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TRAINING GUIDE

Crystal Reports

Beginning Crystal 2

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Using Crystal Reports with Lucity

Beginner – 2

The second of a seven-part series, this workbook is designed for new Crystal Reports® users. You'll learn how to add selection parameters to a report including date ranges, secured fields, and selection categories. We'll also show you how to sort and group the report data. Finally, we'll show you how to add summaries and running totals to a report.

The screen captures in this workbook are taken from Crystal XI. Depending on which version of Crystal you are using, your screens may vary slightly.

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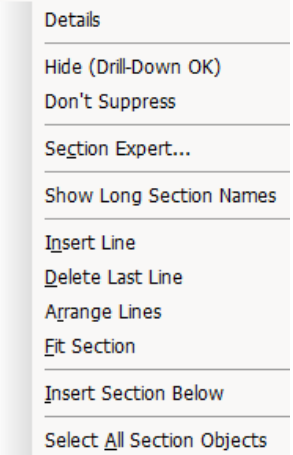
Section Options

Each section of the report has a variety of options available to it. To view these options, right click in each section to the left of the report.

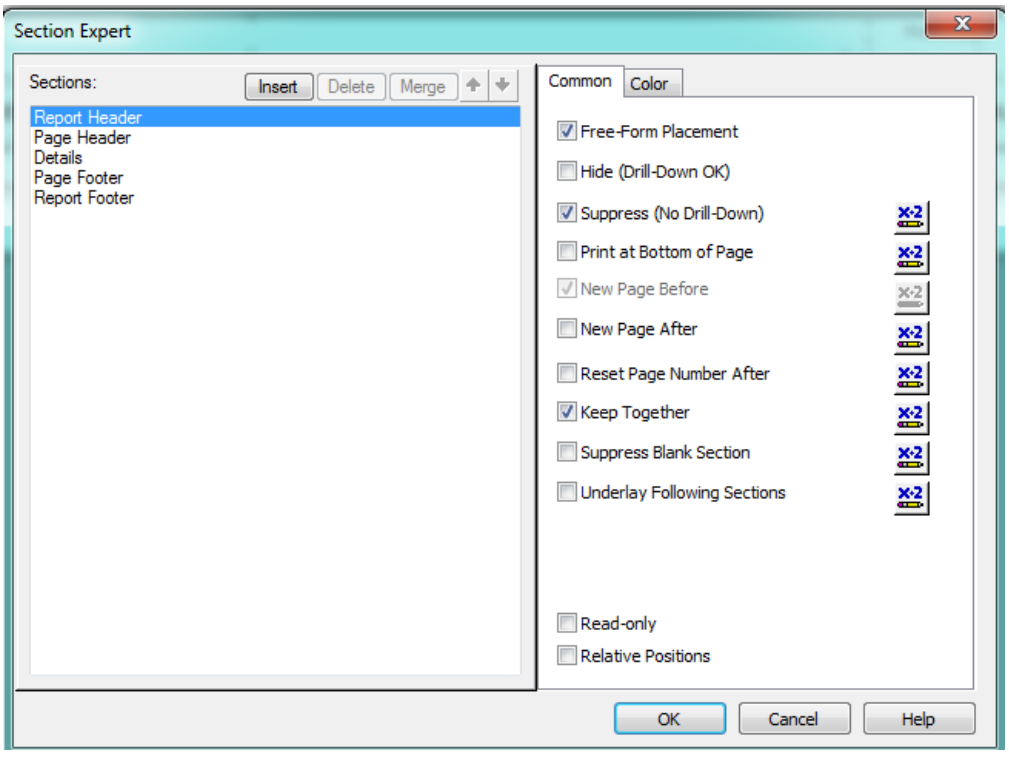
- Some useful options include *Suppress*, *Hide*, *Insert Section Below*, *Delete Section*, and *Select All Section Objects*. The availability of the options depends on the section.



Section Expert

The *Section Expert* can be accessed from the above right click menu or at the top of the report in the *Expert Toolbar* or under *Report* in the Menu Bar.

- Click on *Section Expert*  . You'll see the following dialog:



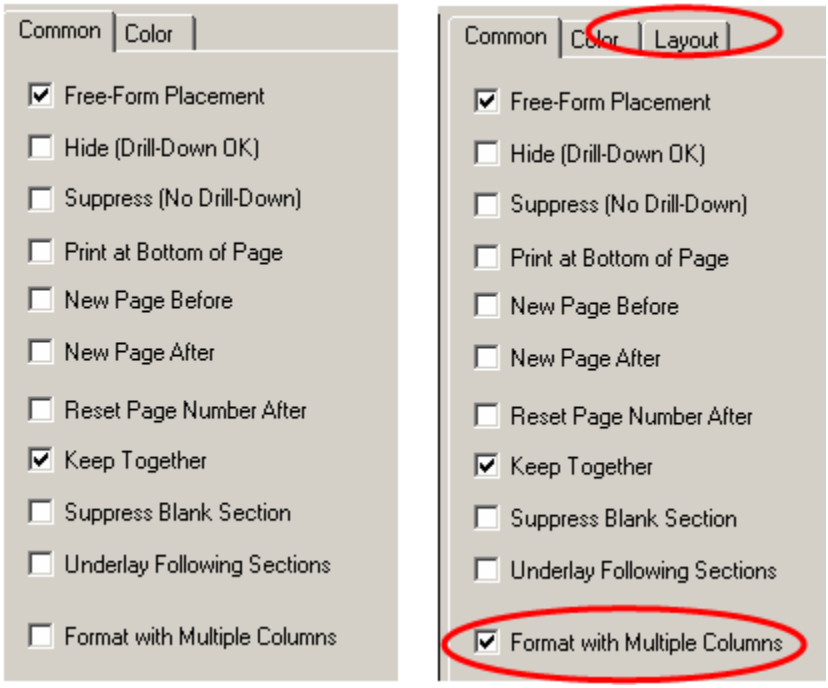
When a Section is clicked on and highlighted, the checked options show what has been set up for this section. Some options that have been chosen elsewhere, such as Suppress, are reflected here. Other useful options include conditional suppression of a section (using the *Suppress* formula button), *New Page After, Keep Together, Suppress Blank Section* (used for sub-reports), and *Format with Multiple Columns* (*Detail* section only).

Caution: The *Keep Together* option has been known to cause odd blank pages at the beginning of a report or large blank spaces throughout the report.

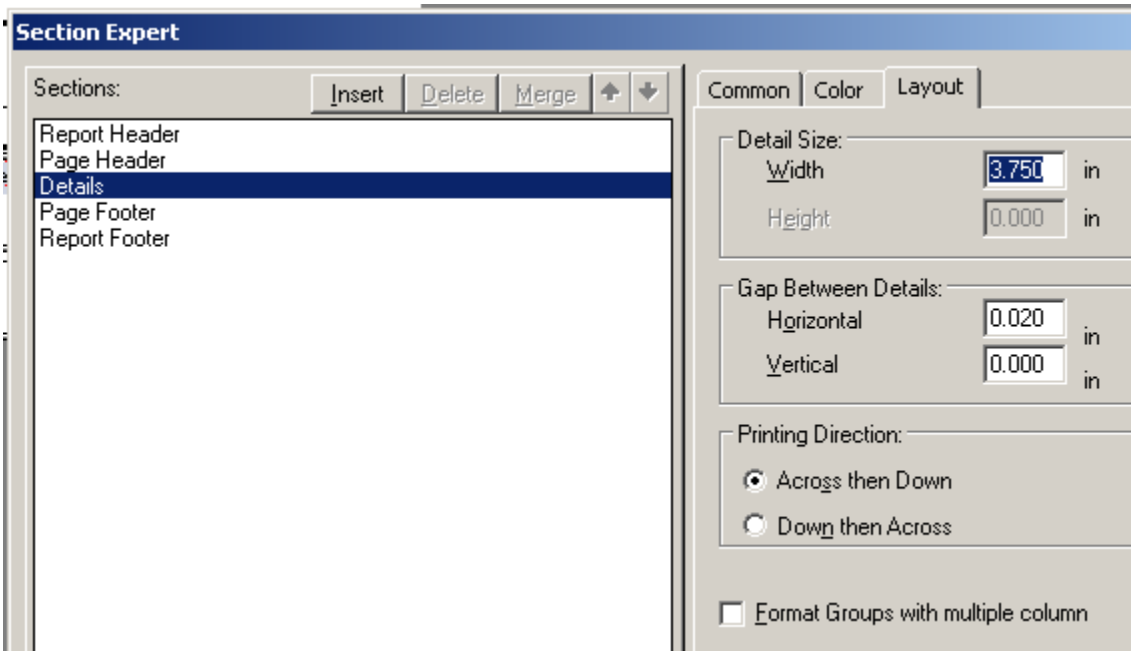
Formatting Multiple Columns

You may want to format a report with multiple columns. This is set up with the information in the *Details* section of the report and may also include the Group section data. To set up Multiple Columns, complete the steps below:

1. Within the Work reports file open **LC_ReqSumCol.rpt**.
2. Reduce the number of columns to two or three. Keep the **Request #**, **Record Date**, and **Status** fields.
3. Click on *Section Expert* and choose *Details*.
    - If you have multiple *Detail* sections then you must click on the top *Details* title (not *Detail a*) and all of the *Detail* sections will be duplicated. Individual *Detail* sections do not have the *Format with Multiple Columns* option.
4. Click on *Format with Multiple Columns*.
    - Note the addition of the *Layout* tab below:



5. Click on the *Layout* tab.
    a. You must enter a size for the column section in the *Detail Size*. Figure out how wide the first set of columns are from the ruler at the top and then allow at least that much for the duplicate section.
    b. The Horizontal Gap is the space between the columns.
    c. The Vertical Gap is the space between each line.
    d. It is also important to choose a *Printing Direction*.
    e. Click *OK* when you have finished altering the layout.



> *Note: The "Format Groups with multiple column" option at the bottom of the Layout tab allows this to be used in Grouping (discussed later).*

The *Multiple Column* option is not available in the ***Header*** section.

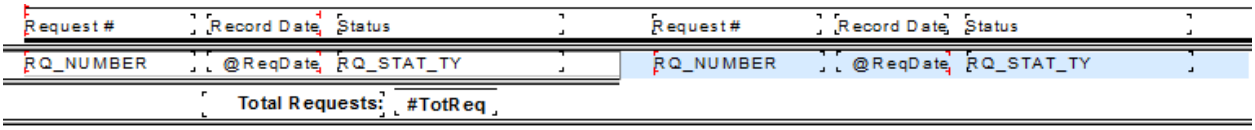
In order to identify your columns in the header, you'll need to create new column headings or copy the existing ones and paste.

The Landscape orientation is no longer necessary.

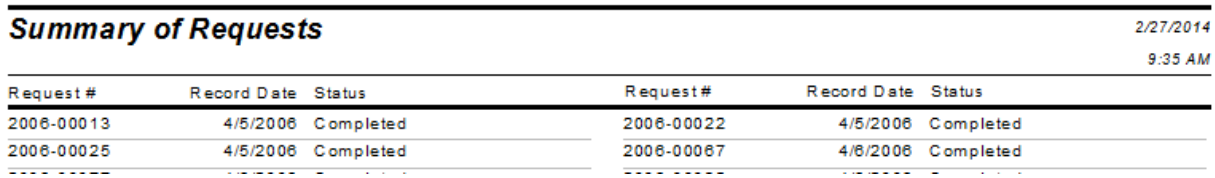
1. Shorten the Line in the *Detail* section to 4".
2. Shorten all other lines to 8".
3. Move the **Print Date** and **Print Time** right edges to 8".
4. In File > Page Setup… > Orientation select *Portrait*.
5. *OK*
6. Center Page number. *Save*

Below, you can see examples of the report Design and Preview.

Design



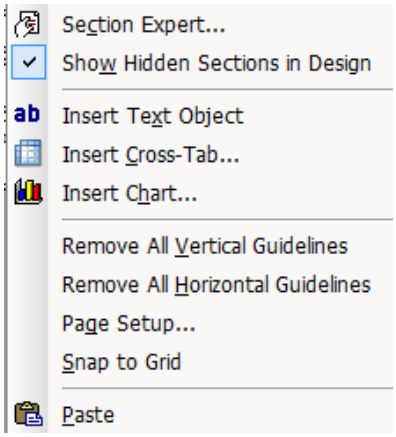
Preview



Additional Options

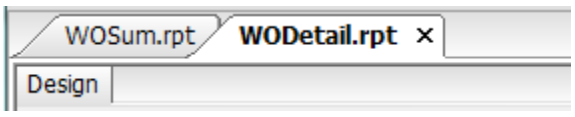
Right click in the main body of the report or Ruler to find additional options. These help with the report design.

- These include Snap to Grid, Remove All Vertical Guidelines and Remove All Horizontal Guidelines. Ruler, Guidelines, Grid, and Tooltips can be accessed through View in the top Menu Bar.



Multiple Reports

To quickly move between multiple reports it can be helpful to view them as multiple tabs. To set up this design, open your first report in Crystal then select ***File > Open…*** and then open the additional report to be viewed or worked on.



The report can be selected by clicking on the tab and closed by clicking on the X.

Parameters

Parameters are useful in creating reports that are more dynamic. The report will query the user for information and then typically use this in the record selection criteria. A common use of this feature is date ranges, categories and personnel.

Selection criteria are usually filtered on from within the Lucity modules. The report is then run using these criteria, and the specific criteria used can be stated in the subtitle. Sometimes, it is helpful to have the report make the selection. In the steps below, we'll show you how to set up these selection parameters in the report.

