



TRAINING GUIDE

# Intermediate Crystal 1



# Using Crystal Reports with Lucy

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## *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.

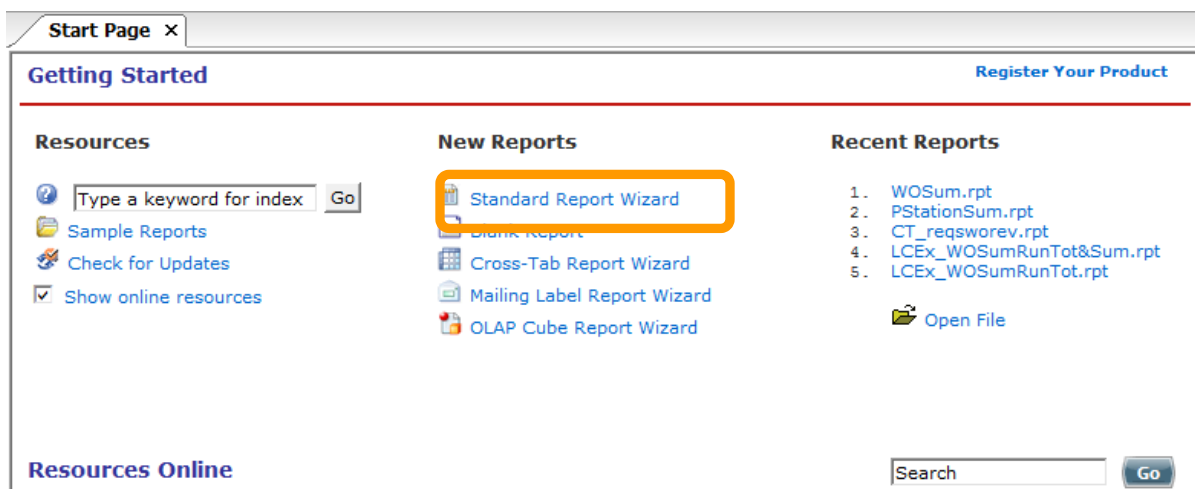
It will *show* the **Name, Job Title, Department, Supervisor** and **Active**.

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**.

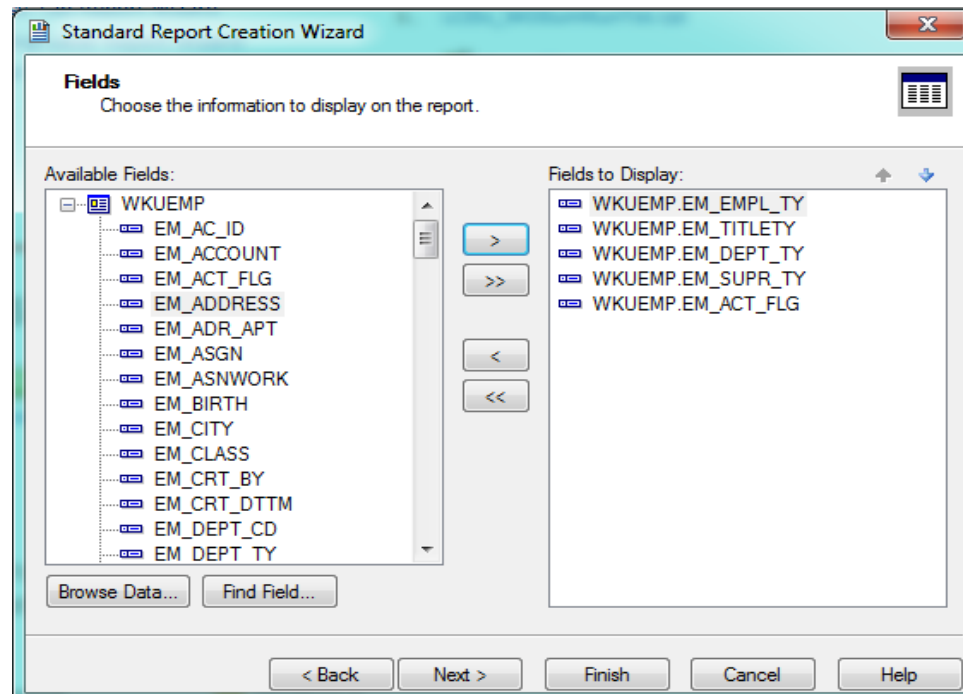


## Bring in Tables

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

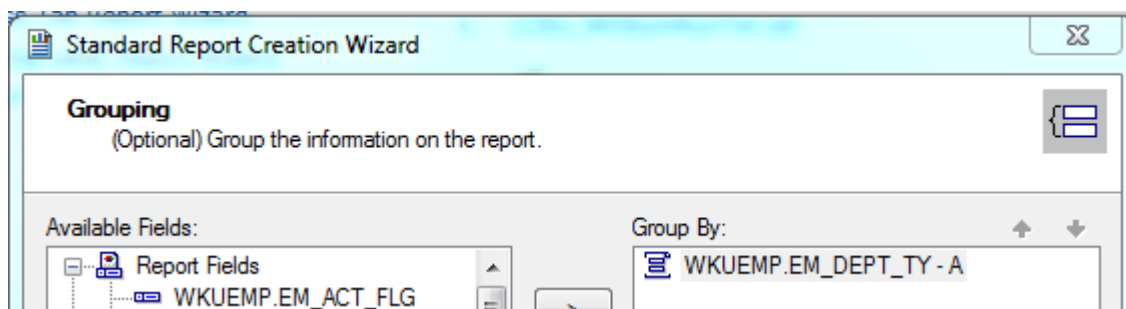
8. Select the fields you would like to have in the report and move them to the right-hand box titled *Fields to Display*.



