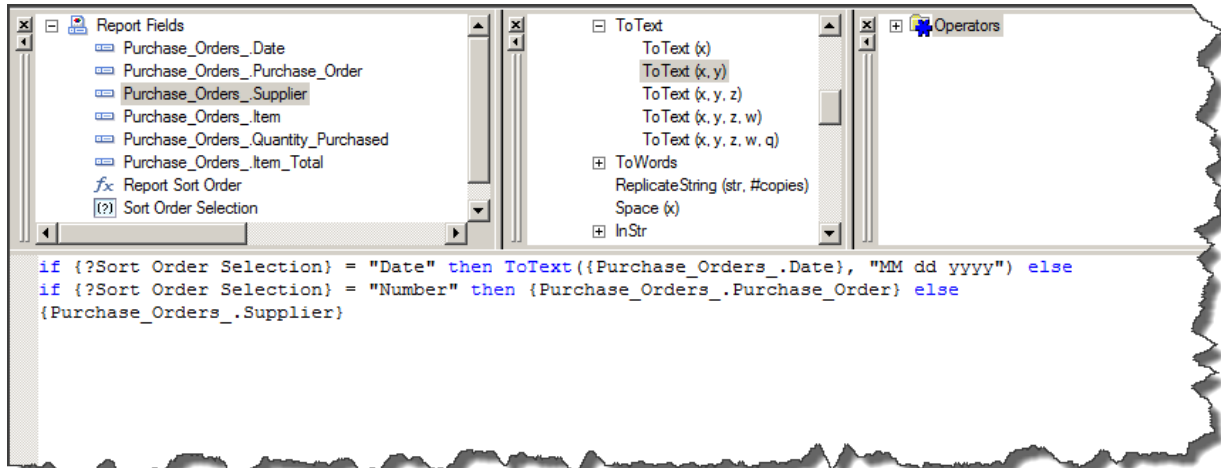
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8. Insert the **Sort Order Selection** parameter into the control structure, then enter or select the Equal (=) operator, followed by the parameter criteria value **"Date"** (in quotation marks).
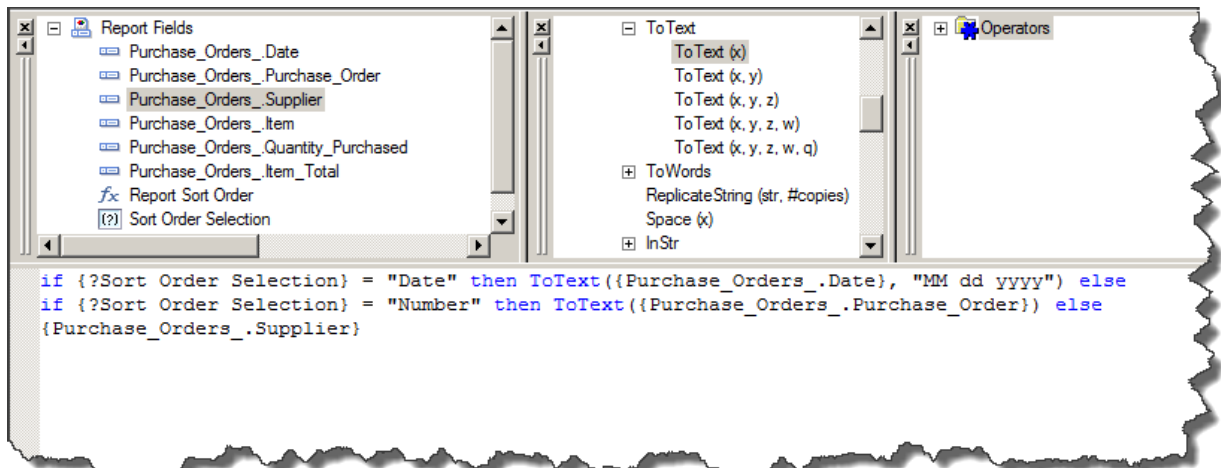

9. Continue adding additional control structures for the remaining criteria values. The completed formula will look like this example:

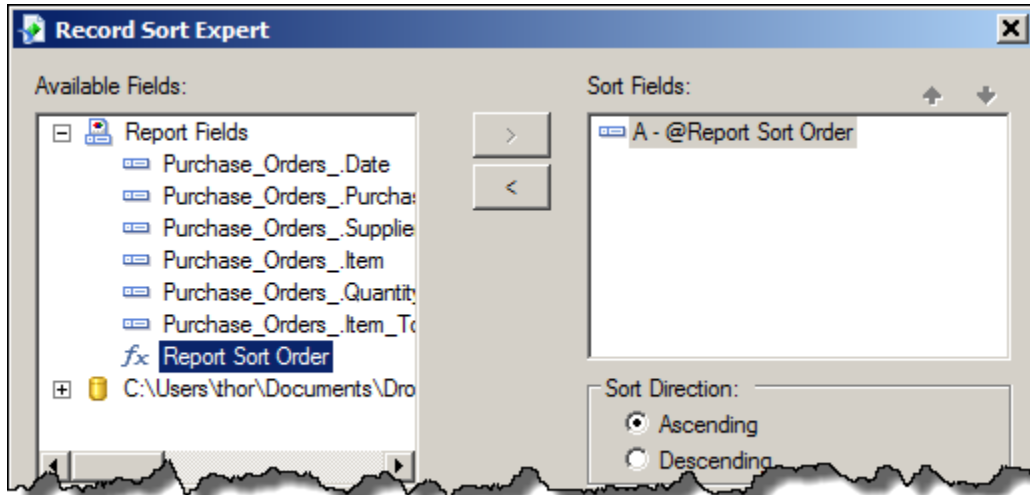10. Use the **ToText** oprator to convert the Date field to text format with the mask **"MM dd yyyy"**.


```
if {?Sort Order Selection} = "Date" then ToText({Purchase_Orders_.Date}, "MM dd yyyy") else
if {?Sort Order Selection} = "Number" then {Purchase_Orders_.Purchase_Order} else
{Purchase_Orders_.Supplier}
```

11. Use the **ToText** function to conver the Purchase Order number to text format.


```
if {?Sort Order Selection} = "Date" then ToText({Purchase_Orders_.Date}, "MM dd yyyy") else
if {?Sort Order Selection} = "Number" then ToText({Purchase_Orders_.Purchase_Order}) else
{Purchase_Orders_.Supplier}
```

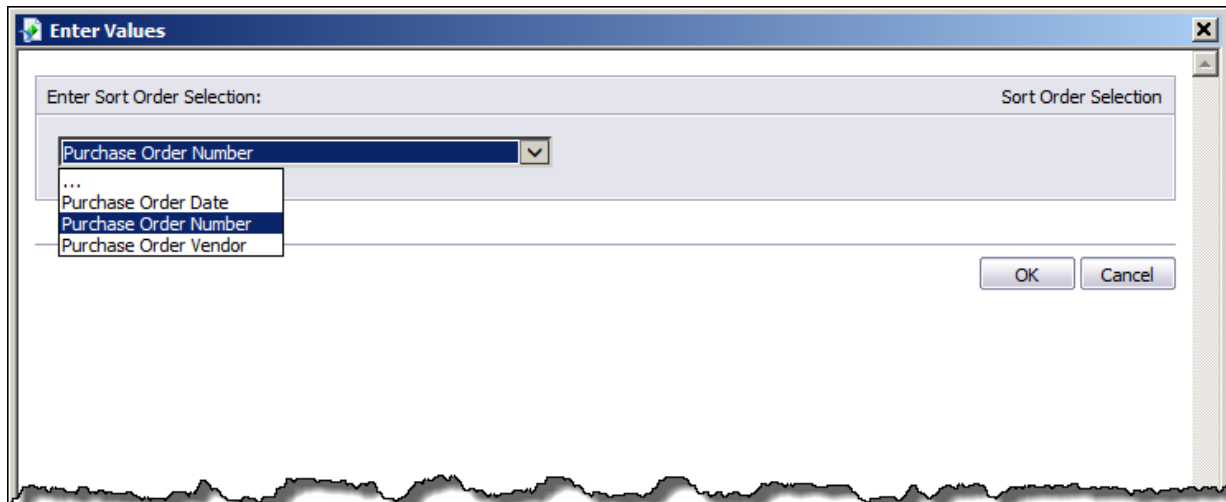12. Click **Save and close** to exit the Formula Workshop.
13. On the **Report** menu, click **Record Sort Expert**.

14. On the list of Available Fields, select the **Report Sort Order** formula and add it to the list of Sort Fields.

15. Click **OK** to close the Record Sort Expert.

Each time the report data is refreshed, users will be required to select one of the three pre-defined sort options.

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Recap

Parameter fields can be used for both record selection and report sorting. When used for sorting, additional considerations may have to be made depending the data types involved.

Begin by creating the sort parameters and providing a static list of choices. The list should include both values and descriptions.

Next, create a formula using a Control Structure (like If-Then-Else) to instruct Crystal Reprots as to which database field to use when a user has selected a specific criteria value in the parameter.

Finally, add the formula to the Record Sort Expert.

Learning how to use this function will allow your company to be able to provide accurate data to decision makers in the field and throughout your organization.