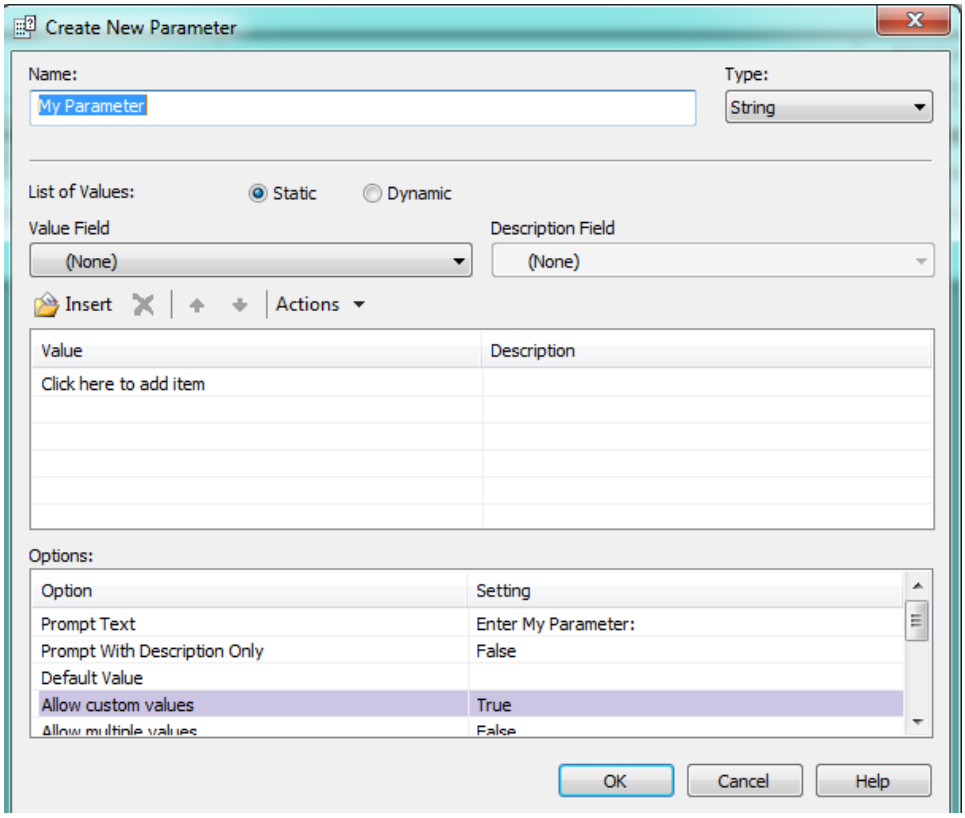
Date

In general it is best to set up a date range with two parameter fields. The report query will ask the user to supply a Start Date and an End Date.

1. From *Work* > *Requests*, we will modify the **Summary of Requests** report (**ReqSum.rpt**). For this example, open **LC_ReqSumDt.rpt**.
2. In **LC_ReqSumDt.rpt** open *Field Explorer* > *Parameter Fields*.
3. Right click on *Parameter Fields* and select *New*.

   OR

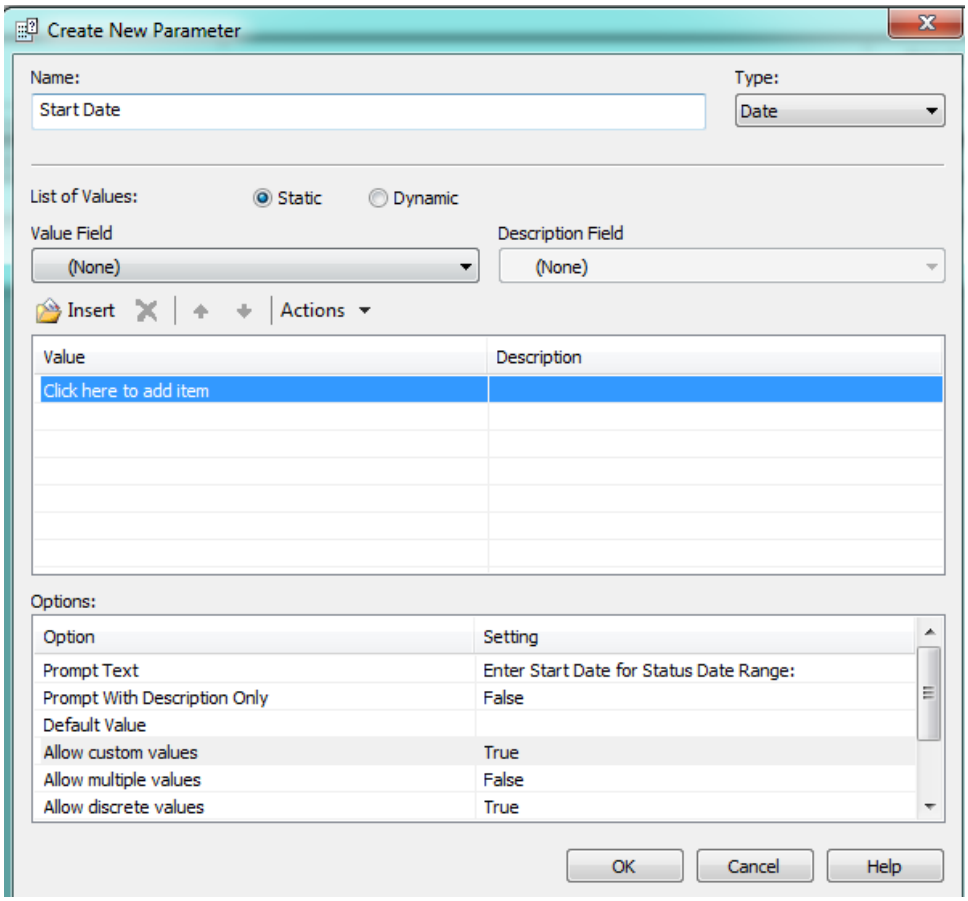
   Click on *Parameter Fields* and then click the *new* icon  in the *Field Explorer* toolbar.



4. In the *Create New Parameter* dialog, include the following:
   a. Enter a *Name*. For our example, we've typed **Start Date**.
   b. Select the type of data that the parameter field will be. In our example, we will choose **Date**.

      Note: There is an option for DateTime which would correspond with our field type but in the report we have pulled the Date portion out of the field using the Date formula. If you had used the DateTime type then the user would have to enter the irrelevant Time portion of the field each time they ran the report.

   c. Under *Options* the *Prompt Text* is automatically filled in with **Enter (Parameter Name)**. This prompting text can be revised by clicking in the box and adding or subtracting text. (We have added **"for Status Date Range"**.)



   d. *OK*

5. Repeat this procedure for **End Date**.

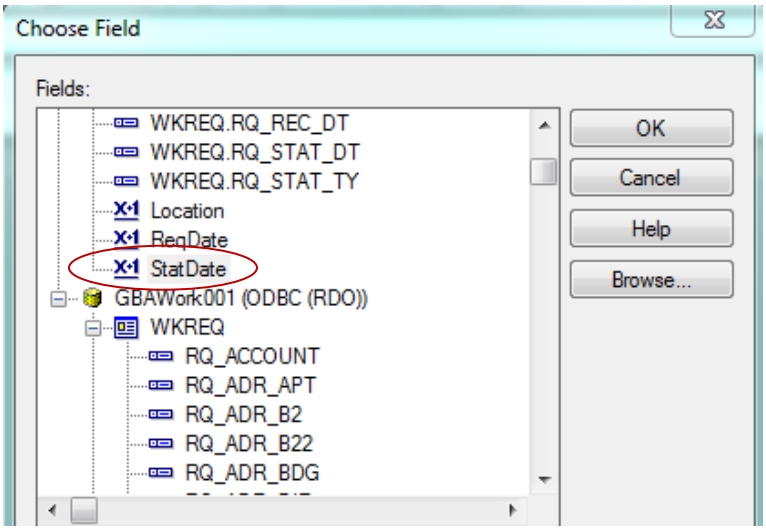
There are now two parameter fields (**Start Date** and **End Date**) that can be used in the selection criteria and in a date title.

Note: Even though the parameters have been created, the report will not use them unless they are put in the selection criteria.

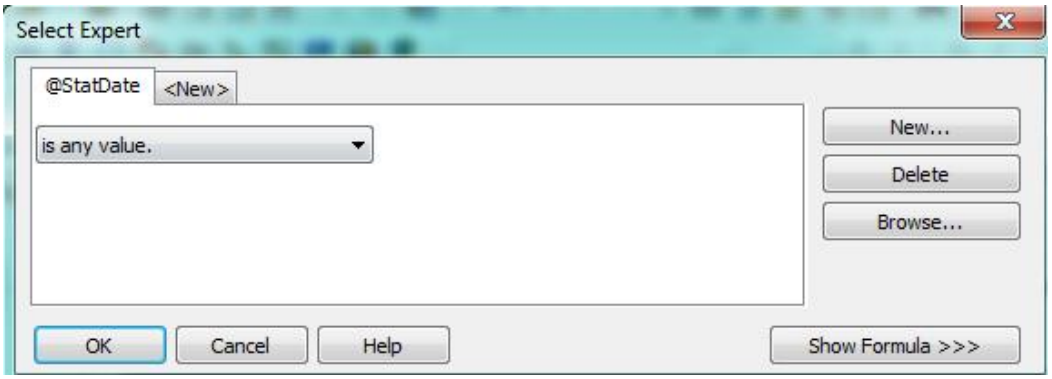
Record Selection with Parameters

To use your newly defined Date parameters in a report to select records, complete the followings:

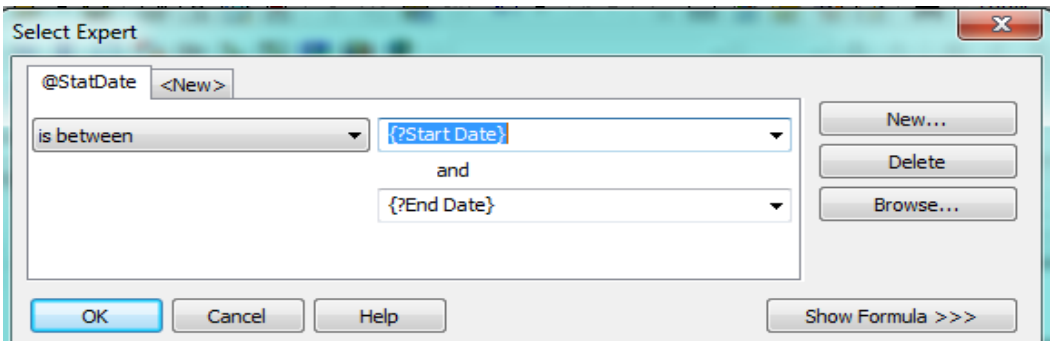
1. Click on *Select Expert* 
2. Click the Status Date Formula (**StatDate**).
3. Select *OK*.



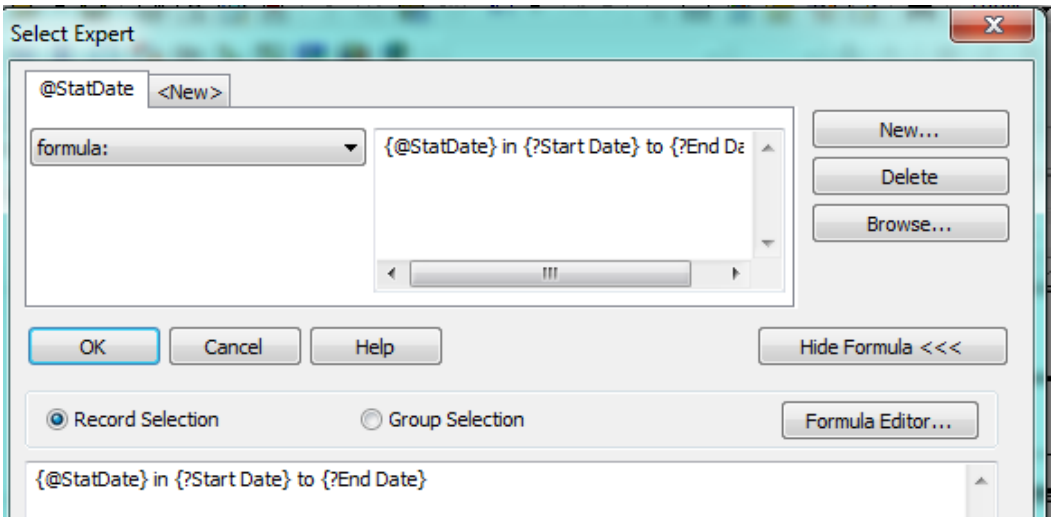
The dialog displayed below will appear:



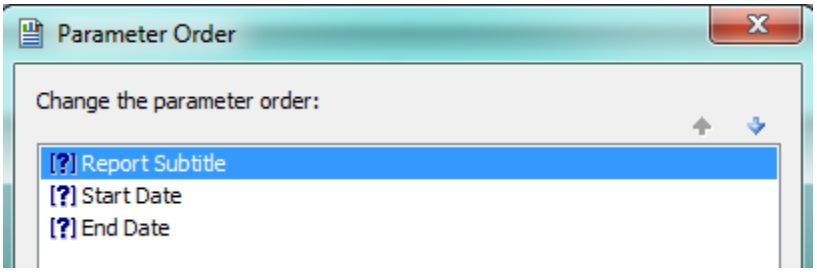
4. Select from the drop down boxes the appropriate criteria:



5. Then, if you would like to view the formula for the Selection Criteria that you have created, click on *Show Formula>>>*



> *Note: There is an option to Set Parameter Order when you right click on Parameter Fields in Field Explorer. This is the order in which you will be queried. You can click and drag the parameters (or use the arrows) to the correct order.*



Adding Parameters to the Report Title

Once you've added Date parameters to a report, you'll want to add that data to the title section. This helps you know which dates are reflected in the report.

- You can manually enter the dates in the *Report Subtitle* parameter query.

  OR

- You can create a **Formula** to automatically state the dates selected and place in the Title section.

  OR

- You can create a **Text Object** and bring in the dates.