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*.
  - o Since we would like to group this report by **Department**, move the **EM\_DEPT\_TY** field to *Group By*.

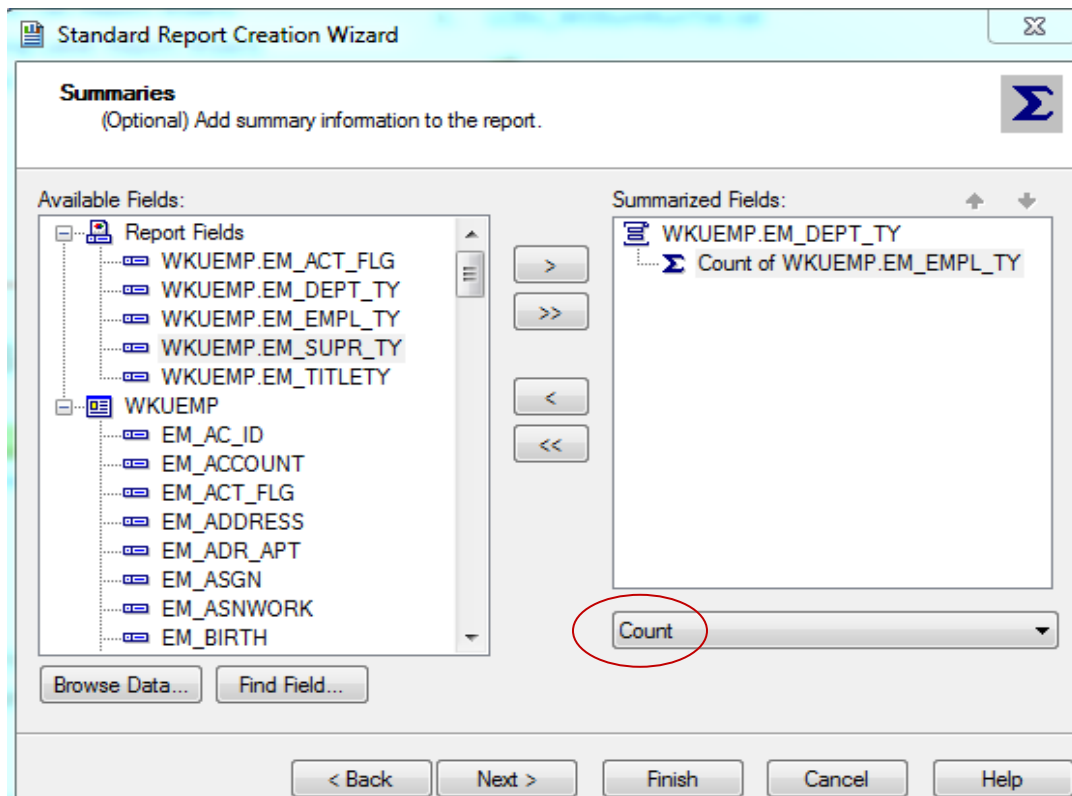


11. Click *Next*.

## Summaries

12. You may also choose fields to summarize.

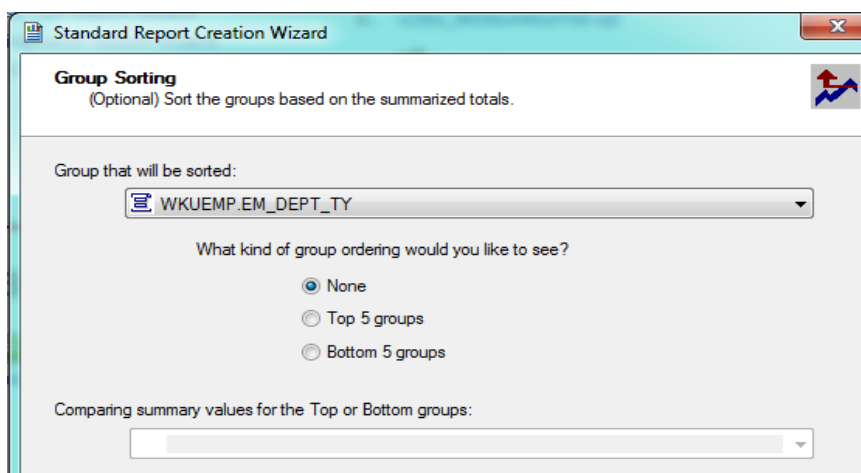
- For our example, we'd like to count the number of Employees (EM\_EMPL\_TY).
- You'll need to select the type of summary from the drop-down box at the bottom of the dialog. For our example, we've chosen *Count*.



