Using Crystal Reports with Lucity

Intermediate - 1

The third of a seven-part series, this workbook is designed for Crystal Reports® users with some experience. By now you have many of the skills needed to modify existing reports. The main advantage to modifying existing reports is that the general format is already defined. This format helps create a uniform look and feel for your reports. It also helps save you the time it takes to set up the initial aspects of your reports. These include items such as page numbers, date fields, title placement, logos, lines, size, spacing, and boldness, just to name a few.

In this workbook, you'll learn that creating new reports uses many of these same techniques, but starts with a blank page. Through a series of step-by-step examples, we'll show you how to create a Crystal Report from scratch.

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Creating Reports

Before creating a report it is a good idea to have a general idea of what you would like the report to look like. You should know which tables, fields and calculations will be involved. You should know which module the report will be run from.

We would like a report to run from the **Employees Setup** module.

It will *show* the **Name, Job Title, Department, Supervisor** and **Active**.

It will *group* on **Department**.

It will *count* the number of **Employees** for the **Department**.

Report Wizard

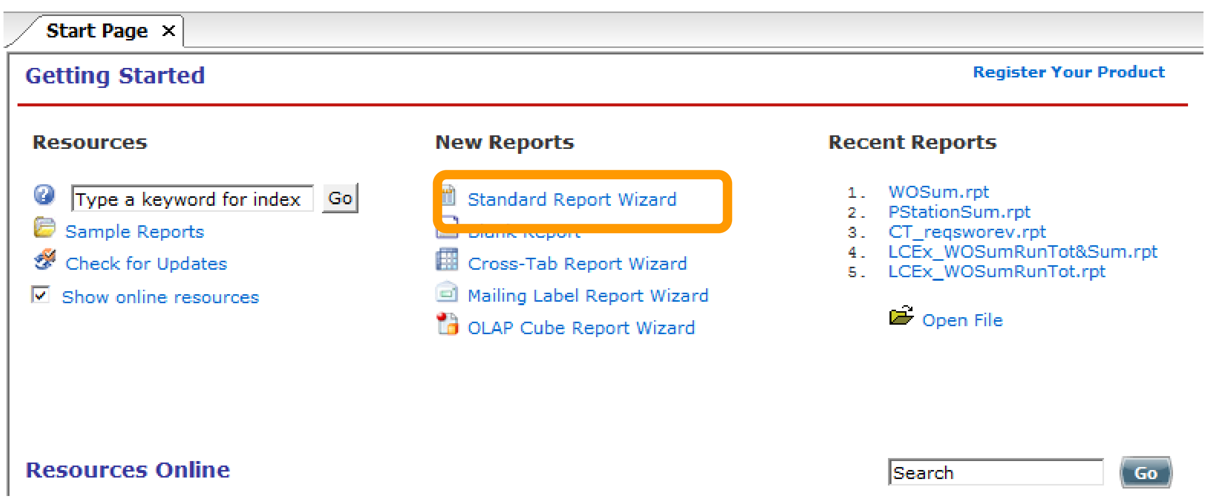
1. Open *Work* > *Work Flow Setup* > *Employees*.
2. Ctrl right click all fields to be used in the report.
   - Table Name: **WKUEMP**
   - Fields: Name: **EM_EMPL_TY**

     Job Title: **EM_TITLETY**

     Department: **EM_DEPT_TY**

     Supervisor: **EM_SUPR_TY**

     Active: **EM_ACT_FLG**
3. Open **Crystal Reports**.
4. Click on **Standard Report Wizard**.

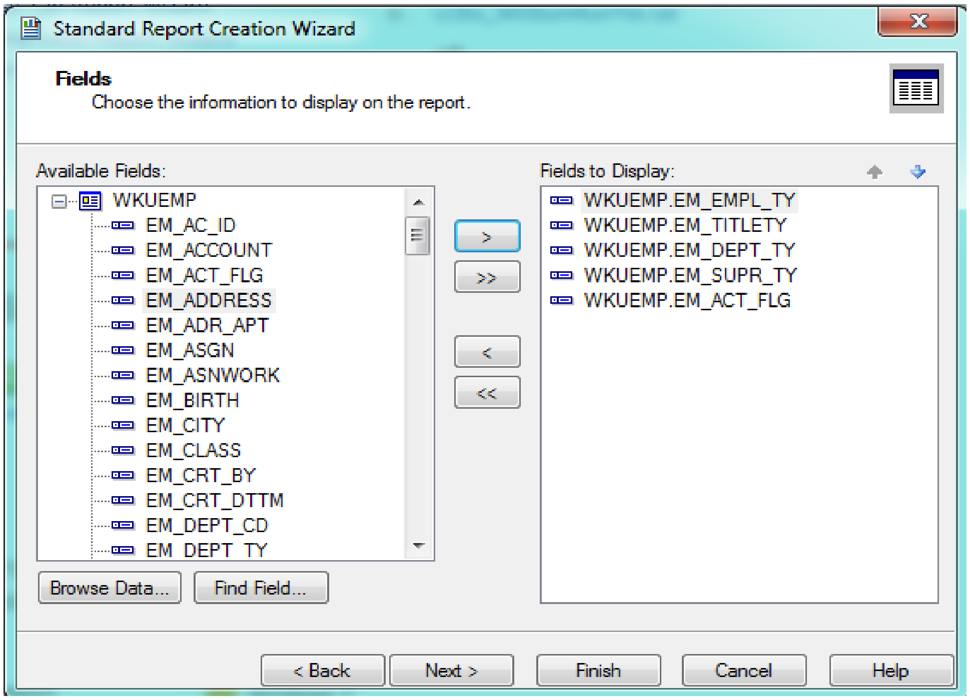


Bring in Tables

5. Open *Create New Connection >> ODBC (RDO) >> GBAWork001 >> Next >> Finish >> Tables*
6. Move **WKUEMP** under *Selected Tables* (right-hand side).
7. Click *Next*.

Bring in Fields

8. Select the fields you would like to have in the report and move them to the right-hand box titled *Fields to Display*.

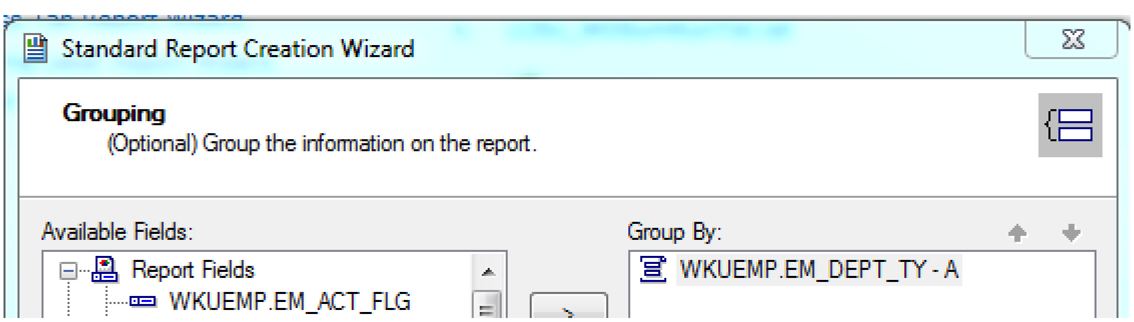


9. Click *Next*.

Field Grouping

10. If you wish to group your data, select the grouping field and move it to the right side of the dialog under *Group By*.

   - Since we would like to group this report by **Department**, move the **EM_DEPT_TY** field to *Group By*.

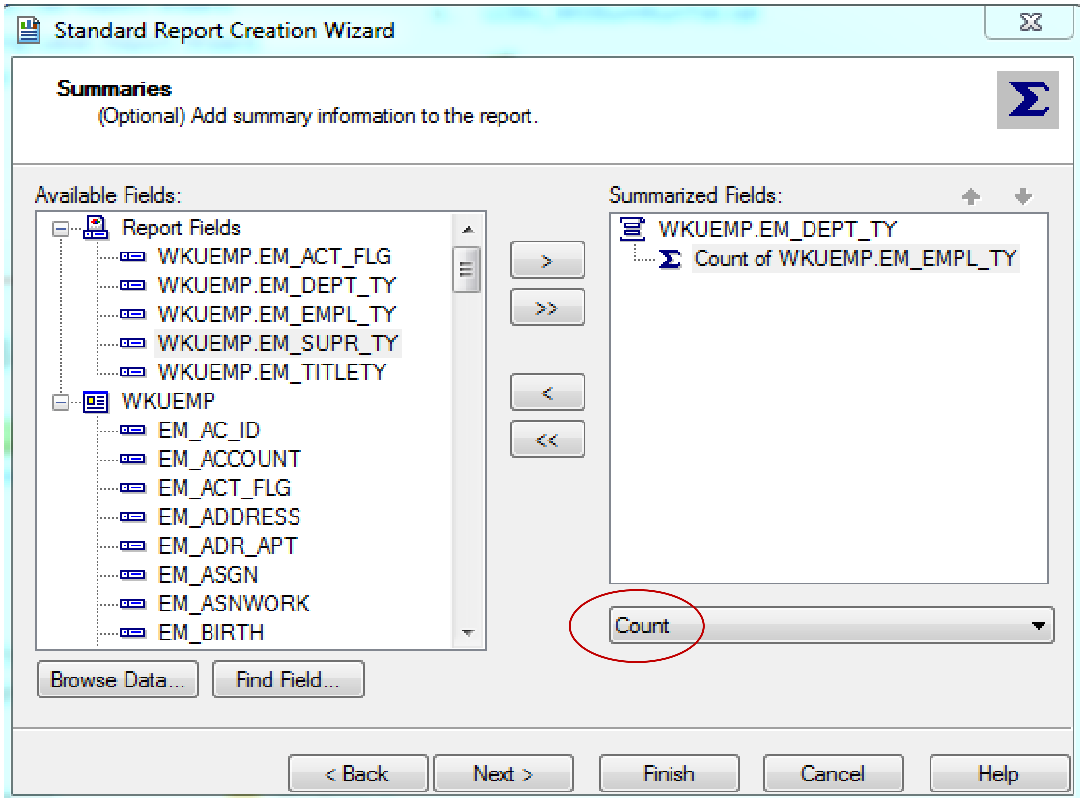


11. Click *Next*.

Summaries

12. You may also choose fields to summarize.

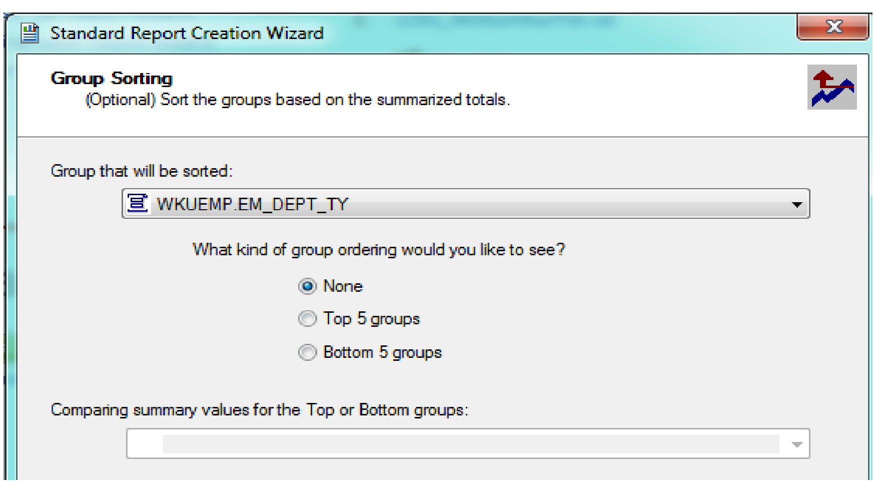
   - For our example, we'd like to count the number of Employees (**EM_EMPL_TY**).
   - You'll need to select the type of summary from the drop-down box at the bottom of the dialog. For our example, we've chosen *Count*.



13. Click *Next*.

Group Sorting

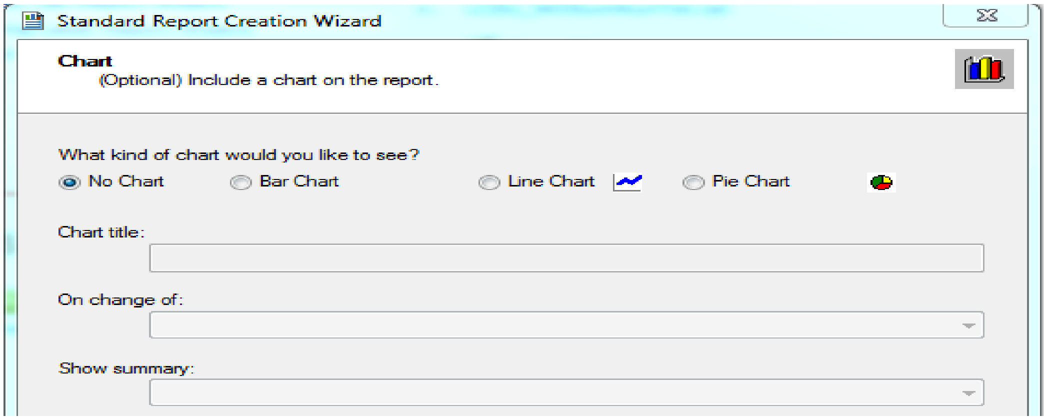
14. There is also a *Group Sorting* option. There is only one group so this is already in the sort box.



15. Click *Next*.

Chart Addition

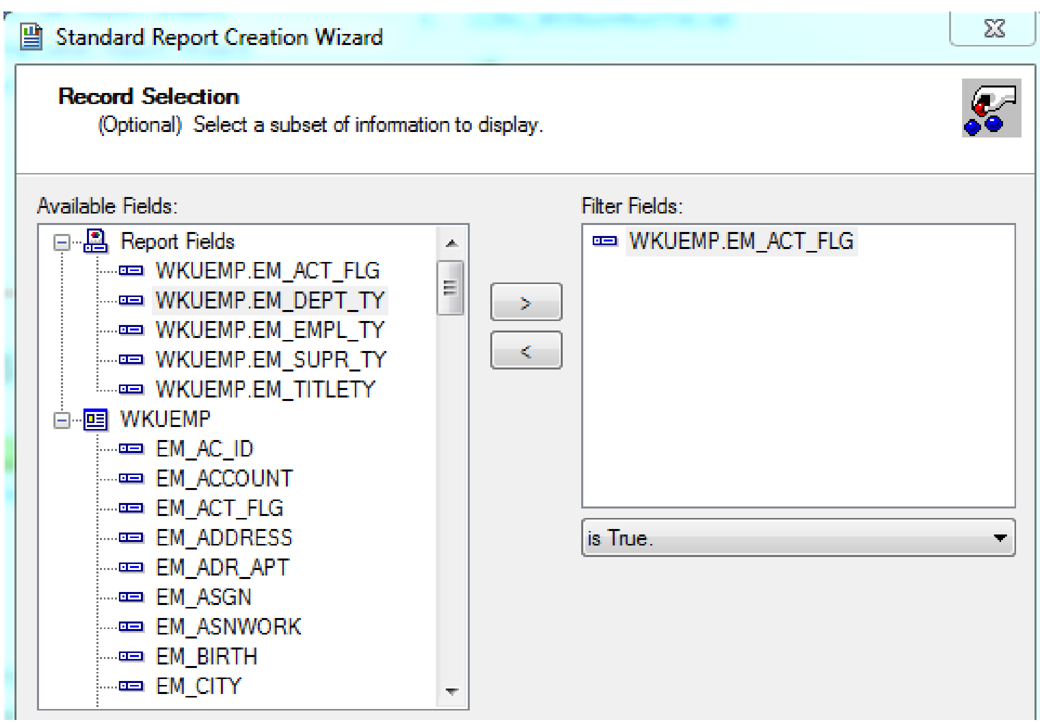
16. There is an additional option to add a chart. For our example, we will not put a chart in at this time.



17. Click *Next*

Record Selection

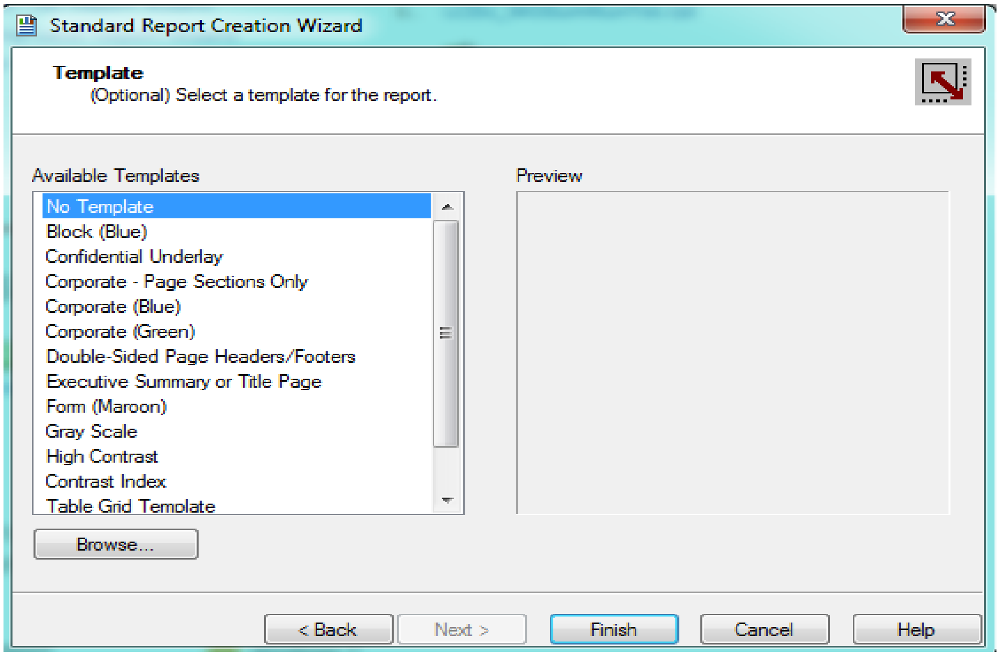
18. In the following dialog, you'll see a *Record Selection* option. We'll use this option to view *Active Employees* only.
    - Move **EM_ACT_FLG** to the right side of the screen under *Filter Fields*.
    - Use the drop down box to choose the selection criteria. For our example, we've selected *is True*.



