



TRAINING GUIDE

Beyond the Basic Crystal



Beyond the Basic Crystal Reports

The following items are just a few issues encountered in creating custom reports.

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Important items shown elsewhere:

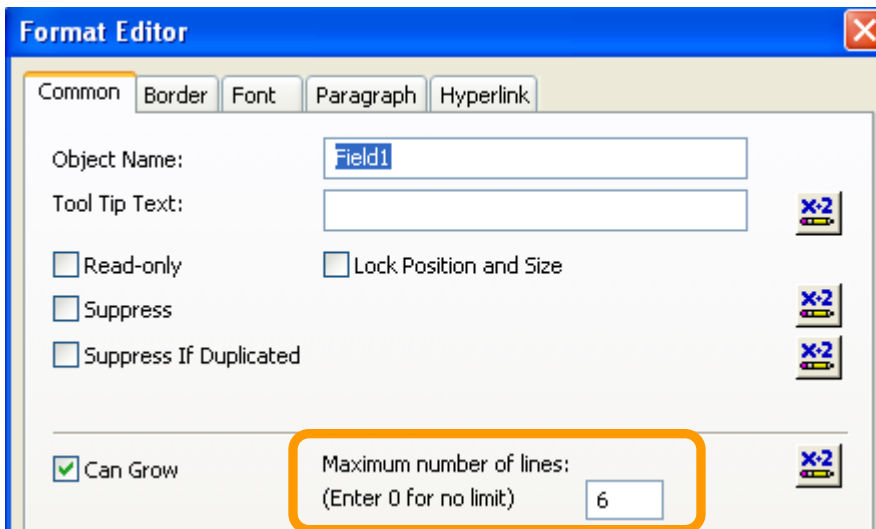
1. Exporting a report so that the report stays pointed correctly to your data. Beginning Examples -1 (BE1)
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16. Unlinked Subreports – AE3

Good to Know:

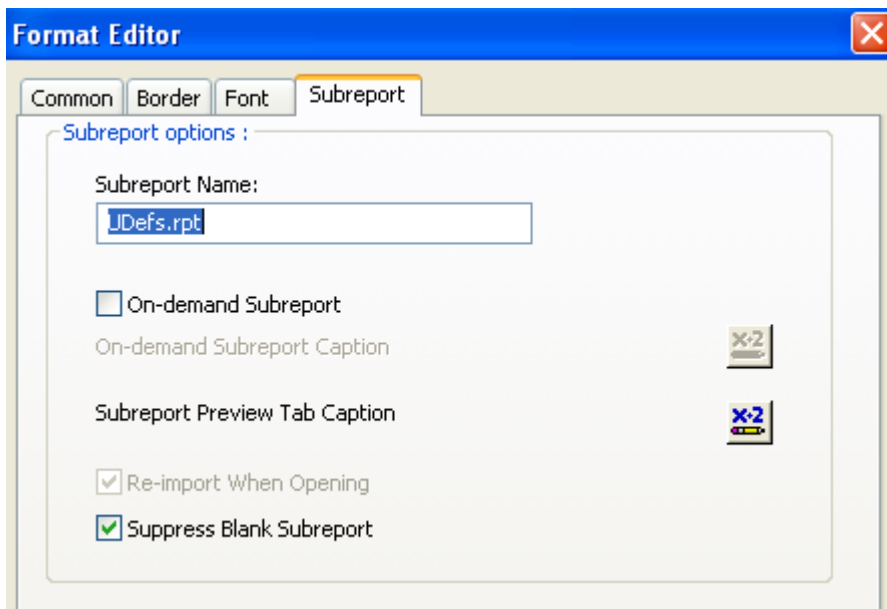
1. You can bring two tables into a report with the same name. Crystal will add _1 to the second table distinguishing it from the first table. For example, this is helpful when creating reports with Upstream and Downstream structures. Sewer - (NTInvlmg.rpt)
2. You can create a new section in a report by just placing your cursor on the left edge of the report until two arrows and a bar appear. Left click, hold down and wiggle slightly to create a break. This can save you lots of time when moving fields around.
3. You can click and drag sections around to switch the order.