13. Click *Next*.

## Group Sorting

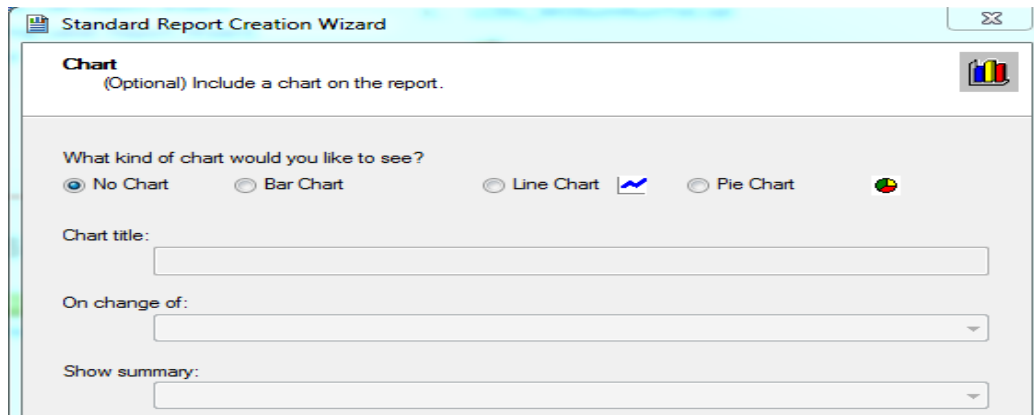
14. There is also a *Group Sorting* option. There is only one group so this is already in the sort box.



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.

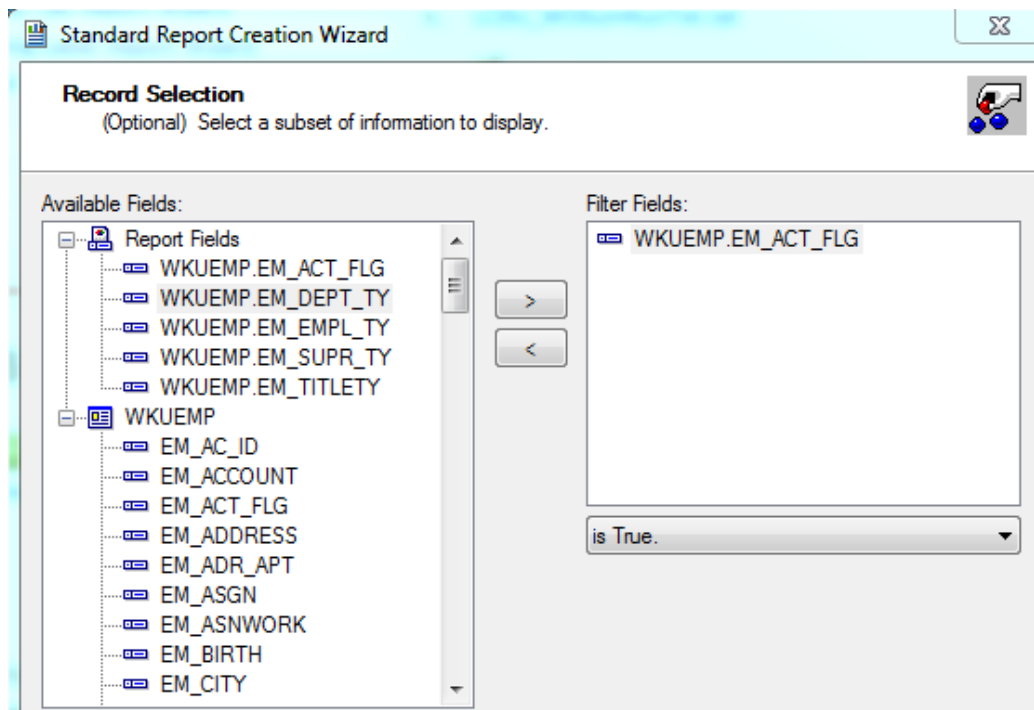


The screenshot shows the 'Chart' screen of the 'Standard Report Creation Wizard'. The title bar says 'Standard Report Creation Wizard'. The main heading is 'Chart' with a subtitle '(Optional) Include a chart on the report.' Below this, a question asks 'What kind of chart would you like to see?'. There are five radio button options: 'No Chart' (selected), 'Bar Chart', 'Line Chart', 'Pie Chart', and a small pie chart icon. Below the radio buttons are three text input fields: 'Chart title:', 'On change of:', and 'Show summary:'. Each field has a corresponding dropdown arrow on the right.

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*.