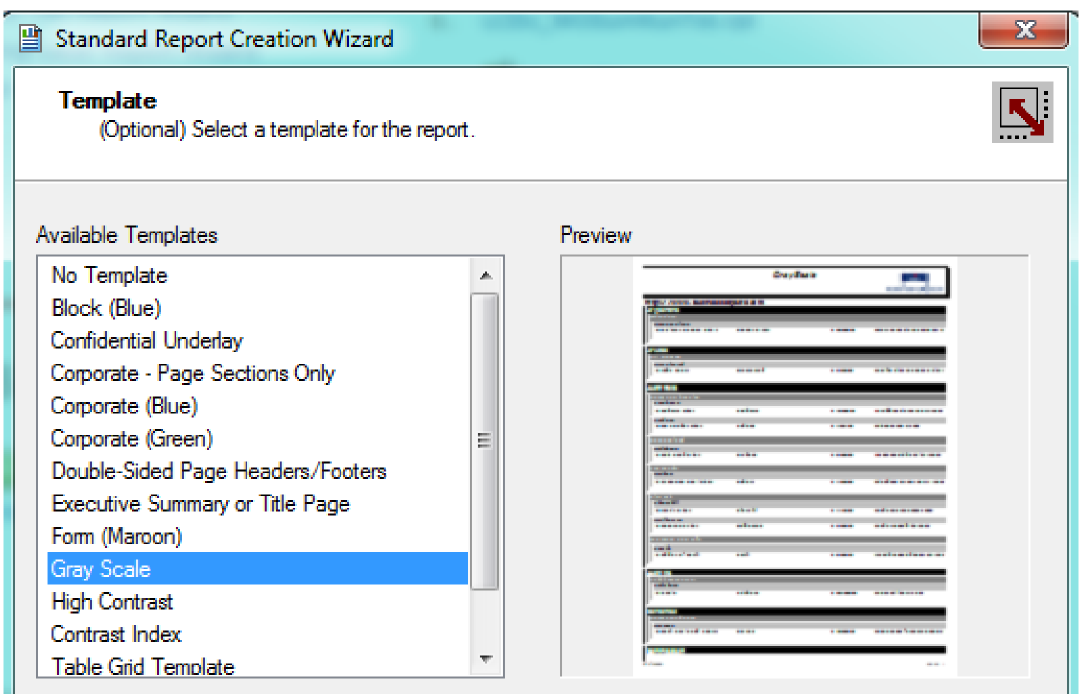
19. Click *Next*.

Template

20. There are a number of *Templates* available to choose from. Typically, you would choose *No Template*.

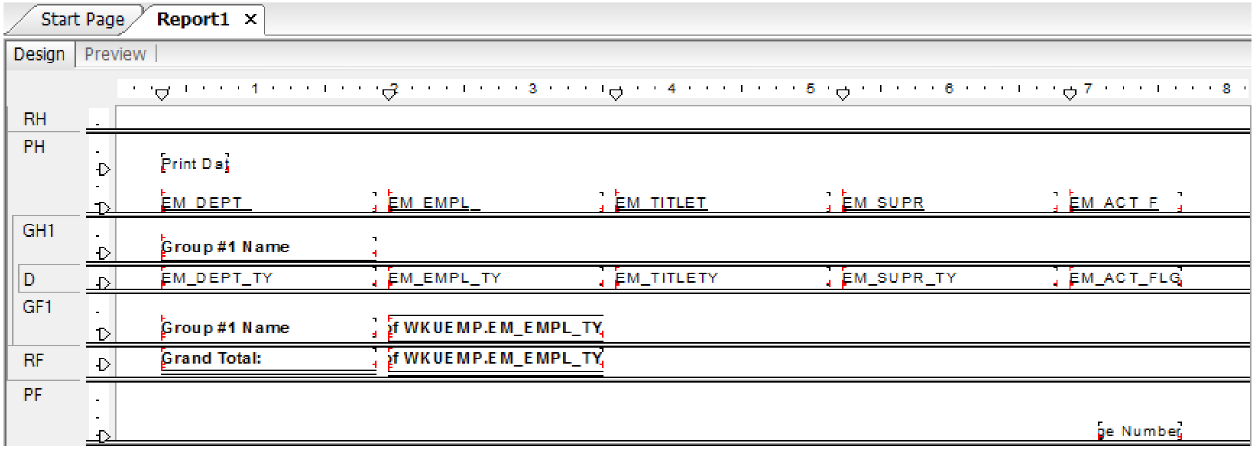


- The other options are worth looking at and playing with. It is easy to select one and preview the look.

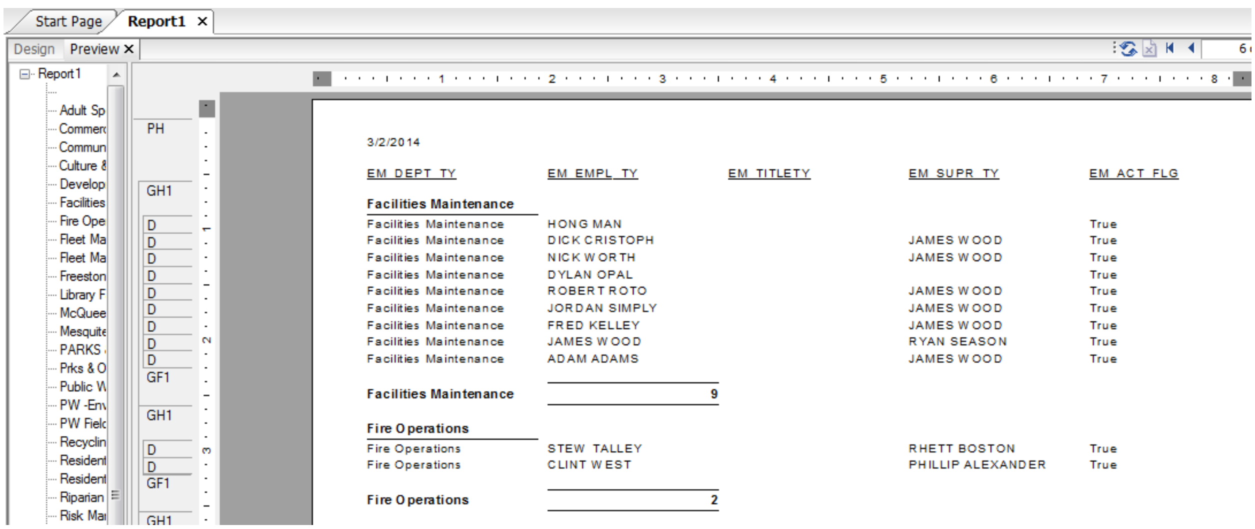


21. Select *Finish* when you are done.

The Report Wizard has created the following:



Preview



This report still needs modifications to make it presentable.

22. Remove the *Active* field (**EM_ACT_FLG**) since the report is selecting on this field.
23. Remove the **EM_DEPT_TY** field since it is the Group field.
24. Add a text object in the *Page Header* for the *Title* **(Employees By Department**).
    - Resize and center the *Title*.
25. Change the *Column Headers* (field headings) to match the fields.
26. Modify the Summary Fields.
    a. Left align.
    b. Reduce widths.
    c. Remove the bottom borders.
27. Change the Group Option to *Keep Group Together*.

3/2/2014 **_Employees By Department_**

	Name	Job Title	Supervisor
Facilities Maintenance			
	NICK WORTH	COMM REFUSE SERVICE	JAMES WOOD
	JAMES WOOD	FACILITIES MANAGER	
	FRED KELLEY	SECRETARY	JAMES WOOD
	HONG MAN	SENIOR CUSTODIAN WOF	
	ADAM ADAMS	SENIOR MAINTENANCE W	JAMES WOOD
	DICK CRISTOPH	OFFICE SUPERVISOR	JAMES WOOD
	ROBERT ROTO	SENIOR CUSTODIAN WOF	JAMES WOOD
	JORDAN SIMPLY	SENIOR CUSTODIAN WOF	JAMES WOOD
	DYLAN OPAL	SENIOR MAINTENANCE W	
Facilities Maintenance	**9**		
Fire Operations			
	STEW TALLEY		RHETT BOSTON
	CLINT WEST		PHILLIP ALEXANDER
Fire Operations	**2**		

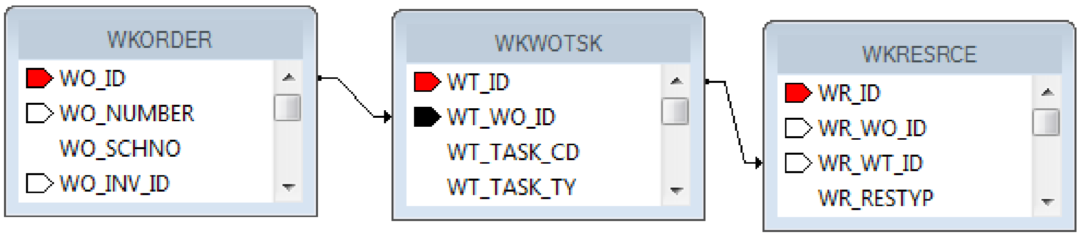
28. Finally, save the report with an appropriate name under the Work family of reports (**LC_EmpByDept.rpt**).

Example 15

Table Joins

Usually in Crystal's Database Expert the tables are linked with an outer join. When there is information in the first table then it looks to the table it is joined to with the outer join. This normally shows up with an arrow from the one to the other. (Sometimes in older versions of Crystal the arrow point doesn't show up, so the line looks like an inner join. You have to click on it to figure out the kind of join that is being made.)

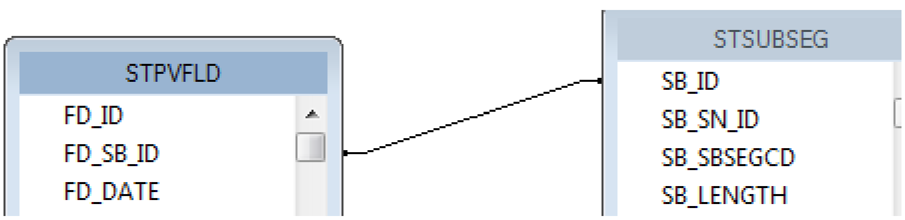
Left Outer Join:



There would need to be a work order before you would pull task information. There would need to be a task before the resource information would show up.

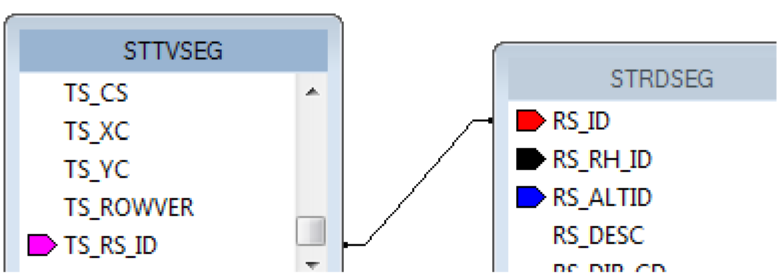
There are some cases within Lucity where an inner join is required. One example is where both Subsegment and Road share the same table (**STPVFLD**) for storing Inspection data. Chances are good that you would not use both Subsegment and Road so this shouldn't be an issue but if you do, then an inner join would be the way to handle the information.

Inner Join:



Now in order to see records both tables would need to have data where **FD_SB_ID** is equal to **SB_ID**.

A similar case is how the Traffic Volume table (**STTVSEG**) connects to Segment and Roads. An inner join is again used.



Blank Report

Reports can be made from a “blank slate”. It will have the five sections open to add what you would like.

We will create a ***Sewer Pipe*** report with Lamping data. The Lamping data comes from a grid or child box. Usually there would be multiple lamping records to the one pipe, a one-to-many relationship. If pipe and lamping fields were brought into the same Detail section of a report then the line would show for every Lamping record which would also duplicate the Pipe information. This isn’t a good way to present the data.

Alt Pipe ID:	U S Structure:	D S Structure:	Lamp Date:	U S or D S:
1000	113495	113497	3/1/2009	Up
1000	113495	113497	2/3/2008	Up
1000	113495	113497	2/9/2007	Down

Typically there would be at least one group on a field from the parent table and then at least one group on a field from the second table.

We would like a report to run from the *Sewer Pipe Inventory* module.

It will *show* the **Alt Pipe ID, US Structure, DS Structure, Size** and **Length**.

It will *show* **Lamping Date Inspected** (descending), **Time** (descending), **US** or **DS**, **Cleaning** and **Deposition**.

It will *group* on **Alt Pipe ID, Lamping Date** and **Time**.

It will *show* the most recent record (**LP_LATEST**) Lamping Date in red if it is not within the last year.

1. Open *Sewer* > *Inventory* > *Pipes*
2. Control right click all fields to be used in the report to find the field names.
   - Table Name for Pipe: **SWNET**

     Fields: Alt Pipe ID: **NT_NUMBER**

     US Structure: **NT_USMAN**

     DS Structure: **NT_DSMAN**

     Size: **NT_DIA**

     Length: **NT_LENGTH**
   - Table name for Lamping: **SWLAMP**

     Fields: Date Inspected: **LP_DT_INSP**

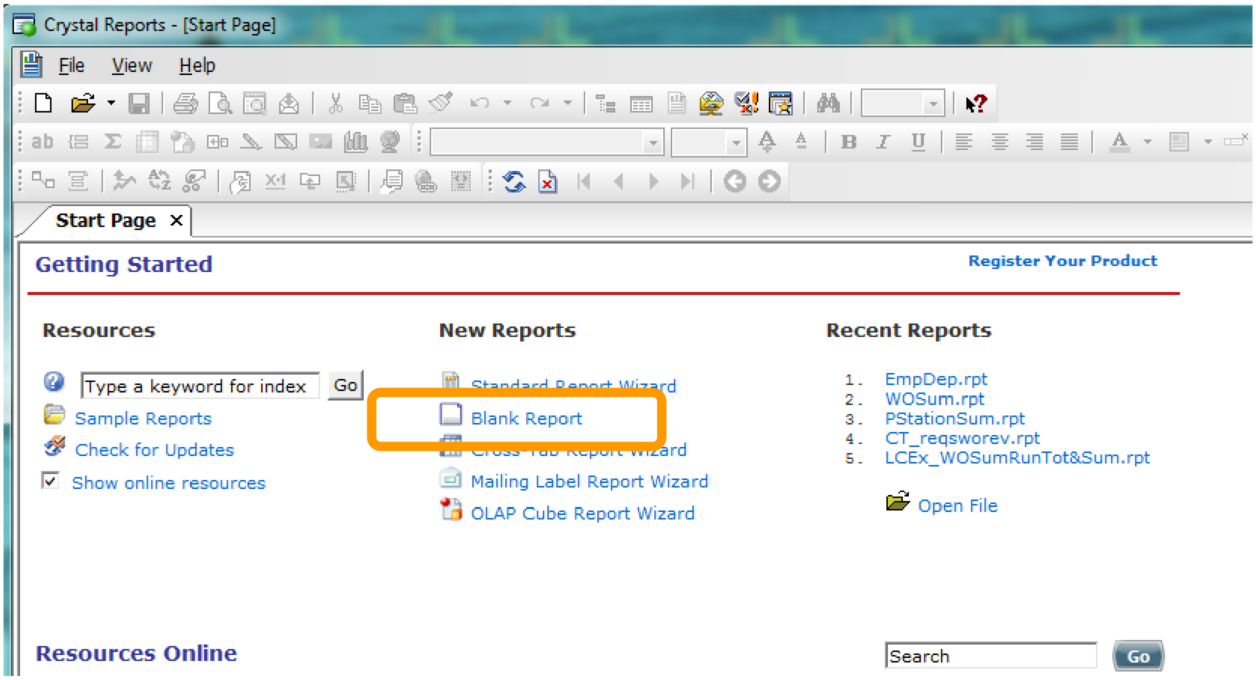
     Time Inspected: **LP_TM_INSP**

     US or DS: **LP_INMH_TY**

     Cleaning: **LP_CLN_TY**

     Deposition: **LP_DPO_TY**

3. Open **Crystal Reports** and click *Blank Report*.



Bring in Tables

4. Next, open *Create New Connection* >> *ODBC (RDO)* >> *GBASewer001* >> *Finish*.
5. Move the **SWNET** and **SWLAMP** tables to the *Selected Tables* section.
6. Click *OK*.

Link Tables

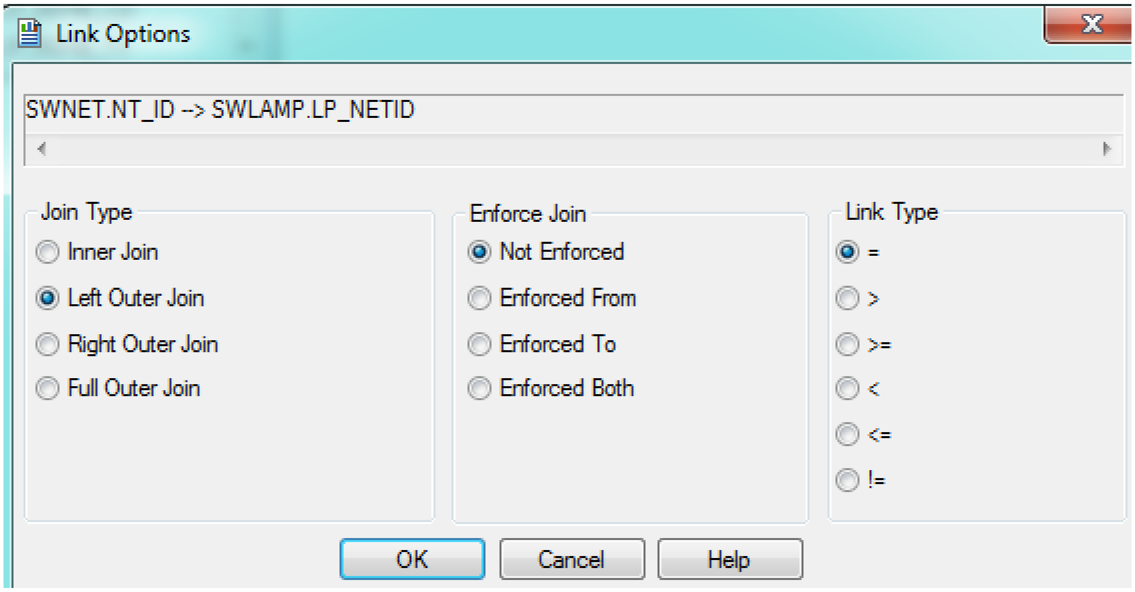
7. This should bring you to the *Links* section where the two tables will be connected.
   a. Sometimes the link has already been added - this is Crystal's best guess and is usually incorrect, so delete it. Click and select *Clear Links*.
   b. Find the common linking field. Typically this would be an **ID** field with a common part. If this isn't obvious, check the Detail report that is provided with the module and see how the tables are connected.