Notes: _____

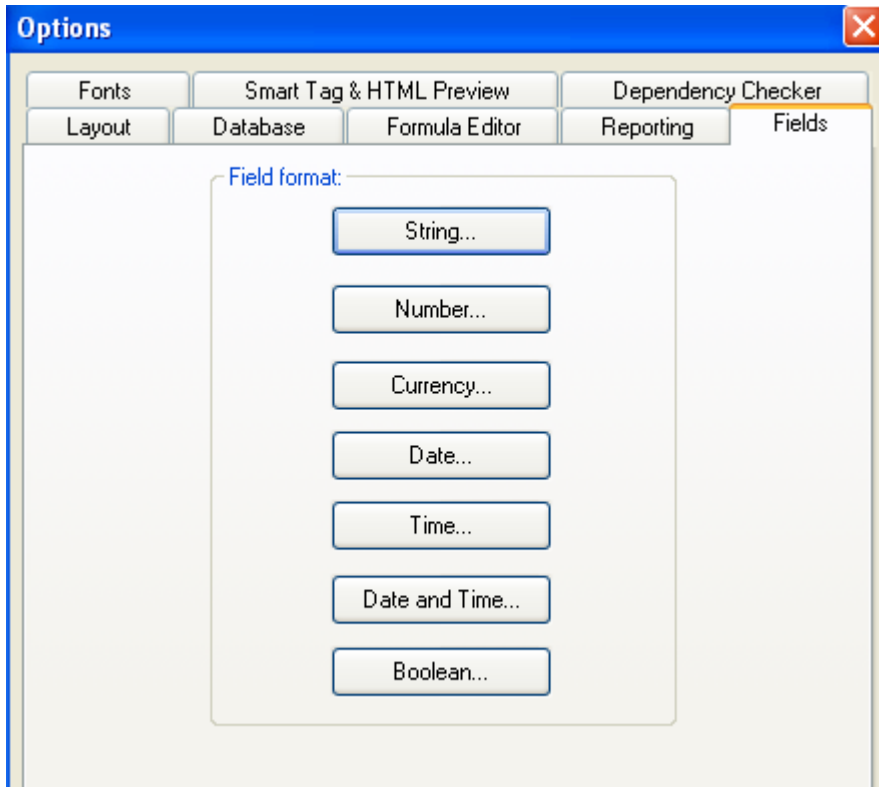
4. If you are having issues with a field not showing all the text, check the “Can Grow” option and its options. Work – old version(RTDetail.rpt)



5. If you have a Detail report that takes a LONG time to open, check the UDefs.rpt subreport at the top of the report and the Comment subreport at the bottom of the report. Open the Format Editor dialog box for the Subreport and click on the Subreport tab. Make sure the “Re-import When Opening” check box is NOT checked. Sometimes this option is silver and can't be changed.