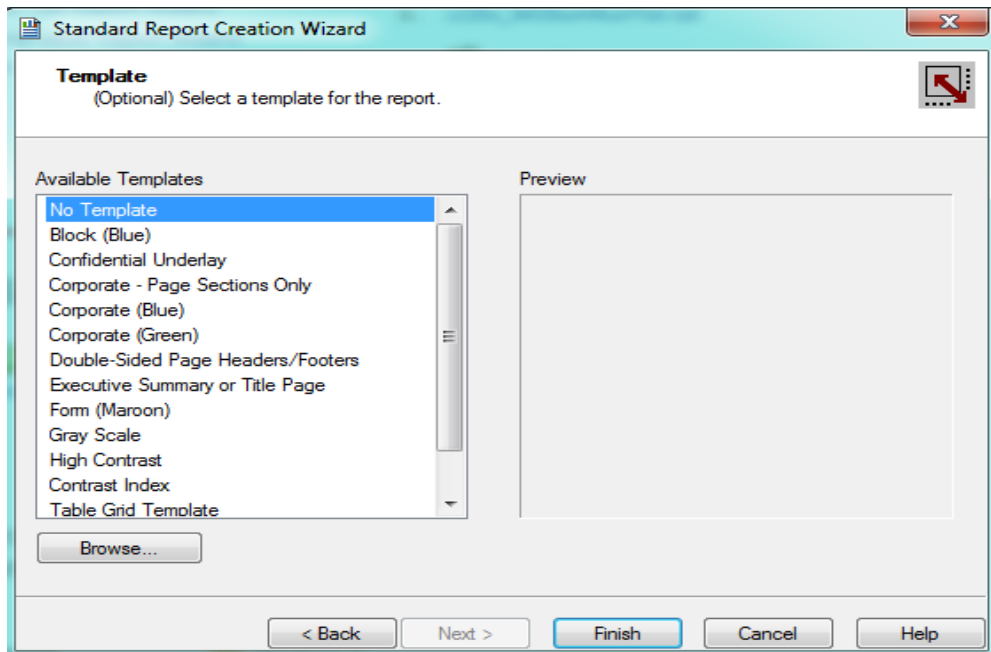


The screenshot shows the 'Record Selection' screen of the 'Standard Report Creation Wizard'. The title bar says 'Standard Report Creation Wizard'. The main heading is 'Record Selection' with a subtitle '(Optional) Select a subset of information to display.' Below this, there are two main sections: 'Available Fields' and 'Filter Fields'. The 'Available Fields' section contains a tree view with 'Report Fields' and 'WKUEMP' categories. Under 'Report Fields' are 'WKUEMP.EM\_ACT\_FLG', 'WKUEMP.EM\_DEPT\_TY', 'WKUEMP.EM\_EMPL\_TY', 'WKUEMP.EM\_SUPR\_TY', and 'WKUEMP.EM\_TITLETY'. Under 'WKUEMP' are 'EM\_AC\_ID', 'EM\_ACCOUNT', 'EM\_ACT\_FLG', 'EM\_ADDRESS', 'EM\_ADR\_APT', 'EM\_ASGN', 'EM\_ASNWORK', 'EM\_BIRTH', and 'EM\_CITY'. The 'Filter Fields' section contains a list box with 'WKUEMP.EM\_ACT\_FLG' selected. Below the list box is a dropdown menu with 'is True.' selected. There are also '>' and '<' buttons between the two sections.

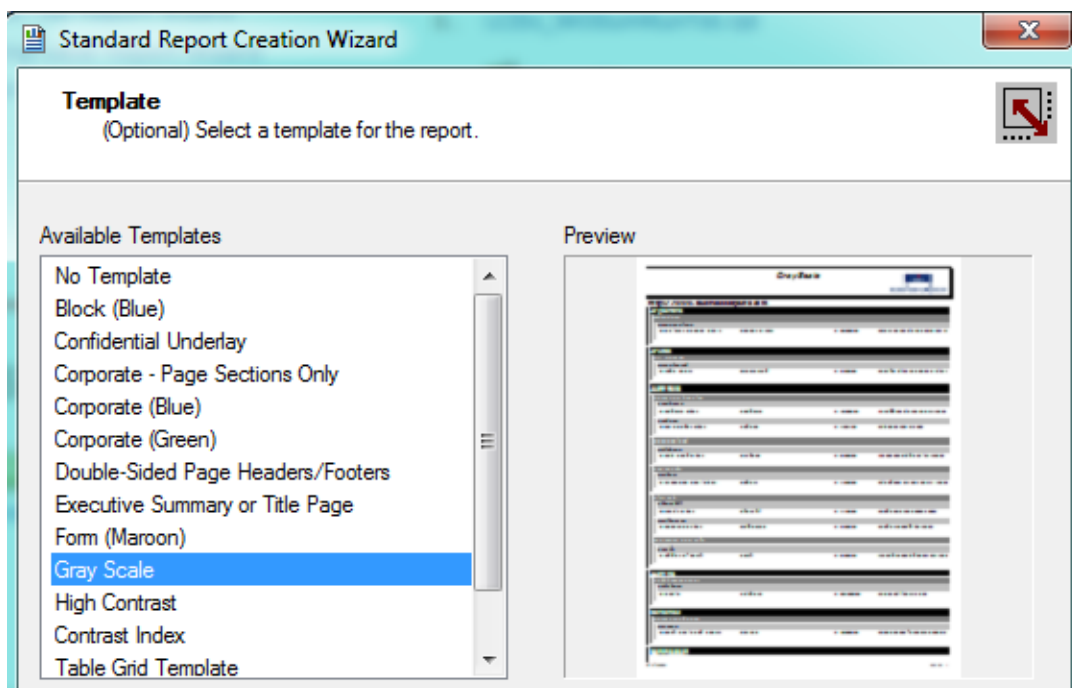
19. Click *Next*.