      NT_ID links to **LP_NETID**

   c. Typically it is good practice to have the main table (parent table, the table of the module you are running the report in) in the top left corner. Then additional tables are linked from there. The tables can be moved by clicking on the top bar of a table and dragging it to a new location.
      - Click on the Main ID of the parent table (**NT_ID**), hold and drag to the connecting field of the other table (**LP_NETID**), release.
        - A line has been created.
      - Right click on the line and select *Link Options…*

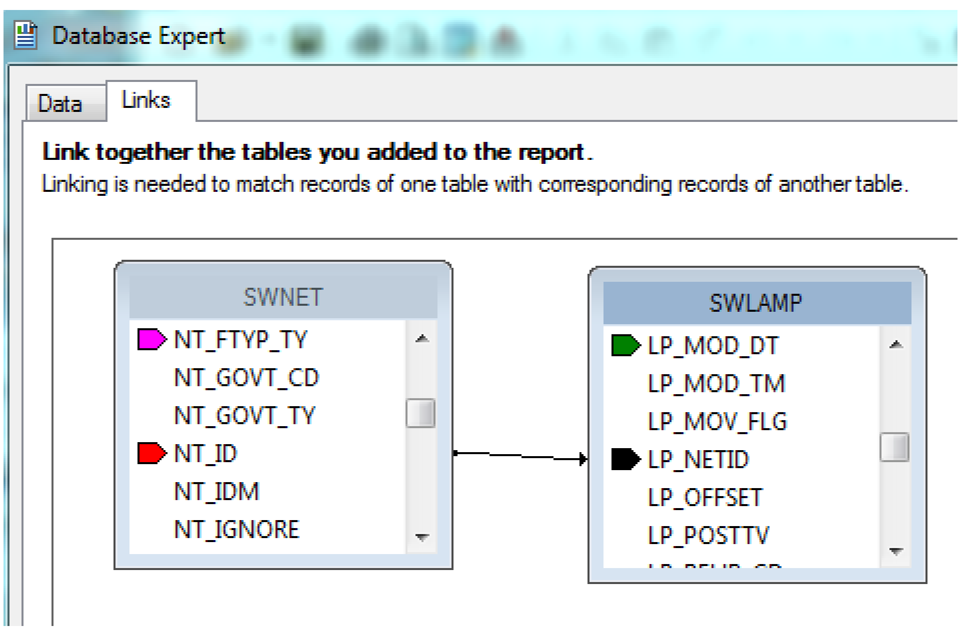
d. The Join Type by default is *Inner Join* (both table values are equal to see a record). The majority of the time this join should be ***Left Outer Join*** (It will show all records in the Parent table whether there are records in the linked table).

- Change to **Left Outer Join.**



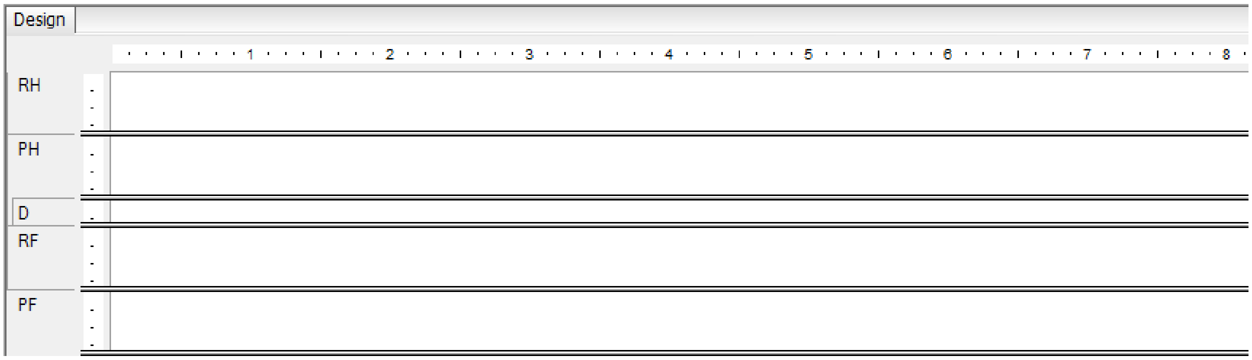
- OK

e. When you click off the line, the line now has an arrow pointing from the parent table to the linked table.



8. Click *OK*.

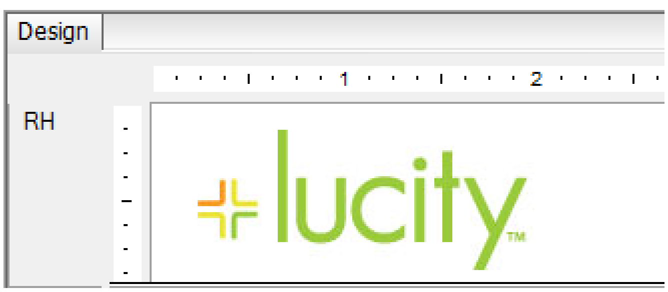
You now have a blank page to create a report.



9. Give the report a name. *File* >> *Save As*.
    a. Make sure you save the report in the proper report file. For our example, select the **Sewer** file.
    b. The name for this report will be **LC_SWPipeLamping.rpt**.

The report can be created using any of the previously discussed techniques.

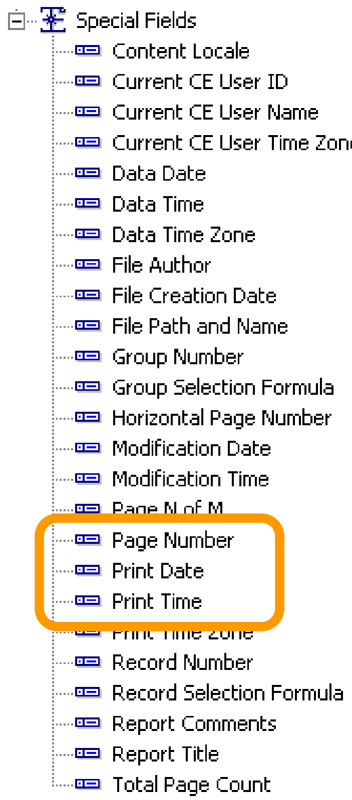
10. Insert a logo in the ***Report Header***.



Special Fields

11. In *Field Explorer*, open *Special Fields*. There are a number of preset fields which aid in the report design.

    - Drag in the **Page Number**, **Print Date**, and **Print Time** preset fields. (For a long report avoid the "Page N of M" option, it slows down the report run)



12. Create a report title in the ***Page Header*** section.

    a. Bring in a text object; we've titled this one, **Sewer Pipe Lamping Summary Report**.

    b. Increase the field size and format to font 16, *Italic*.

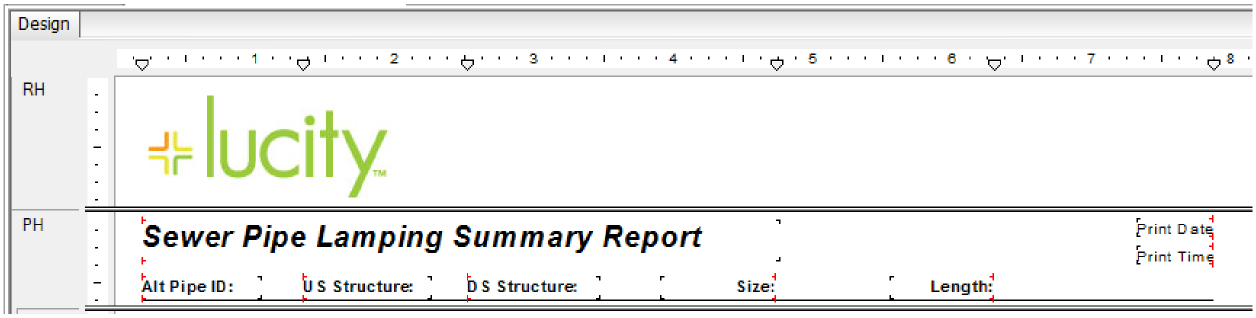
13. Enter Column Titles with the *Insert Text Object* function.

    a. Right align **Size** and **Length**.

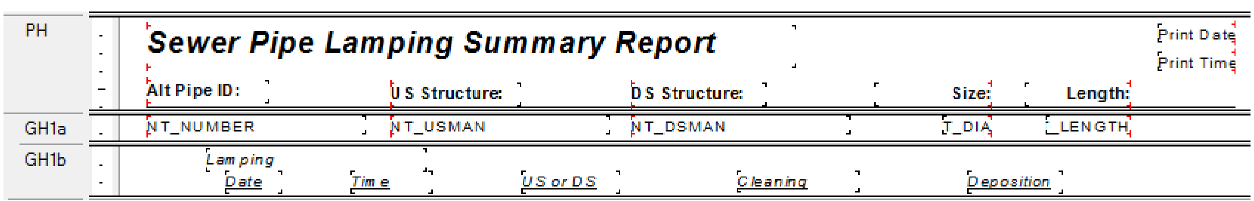
    b. Add guide marks.

    c. Align tops of Column Titles.

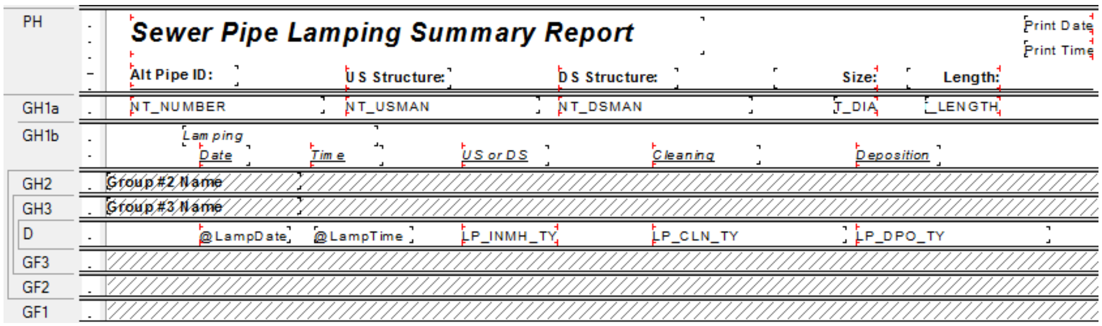
    d. Add a line to the bottom of the *Page Header* section.



14. Insert Group (**NT_NUMBER**).
15. Drag the appropriate fields into the *Group Header 1* section.
    - Align top of fields.
16. Suppress the *Group Footer 1* section.
    - Right click in left margin next to *GF1*, select *Suppress*.
17. Add an additional section to *Group Header 1*.
    - Right click in the left margin of *GH1*, select *Insert Section Below*.
18. Place Lamping Title and Column Titles in the *Group Header 1b* section.
    a. Format Not Bold, *Italic* and Column Titles underlined.
    b. Align Column Titles.



19. Insert Group on Pipe Lamping Inspected Date (**LP_DT_INSP**). *GH2*
    a. Select from drop box *In descending order*.
    b. Click *OK*.
    c. Suppress the *Group Header 2* and *Group Footer 2* sections.
20. Insert Group on Pipe Lamping Inspected Time (**LP_TM_INSP**). *GH3*
    a. Set up like the Date group - *In descending order*.
    b. *Suppress* the *Group Header 3* and *Group Footer 3* sections.
21. Create formulas for the Lamping Date and Time fields.
    - Date({SWLAMP.LP_DT_INSP})
    - Time({SWLAMP.LP_TM_INSP})
22. Bring into the Detail section the newly created Date and Time formulas. Bring in the other desired Lamping fields.
    - Align



Conditional Formatting

23. Conditionally format the **@LampDate** field to show red if the latest date is over a year old.

    a. Right click **@LampDate**, select *Format Field…*

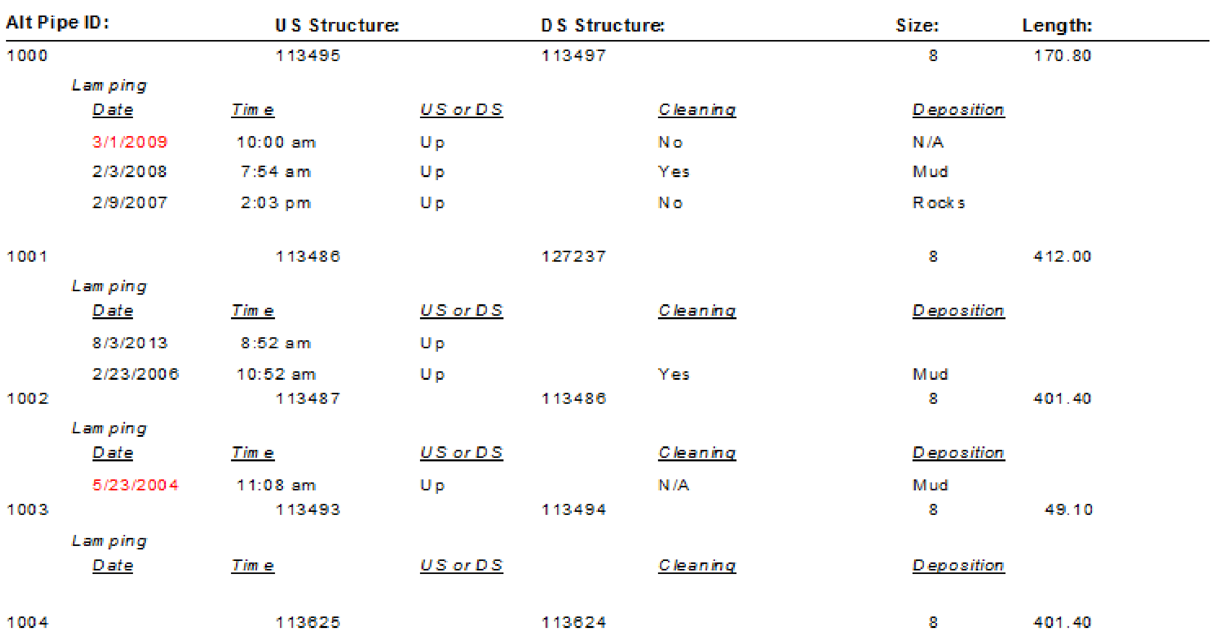
    b. *Font* Tab, click the formula box next to *Color:*.

    c. Enter the following formula:

    d. if ({SWLAMP.LP_LATEST} and {@LampDate} < printdate - 365) then crRed else crBlack

    e. *Save and close*

    f. *OK*



Blank Lines

In the previous example, Pipe 1003 shows the *Detail* section as empty space when there are no Lamping records. It also shows the Lamping Header Titles in *GH1b*.

These issues can be addressed in two ways.

- You could remove pipes that do not have Lamping records by changing the Table linking to Inner Join.

OR

- If you want to keep the pipes and will use the report to find pipes that have no lamping records then suppress the *GH1b* and *Detail* sections when there are no records.

    a. Click on *Section Expert* .

    b. Click on *Group Header #1b* to highlight.

    c. Click on the formula box next to *Suppress*.

    d. Enter the following formula:

    e. isnull({SWLAMP.LP_NETID})

    f. *Save and close* (formula box is now red)

    g. Click on *Details* to highlight.

    h. In the right box click to check the box next to *Suppress Blank Section*.

    i. *OK*

1002		113487		113486		8	401.40
	Lamping						
	Date	Time	US or DS		Cleaning	Deposition	
	5/23/2004	11:08 am	Up		N/A	Mud	
1003		113493		113494		8	49.10
1004		113625		113624		8	401.40

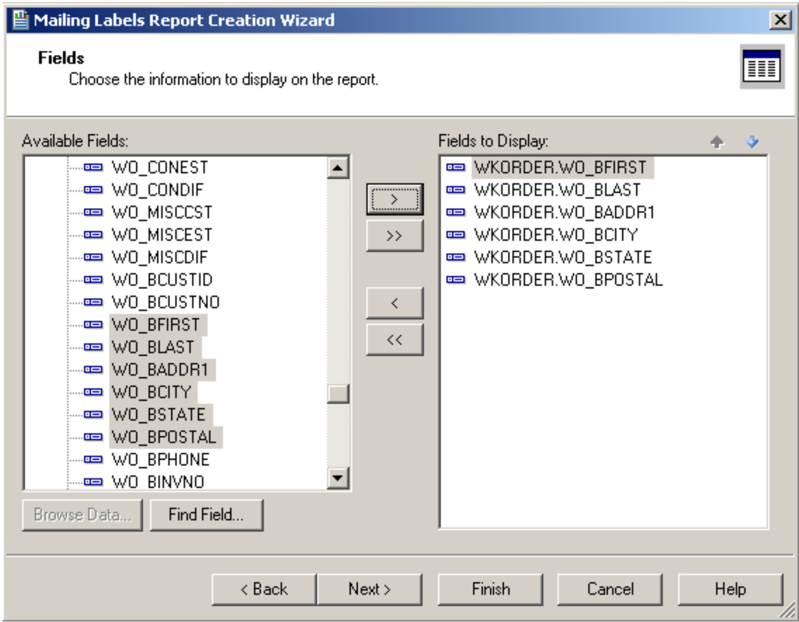
Example 16

Mailing Labels

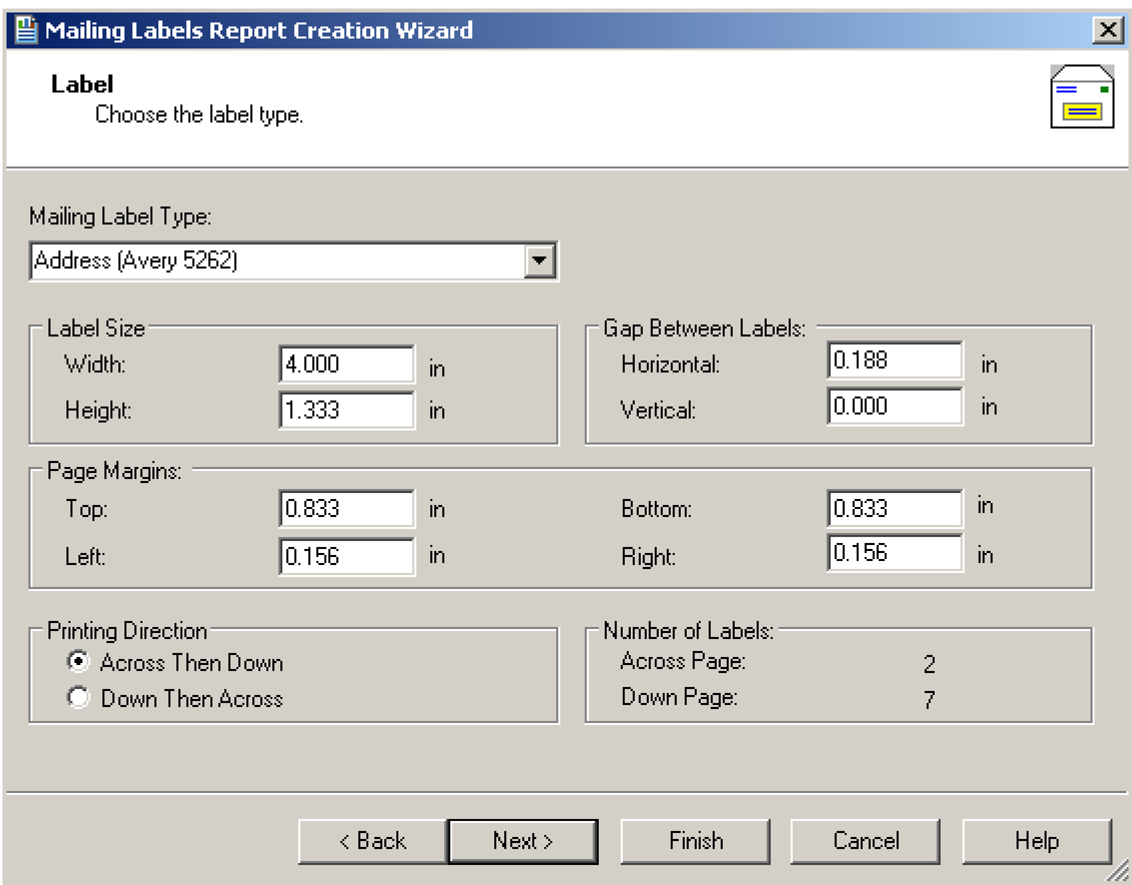
Another report option in Crystal Reports is a way to create a report for mailing labels. For our example, we will create a report for Work Order Billing labels.