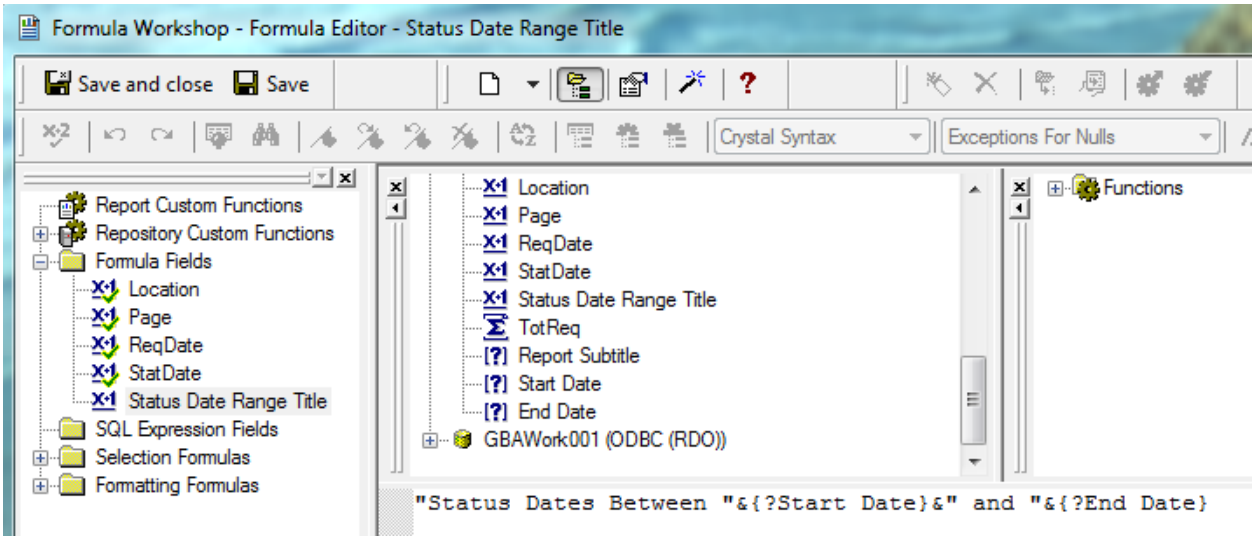
Formula Option

1. Right click on *Formula Fields* and select *New*.
2. Enter a descriptive name. For our example, we've typed "**Status Date Range Title**".

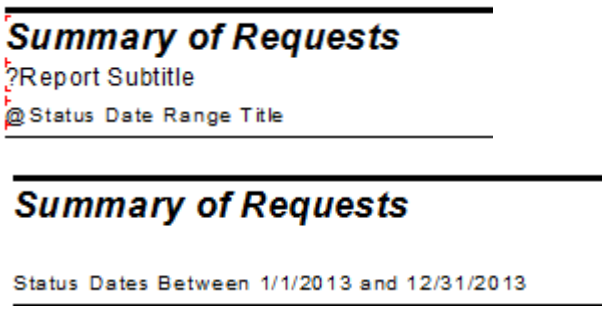
3. Select *OK*, then type in the following:

   "Status Dates Between "&{?Start Date}&" and "&{?End Date}

   The parameter fields can be selected from the Report Fields.



4. Now, either remove the Report Subtitle or create some room in the *Page Header* section to drag the @**Status Date Range Title** formula into the *Page Header*.



Text Object Option

1. Click on *Insert Text Object* and place below **?Report Subtitle**.
2. Type "**Status Dates Between and "**
3. Increase the box size to accommodate the addition of the Date parameters.
4. From *Field Explorer* > *Parameter Fields*, drag the **Start Date** in front of "**and**" and the **End Date** behind "**and**". Add spaces as needed.

Example 10

Secured Fields (Main Body of Report)

Sometimes fields should be hidden in reports if the person viewing the report does not have the proper level of security. This can be done by using parameters and formatting options.

> *Note: This will only work for fields in the main body of the report. Fields that need to be hidden in subreports will be addressed in our related workbook, Advanced Crystal 3.*

Many cost fields in Work Order reports are set to use the "Hidden" option. Sometimes you may wish to suppress the fields completely.

The following steps are provided so you can set up your own field security (step 7).

1. From *Work* > *Work Flow Setup* > *Employees* module, we will modify the **Employee List Report (EmployeeList.rpt).** From the Work report folder open **LC_EmployeeCost.rpt**.
2. Modify the **Department** text object to **Unit Cost.**
3. Add a text object to the right called **Overtime Rate**.
4. Remove the **EM_DEPT_TY** field.
5. Add from the **WKUEMP** table the **EM_UNIT_C** field beneath the **Unit Cost** heading.
6. Add from the **WKUEMP** table the **EM_OVERI_C** field beneath the **Overtime Rate** heading.
7. Right click *Parameter Fields* and select *New*.
8. Type in the *Name* - **ViewSecuredFields**.
    - This is a special parameter field that must have this name "ViewSecuredFields". When the report is run within Lucity the security is passed to the report and will not query the user. If the report is run outside of a Lucity module, in Crystal, then the security will be queried.
    - If the report is refreshed, it will ask for the parameters again, including the permission to view the secure fields. At this point you can change the security value the report will run with.
9. Select the *Type* > **Number** and under *Options* > *Discreet* **Value -True**.
10. Click *OK*.

Field Viewing Options

Field to Show Blank

For a blank field to show up when the user does not have rights to view the secured fields, do the following:

1. Right click the field that requires suppression (**EM_UNIT_C**) and select *Format Field*.
2. Click the *Common* tab.
3. Click the formula box  next to *Suppress*.
4. Double click the **ViewSecuredFields** parameter from the **Report Fields**.

5. Type "= 0".

   {?ViewSecuredFields} = 0

6. Click *Save and close*.
7. Click *OK*

Field to show "Hidden"

For the word "Hidden" to show up when the user does not have rights to view the secured fields, do the following:

1. Right click in the field that requires suppression (**EM_OVERI_C**) and select *Format Field*.
2. Click the *Common* tab
3. Click the formula box  next to *Display String*.
4. Type in:

   if {?ViewSecuredFields}=0 then "Hidden" else "$"& ({WKUEMP.EM_OVERI_C})

> *Note: The inclusion of the dollar sign is because once the formula brings in the word "Hidden", the formula requires the outcome to be text. The field will not allow number formatting.*
>
> *Using the "&" for joining is an implied "to text" for the number field. If a "+" had been used for joining, then a conversion would have been necessary +(totext**({WKUEMP.EM_OVERI_C})**).*

5. Click *Save* and *Close*.
6. Click *OK*

If the user did not have permission to view Employee costs, then because of the field set ups, the Unit Cost is blank and the Overtime is showing "Hidden".

Unit Cost	Overtime Rate
	Hidden
	Hidden
	Hidden

It would be helpful to make a notation at the bottom of the report to explain why some of the fields are "Hidden", such as:

"A Hidden field indicates permission to view the secured field is turned off."

Logged in User ID and Logged in Employee Code – Web Only

For versions 7.4 or later the **Logged in User ID** and **Logged in Employee Code** can be brought into the report straight from Lucity. This information is being brought in from the Employee module in Work and is set up much like the "ViewSecuredFields" parameter.

- For the User ID, create a new parameter called **LOGGEDINUSERID**.
- For the Employee Code, create a new parameter called **LOGGEDINEMPCODE**.

Both parameters are *String* type fields.

Drag the parameter fields into the report. When the report is run from Lucity, these fields will populate with the correct Logged in User information.

Static and Dynamic Selections

A pick list of values to use in a report is possible by using parameter fields. An example of this use will be shown in selecting Categories.

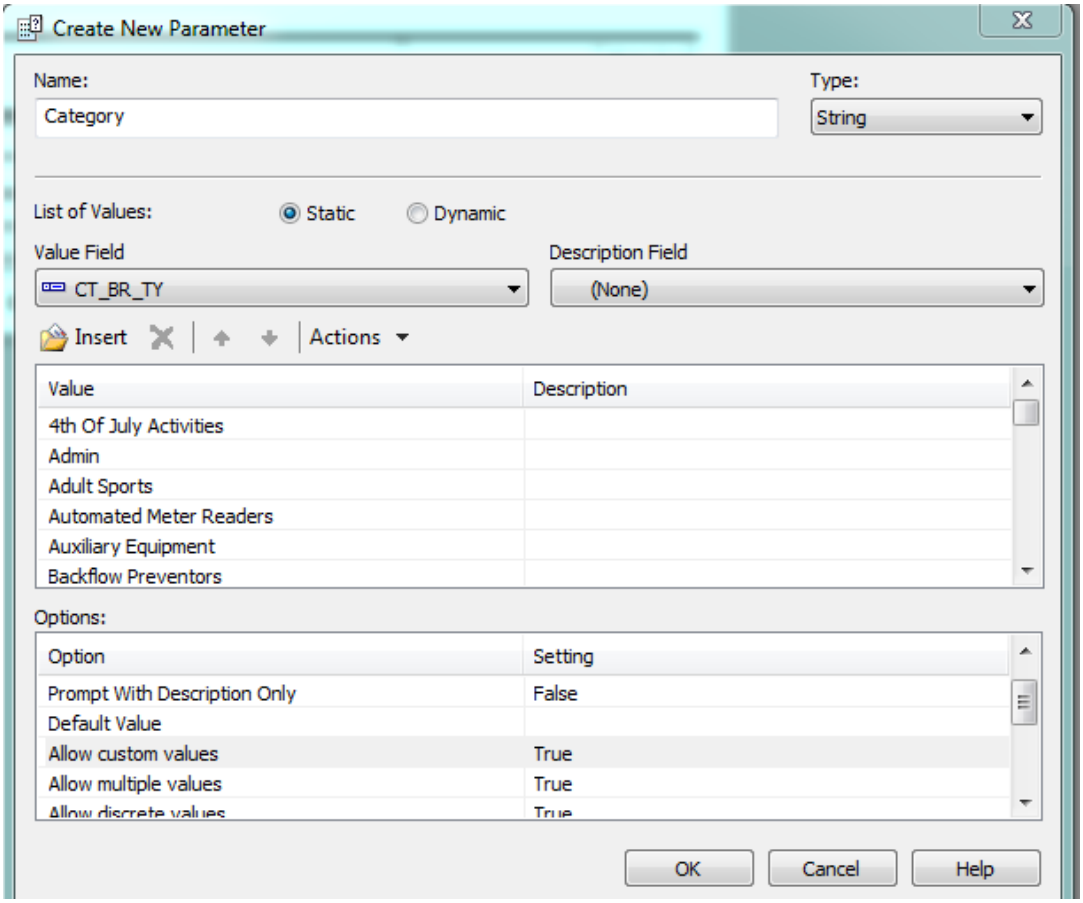
1. From *Work* > *Work Flow Setup* > *Category*, we will modify the **Category with Problem and Task Report** (**CatProbTask.rpt**). From the Work report folder open **LC_CatProbTaskCat.rpt**.
2. Right click *Parameter Fields* and choose *New*.
3. Enter the *Name* (**Category**). Beginning with version 2015, Lucity Web will support dynamic parameter selections but requires the *Name* to be that of the specific field. (See Dynamic Selections)
4. Enter the *Type* (**String**).
5. Choose the "List of Values" type. Set up as either a Static Selection or Dynamic Selection. (Discussed next)

Static Selections

This allows selection from a set list of values for a specific field.

1. Next to "List of Values:" select *Static*.
2. Under *Value Field* select **CT_BR_TY** (This is the Category text field).
3. If you want to choose specific Categories to be in your selection list, click Insert 

.
4. Click on the down arrow under *Value*.
5. Click the Category that you want in your list.
6. For each additional Category, click on a blank line, and then click on *Click here to add item*, and then click the down arrow for the list.
    - If **All** the Categories should be in the list, click *Actions* and choose *Append all database values*.
    - This drop down box is also where you can clear all values in a list.
7. Under *Options* you may revise the *Prompt Text*. It has automatically placed the *Name* (**Category**) after **Enter**.
8. Under *Options* place True next to both *Allow discreet values* and *Allow multiple values*.
    - The True and False options may be changed by clicking on True (or False) which will cause a drop down of True or False to select from.
9. Click *OK*.

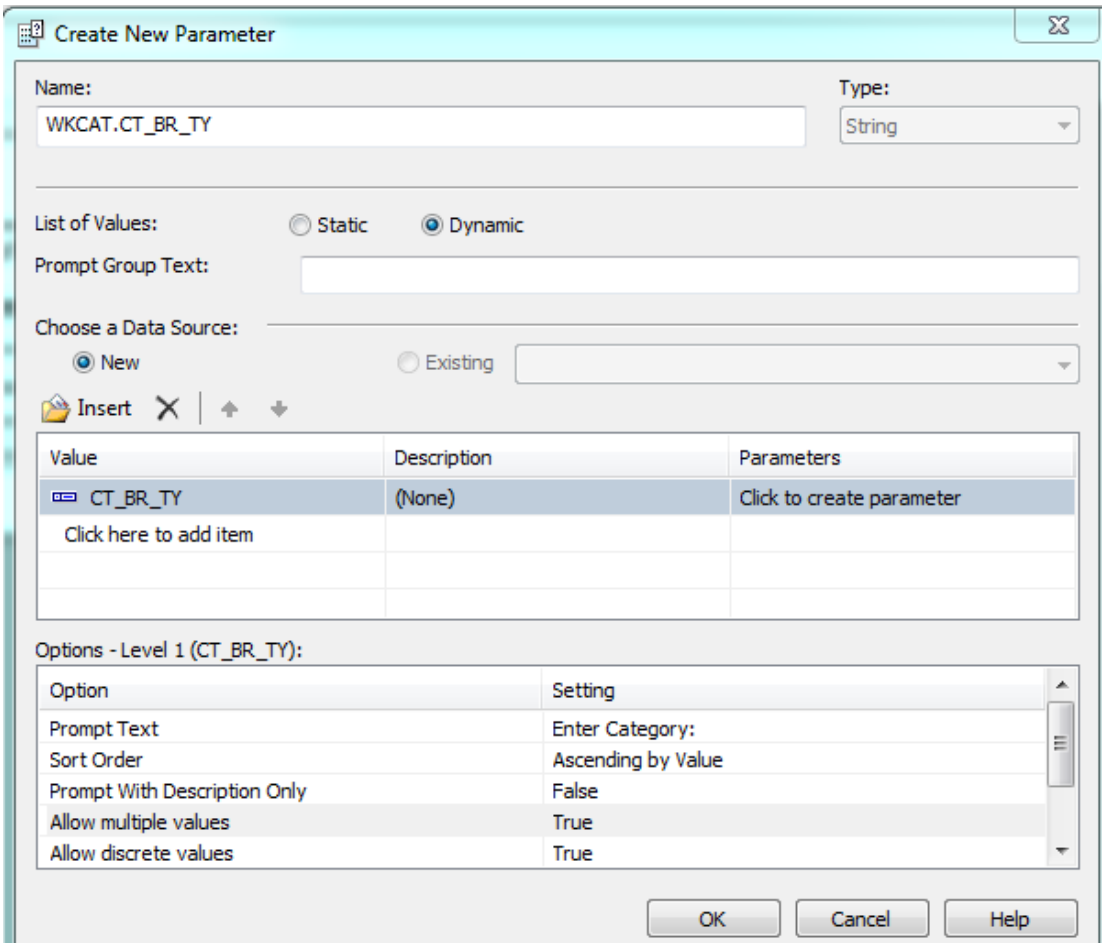


Dynamic Selections

This allows selection from whatever values are in a specific field at the time the user runs the report.