## 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:

Start Page Report1 x

Design Preview

Print Date

EM\_DEPT EM\_EMPL EM\_TITLE EM\_SUPR EM\_ACT\_F

Group #1 Name

EM\_DEPT\_TY EM\_EMPL\_TY EM\_TITLE\_TY EM\_SUPR\_TY EM\_ACT\_FLG

Group #1 Name

Grand Total

Page Number

## Preview

Start Page Report1 x

Design Preview X

3/2/2014

EM\_DEPT\_TY EM\_EMPL\_TY EM\_TITLE\_TY EM\_SUPR\_TY EM\_ACT\_FLG

Facilities Maintenance

Facilities Maintenance	HONG MAN			True
Facilities Maintenance	DICK CRISTOPH		JAMES WOOD	True
Facilities Maintenance	NICK WORTH		JAMES WOOD	True
Facilities Maintenance	DYLAN OPAL			True
Facilities Maintenance	ROBERT ROTO		JAMES WOOD	True
Facilities Maintenance	JORDAN SIMPLY		JAMES WOOD	True
Facilities Maintenance	FRED KELLEY		JAMES WOOD	True
Facilities Maintenance	JAMES WOOD		RYAN SEASON	True
Facilities Maintenance	ADAM ADAMS		JAMES WOOD	True
Facilities Maintenance		9		

Facilities Maintenance

Fire Operations

Fire Operations	STEW TALLEY		RHETT BOSTON	True
Fire Operations	CLINT WEST		PHILLIP ALEXANDER	True
Fire Operations		2		

Fire Operations

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**).
  - o 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***

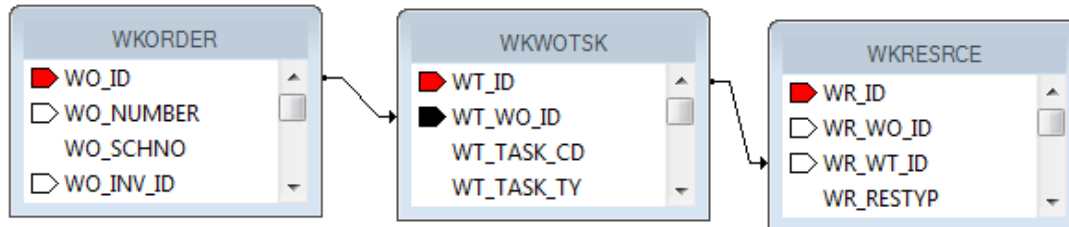
	<u>Name</u>	<u>Job Title</u>	<u>Supervisor</u>
<b><u>Facilities Maintenance</u></b>	NICK WORTH JAMES WOOD FRED KELLEY HONG MAN ADAM ADAMS DICK CRISTOPH ROBERT ROTO JORDAN SIMPLY DYLAN OPAL	COMM REFUSE SERVICE FACILITIES MANAGER SECRETARY SENIOR CUSTODIAN W OF SENIOR MAINTENANCE W OFFICE SUPERVISOR SENIOR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

28. Finally, save the report with an appropriate name under the Work family of reports (LC\_EmpByDept.rpt).

## 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.)

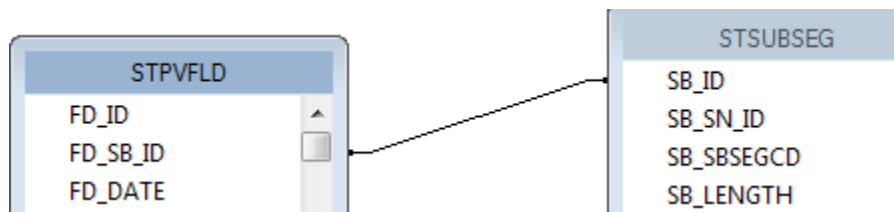
### Left Outer Join:



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.

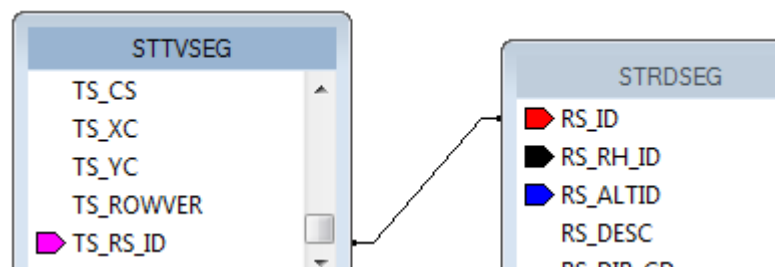
There are some cases within Lucy where an inner join is required. One example is where both Subsegment and Road share the same table (**STPVFLD**) for storing Inspection data. Chances are good that you would not use both Subsegment and Road so this shouldn't be an issue but if you do, then an inner join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