1. Open Crystal Reports and click *Mailing Label Report Wizard*
2. Open *Create New Connection*.
3. Open *ODBC(RDO)*.
4. Select the required table(s). (**WKORDER**)

   (If you are going to filter or select on any fields that are not in **WKORDER**, even if they are not used in the body of the report, then you will need to select these other tables and link them as previously discussed.)
5. Select the fields to be displayed.

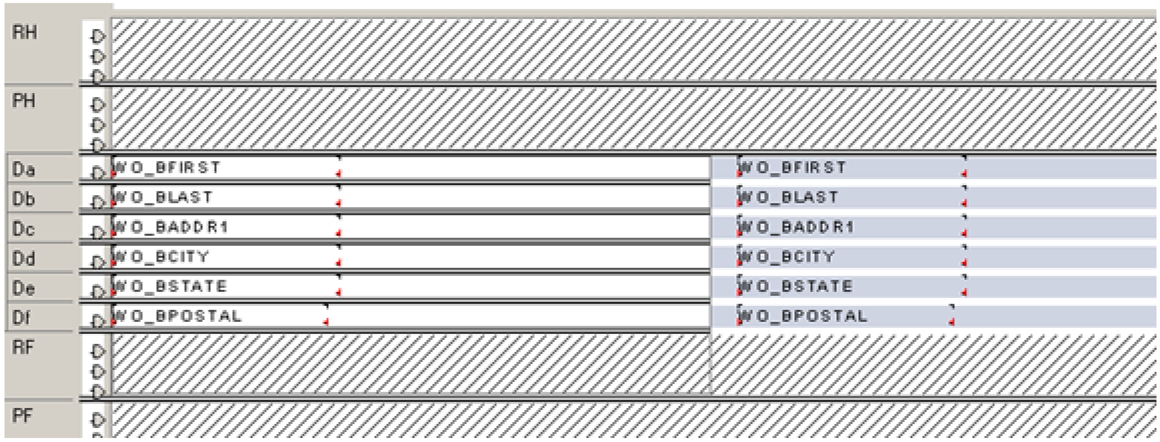


6. Select the mailing label type from the drop down box.



- There are other options on this page to choose from.

7. Select *Next*. The next page allows you to select a filter field. After that step, the report will appear:



- The second column in gray is automatically created.

Preview

Carol
Smith
123 Oak
Lenexa
KS
66224

Jane
Howe
456 Elm
Lenexa
KS
66225

City of Lenexa
789 Main
Lenexa
KS
66226

George
Rain
753 Willow
Lenexa
KS
66223

- The fields were each placed in their own *Detail* section, thus stacking the information. You could move the fields around placing the Last name after the First and the State after the City; however, this frequently creates awkward spaces.

8. You would probably want to concatenate some fields by creating formulas to combine the two name fields and the City and State fields.

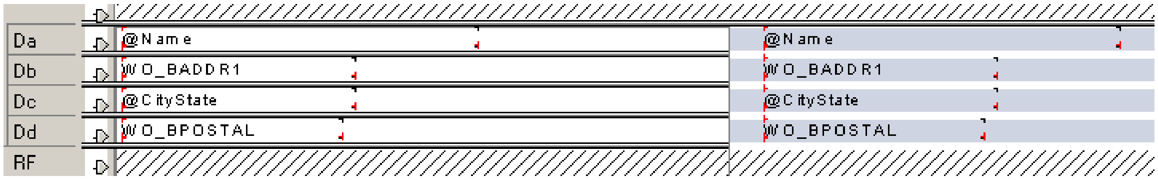
Name Formula:

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

City/State Formula:

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

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



Notes:____

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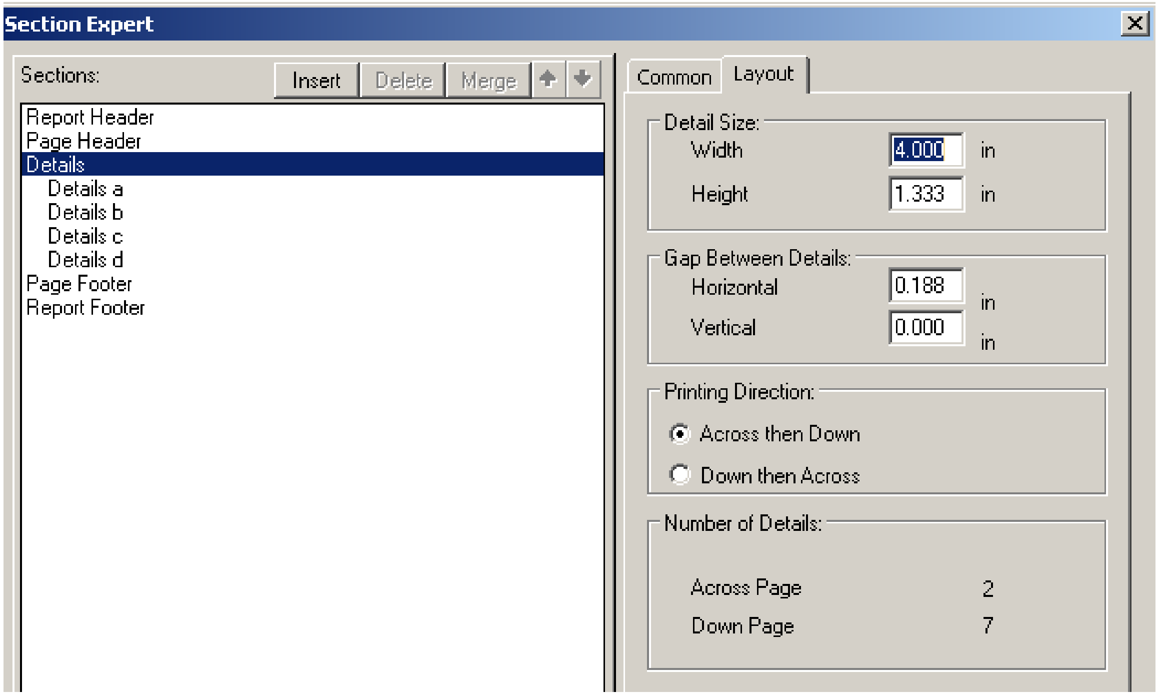
Preview

Carol Smith 123 Oak Lenexa, KS 66224	Jane Howe 456 Elm Lenexa, KS 66225
City of Lenexa 789 Main Lenexa, KS 66226	George Rain 753 Willow Lenexa, KS 66223

9. If any changes need to be made to the layout of the report, click on the *Section Expert*.
10. Click *Details* and a *Layout* tab will appear.
11. Click on the *Layout* tab and make the necessary changes.


Section Expert
Sections:
Insert
Delete
Merge
Report Header
Page Header
Details
Details a
Details b
Details c
Details d
Page Footer
Report Footer
Common
Layout
Detail Size:
Width
4.000
in
Height
1.333
in
Gap Between Details:
Horizontal
0.188
in
Vertical
0.000
in
Printing Direction:
Across then Down
Down then Across
Number of Details:
Across Page
2
Down Page
7

Notes:____

Using Crystal Reports with Lucity

Intermediate - 2

The fourth of a seven-part series, this workbook is designed for Crystal Reports® users with some experience. Here, you'll learn how to add subreports. Specifically, we'll look at the Work Order Locations subreport and the module's Comment section. Both the general Comment sections and the Work Order/Request Comment sections will be addressed.

Table of Contents

Subreports

Subreports are simply reports within other reports. They can stand alone or be linked. Lucity typically uses subreports to display information stored in the child records (shown in grids or dialogs), information from other related modules, and the Comments sections. Subreports can vary in size and can be placed wherever you wish. Typically, subreports are inserted into their own Detail section.

One issue with subreports is the data in a subreport does not receive the filter out in Lucity. If this is required, then try to use grouping as previously discussed.

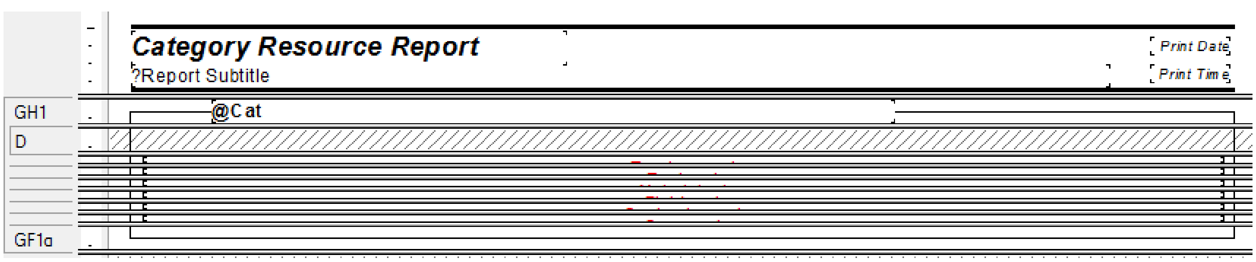
A second issue with using subreports is that it is not possible to place a subreport within another subreport. Thus, it can be challenging to show the child of a child relationship. Usually this is handled with grouping in a subreport.

A third issue is that each subreport is seen as a separate report when the report is run. If there are many Web users running reports at the same time then the system can slow down.

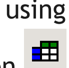
Accessing Subreports

A few Detail reports have subreports that may be minimized to a point where you cannot read the titles.

1. In the Reports Work file open the **CatRes.rpt** report.
2. The minimized sections below the Detail section contain subreports.



3. To view the subreport title, place the cursor over a subreport and the name will appear briefly (if the *Tooltips* are turned on). To open the subreport, simply double click on it.

4. It is also possible to navigate to a subreport using the *Report Explorer* . Make sure the *Show/Hide Grids and Subreports* is turned on . Then click on *Expand* . Subreports can be opened from this section or from the subreport itself by right clicking on the subreport name and selecting *Edit Subreport*.

Inserting a Work Order Locations Subreport

The data in many of the grids in the Lucity modules can be connected to the parent report. In the following example, we'll demonstrate the use of a subreport to bring in the information from the *Work Order Location* grid in the **Work Orders** module to the **Aging Work Order Report**.

Finding Tables and Fields

1. In the **Work Order** module open a record in the *Work Order Location* grid to find field definitions.

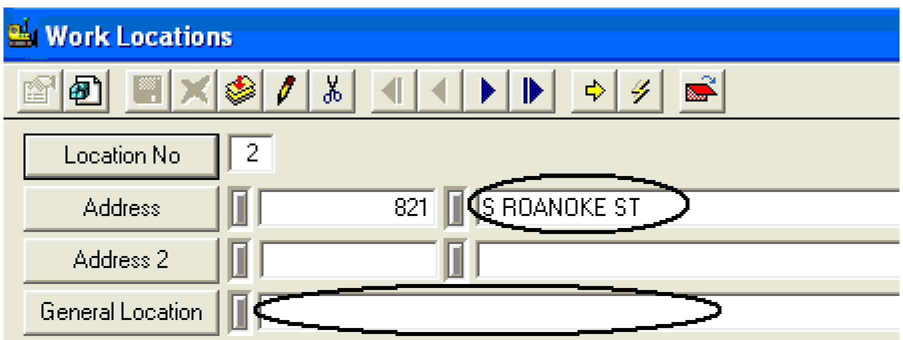
a. Open the **Work>>Work Orders>>Standard** module and click on the *Location* tab.

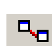
b. Open an existing record in the *Work Order Location* grid (right click – *View Record*) or right click in the grid and select *Add Record*.

c. Find the field definition of the *General Location* field by pressing Ctrl and right clicking on the field and selecting *Field Definition* or *Field Properties*. There, you'll see the following:

- The table name is **WKORDERLOC**.
- The field name is **WL_GENLOC**.

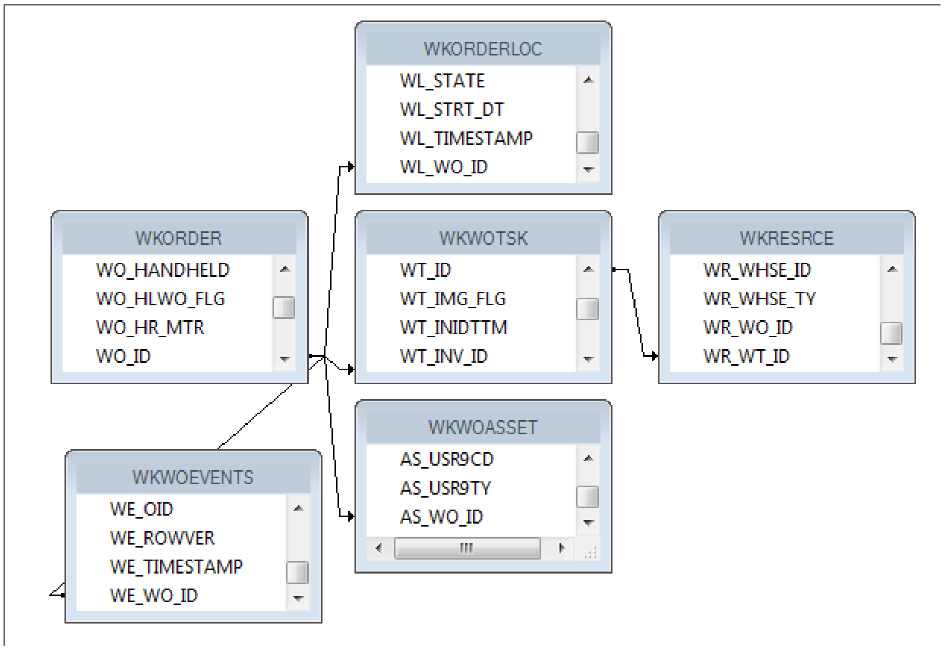
d. If you do the same thing to the second field of the Address, the field name will show up as **WL_ADR_DIR**. This is not the correct field name for the information in the box. It is only one of the fields that are joined to create the address in this box. Thus, a formula is needed to address all the fields in a concatenated formula. Not all of the modules use this special address that pulls from the General Address module, some allow you to manually type in the address and store it in a single field.



2. We will modify the **Aging Work Order Report** (**WOsAging.rpt)** from the Work module**.** In the Work report folder open **LC_WOsAgingLoc.rpt**.
3. Open the new report and delete the **WO_CAT_TY** field**.**
4. Delete the **WO_PROB_TY** field.
5. Change the **Category** column header to **Address.**
6. Change the **Problem** column header to **General Location**.
7. Click the *Database Expert* button .

8. Open the *Links* tab and note where the “tree” of tables begins; most often it is the top table on the far left side (frequently, this is the table the subreport will link to).

    - For example, this tree starts with the **WKORDER** table.