Prior to V2015 for this option to be used with Web reports, the report needed to be developed in Crystal 2008 or later and run with the HTML view where the dynamic selection was only available after the report ran initially. Lucity version 2015 Web supports dynamic selection for either Advanced View (HTML) or Basic View (pdf).

1. Create a new parameter named **WKCAT.CT_BR_TY**. For the Dynamic pick list to show up in V2015 or newer the field name needs to be used. Even if you are using an older version of Lucity, the parameter should be set up this way so it will work correctly when you upgrade.
2. Type is **String**.
3. Next to *List of Values:* select *Dynamic*.
4. Under *Choose a Data Source*, select New.
5. Then Click either *Insert* or *Click here to add item*. Select the field in question.
6. Edit the Prompt text if desired.
7. Select Options
8. *OK*



Note: For Web reports, make sure the Show on (Viewer) Panel option is set for ***Editable****.*

Option	Setting
Show on (Viewer) Panel	Editable

Using the Selection Parameter

You must now add this selection criterion to the *Select Expert*.

Static parameter

{WKCAT.CT_BR_TY} = {?Category}

Dynamic parameter

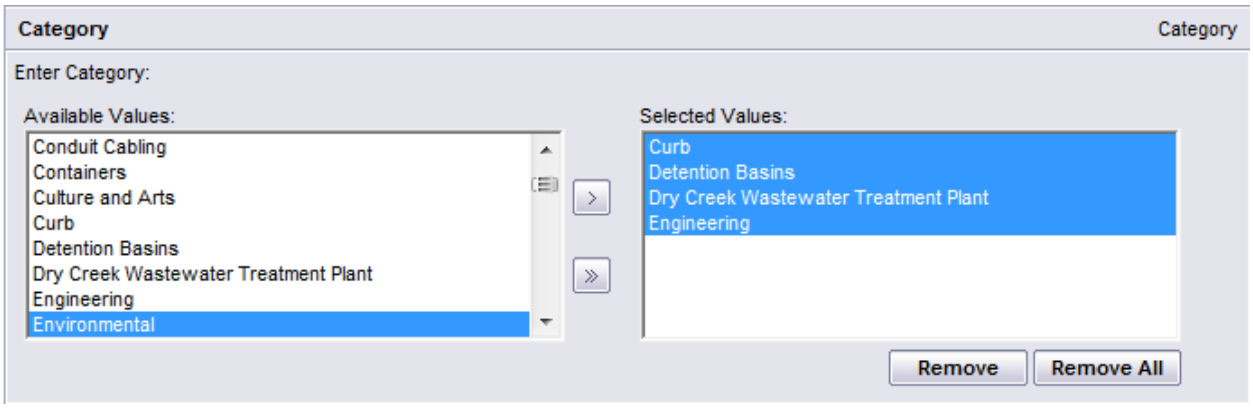
{WKCAT.CT_BR_TY} = {?WKCAT.CT_BR_TY}

When the report is run and the Category parameter is queried, it will appear similar to the following example.

- Below, we have selected a **group** of Categories by clicking on Curbs.

  Then shift/click on Engineering

  Then the > button



- Individual Categories can be moved by clicking on the Category and then the > button.
- All of the Categories can be selected by using the >> button.
- Another helpful way to select Multiple values is selecting the value then holding the control key(Ctrl) down and selecting additional values, then moving these values over with one click on the > button.

The **Remove** and **Remove All** buttons work with the *Selected Values:* window.

OK

Example 11

Multiple Parameter Values in Report Title

1. Create a formula to use the parameter (CatTitle).

   Using the parameter from the previous example it would look like the following:

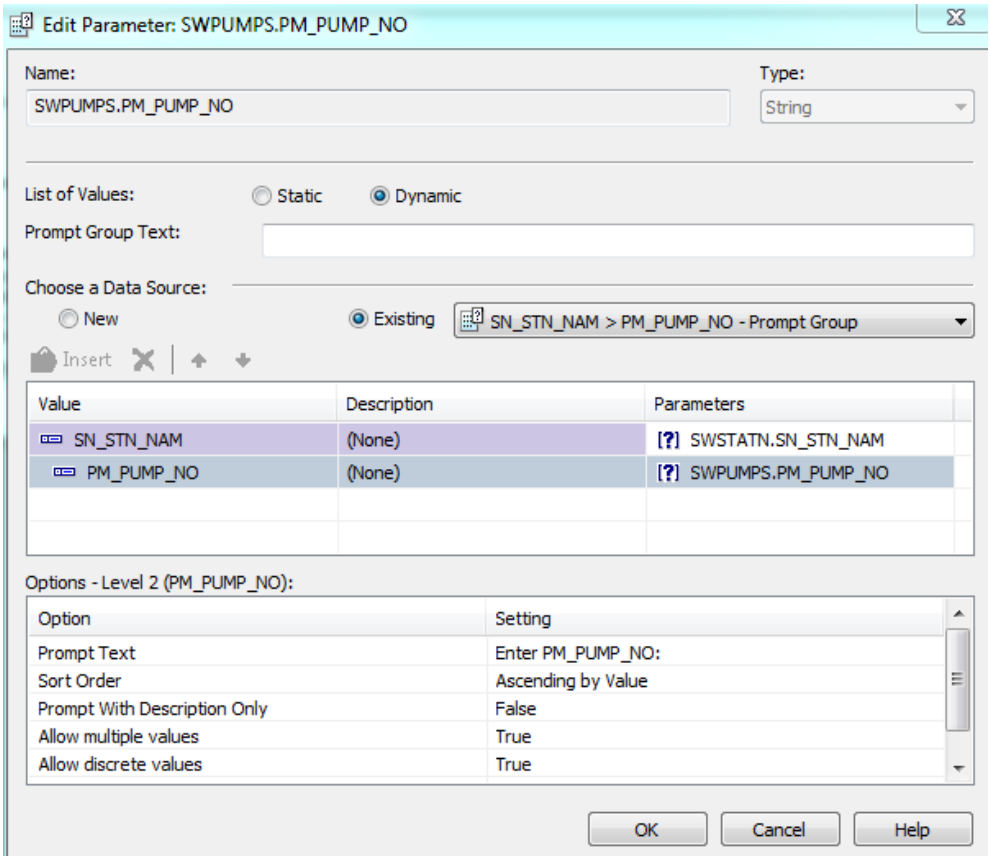
   Join ({?WKCAT.CT_BR_TY},", ")

2. Adjust the Page Header (or Report Header) to accommodate a growing list of values.
3. Bring the formula in and Format with “Can Grow” option.

Dynamic Cascading Prompts

A dynamic cascading prompt allows the user to choose first one selection criteria and for this chosen selection then choosing a second one. Possibly Web only. There have been issues using this with Crystal XI which is what Desktop runs.

For a Sewer Pump Station report a parameter was created to choose a Pump Station and then once the station was selected then the pumps were selected from a list of pumps associated with the station.

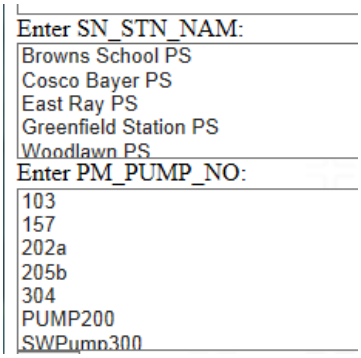


The selection criteria within the *Select Expert* would be set up like this:

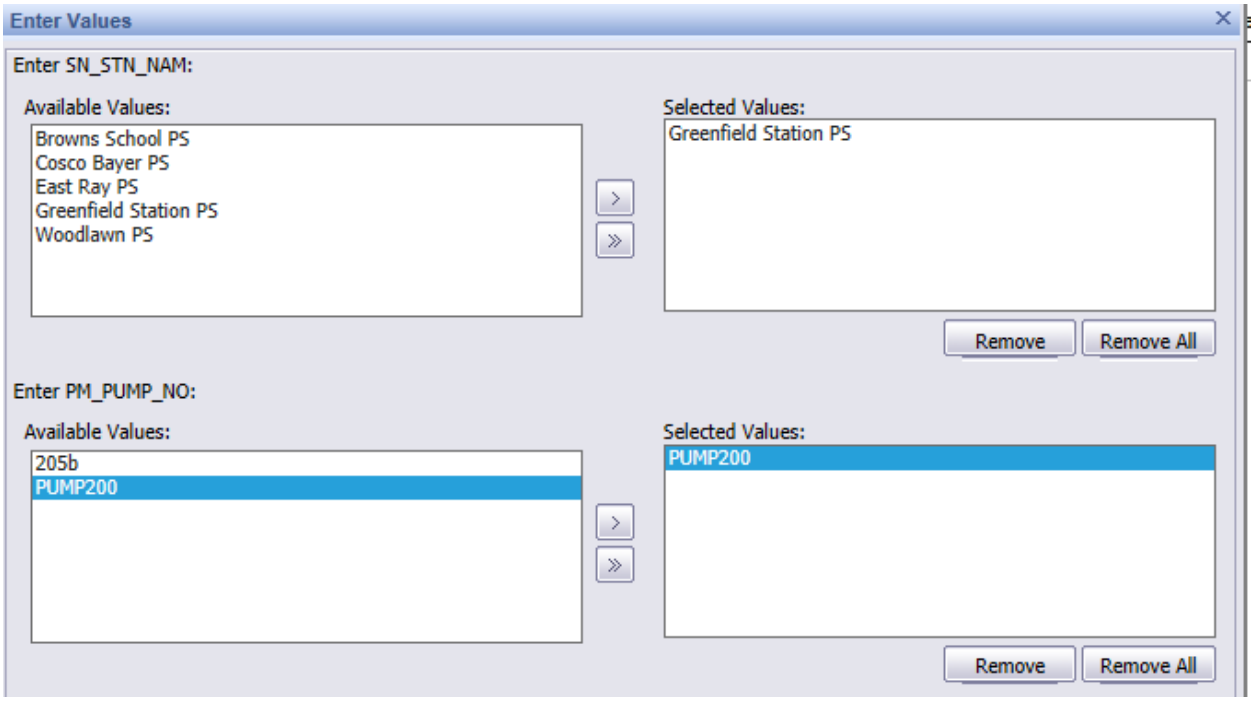
{SWPUMPS.PM_PUMP_NO} = {?SWPUMPS.PM_PUMP_NO} and

{SWSTATN.SN_STN_NAM} = {?SWSTATN.SN_STN_NAM}

When running the report in Web the following prompt would show up:

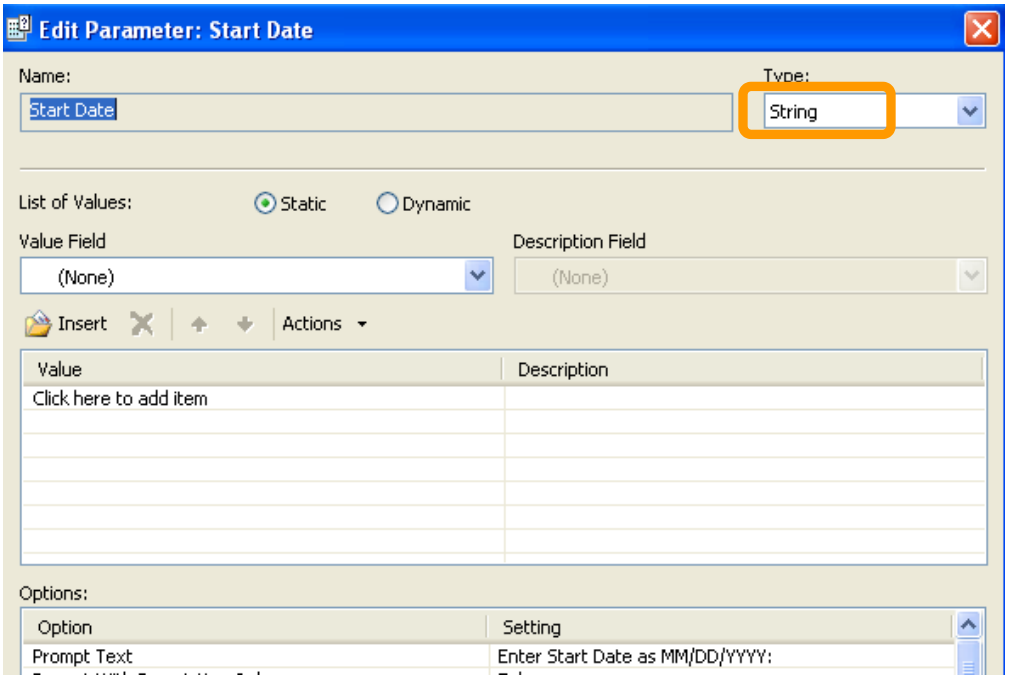


It does not use the cascading feature. If the report uses the Advanced View and is rerun with the parameter tab it works correctly:



Parameter Date Formatting for Entry

Crystal expects dates to be entered as yyyy-mm-dd. A client wanted to be able to enter dates mm-dd-yyyy. To get around the standard Crystal formatting, the date parameters were set up as string fields instead of date fields.



When the parameters were used in the *Select Expert* they were converted to Date type fields.