Example 15

## 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.

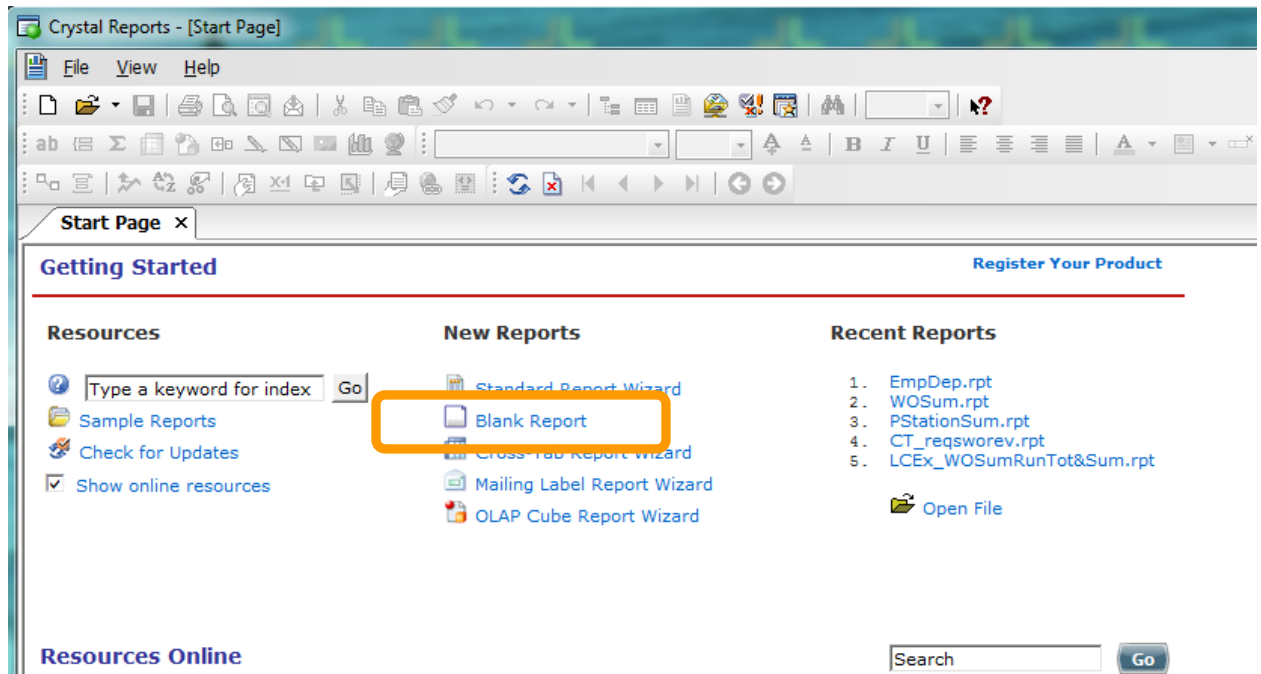
It will *show* Lamping Date Inspected (descending), Time (descending), US or DS, Cleaning and Deposition.

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**.

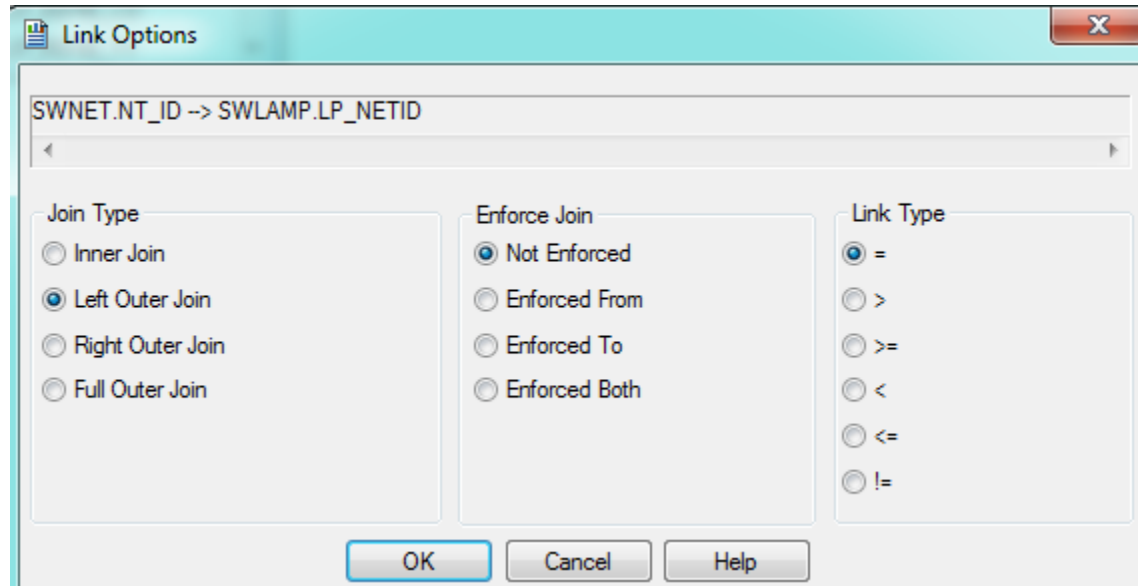
## Link Tables

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.