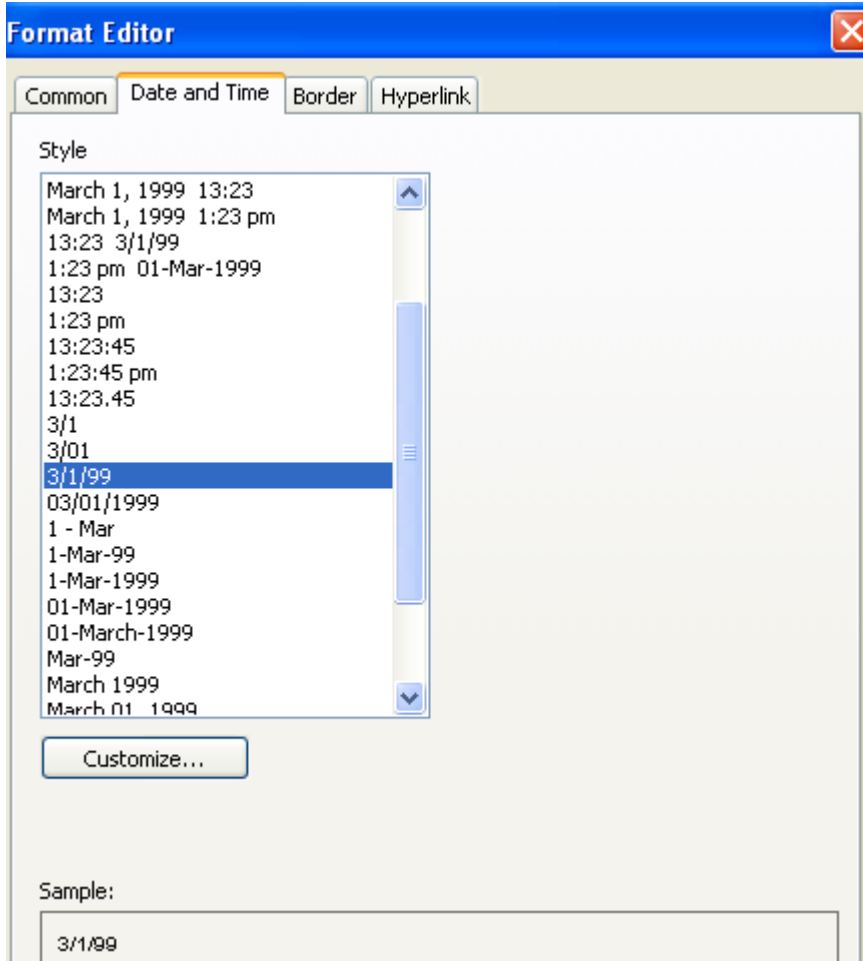
- Date fields are actually DateTime fields. The date portion has always been extracted by putting it into a formula before bringing it into a report. Another way to achieve this is within the Options section there is a Fields tab.



Notes: _____

Within the “Date and Time...” box there are options for this field. You can format this field here and skip the formula step when bringing in the date fields.

However; if the date field will be used within a formula, use the date formula for the field.



Conversions

The fields in Lucity can be a variety of types like numeric or text. If the fields are used in a formula, then all of the pieces need to be the same type of data. You can use conversion formulas:

ToText(x)

ToString(x)

ToNumber(x)

To go from all caps to “Normal Text” use the following formula:

ProperCase({WKRESRCE.WR_RSRC_TY})

To get years to show up without a comma.

ToText(Year ({?Post Date}),0,"

Subreports: 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.

No	Task Text	Task Start Date	Task End Date	Status Text
2	Sewer Line Cleaning	07/07/2006	07/07/2006	F
1	Sewer Line Cleaning	07/06/2006	07/06/2006	F

Group	Type	Resource	Resource Text	UOM	Units
	Employee	3	FRED MASON	Hours	0.50
	Employee	87	SHIELA KAMDON	Hours	0.50
	Employee	144	ZACH TURTLE	Hours	0.50