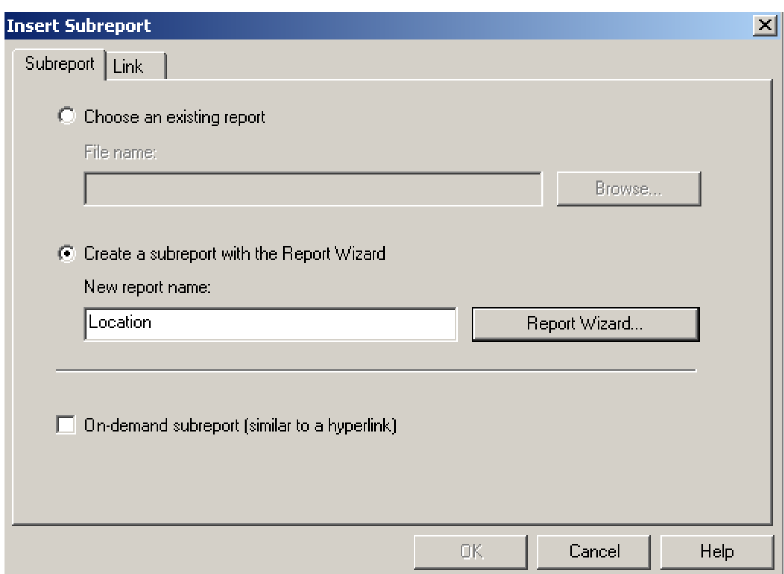


9. Close the Database Expert.

Inserting the Subreport

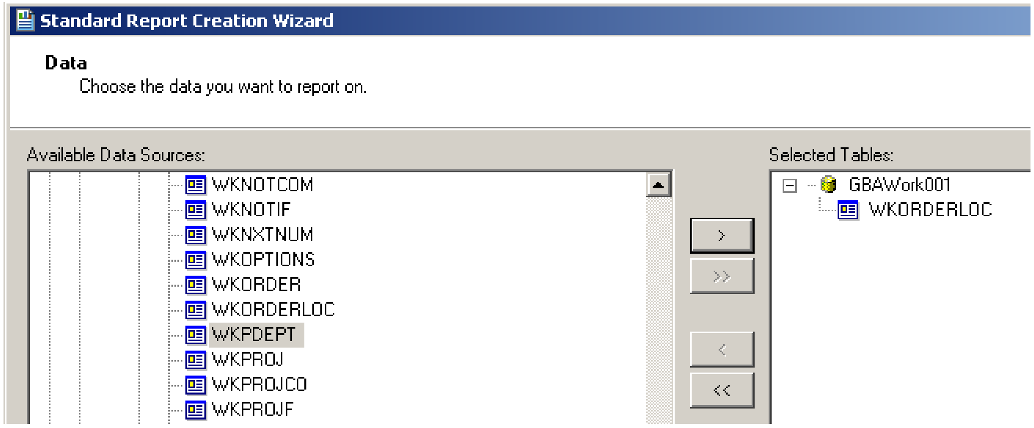
1. Click Insert Subreport .

    a. You’ll need to type in the *New report name*. For example, we’ve called this subreport, **Location**.

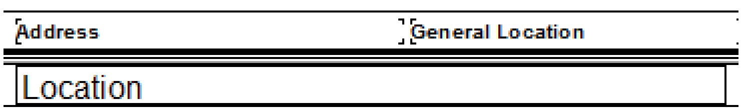


    b. Then, select the *Report Wizard*.

2. Open *Create New Connection* > *ODBC (RDO)* > *GBAWork001* (Finish key) > *Tables*.
    a. Select the **WKORDERLOC** table and move it to the *Selected Tables* box on the right-hand side of the screen.



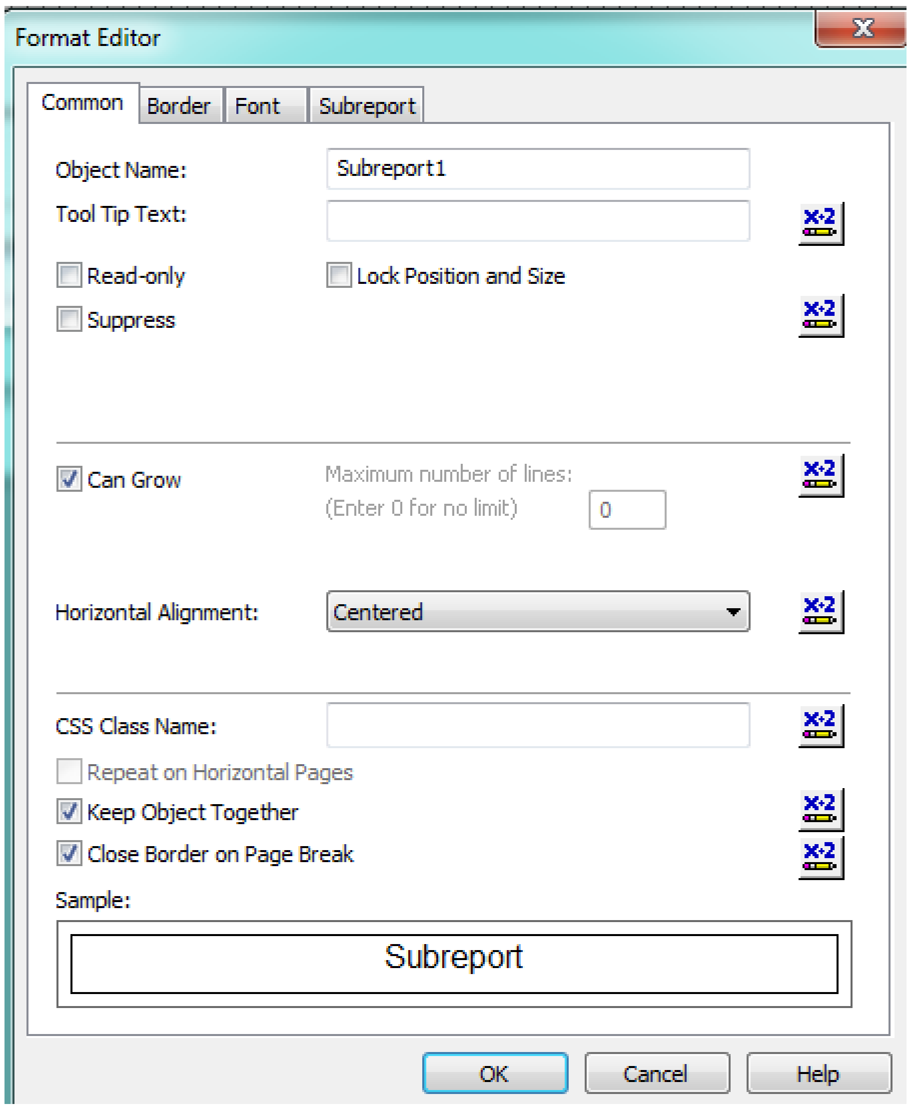
    b. Click *Finish*.
    c. Click *OK*.
3. Place the subreport "box" in the *Detail* section with the left edge aligned with the left edge of the Address column header.
4. Resize the box to fit under the Address and General Location area.



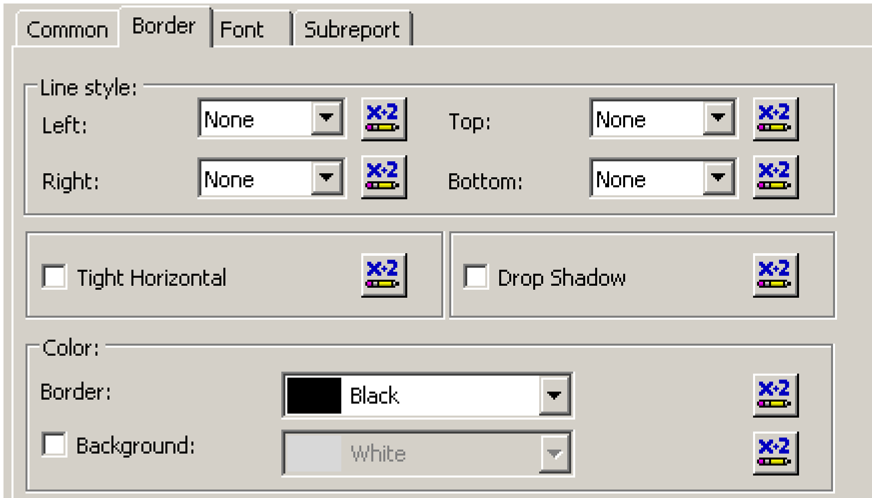
Formatting the Subreport

Right click in the **Location** subreport box and click *Format Subreport*. Choose the formatting options that you prefer.

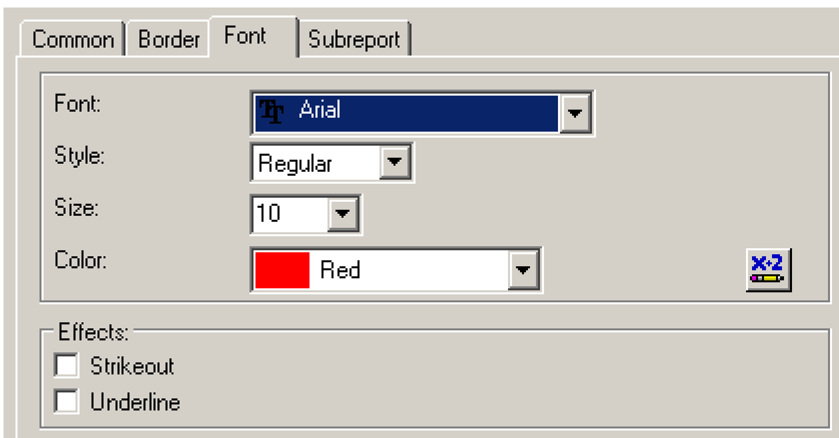
- For example, in the **Format Editor** dialog below, we've selected to center the report title. You can see a sample of your formatting selections at the bottom of the **Format Editor** dialog.
- The *Keep Object Together* option can cause issues with large blank spaces.



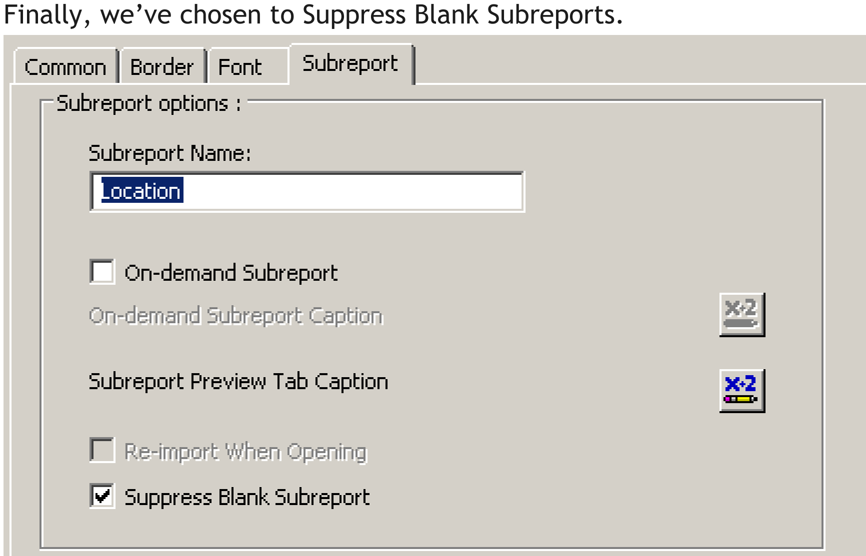
- Additionally, we've chosen to not use a predefined border.



- For the subreport title we've chosen 10 point Arial for our font, and made the text red.



- Finally, we've chosen to Suppress Blank Subreports.



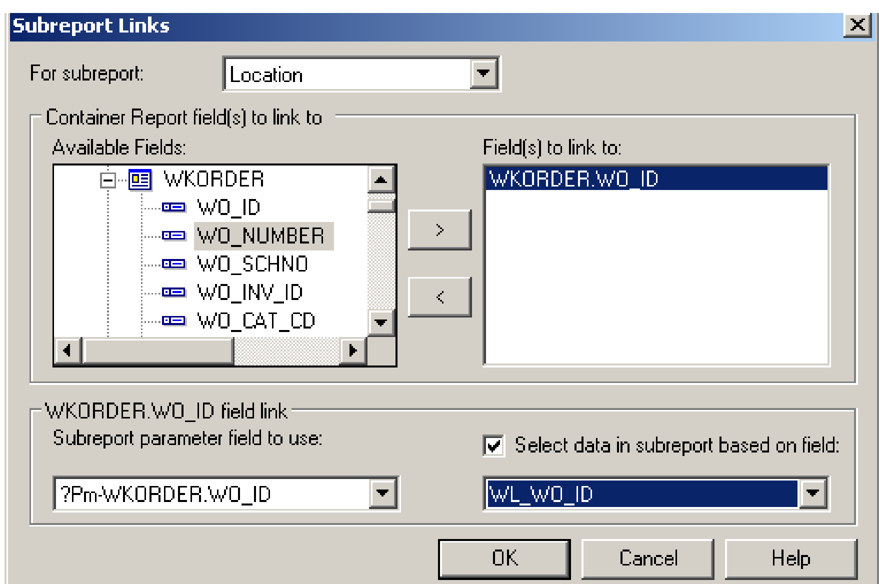
- Once you've finished selecting your formatting options, select *OK*.

Note: Some of the formatting options are strictly for the creator of the report like having the title centered and red. When working on a report this is a quick visual as to which parts of the report are subreports. Some of the formatting will affect the user end of the report like the border lines, empty space or whether the subreport Can Grow.

Subreport Links

Subreports can stand alone; however, typically they are linked to the main report. You'll need to find the correct table and field to link your subreport to. This will allow the main report and subreport to communicate effectively.

1. Right click in the **Location** subreport box and select *Change Subreport Links*.
    - The linked tables usually have an **ID** field with a common part; in this case it is **WO**.
2. Open the **WKORDER** table and move the **WO_ID** field over to the *Field(s) to link to* box on the right-hand side of the screen.
3. Click the arrow beside the field at the bottom-right of the screen and select the **WL_WO_ID** field.
4. Click *OK*.



The linking creates a formula in the Subreport in the *Select Expert*.

{WKORDERLOC.WL_WO_ID} = {?Pm-WKORDER.WO_ID}

> *Note: The Web reports require any linking formula to have the "?Pm-XXXX" type formatting. This is automatically created through Crystal when using the Subreport Links dialog box. Remember to use this format if creating manually.*

Adding Fields to the Subreport

The subreport is basically a report and so it has the various options of a report such as Select Expert, Section Expert, Grouping and Sorting.

1. Open the Location subreport by double clicking

   OR right click and selecting *Edit Subreport…*.

2. There will always be at least three sections; the Report Header, Detail and Report Footer. Suppress all sections other than the Detail section.

3. As mentioned earlier the address is a concatenated field. This formula will be borrowed from a standard report.

   a. Open the Work Order Detail report (**WODetail.rpt**).

   b. Locate the **Locations.rpt** subreport and double click on it.

   c. Find the address formula within the report (**@Addy**). Right click on it and click *Copy*.

   d. Close **WODetail.rpt**.

4. Go back to the **LC_WOsAgingLoc.rpt** report.

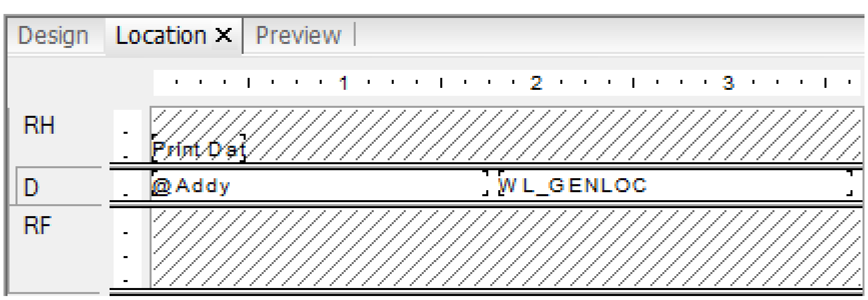
5. Make sure you are in the **Location** subreport. Paste the address formula into the *Detail* section. Resize.

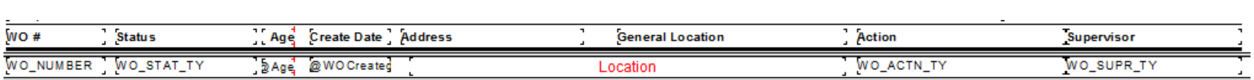
   - The address formula is shown below:

```
(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}))
```

6. Open *Field Explorer* > *Database Fields* > **WKORDERLOC**.

7. Drag the **WL_GENLOC** field into the *Detail* section.





Preview

Aging Work Order Report

3/3/2014
1:42 PM

WO #	Status	Age	Create Date	Address	General Location	Action	Supervisor
2006-01129	New Work Order	2,909	3/16/2006			Residential Collections	KURT VONHOSSEN
2006-01608	New Work Order	2,797	7/6/2006			Sewer Line Cleaning	SHIELA KAMDON
2006-01610	New Work Order	2,797	7/6/2006	E CIVIC CENTER DR	by chipotle	SEWER OVERLFOW	SHIELA KAMDON
2006-01611	New Work Order	2,797	7/6/2006	1564 E VALENCIA ST			SHIELA KAMDON

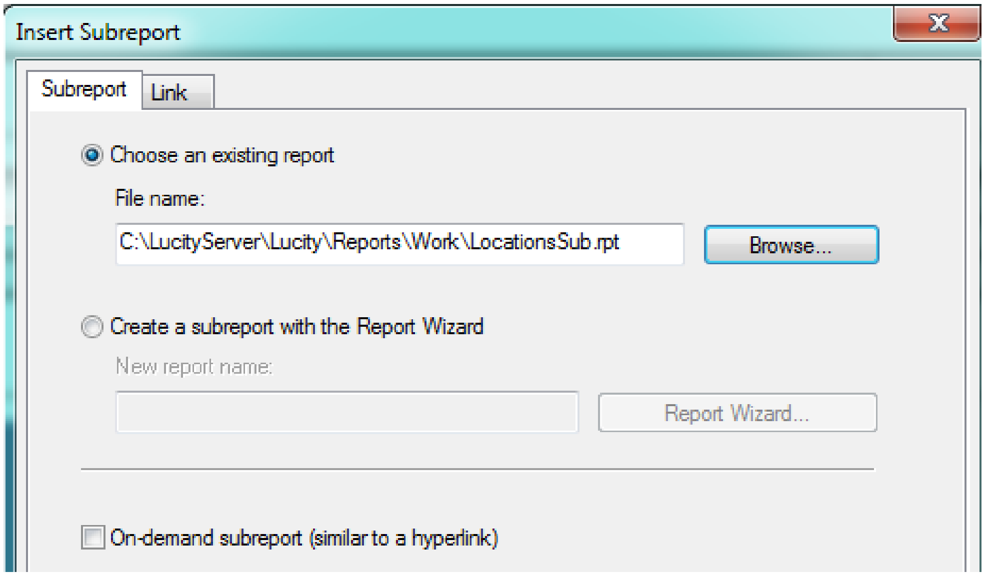
8. Save and close the report.

Example 17

Copying a Subreport

You can use an existing subreport or report in the same family (i.e. Work, Sewer, Storm, etc.) as long as you are careful with the linking. In our example below, we'll show you how to copy the more detailed Location subreport from the **Work Order Detail Report** and place it in the **Summary Report**.