Date ({WKRESRCE.WR_END_DT}) in [CDate ({?Start Date}) to CDate ({?End Date})]

> *Note: Later versions of Crystal allow the parameter date entry in the mm-dd-yyyy structure.*

Sorting

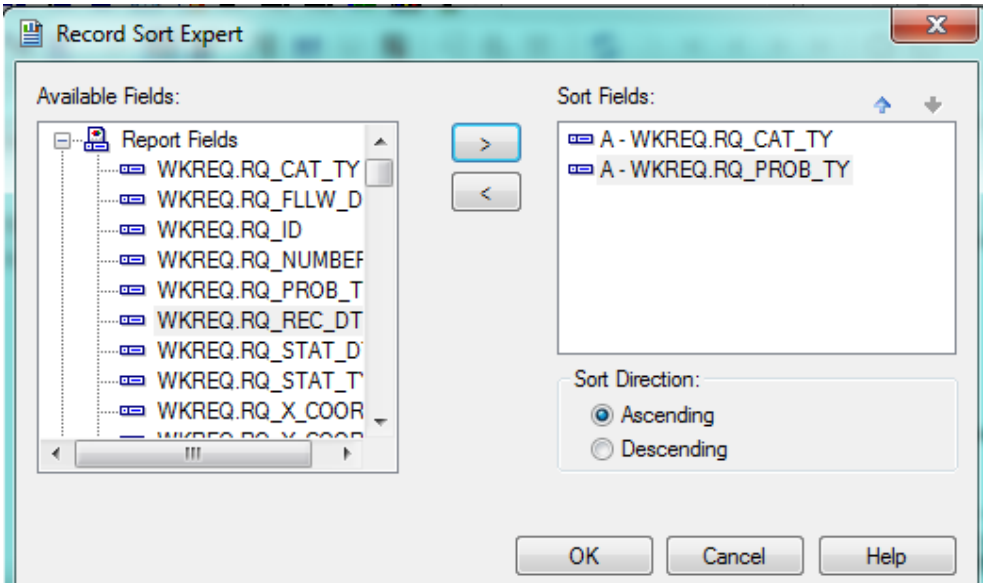
Sorting is a simple method to view data in your report in a certain order; ascending or descending.

Crystal Reports allows sorts within sorts, each sort reflecting its own sort direction.

If there is grouping in a report (discussed next), the grouping comes first before any field sorting. Many of the work reports have groupings to deal with duplicate records created in filtering so simple sorting will not work. Additional sorting results can usually be accomplished with additional groups.

We are going to set up a simple sort within the **LC_ReqSum.rpt** report (created in the Beginning Crystal 1 document). The following steps will set up a sort on the **Category** then within Category a sort on the **Problem**.

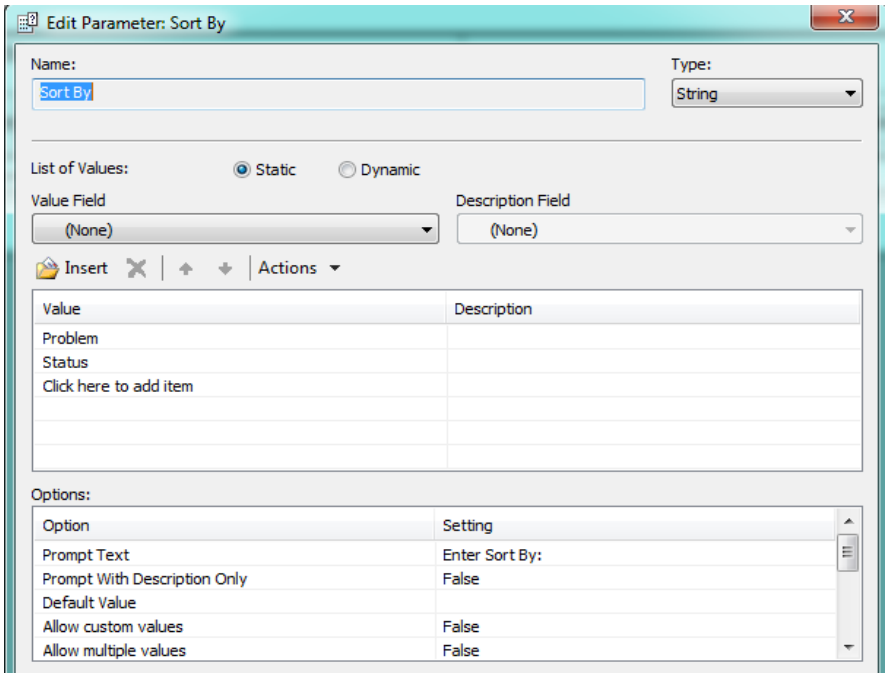
1. Click *Record Sort Expert*  .
2. Choose the field to be sorted by. This is typically found in the *Report Fields*.
    - Click on **RQ_CAT_TY** and move to the *Sort Fields* box by pressing the > button.
3. Then select the *Sort Direction: Ascending* or *Descending*.
4. Repeat this for the **RQ_PROB_TY** field. Each field's Sort Direction is independent of the other fields to be sorted on.



Interactive Sorting

To create a report with a choice of sorting, we will modify the **Summary of Requests** (**ReqSum.rpt**) report. From the Work report folder open **LC_ReqSumSort.rpt**.

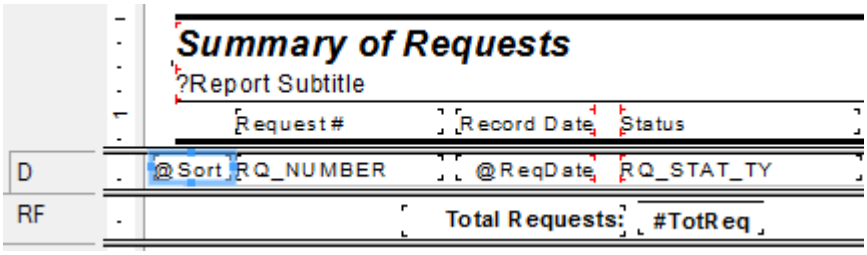
1. First we will create a Static parameter formula to list what the sorting choices are. (**Sort By**)



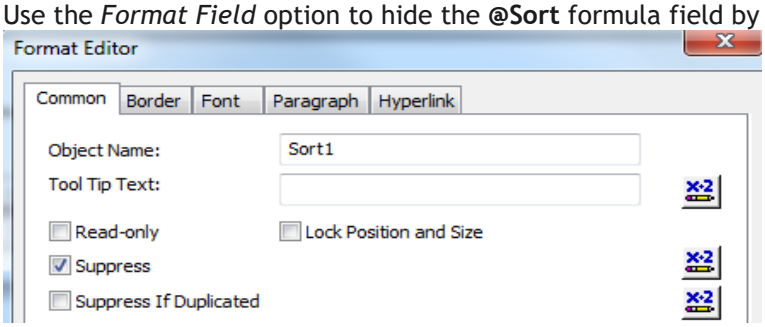
2. Using Formula Workshop, create a formula (**Sort**) to use the correct sorting parameter.

```
If {?Sort By}="Problem" then {WKREQ.RQ_PROB_TY}
Else if {?Sort By}="Status" then {WKREQ.RQ_STAT_TY}
```

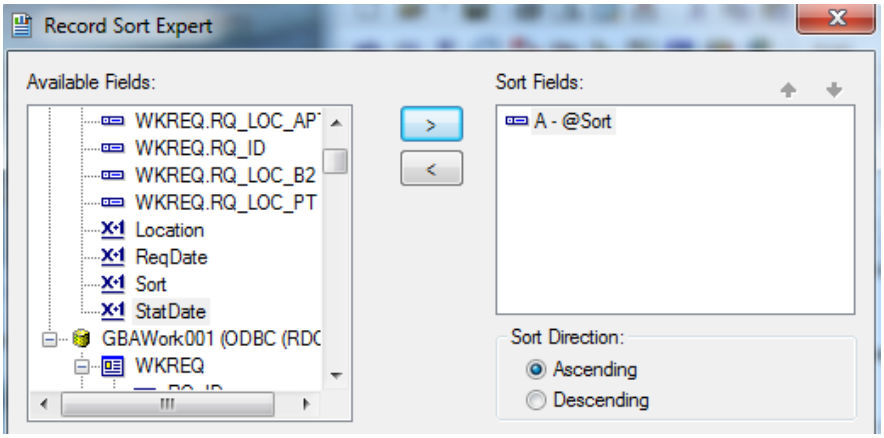
3. Place this formula in the Detail Section.



4. Use the *Format Field* option to hide the **@Sort** formula field by *Suppressing*.

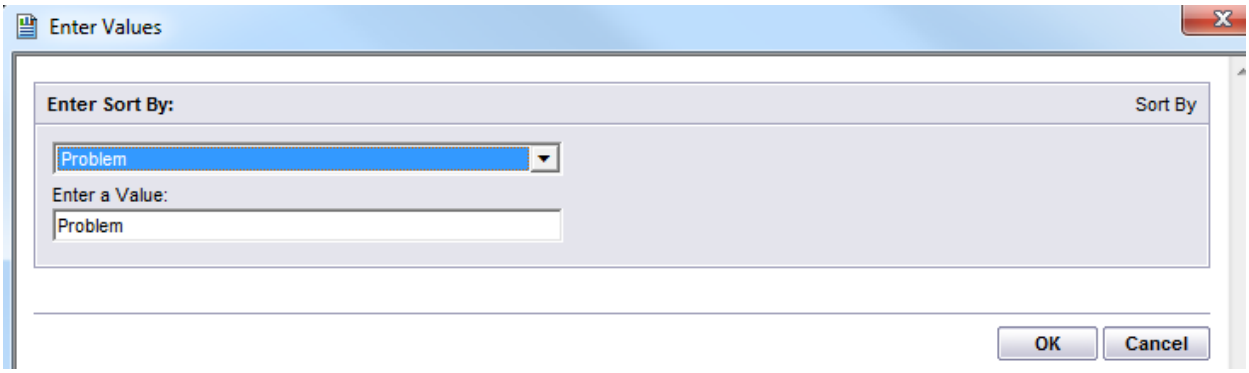


5. Place the **@Sort** formula under *Sort Fields:* in the *Record Sort Expert*  .



Preview

The following prompt will appear. The drop down arrow will show the fields to be sorted by.



Summary of Requests

Request #	Record Date	Status	Status Date	Priority	Problem
2006-09991	12/8/2006	New Request	12/8/2006		
2007-01256	1/8/2007	W O Completed	1/9/2007		
2009-00015	8/7/2009	New Request	8/7/2009		
2009-00021	8/7/2009	New Request	8/7/2009		
2009-00022	8/7/2009	New Request	8/7/2009		
2009-00027	8/7/2009	New Request	8/7/2009		
2012-00001	3/6/2012	New Request	3/6/2012		
2007-05272	2/6/2007	New Request	2/6/2007		Abandoned W aste
2006-03598	11/1/2006	Completed	11/2/2006	Immediate Priority	Accident Response
2006-07730	11/27/2006	Completed	11/30/2006		Accident Response
2006-07878	11/28/2006	Completed	11/30/2006		Accident Response
2006-09695	12/7/2006	Completed	12/21/2006		Accident Response
2007-04571	1/31/2007	New Request	1/31/2007		Accident Response
2006-04078	11/3/2006	W O Completed	11/11/2006	Immediate Priority	Bees In The Box
2006-04113	11/3/2006	W O Completed	1/2/2007	Immediate Priority	Bees In The Box

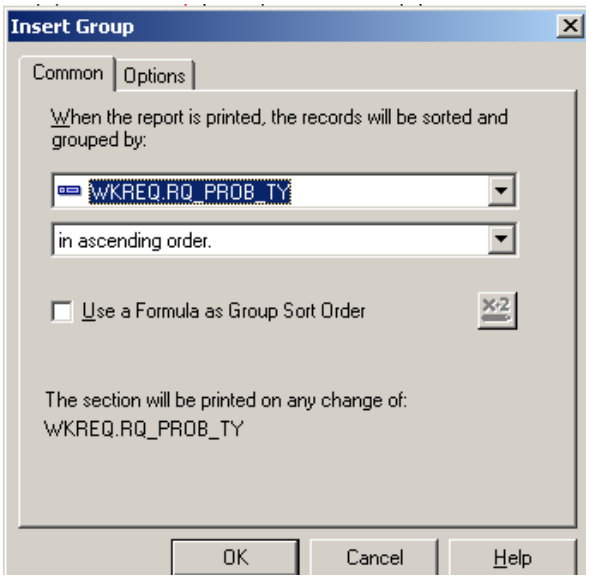
Example 12

Grouping

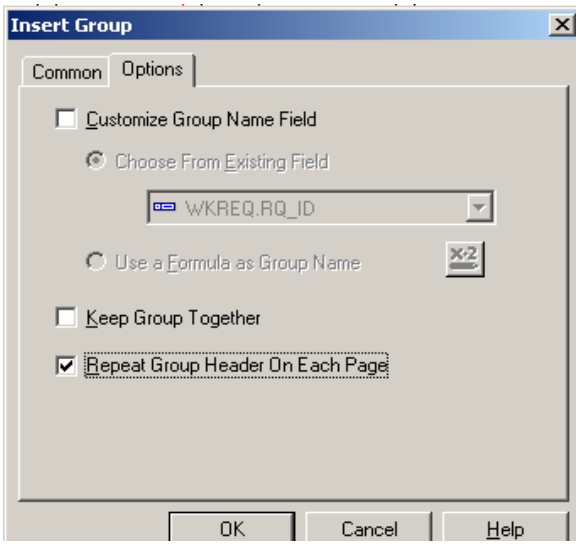
Grouping is a powerful tool and relatively easy to use. It is particularly helpful when creating summaries or counts.

We are going to add a grouping on *Problem* to the **Summary of Requests (ReqSum.rpt)** report.

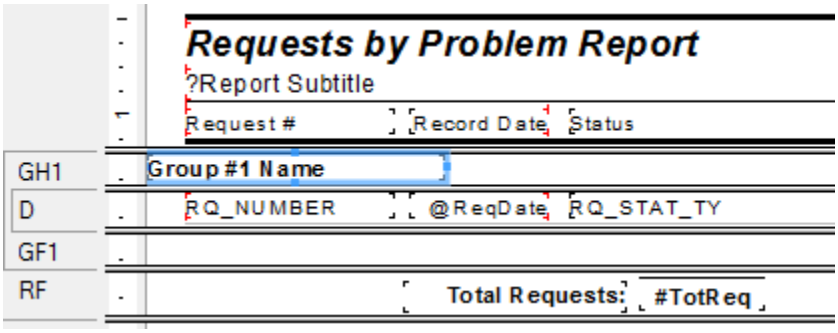
1. From the Work report folder open **LC_ReqSumProbGr.rpt**.
2. Change the Report title. For example, we've titled this report: **Requests By Problem Report**.
3. Select *Insert Group*  . If the field you wish to "Group By" is currently in the report, click on it to highlight it and then press the *Insert Group* button. It will automatically group on the field; however, you may also use the drop down box to select the field to group on (**RQ_PROB_TY**).



4. Choose any pertinent options.



- ***Group Header (GH1)*** and ***Footer (GF1)*** sections have been added.
- The **Group #1 Name** is the field that this report was grouped by.