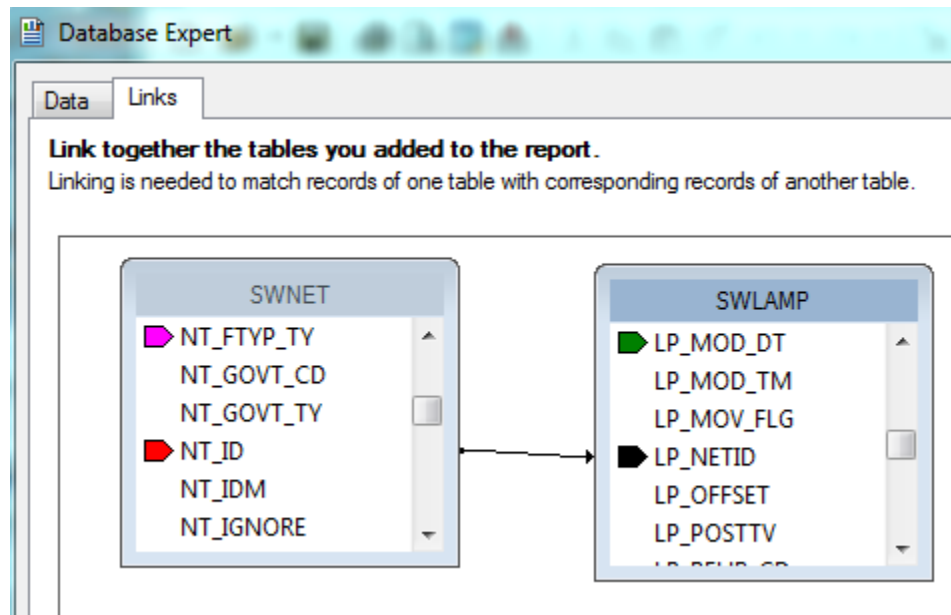
**NT\_ID** links to **LP\_NETID**

- 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.
  - o 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.
  - o 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).
  - o Change to **Left Outer Join**.



- o 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.

Design	
	1 2 3 4 5 6 7 8
RH	
PH	
D	
RF	
PF	

9. Give the report a name. *File >> Save As.*

- Make sure you save the report in the proper report file. For our example, select the **Sewer** file.
- The name for this report will be **LC\_SWPipeLamping.rpt.**

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

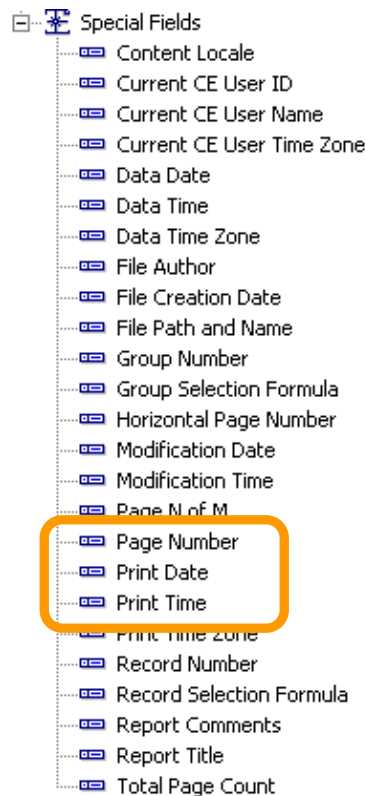
10. Insert a logo in the **Report Header**.

Design	
	1 2
RH	

## 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)

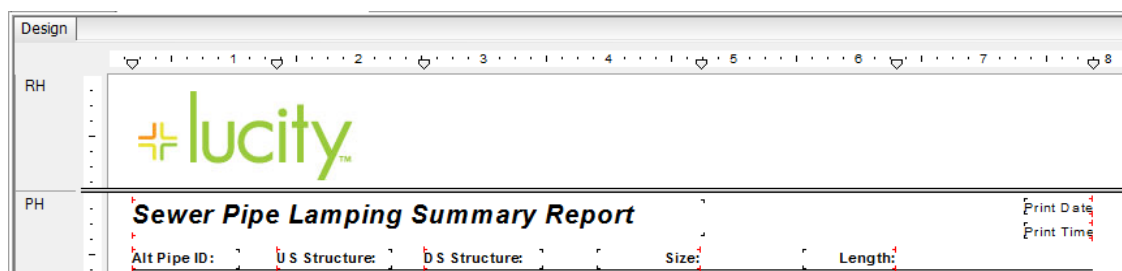


12. Create a report title in the *Page Header* section.

- 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.

PH	<b>Sewer Pipe Lamping Summary Report</b>					Print Date
	Alt Pipe ID:	U S Structure:	D S Structure:	Size:	Length:	Print Time
GH1a	NT_NUMBER	NT_USMAN	NT_DSMAN	J_DIA	LENGTH	
GH1b	Lamping Date	Time	U S or D S	Cleaning	Deposition	

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

PH	<b>Sewer Pipe Lamping Summary Report</b>					Print Date
	Alt Pipe ID:	U S Structure:	D S Structure:	Size:	Length:	Print Time
GH1a	NT_NUMBER	NT_USMAN	NT_DSMAN	J_DIA	LENGTH	
GH1b	Lamping Date	Time	U S or D S	Cleaning	Deposition	
GH2	Group #2 Name					
GH3	Group #3 Name					
D	@LampDate	@LampTime	LP_INMH_TY	LP_CLN_TY	LP_DPO_TY	
GF3						
GF2						
GF1						



## Conditional Formatting

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

- Right click @LampDate, select *Format Field...*
- Font* Tab, click the formula box next to *Color*:
- Enter the following formula:
- if ({SWLAMP.LP\_LATEST} and {@LampDate} < printdate - 365) then crRed else crBlack
- Save and close*
- OK*