1. Open **WODetail.rpt**.
2. Right click on the **Location** subreport and select *Save Subreport As*.
   a. Make sure you are in the correct report file (**Work**).
   b. Enter a *File Name* (**LocationsSub.rpt**).
   c. Save the subreport and close the Detail report.
3. We will modify the **Work Order Summary Report (WOSum.rpt**) from the Work Order module. From the Work report folder open **LC_WOSumDetLoc.rpt**.
4. Delete the **Address** column title.
5. Delete the **Locations** subreport.
6. Add a **new** section under *Group Footer 1a* and increase the size slightly to accommodate the new subreport.
7. Select *Insert Subreport*.
   a. Click *Choose an existing report*.
   b. Click Browse.
   c. Locate the Reports\Work folder and double click on **LocationsSub.rpt**. You'll see the Insert Subreport dialog box.
   d. Click *OK*.

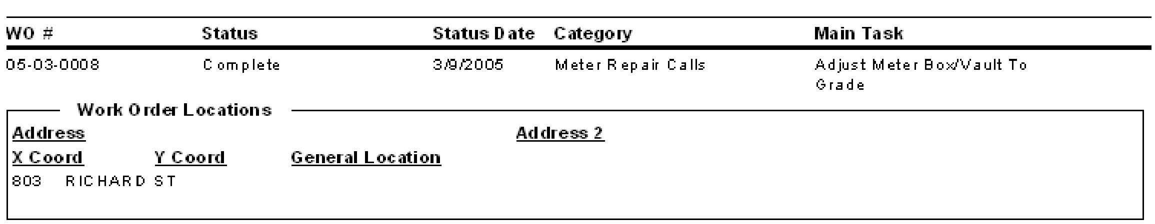


8. Place the subreport "box" in the newly created *Group Footer 1b* section.
9. Choose the desired subreport formatting options discussed earlier.
10. Resize to fit the report.
11. Right click on the subreport and choose *Change Subreport Links*.

    {WKORDERLOC.WL_WO_ID} = {?Pm-WKORDER.WO_ID}

12. Open the subreport and delete any empty sections.
13. Open the *Select Expert* and delete one of the parameter formulas. Even though the correct formula existed in the subreport's *Select Expert*, the main report doesn't recognize it, so it needed to be linked correctly again.
    - {WKORDERLOC.WL_WO_ID} = {?Pm-WKORDER.WO_ID} and

      {WKORDERLOC.WL_WO_ID} = {?Pm-WKORDER.WO_ID}
    - You'll see a duplicate formula because the subreport was taken from a report with the same parent table. Delete one of the duplicate formulas or if they differ then keep the formula that reflects the correct linking, deleting the other.
14. Select *Save and Close*.
15. *OK*

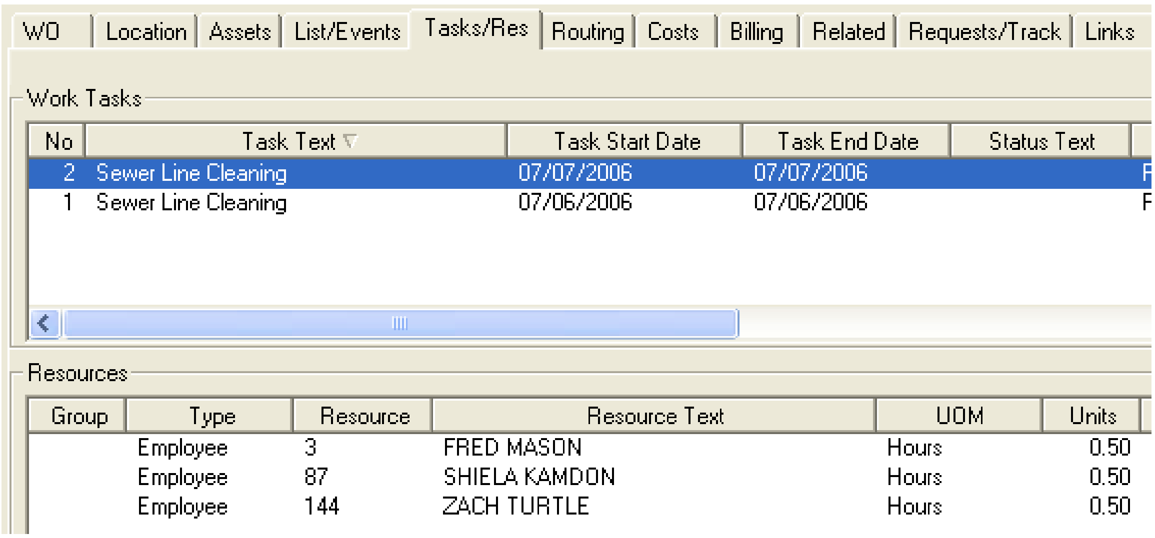


Note: Do not use a subreport from one family of reports in another family, such as a Work subreport in a Sewer report.

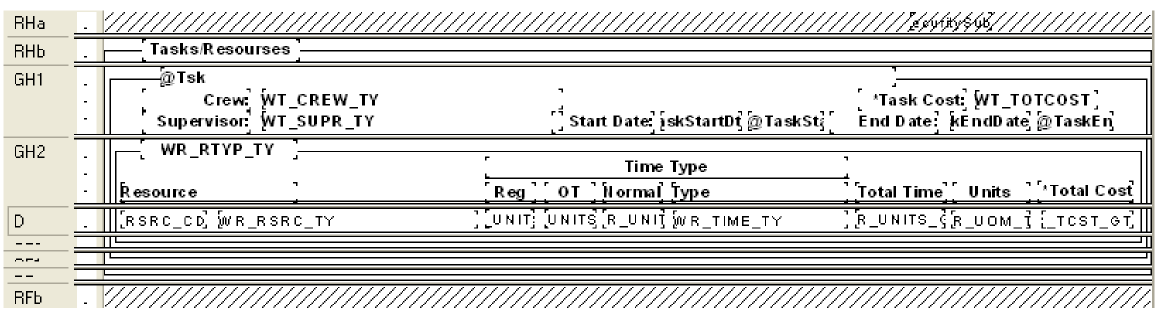
Example 18

Grid Data with Associated Data

There are several cases throughout the Lucity modules where you click on data in one grid and information associated to that record shows up in the lower grid. A good example of this is in the *Work Order* module where the Resources are listed for each Work Task.

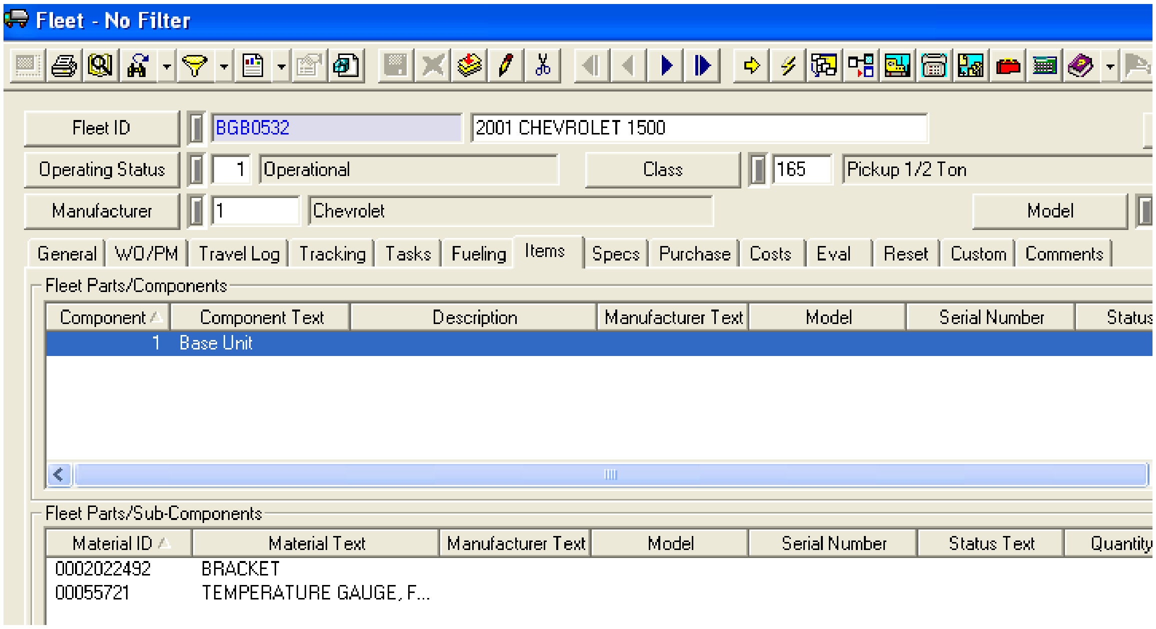


The ***TaskRes.rpt*** subreport in the **Work Order Detail** report (**WODetail.rpt**) shows this relationship.

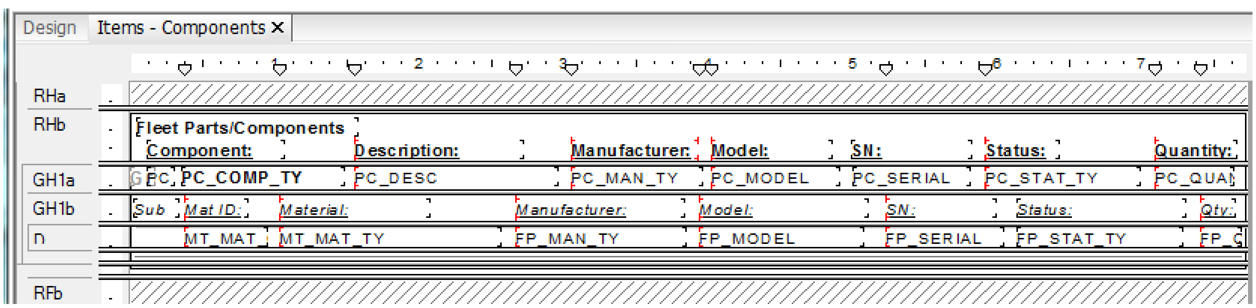


The first group (*GH1*) is the Work Task and the second group (*GH2*) is the listing of the Resources associated with each Task.

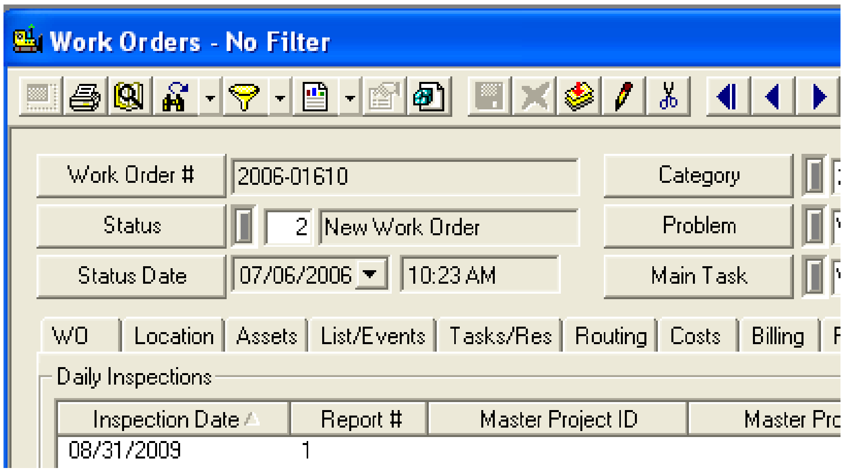
Another example is in the *Fleet* module where the Sub-Components are associated with each Component.

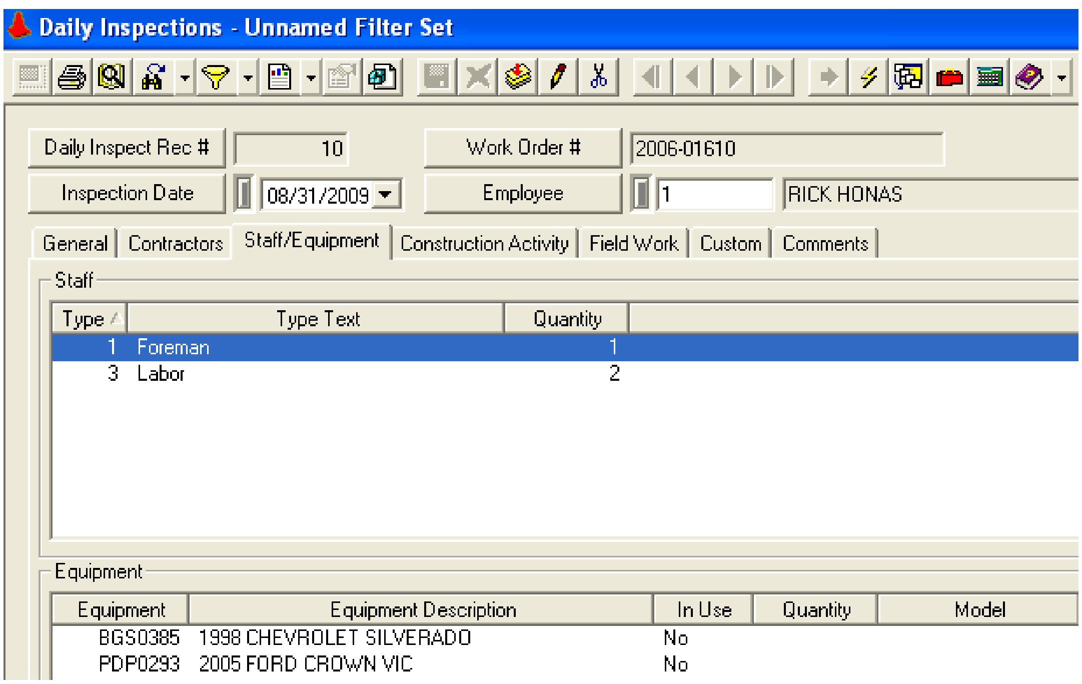


In the Fleet Detail report (**FLDet.rpt**) a subreport (Items-Components) groups on the Components (GH1) and shows the subcomponents in the Detail section.



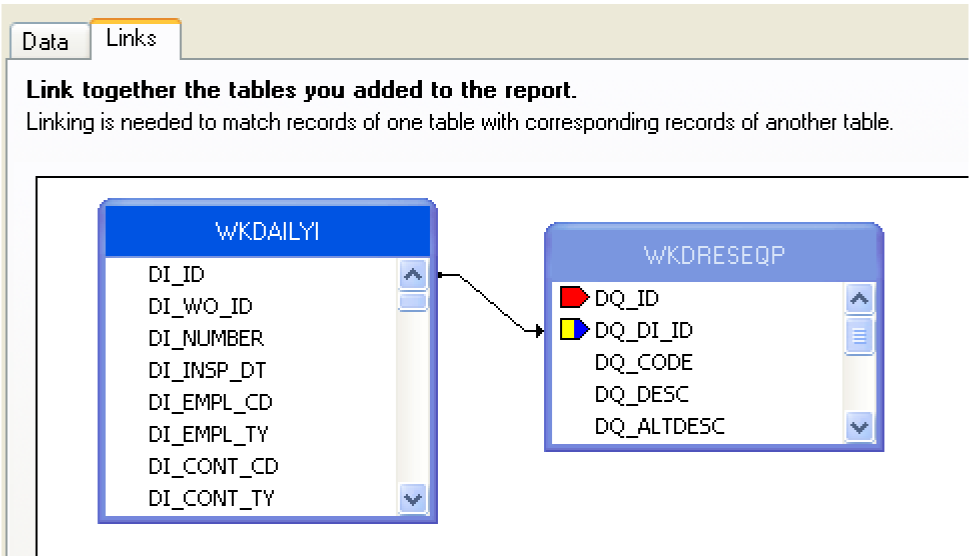
There is an additional type of grid association. Within the *Work Order* module, *Links* tab, you'll see a *Daily Inspections* grid. Within each Daily Inspection record there are several grids containing information.



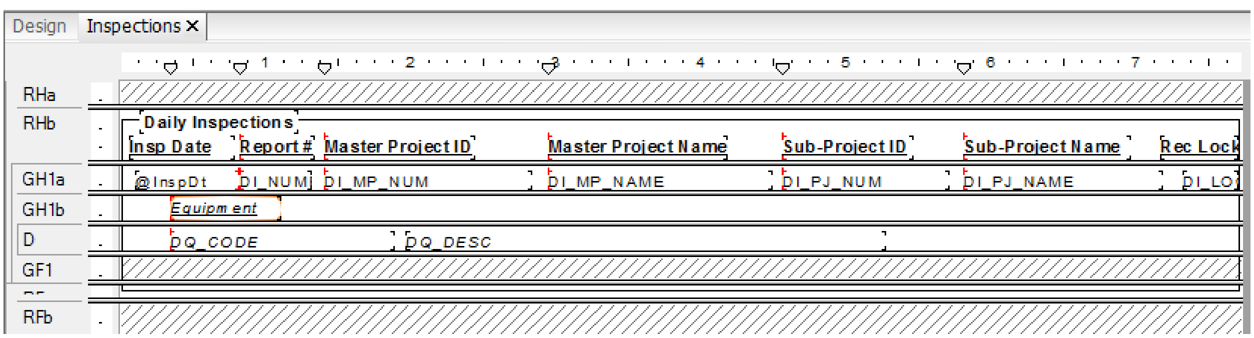


Notes:____

At first glance, it would appear the only way to show this data would be a subreport within a subreport; however, this is not possible at this time. Sometimes it is possible to link the grid table and group. The following Inspection subreport shows the Equipment associated with each Inspection date.



The report groups on the Inspection Date (*GH1*) and then lists the Equipment for that Inspection record in the *Detail* section.