Preview

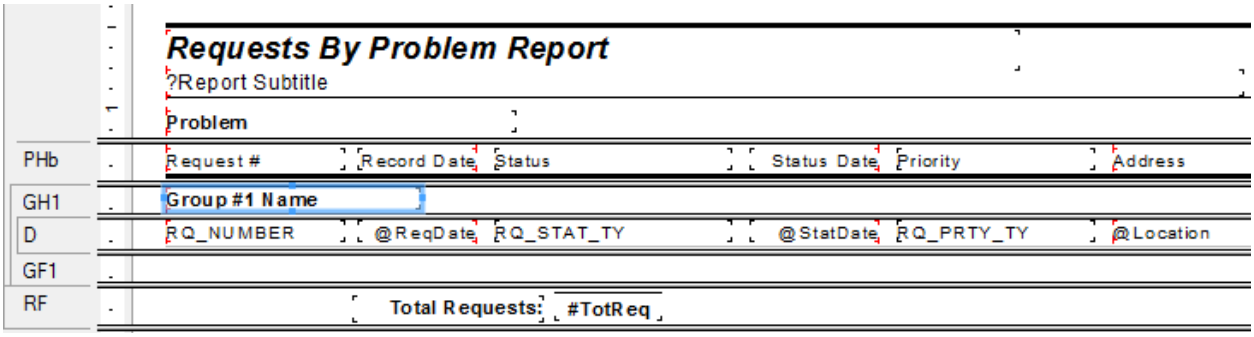
Requests by Problem Report

Request #	Record Date	Status	Status Date	Priority	Problem
2006-09991	12/8/2006	New Request	12/8/2006		
2007-01256	1/8/2007	WO Completed	1/9/2007		
2009-00021	8/7/2009	New Request	8/7/2009		
2012-00001	3/6/2012	New Request	3/6/2012		
2009-00022	8/7/2009	New Request	8/7/2009		
2009-00015	8/7/2009	New Request	8/7/2009		
2009-00027	8/7/2009	New Request	8/7/2009		
Abandoned Waste					
2007-05272	2/6/2007	New Request	2/6/2007		Abandoned Waste
Accident Response					
2006-09695	12/7/2006	Completed	12/21/2006		Accident Response
2007-04571	1/31/2007	New Request	1/31/2007		Accident Response
2006-03598	11/1/2006	Completed	11/2/2006	Immediate Priority	Accident Response
2006-07878	11/28/2006	Completed	11/30/2006		Accident Response
2006-07730	11/27/2006	Completed	11/30/2006		Accident Response
Bees In The Box					
2006-09375	12/5/2006	WO Completed	12/6/2006	Immediate Priority	Bees In The Box
2006-11925	12/22/2006	WO Completed	12/26/2006	Immediate Priority	Bees In The Box
2007-04080	1/29/2007	WO Completed	1/30/2007	Immediate Priority	Bees In The Box
2007-06165	2/12/2007	WO Completed	2/13/2007	Immediate Priority	Bees In The Box

The **Problem** is now being shown twice, once as a Group Header and again as a column, so we will eliminate the **Problem** column.

We will create a separate section with the column headings (***Page Header b***) because there is currently no room to fit **Problem** above **Request #**. (next page)

5. On the left-hand ruler, find the spot where you want the break to occur. It should appear just above the column titles.
    - Click and hold the mouse over that spot and move the cursor slightly, pull to the right and release. A new break line is formed. The section with the column titles is ***Page Header b (PHb)***.
6. Increase the size of ***Page Header a*** by dragging down the bottom line of this section.
7. Drag the **Problem** column title above **Request #** in the ***Page Header a*** section. Format **bold**.
8. Left align the **Group #1 Name** field to the **Problem** text box.
9. Delete the **Problem** field (**RQ_PROB_TY**).
10. The address formula could be moved over (left side at 6").
11. In *File* > *Page Setup…*, change from *Landscape* orientation to *Portrait*.
12. Adjust lines and Page Header fields to fit in the Portrait orientation.



Preview

Requests By Problem Report *2/27/2014* *2:44 PM*

Problem

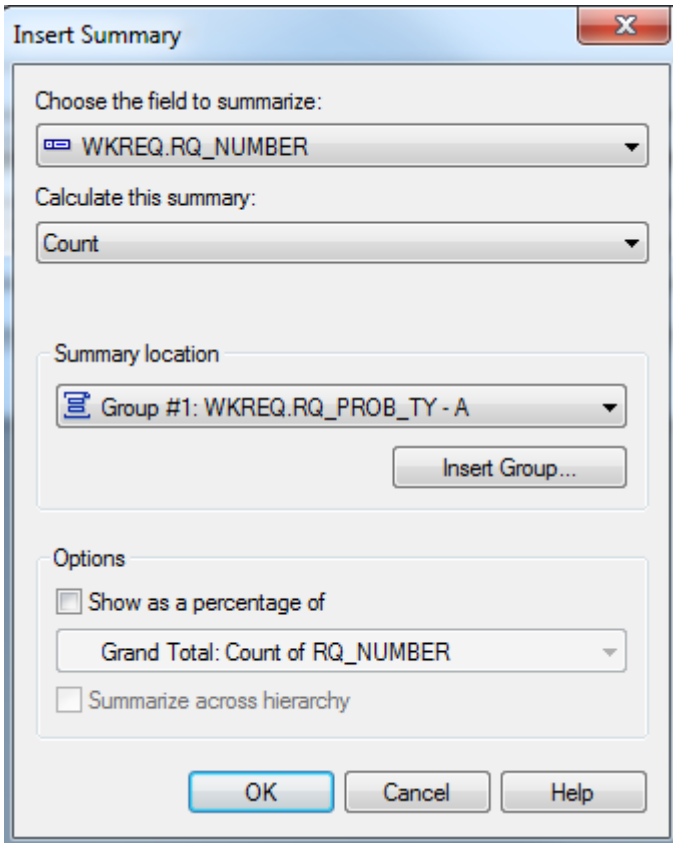
Request #	Record Date	Status	Status Date	Priority	Address
2006-09991	12/8/2006	New Request	12/8/2006		75 E CIVIC CENTER DR
2007-01256	1/8/2007	WO Completed	1/9/2007		
2009-00022	8/7/2009	New Request	8/7/2009		
2009-00015	8/7/2009	New Request	8/7/2009		
2009-00021	8/7/2009	New Request	8/7/2009		
2009-00027	8/7/2009	New Request	8/7/2009		
2013-00001	1/9/2013	WO Completed	8/28/2013		
2014-00001	1/21/2014	Assigned to WO	1/21/2014		
Abandoned Waste					
2007-05272	2/6/2007	New Request	2/6/2007		125 W CULLUMBER AVE
Accident Response					
2006-09695	12/7/2006	Completed	12/21/2006		
2007-04571	1/31/2007	New Request	1/31/2007		
2006-03598	11/1/2006	Completed	11/2/2006	Immediate Priority	N GREENFIELD RD
2006-07878	11/28/2006	Completed	11/30/2006		
2006-07730	11/27/2006	Completed	11/30/2006		

Note: Like when Sorting, Grouping can be nested; a Group within a Group. If multiple groups had been used then they could be switched around by clicking and dragging on the sections.

Summaries

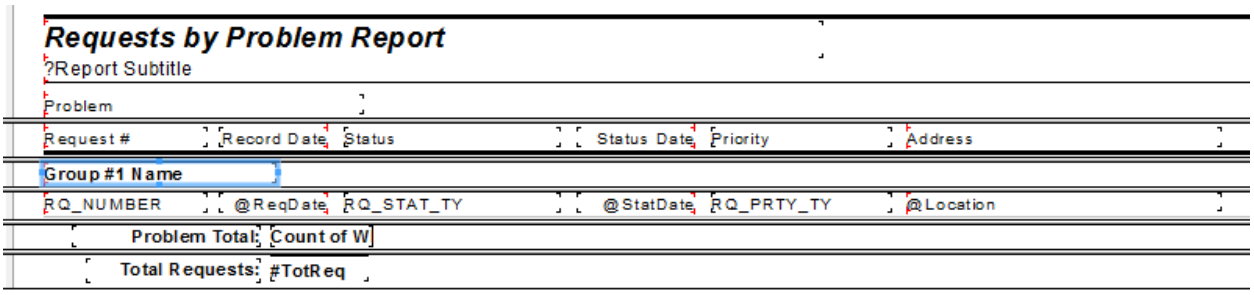
You may want to know the total count of each individual group. The summary option can be used for this purpose. Continue with the **LC_ReqSumProbGr.rpt** report.

1. Click on the field that you wish to count. (**RQ_NUMBER**)
2. Select *Insert Summary* Σ. The *Insert Summary* dialog will appear:
    - The field to summarize (**RQ_NUMBER**) should already be in the field to summarize.
3. Select the type of Summary (**Count**).
4. Choose the summary location (**Group#1**) and click *OK*.



There is now a subtotal for each Problem group.

- You may want to add some lines and make the group subtotal bold for easier reading.



Preview

Problem

Request #	Record Date	Status	Status Date	Priority	Address
2006-09991	12/8/2006	New Request	12/8/2006		75 E CIVIC CENTER DR
2007-01256	1/8/2007	W O Completed	1/9/2007		
2009-00021	8/7/2009	New Request	8/7/2009		
2012-00001	3/6/2012	New Request	3/6/2012		
2009-00022	8/7/2009	New Request	8/7/2009		
2009-00015	8/7/2009	New Request	8/7/2009		
2009-00027	8/7/2009	New Request	8/7/2009		
Problem Total: 7					
Abandoned Waste					
2007-05272	2/6/2007	New Request	2/6/2007		125 W CULLUMBER AVE
Problem Total: 1					
Accident Response					
2006-09695	12/7/2006	Completed	12/21/2006		
2007-04571	1/31/2007	New Request	1/31/2007		
2006-03598	11/1/2006	Completed	11/2/2006	Immediate Priority	N GREENFIELD RD
2006-07878	11/28/2006	Completed	11/30/2006		
2006-07730	11/27/2006	Completed	11/30/2006		
Problem Total: 5					

The report already has a Grand Total but if you needed to create one you could repeat the process and choose *Grand Total* (*Report Footer*) in the Summary location box. The summaries will automatically be dropped into the report wherever Crystal seems to think it should go. Click and drag the field and reformat it to fit your needs.

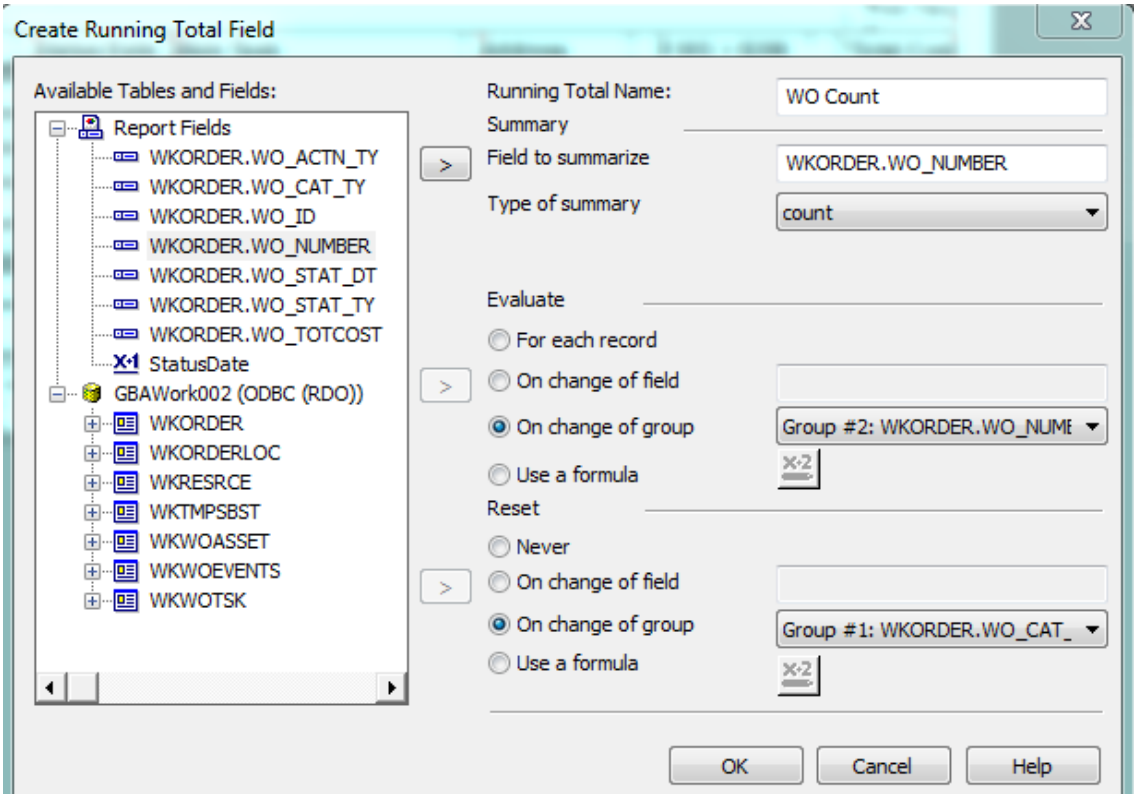
Running Totals

The Running Totals feature is used to add a list of numbers cumulatively. The various options offered within the Running Total dialog have rendered the use of variables (discussed in later documents) obsolete in some cases.

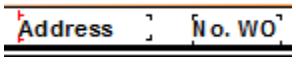
In this example we will create a count on the number of Work Orders per Category.

1. We will modify the **Work Order Summary Report** (**WOSum.rpt)**. From the Work report folder open **LC_WOSumRunTot.rpt**.
2. Create a new group on *Category* (**WO_CAT_TY**).
3. Shift the *Category* group to **Group 1** by clicking and dragging it into position.
4. Delete the **Category** Column.
5. Move the **Main Task** and **Address** columns to the left about 1 ½ inches.