Alt Pipe ID:	U S Structure:	D S Structure:	Size:	Length:
1000	113495	113497	8	170.80
<i>Lamp ping</i>				
<u>Date</u>	<u>Time</u>	<u>U S or D S</u>	<u>Cleaning</u>	<u>Deposition</u>
3/1/2009	10:00 am	Up	No	N/A
2/3/2008	7:54 am	Up	Yes	Mud
2/9/2007	2:03 pm	Up	No	Rock s
1001	113486	127237	8	412.00
<i>Lamp ping</i>				
<u>Date</u>	<u>Time</u>	<u>U S or D S</u>	<u>Cleaning</u>	<u>Deposition</u>
8/3/2013	8:52 am	Up		
2/23/2006	10:52 am	Up	Yes	Mud
1002	113487	113486	8	401.40
<i>Lamp ping</i>				
<u>Date</u>	<u>Time</u>	<u>U S or D S</u>	<u>Cleaning</u>	<u>Deposition</u>
5/23/2004	11:08 am	Up	N/A	Mud
1003	113493	113494	8	49.10
<i>Lamp ping</i>				
<u>Date</u>	<u>Time</u>	<u>U S or D S</u>	<u>Cleaning</u>	<u>Deposition</u>
1004	113625	113624	8	401.40


## 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.
  - Click on *Section Expert* .
  - Click on *Group Header #1b* to highlight.
  - 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
<i>Lam ping</i>				
<u>Date</u>	<u>Time</u>	<u>US or DS</u>	<u>Cleaning</u>	<u>Deposition</u>
5/23/2004	11:08 am	Up	N/A	Mud
1003	113493	113494	8	49.10
1004	113625	113624	8	401.40

Example 16

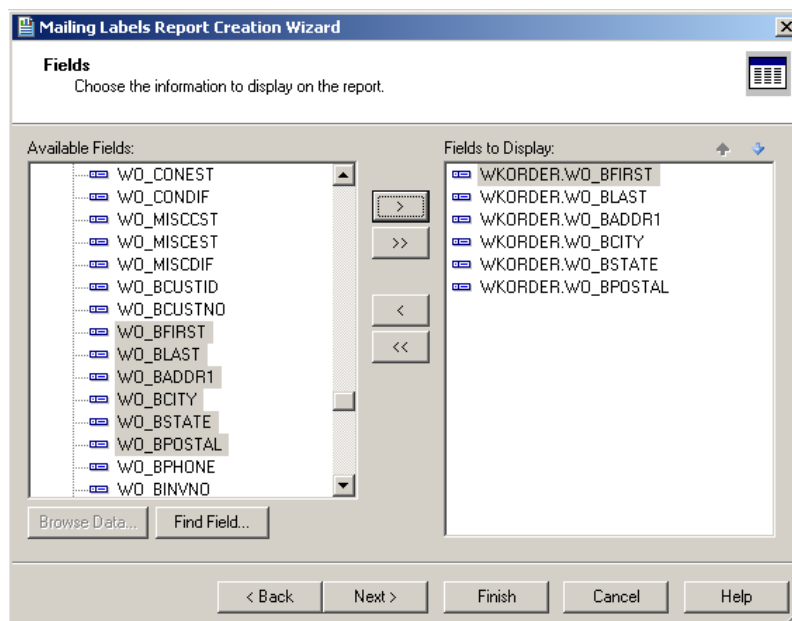
## Mailing Labels

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.

**Mailing Labels Report Creation Wizard**

**Label**  
Choose the label type.

Mailing Label Type:  
Address (Avery 5262)

Label Size:  
Width: 4.000 in  
Height: 1.333 in

Gap Between Labels:  
Horizontal: 0.188 in  
Vertical: 0.000 in

Page Margins:  
Top: 0.833 in  
Bottom: 0.833 in  
Left: 0.156 in  
Right: 0.156 in

Printing Direction:  
☒ Across Then Down  
☐ Down Then Across

Number of Labels:  
Across Page: 2  
Down Page: 7

< Back   Next >   Finish   Cancel   Help

- 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:

RH				
PH				
Da	WO_BFIRST		WO_BFIRST	
Db	WO_BLAST		WO_BLAST	
Dc	WO_BADDR1		WO_BADDR1	
Dd	WO_BCITY		WO_BCITY	
De	WO_BSTATE		WO_BSTATE	
Di	WO_BPOSTAL		WO_BPOSTAL	
RF				
PF				

- 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})
```

Da	@Name	@Name
Db	WO_BADDR1	WO_BADDR1
Dc	@CityState	@CityState
Dd	WO_BPOSTAL	WO_BPOSTAL
RF		

## 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.

The screenshot shows the 'Section Expert' dialog box with the 'Layout' tab selected. On the left, a list of sections includes 'Report Header', 'Page Header', 'Details' (highlighted), 'Details a', 'Details b', 'Details c', 'Details d', 'Page Footer', and 'Report Footer'. Above this list are buttons for 'Insert', 'Delete', 'Merge', and arrows for moving sections. On the right, the 'Layout' tab contains settings for 'Detail Size' (Width: 4.000 in, Height: 1.333 in), 'Gap Between Details' (Horizontal: 0.188 in, Vertical: 0.000 in), 'Printing Direction' (radio buttons for 'Across then Down' and 'Down then Across'), and 'Number of Details' (Across Page: 2, Down Page: 7).

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