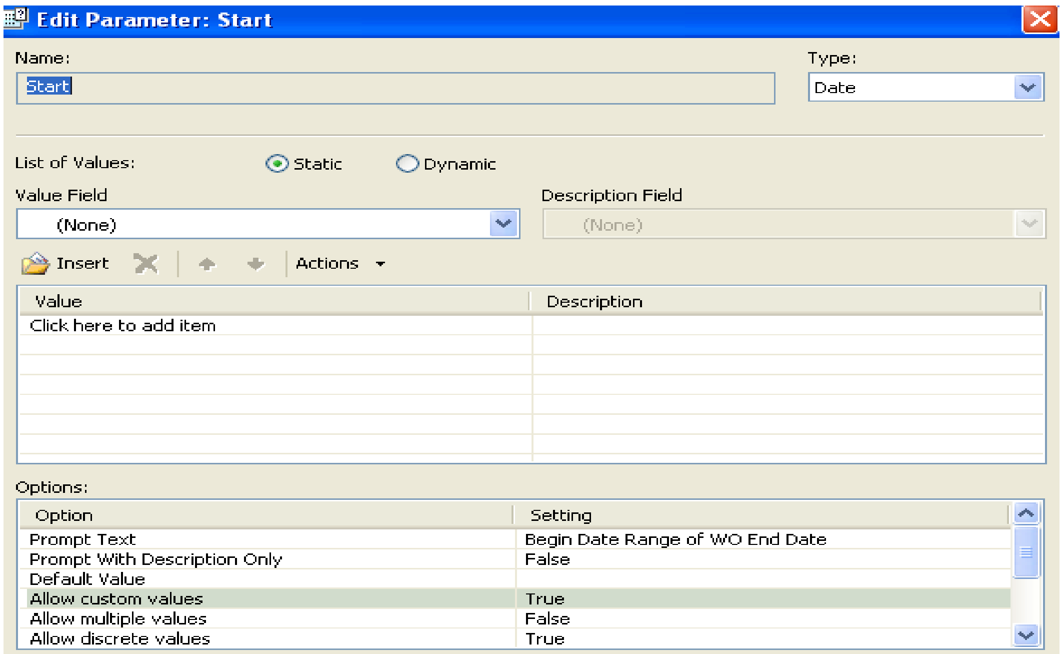


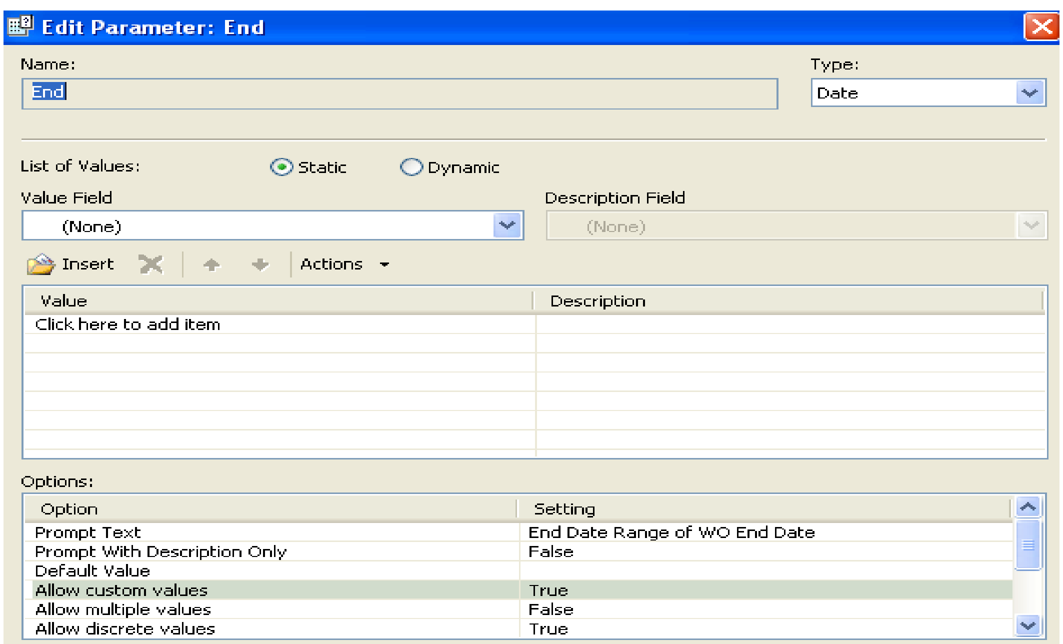
Date Parameters to a Subreport

Frequently subreport records need to be selected for a date range. If the main report and subreports are using the same date range then the date parameter should be created in the main body of the report and linked to the subreport(s). If only the subreport requires the date selection then the parameters can be created within the subreport.

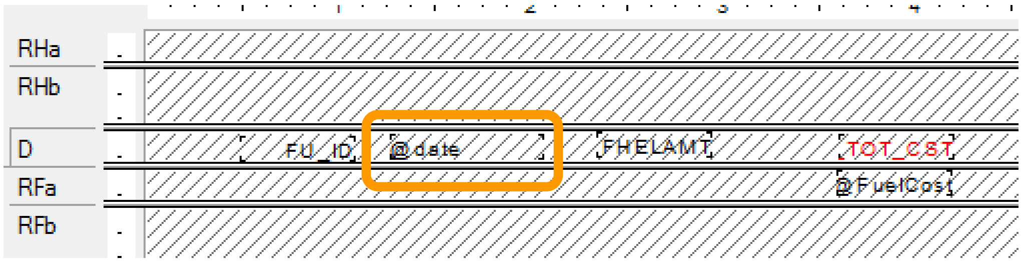
The **Fleet Cost Report** (**FleetCost.rpt)** passes the parameters from the main body to both the **fuel** subreport and the **Work Order** subreport.

First the date parameters were created in the main body of the report.

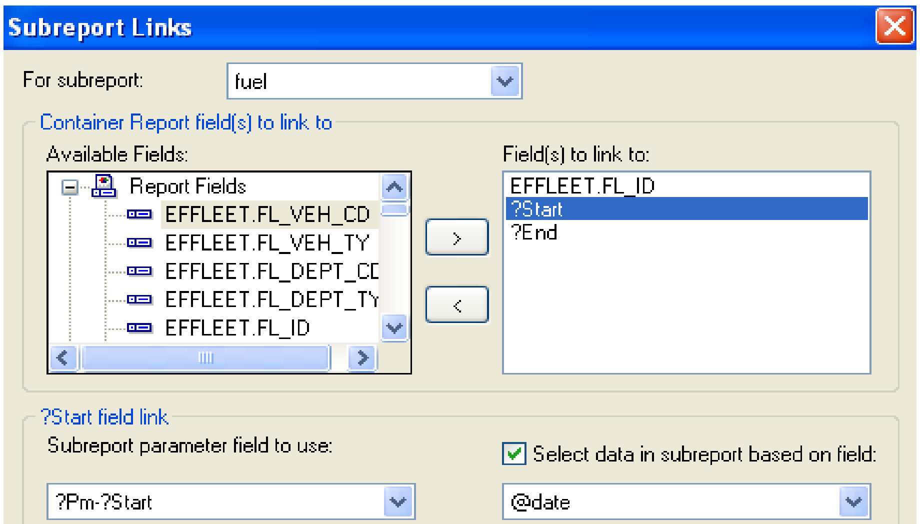


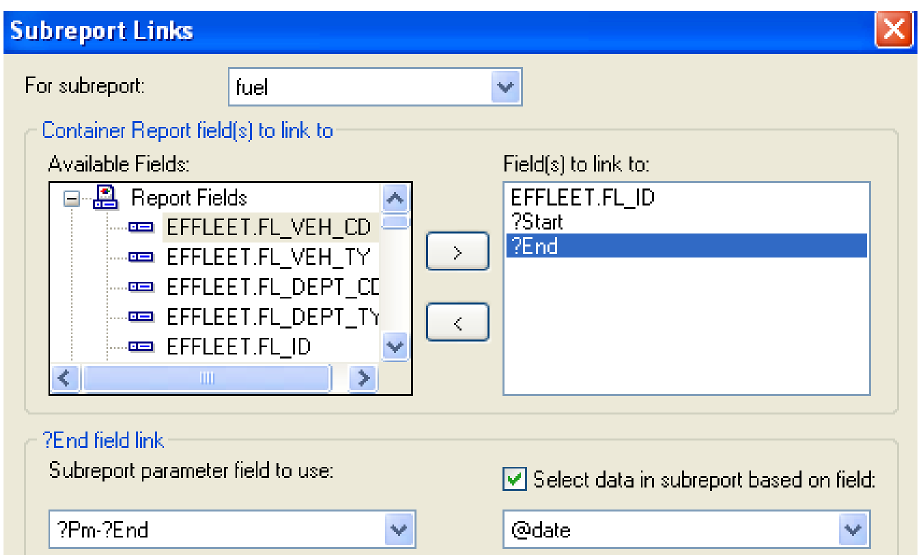


Within the **Fuel** subreport the date formula that will be used with the parameter dates was placed in the body of the report.



The parameter fields were brought to the subreport in the subreport linking.





The linking process set the fields up in an "=" formula. This was changed in the *Select Expert* in the subreport.

- Formula Crystal created:

  {@date} = {?Pm-?Start} and

  {@date} = {?Pm-?End}

- Changed to:

  {@date} in [{?Pm-?Start} to {?Pm-?End}]

The date parameters were brought to the **Work Order** subreport in a similar manner.

It is a good practice to make sure formulas and parameters have unique names within the report. There should not be duplication of names from the main report to the subreports. The web reports will not support duplicate parameter names.

Our Web code looks for parameters that start with "Pm-", it assumes these are subreport linking parameters and does not ask the user to provide this data. If you do not follow this convention our software will prompt you for the parameter values instead of letting Crystal automatically set those values. Example 19

Adding a General Comments Section

(Not Valid for Dated General Comments in Work Orders or Requests)

The system handles Comment grids differently than other types of grids in Lucity. For these grids, the information is stored in a **MEMO** table. The parent table communicates with this **MEMO** table to retrieve the Comment information. Typically in the Field Definition for the Comment section the field name will be MEMO1 or MEMO2 and the table shows as the parent table of the module you are currently in. This is misleading because the field is not in this table.

In the example below, we'll show how to add the **Comment** field for the **Storm Conduit Inventory** module to the **Conduit Physical Data Check Report** (**SMcnphck.rpt**). These same steps are used to add Comment sections to all modules other than the Work Orders and Requests comment section. It will work for the Memo type fields in Work Order like **Comment From Request** or in Request like the **Information for Work Order** memo fields.

Option 1 – Creating a Subreport from Scratch

1. First we'll locate the field definition information for the Comment section.
   a. From **Storm** open the **Conduit Inventory** module and click on the *Comment* tab.
   b. Use the Ctrl + right click function to view the field definition. Make a note of the table name (**SMVCONDT**) and field name (**CN_MEMO1**). The **SMVCONDT** table is NOT where the data is stored. The data is in the **SMMEMO** table. All Storm comments are stored in this table.
2. We will modify the Conduit Physical Data report (**SMcnphck.rpt)** from the Storm **Conduit Inventory** module. From the Storm reports folder open **LC_SMConChkCom.rpt.**
3. Right click in the margin to the left of the ***Details*** section and select *Insert Section Below*.

4. Increase the size of the new section slightly to accommodate the new **Comment** subreport.

5. Click Insert Subreport .

   a. Type in the *New report name* (**Comment**).

   b. Select *Report Wizard*.

6. Open *Create New Connection* > *ODBC (RDO)* > *GBAStorm001* (Finish key) > *Tables*.

   a. Select **SMMEMO** and move it to the right-hand box, *Selected Tables*.

   b. Click *Finish*.

   c. Click *OK*.

7. Place the “box” in the ***Details b*** section.

8. Right click in the **Comment** subreport box and click *Format Subreport*. Choose the formatting options that you prefer.

9. Select *OK*.

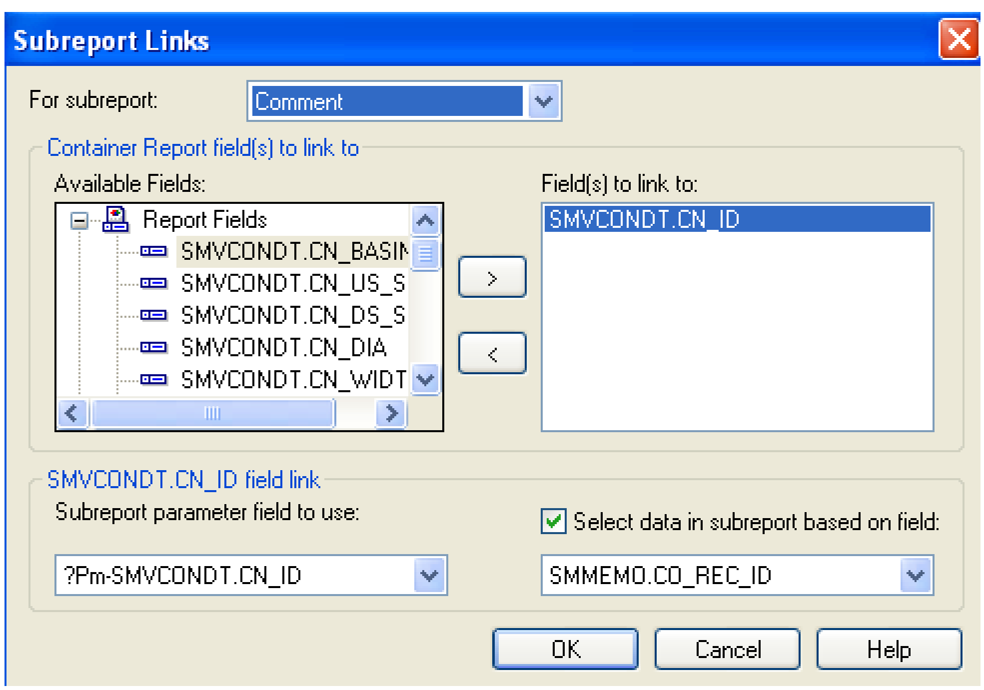
10. Resize the subreport box.

11. Right click in the **Comment** box and select *Change Subreport Links*. The Field to link to will be the **ID** field for the table referenced when checking for the field name in step 1, **SMVCONDT**.

    a. Open **SMVCONDT** and move the **CN_ID** field over to the *Field(s) to link to* box on the right-hand side of the screen.

    b. Click on the arrow beside the box at the bottom-right of the dialog and select the **CO_REC_ID** field.

    c. Click *OK*.



12. Double click on the **Comment** subreport box. You are now within the subreport.

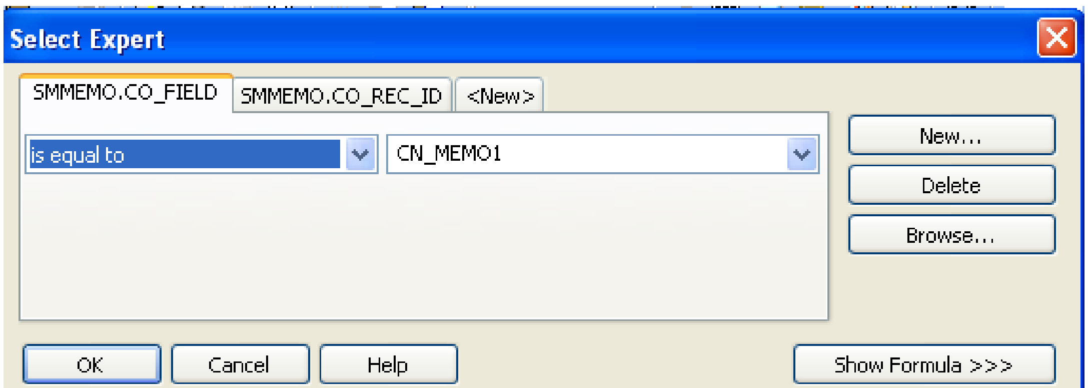
13. Click on the *Select Expert* .

    a. Click on the *New* tab.

    b. Click on the **CO_FIELD** and then *OK*.

    c. Click on the down arrow within *Select Expert* and select **"is equal to"**.

    d. Click on the down arrow for the right hand drop down box. Select **"CN_MEMO1"**. (The comment field name, **CN_MEMO1**, was previously found using the Field Definition.) The field is only available in the drop down box if there is a record that has the Comment field populated with data. Otherwise, type in the field name.



    e. Click *OK*.

    f. To view the formulas created within the *Select Expert*, click on *Select Expert* and then *Show Formula>>>*.

        {SMMEMO.CO_REC_ID} = {?Pm-SMVCONDT.CN_ID} and

        {SMMEMO.CO_FIELD} = "CN_MEMO1"

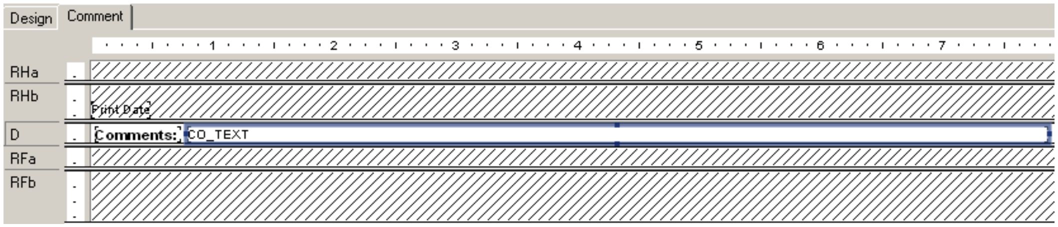
Note: The CO_REC_ID and CO_FIELD are the same for all general Comment subreports; however, the linking table and the field name in quotations changes for each module. The ***XXMEMO*** *table name also changes depending on which suite of modules you are working in. For example, Street is* ***STMEMO****, Water is* ***WTMEMO*** *etc.*

14. Suppress *Report Header a* and *b* and *Report Footer a* and *b*.

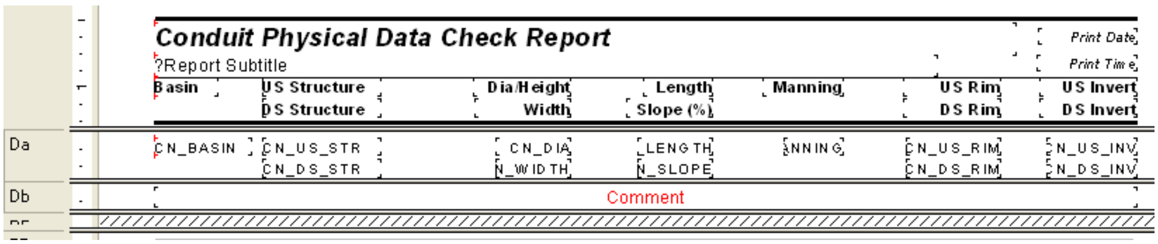
15. Create a "Comments" text object field in the *Detail* section.