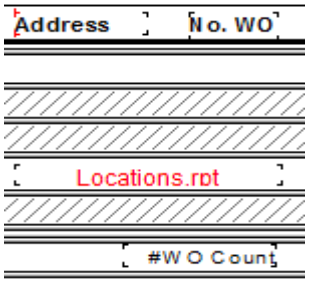
6. Change the Report title to **"Work Orders By Category Report"**.
7. Within *Field Explorer*, right click *Running Total Fields* and select *New*. The *Create Running Total Field* dialog will appear.
8. Type in a name for the *Running Total Name* (i.e. **WO Count**).
9. Choose the *Field to Summarize* (**WO_NUMBER**).
10. Choose the *Type of summary* (**count**).
11. Choose how the report will *Evaluate* the *Work Order Number* field.
    - *On change of group* - **WO_NUMBER**
12. Choose when to *Reset*.
    - *On change of group* - **WO_CAT_TY**
13. Then, click *OK*.



14. Add a text object for a column header (**No. WO**) just to the right of **Address**.



15. Drag the Running Total formula (**WO Count**) under the "**No. WO**" column header into the *Group footer 1 (GF1)* section.
    - The Running Total formula has a pound sign "**#**" in front to distinguish it as a Running Total type field (**#WOCount**).

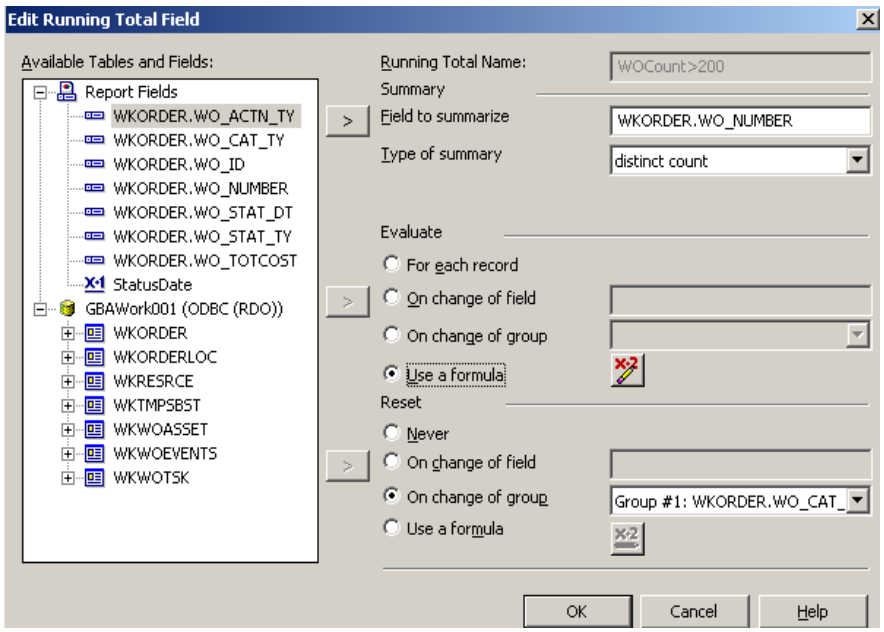


We will now add a count of Work Orders greater than $200 per Category. This will use a formula for evaluation.

16. Within *Field Explorer*, right click *Running Total Fields* and select *New*. The *Create Running Total Field* dialog will appear.
17. Type in a name for the *Running Total Name* (**WOCount>200**).
18. Choose the *Field to Summarize* (**WO_NUMBER**).
19. Choose the *Type of summary* (**distinct count**).
20. Choose how the report will *Evaluate* the WO_NUMBER (**Use a Formula).**
    - Type in the following formula:

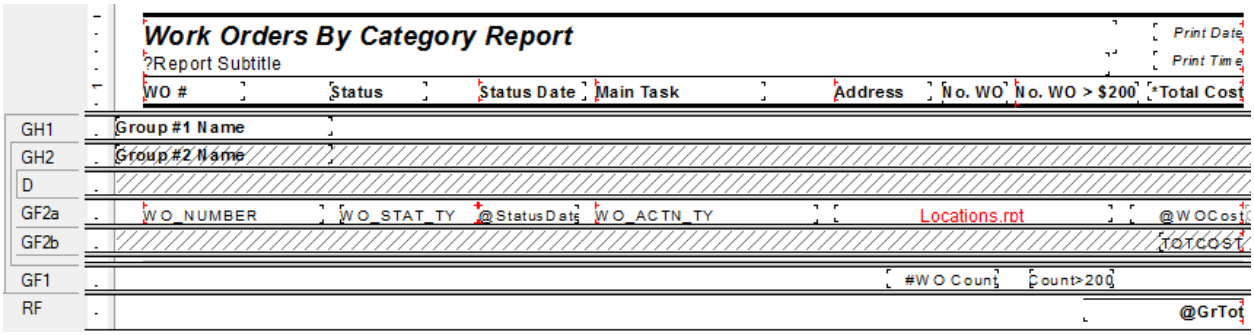
      {WKORDER.WO_TOTCOST}>200

    Choose when to *Reset* (*On Change of Group*- **WO_CAT_TY)**.
21. Then, click *OK*.

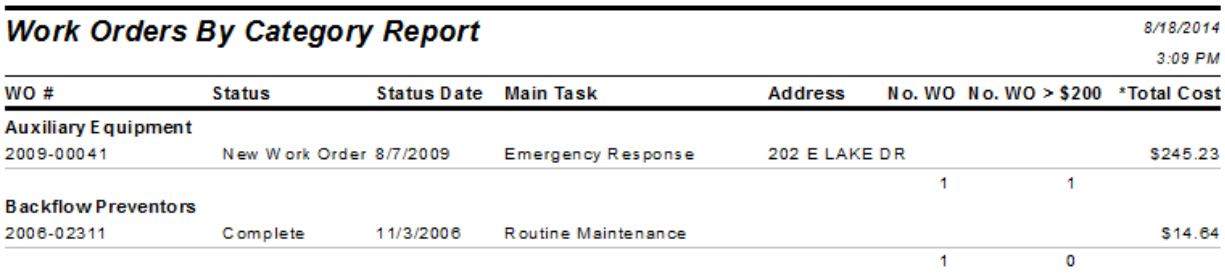


22. Create a new column title (**No. WO > $200**) and place it to the left of **Total Cost**.

23. Drag the **Running Total** formula (**WOCount>200**) into the *Group Footer 1 (GF1)* section under the **"No. WO >$200"** column header.



Preview



Work Orders By Category Report 8/18/2014 3:09 PM

WO #	Status	Status Date	Main Task	Address	No. WO	No. WO > $200	*Total Cost
Auxiliary Equipment							
2009-00041	New Work Order	8/7/2009	Emergency Response	202 E LAKE DR			$245.23
					1	1	
Backflow Preventors							
2006-02311	Complete	11/3/2006	Routine Maintenance				$14.64
					1	0	

Example 13

Work Order Reports

The importance of using Running Totals and Grouping can't be stressed enough for Work Order reports that have summaries.

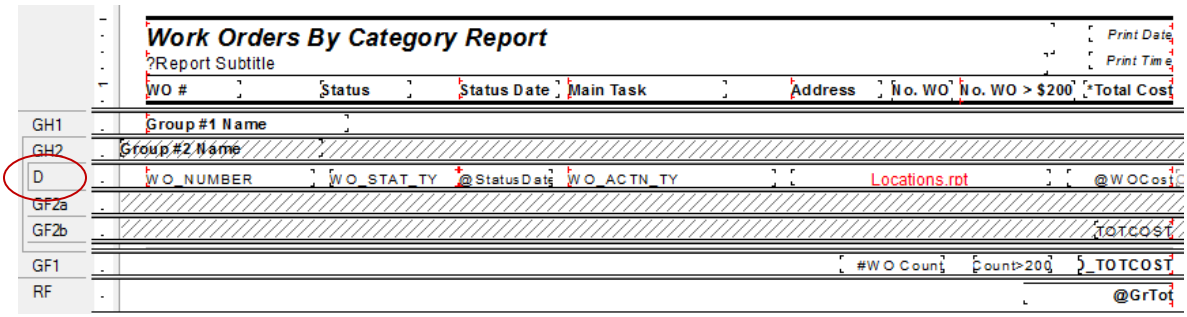
This is only an issue if the report is to be run with a filter on any field that is normally a grid (child) type field such as Location, Task or Resource. Never assume the report will not be used with a filter.

Importance of Grouping

In the previous report the Work Order information was placed in the **Work Order Number** *Group Footer* section.

If the information had been put in the *Detail* section and the report run with a filter on a field that is normaly a grid type field, then the information in the *Detail* section would show up as many times as the filter is true.

An additional Category Cost is added using the Insert Summary tool to help illustrate the point.



The “Distinct Count” for WO>$200 has been changed to “Count” to illustrate the impact of the filter.

In the previous example the WO# 2009-00041 record has the following Resources:

Resources

Group	Type	Resource	Resource Text	UOM	Units	Cost
	Employee	345	OTTO JONES		4.00	125....
	Equipment	PWU0490	PWU0490 CHEVROLET SILVERADO	Hours	4.00	11.18
	Employee	332	WILLIS HENDRIX	Hours	3.00	108....

If a Lucity filter had been created to view records that had Employees as Resources (**WR_RTYP_CD=1**) then the report run in Lucity with this filter would have looked like this:

WO #	Status	Status Date	Main Task	Address	No. WO	No. WO > $200	*Total Cost
Auxiliary Equipment							
2009-00041	New Work Order	8/7/2009	Emergency Response	202 E LAKE DR			$245.23
2009-00041	New Work Order	8/7/2009	Emergency Response	202 E LAKE DR			$245.23
					1	2	**490.46**

The WO# 2009-00041 record shows up twice because there are two Employees in the Resource section.

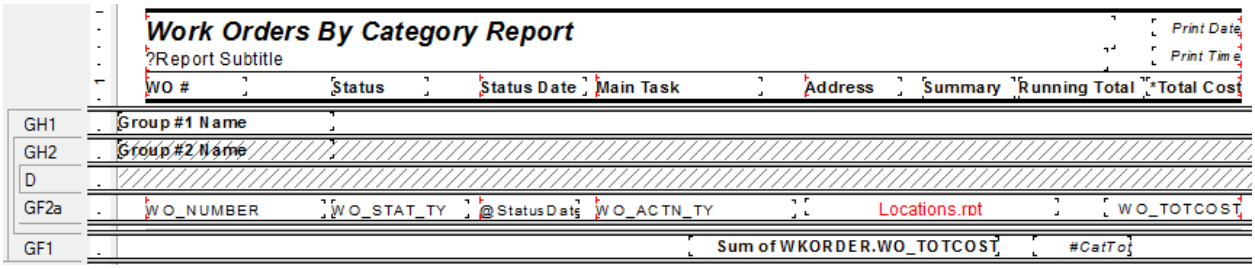
The **Total Cost** and **No. WO >$200** for the Auxiliary Equipment is also double. The **No. WO** value is correct because we said to evaluate *on change of group* (**WO_NUMBER**).

Importance of Running Totals

The way the report is currently set up, the information is placed in the **Work Order Number** *Group Footer* section and the Total Cost Field is in a formula with variables (discussed in later documents). The Cost field could have been brought in simply as a field (**WO_TOTCOST**). Running Totals could have been used to total the cost for both the **Category Group** and the **Report Total**.

The following example shows the importance of the Running Total Σ instead of the Summary Σ when the report is run with a filter of a field from a grid.

The information is placed in the **Work Order Number** *Group Footer* section so it only shows once.



The total cost for the Category is shown with a simple summary in **Bold** and as a Running Total formula in *Italic*.

WO #	Status	Status Date	Main Task	Address	Summary	Running Total	*Total Cost
Auxiliary Equipment							
2009-00041	New Work Order	8/7/2009	Emergency Response	202 E LAKE DR			245.23
					490.46	*245.23*	

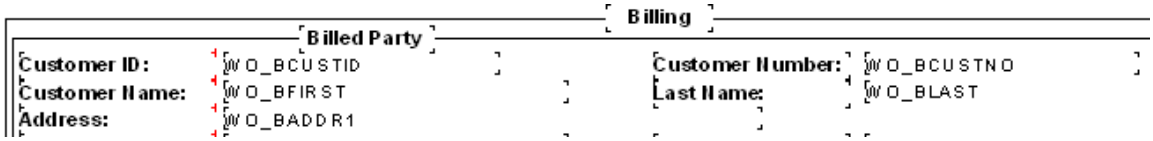
Concatenate Fields

Multiple fields can be joined together in a single formula as opposed to bringing all of the fields in separately.

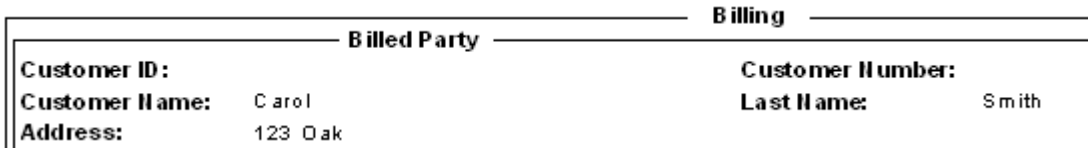
This might be useful for names or address. The concept is simple; however, if any of the fields in a simple "+" type formula are empty, the formula would show up as blank.

The null fields need to be addressed as follows:

In the current **Work Order Detail Report** (**WODetail.rpt)** the Billing information looks like this:



Preview



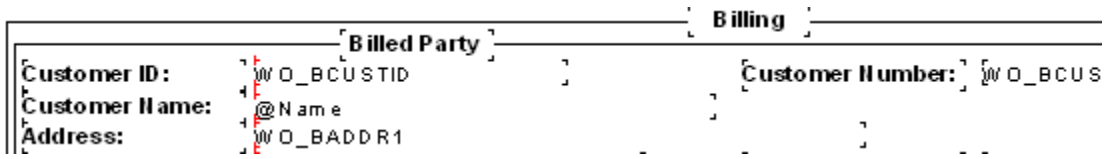
We can create a formula to join the First and Last Names. In the example we will create a formula called **Name**:

In the **Formula Workshop** the formula can be typed in manually or parts can be brought in from the various workshop sections (Field, Function or Operator). "If Then Else" can be brought from *Operators* > *Control Structure*. "Is Null" can be brought in from *Functions* > *Print State*.