16. Drag in the **CO_TEXT** field from *Field Explorer* and resize the field.

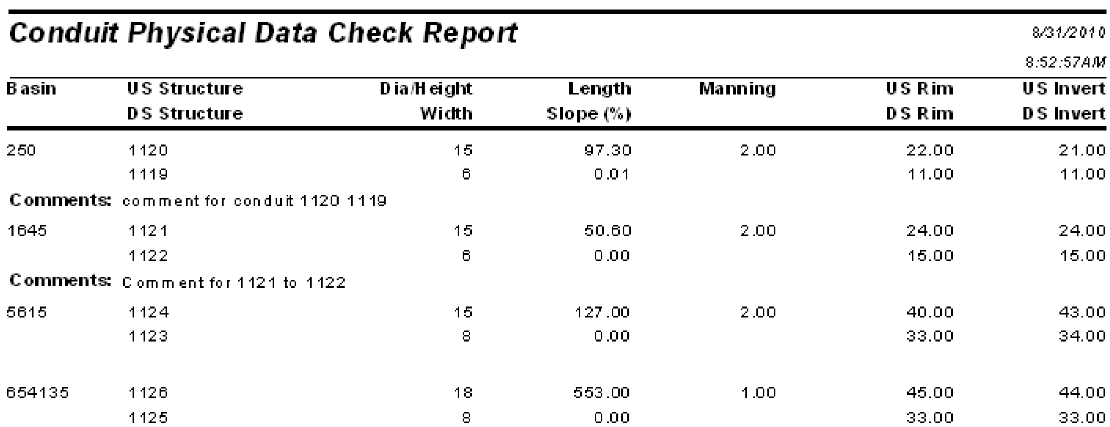
    - It is important that the **CO_TEXT** field be able to grow, so remember to check the *Can Grow* option within *Format Field*. Right click on the field and select *Format Field>>Common* (tab)*>>Can Grow (checked)>>OK*.



17. Click on the *Design* tab and then the *Print Preview* button .



Preview

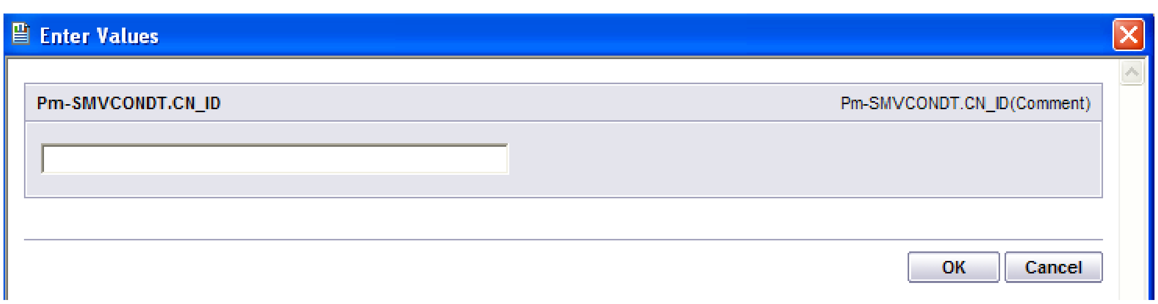


Conduit Physical Data Check Report

8/31/2010
8:52:57AM

Basin	US Structure DS Structure	Dia/Height Width	Length Slope (%)	Manning	US Rim DS Rim	US Invert DS Invert
250	1120 1119	15 6	97.30 0.01	2.00	22.00 11.00	21.00 11.00
Comments: comment for conduit 1120 1119						
1645	1121 1122	15 6	50.60 0.00	2.00	24.00 15.00	24.00 15.00
Comments: Comment for 1121 to 1122						
5615	1124 1123	15 8	127.00 0.00	2.00	40.00 33.00	43.00 34.00
654135	1126 1125	18 8	553.00 0.00	1.00	45.00 33.00	44.00 33.00

18. If you had tried to Preview the report while still in the subreport, something similar to the following would appear:



19. Press *Cancel* and then go to the report *Design* tab to run the report.

20. After reviewing the report, further modifications may seem necessary to make it easier to read.
    - In our example, a line should be added below the **Comments** line.
21. Add a *Detail* section below *Detail b*.
22. Add a line to *Detail c***.**
23. Format the line to silver.
24. Even when a record has no comments, the space for the **Comments** subreport will still appear. This space can be removed as follows:
    a. Click *Section Expert* .
    b. Click *Detail b* and select the *Suppress Blank Section* option.
    c. *OK*.

Preview

Conduit Physical Data Check Report 8/31/2010 8:56:23AM

Basin	US Structure DS Structure	Dia/Height Width	Length Slope (%)	Manning	US Rim DS Rim	US Invert DS Invert
250	1120	15	97.30	2.00	22.00	21.00
	1119	6	0.01		11.00	11.00
Comments: comment for conduit 1120 1119						
1645	1121	15	50.60	2.00	24.00	24.00
	1122	6	0.00		15.00	15.00
Comments: Comment for 1121 to 1122						
5615	1124	15	127.00	2.00	40.00	43.00
	1123	8	0.00		33.00	34.00
654135	1126	18	553.00	1.00	45.00	44.00
	1125	8	0.00		33.00	33.00

Option 2 – Creating a Subreport with the Report Wizard

1. We will modify the Conduit Physical Data report (**SMcnphck.rpt)** from the Storm **Conduit Inventory** module. From the Storm reports folder open **LC_SMConChkCom2.rpt.**
2. Add a *Detail* section.
3. Click *Insert Subreport*.
    - Name it **Comment**, and click *Report Wizard*.
4. Open *Create New Connection* > *ODBC* > *GBAStorm001* > *Next* > *Finish* > *Tables*.
5. Move **SMMEMO** to *Selected Tables*. Then click *Next*.
6. Move **CO_TEXT** to *Fields to Display*. Then click *Next*.
7. There will be no grouping, so select *Next* in the *Grouping* dialog box.

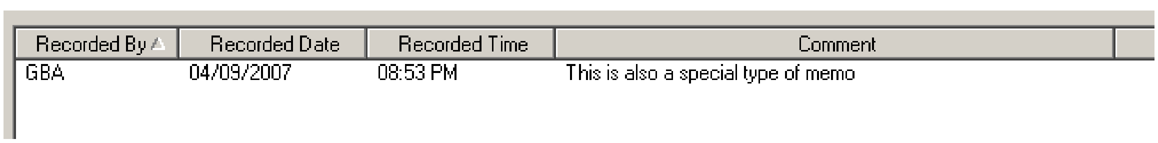
8. In *Record Selection*, move the **CO_FIELD** to the *Filter Fields*.
    - Using the drop down box, select *is equal to*.
    - Using the next drop down box, select **CN_MEMO1**. Then, click *Next*.
9. Select *No Template* and *Finish*.
10. Select the *Link* tab.
    - Set this up as described in **Option 1**.
11. Select *OK* and drop the new subreport box in the new *Detail* section.
12. Set up and format the subreport as described in Option 1.

Example 20

Adding a Comments Section to Work Orders and Requests and Dated Comments for Inventory Modules

The *Comment* tab within **Work Orders** and **Requests** is formatted differently than the *Comment* sections in other modules. For this example, we'll add a Comment subreport to the **Work Order Summary Report**.

1. First, we'll find the field definition for the Work Order Comment section.
    a. Open the **Work Orders Standard** module. Click on the *Comments* tab.



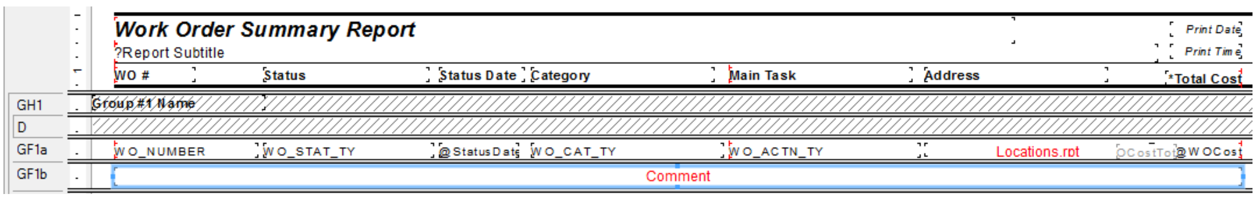
Recorded By	Recorded Date	Recorded Time	Comment
GBA	04/09/2007	08:53 PM	This is also a special type of memo

    b. Right click in the grid.
    c. Select *Add Comment* or *View Details* for an existing comment.
    d. Ctrl + right click in the large comments box to view the field definition. Note that the table name is **WKGDMEMO** and the field name is **GM_MEMO**.
    e. Close the comment dialog.

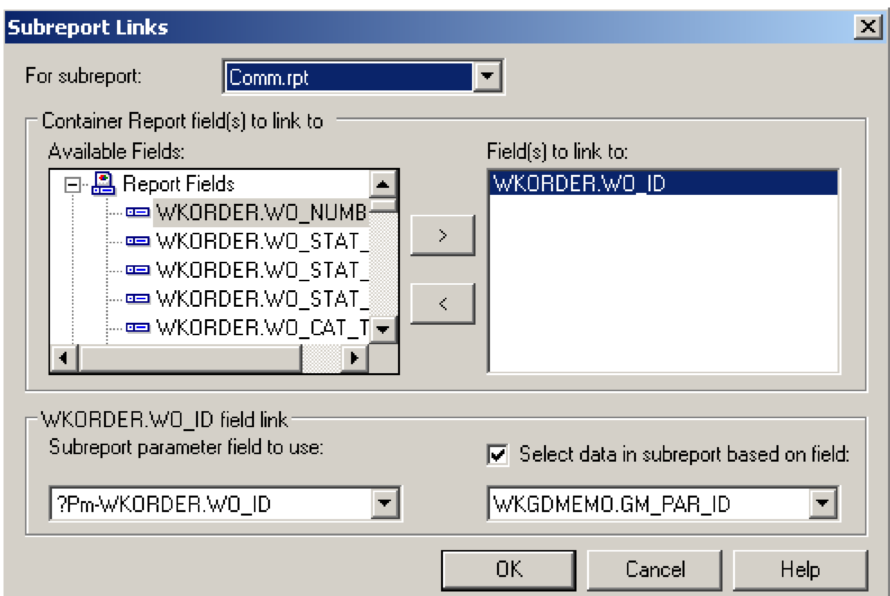
> *Note: This Comment section does not hit the **WKMEMO** table. Instead, it uses the **WKGDMEMO** table.*

2. We will modify the **Work Order Summary Report** (**WOSum.rpt)** from the Work Order module. From the Work report folder open **LC_WOSumComment.rpt**.
3. Right click in the left margin of the *Group Footer 1a* section and select *Insert Section Below*.
4. Click *Insert Subreport* .
    a. Type a name for the subreport (**Comment**) in the *New report name* section.
    b. Click *Report Wizard*.

5. Open *Create New Connection > ODBC > GBAWork001* (Finish) > *Tables*.
    a. Move the **WKGDMEMO** table to *Selected Tables*.
    b. Click *Finish*.
    c. Click *OK*.
6. Insert the **Comment** "box" into the *Group Footer 1b* section.
7. Choose subreport formatting options and resize the box.



8. Next, right click within the **Comment** box and select *Change Subreport Links*.
    a. Select fields so it looks like the following:



    b. Click *OK*.

9. Double click on the **Comment** box. You are now in the **Comment** subreport.
    a. Click *Select Expert* and click the *New* tab.
    b. Click and highlight **GM_PARENT**.
    c. Click *OK*.
    d. With the drop down arrow select *is equal to*.

e. With the right drop down box select **WKORDER**. (This will only show as a choice if there is at least one record with a comment. Otherwise type **WKORDER**.)

f. Click *OK*.

{WKGDMEMO.GM_PAR_ID} = {?Pm-WKORDER.WO_ID} and

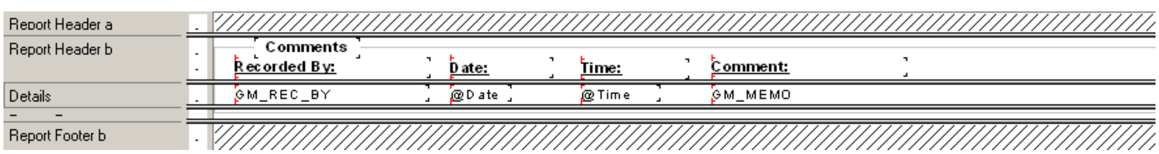
{WKGDMEMO.GM_PARENT} = "WKORDER"

Note: The formula in Requests would look like this:

{WKGDMEMO.GM_PAR_ID} = {?Pm-WKREQ.RQ_ID} and

{WKGDMEMO.GM_PARENT} = "WKREQ"

10. Add column titles. You'll want to make the titles **bold** and <u>underlined</u> in order to make them distinct.
11. Drag in the appropriate fields.
    - You'll need to create formulas before you can add the **Date** and **Time** fields.
12. Increase the size of the **GM_MEMO** field and format it so it *Can Grow*.
13. Place a box around the **Comment** subreport to separate it from the rest of the data. Make sure the bottom of the box is in the Report Footer section so the box will grow to accommodate the Memo field if necessary.
    a. Add a title for the box (**Comments**).
    b. Format the **Comments** text box with a *white background* (Format Editor > Border tab > Color: Background checked with White).



14. Click the *Design* tab.
15. Click the *Section Expert* button.
    a. Select *Group Footer1b* and the *Suppress Blank Section* option.
    b. Select *Group Footer 1* and the *Keep Together* option.
    c. *OK*

Preview

Work Order Summary Report

WO #	Status	Status Date	Category	Main Task
98-000027	Complete		Administrative	General Office
Comments				
Recorded By:	**Date:**	**Time:**	**Comment:**	
GBA	4/16/2007	2:33:00PM	This is a comment for 98-000027	
98-000028	Complete		Administrative	General Office
Comments				
Recorded By:	**Date:**	**Time:**	**Comment:**	
GBA	4/16/2007	2:34:00PM	This is a comment for 98-000028	
98-000029	Complete		Pavements	Asphalt Preparation
98-000005S	Completed		Pavements	Mudjacking
98-000030	Complete		Pavements	Repair Potholes

The Inventory modules have a second grid in the Comment tab with Dated Comments. The table will be obvious from the field definition and should reflect the suite of modules. For Storm - **SMGDMEMO**, for Sewer – **SWGDMEMO** etc. The setup would be similar to the Work/Request comment setup.

Example 21

Notes:____

Unlinked Subreports

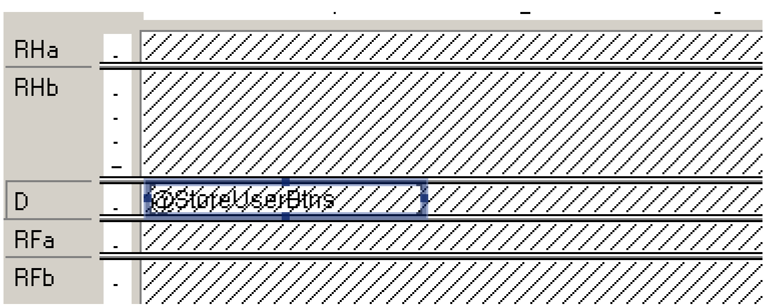
There are times when the subreports do not need to be linked.

- This can be used when running individual reports as subreports in one document. This can be useful in a Year End Report.
- In Lucity Detail reports the Custom User field captions are brought in by setting up variables in an unlinked subreport and passing these values into the main report. (More on variables in the Advanced 2 section)

In *Lucity* software the button captions may be altered to suit individual needs. These field captions may be reflected in the report by one of the following methods:

- Add or Edit the appropriate text object in the report as discussed in the related Beginning Crystal workbooks.
- Pull the value that is stored in the database and display it on the report using an unlinked subreport with variables.

Lucity uses this type of unlinked subreport in many of the Detail reports. It is hidden in a Report Header subreport. It contains a formula declaring variables that are associated with the User button captions in the Custom tab.



The **@StoreUserBtns** formula appears on the following page. Note that this is only part of the formula. We've included this to make you aware of what happens behind the scenes.

Any line starting with // is just a comment; it is not part of the formula.

The formula for each User button caption looks something like this:

```
WhilePrintingRecords;
Shared StringVar strUser1;
strUser1
```

```
//The subreport that this formula belongs to must contain the following
//Select Expert statement:
//{WTFIELDS.FieldName} like ["BD_USE*"]
//The Fields table reference should match your database.  The two character
//data field prefix and suffix must be changed for each report.
//You must also enter your specific Fields Table name in the "IF" statements
//found below (e.g. - WTFIELDS):
WhilePrintingRecords;
//Enter two-character field prefix here (e.g. - 'BD'):
StringVar ModPrefix:='BD';
StringVar strUser1Field:=ModPrefix+'_USER1CD';
StringVar strUser2Field:=ModPrefix+'_USER2CD';
StringVar strUser3Field:=ModPrefix+'_USER3CD';
StringVar strUser4Field:=ModPrefix+'_USER4';
StringVar strUser5Field:=ModPrefix+'_USER5';
StringVar strUser6Field:=ModPrefix+'_USER6';
StringVar strUser7Field:=ModPrefix+'_USER7';
StringVar strUser8Field:=ModPrefix+'_USER8';
StringVar strUser9Field:=ModPrefix+'_USER9';
StringVar strUser10Field:=ModPrefix+'_USER10';
StringVar strUser11Field:=ModPrefix+'_USER11';
StringVar strUser12Field:=ModPrefix+'_USER12';
StringVar strUser13Field:=ModPrefix+'_USER13';
StringVar strUser14Field:=ModPrefix+'_USER14';
StringVar strUser15Field:=ModPrefix+'_USER15';
Shared StringVar strUser1;
Shared StringVar strUser2;
Shared StringVar strUser3;
Shared StringVar strUser4;
Shared StringVar strUser5;
Shared StringVar strUser6;
Shared StringVar strUser7;
Shared StringVar strUser8;
Shared StringVar strUser9;
Shared StringVar strUser10;
Shared StringVar strUser11;
Shared StringVar strUser12;
Shared StringVar strUser13;
Shared StringVar strUser14;
Shared StringVar strUser15;
If {WTFIELDS.FieldName} = strUser1Field then
    If not IsNull ({WTFIELDS.UserName}) and {WTFIELDS.UserName} <> '' then
    strUser1:={WTFIELDS.UserName}+':'
    Else strUser1:={WTFIELDS.DefaultName}+':';

If {WTFIELDS.FieldName} = strUser2Field then
    If not IsNull ({WTFIELDS.UserName}) and {WTFIELDS.UserName} <> '' then
    strUser2:= {WTFIELDS.UserName}+':'
    Else strUser2:= {WTFIELDS.DefaultName}+':';

If {WTFIELDS.FieldName} = strUser3Field then
    If not IsNull ({WTFIELDS.UserName}) and {WTFIELDS.UserName} <> '' then
    strUser3:= {WTFIELDS.UserName}+':'
    Else strUser3:= {WTFIELDS.DefaultName}+':';
```