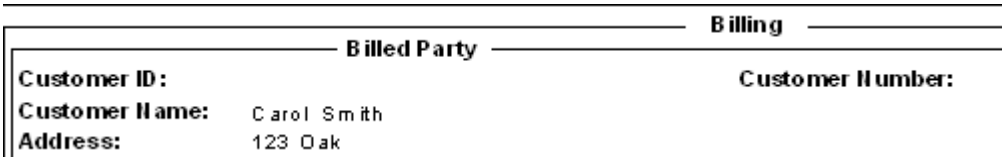
(If IsNull({WKORDER.WO_BFIRST}) Then " " Else {WKORDER.WO_BFIRST})&" "&

(If IsNull({WKORDER.WO_BLAST}) Then " " Else {WKORDER.WO_BLAST})

This would change the format to:



Preview



> *Note: The ampersand (&) operator may be used instead of the plus sign for string concatenation. This will perform an implicit conversion when the formula uses mixed data types.*

"Total $" & {WKORDER.WO_TOTCOST} instead of **"Total $"+ cstr({WKORDER.WO_TOTCOST})**

Address Formula

Another common usage of concatenated fields is the Address field. Any time a record shows the address as multiple parts ADR_BDG and ADR_DIR then this is a field that uses the address set up in the General section of Lucity. It should be brought into a report as a concatenated formula.

The **Work Order Location Address** is as follows:

```
(If isNull({WKORDERLOC.WL_ADR_BDG})then "" else Trim(ToText({WKORDERLOC.WL_ADR_BDG},0,"","))+" "+
   (If isNull({WKORDERLOC.WL_ADR_B2})then "" else Trim({WKORDERLOC.WL_ADR_B2})+" "+
   (If isNull({WKORDERLOC.WL_ADR_DIR})then "" else Trim({WKORDERLOC.WL_ADR_DIR})+" "+
   (If isNull({WKORDERLOC.WL_ADR_PT})then "" else Trim({WKORDERLOC.WL_ADR_PT})+" "+
    Trim({WKORDERLOC.WL_ADR_STR})+" "+
   (If isNull({WKORDERLOC.WL_ADR_TY}) then "" else Trim({WKORDERLOC.WL_ADR_TY})+" "+
   (If isNull({WKORDERLOC.WL_ADR_SFX}) then "" else Trim({WKORDERLOC.WL_ADR_SFX})+" "+
   (If isNull({WKORDERLOC.WL_ADR_APT}) then "" else Trim({WKORDERLOC.WL_ADR_APT}))
```

A null Street Name is not addressed because we do not want to see the formula if there is no Street Name.

Example 14

Barcode Reports

Several Barcode reports have been provided by Lucity. These reports can be printed with unique barcodes allowing you to scan a barcode identifier rather than typing a Part or Warehouse ID.

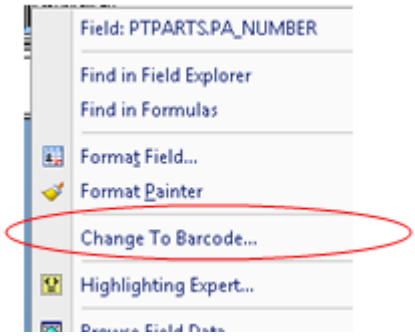
Follow the steps below to insert a barcode into a report.

Web

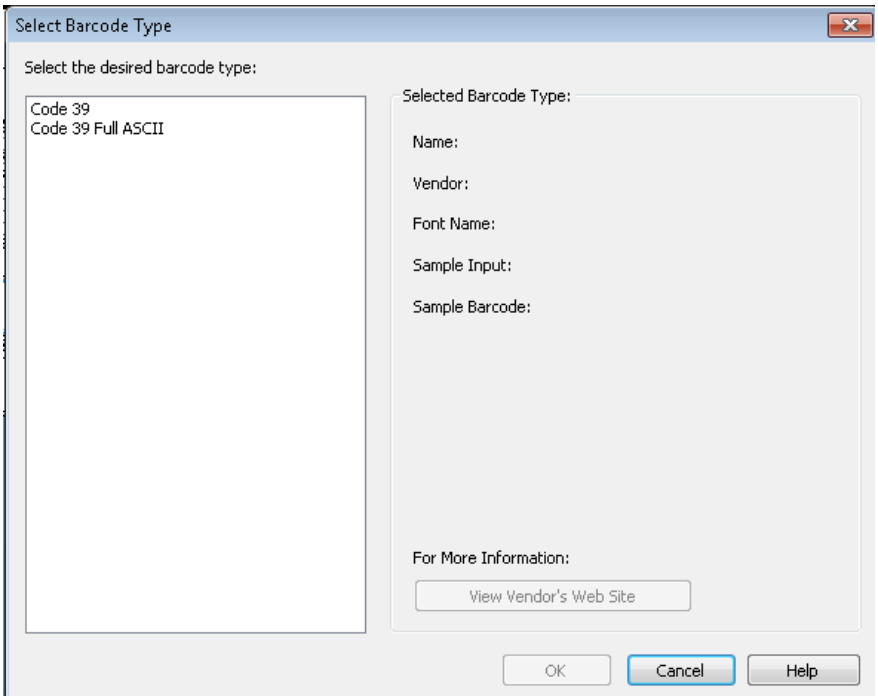
Lucity Web supports features in Crystal 2008 which means a field formatting option is available to show a field as a barcode.

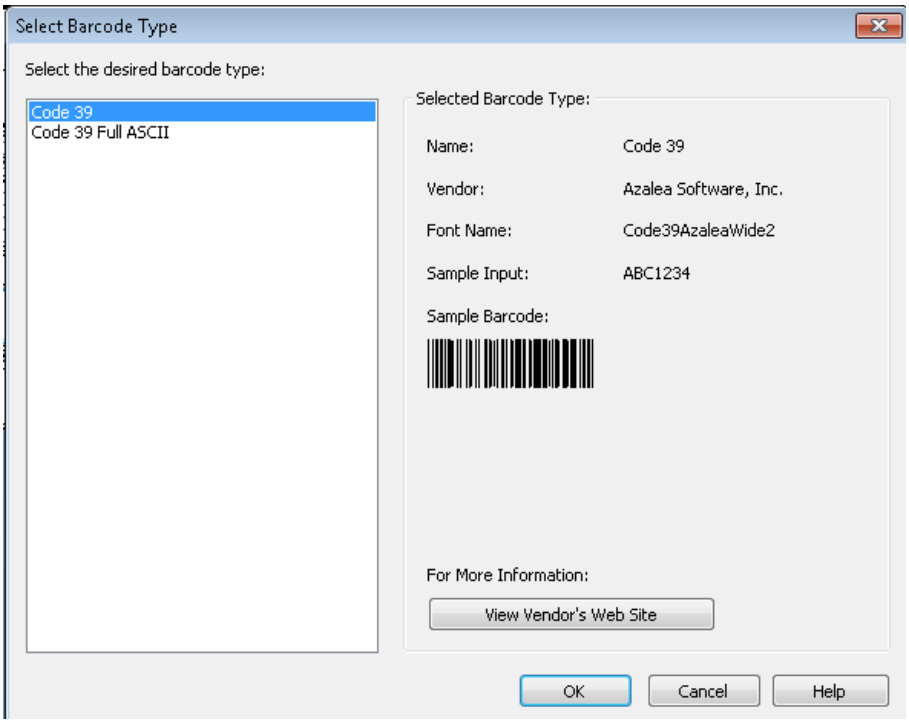
Bring the field into the report and right click the field.

The following options show:

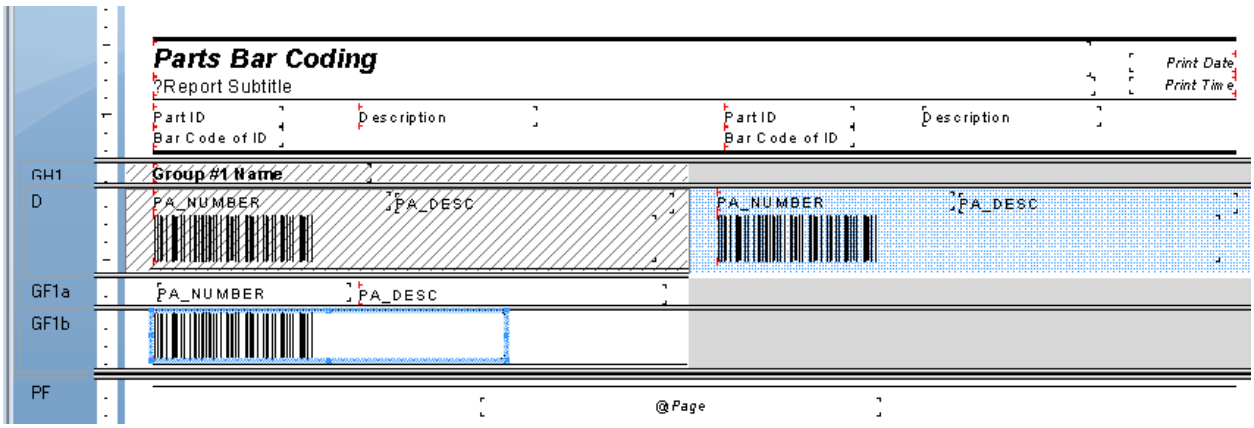


- Select **Change To Barcode…**
- Then select the desired Barcode Type.



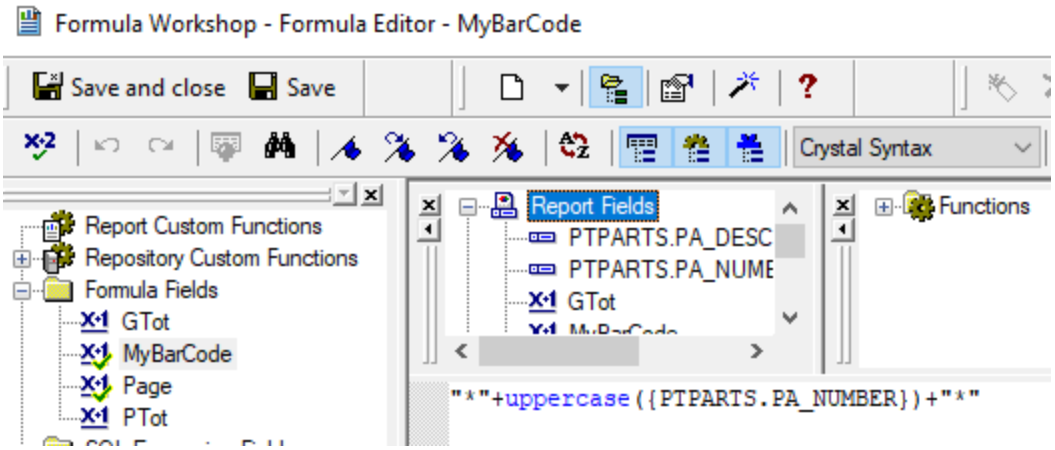


- Report Design view

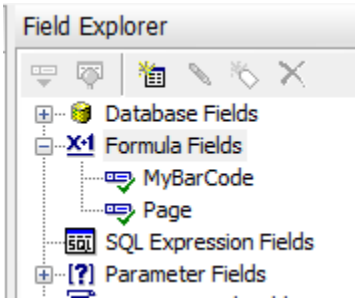


Desktop

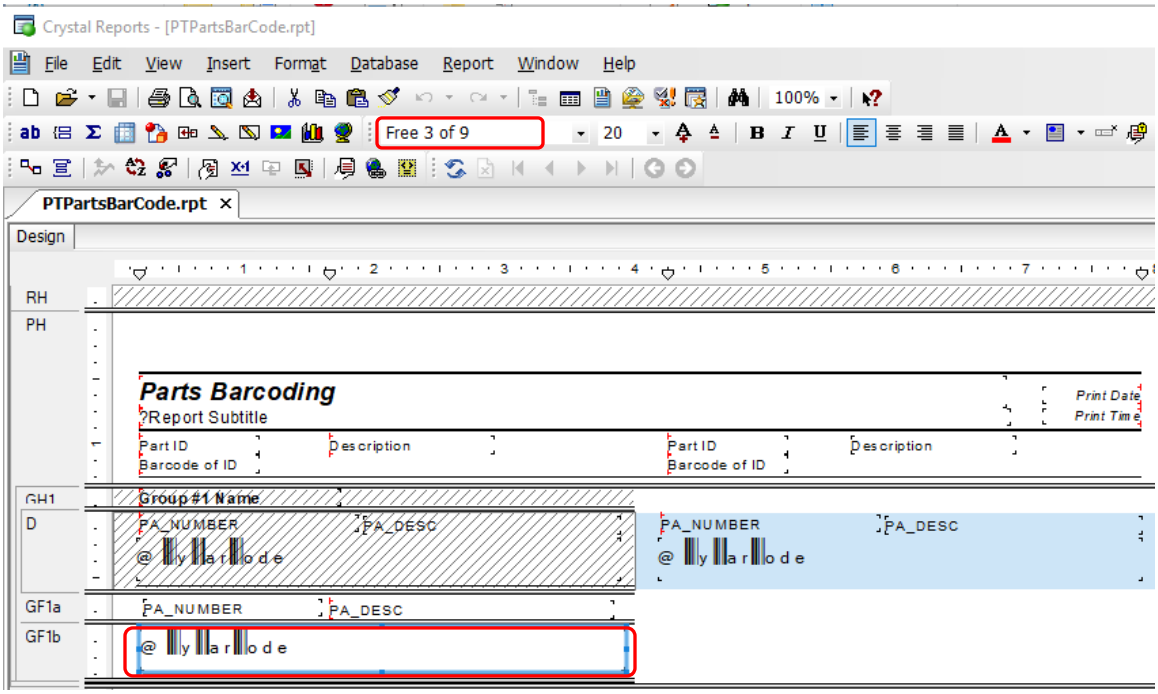
1. In Crystal Reports, create a formula with the barcode equation similar to the following, where the value inside the parentheses represents the field you wish to show as a barcode:
   - `"*"+{PTPARTS.PA_NUMBER}+"*"`
   - This may also be seen as "*"+uppercase({PTPARTS.PA_NUMBER})+"*"
   - You can use this formula on any unique field you wish to barcode. For example, you may barcode Work Order Numbers, Employee Codes, Equipment Codes, Part IDs, etc.



2. Add this Formula Field to the report (in this case it is MyBarCode)



3. Change the font for that field to a Barcode font. Lucity uses the font *Free 3 of 9*, which complies with the barcoding standard, *Code 3 of 9*. This Barcode Driver is free for download online from a number of web sites.



4. You may need to adjust the length of the field in the report to ensure that the entire code can be displayed.
5. You may also need to adjust the font size so that it can be scanned by the barcode reader.
6. The report will be printed with the unique barcode.