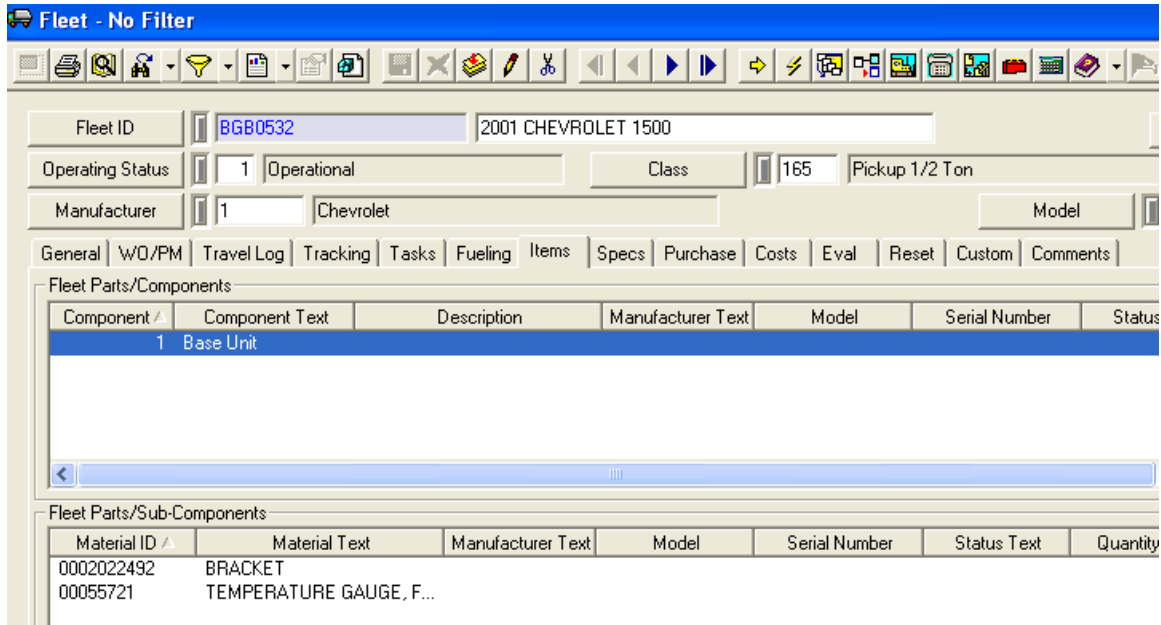
The *TaskRes.rpt* subreport in the **Work Order Detail** report (WODetail.rpt) shows this relationship.

Group	Field	Value
RHa		/sprint/06
RHb	Tasks/Resouces	
GH1	@Task	
	Crew: WT_CREW_TY	
	Supervisor: WT_SUPR_TY	
GH2	WR_RTYP_TY	
	Time Type	
	Resource	
D	Reg	OT
	Normal Type	
RFb	Total Time	Units
	Total Cost	

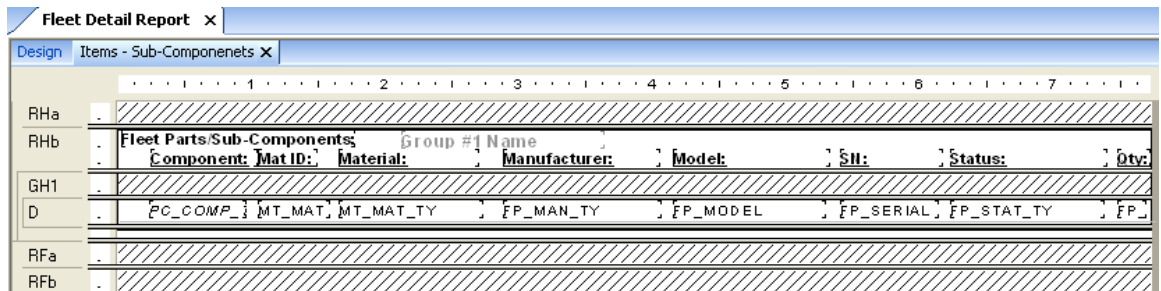
The first group (GH1) is the Work Task and the second group (GH2) is the listing of the Resources associated with each Task.

Notes:

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



In the Fleet Detail report (FLDet.rpt) there are separate Component and Sub-Component subreports; however, the Sub-Component groups on the Component (GH1) before it lists the parts.



Notes: _____

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

Work Orders - No Filter

Work Order # 2006-01610 Category

Status 2 New Work Order Problem

Status Date 07/06/2006 10:23 AM Main Task

WO Location Assets List/Events Tasks/Res Routing Costs Billing F

Daily Inspections

Inspection Date ^	Report #	Master Project ID	Master Pro
08/31/2009	1		

Daily Inspections - Unnamed Filter Set

Daily Inspect Rec # 10 Work Order # 2006-01610

Inspection Date 08/31/2009 Employee 1 RICK HONAS

General Contractors Staff/Equipment Construction Activity Field Work Custom Comments

Staff

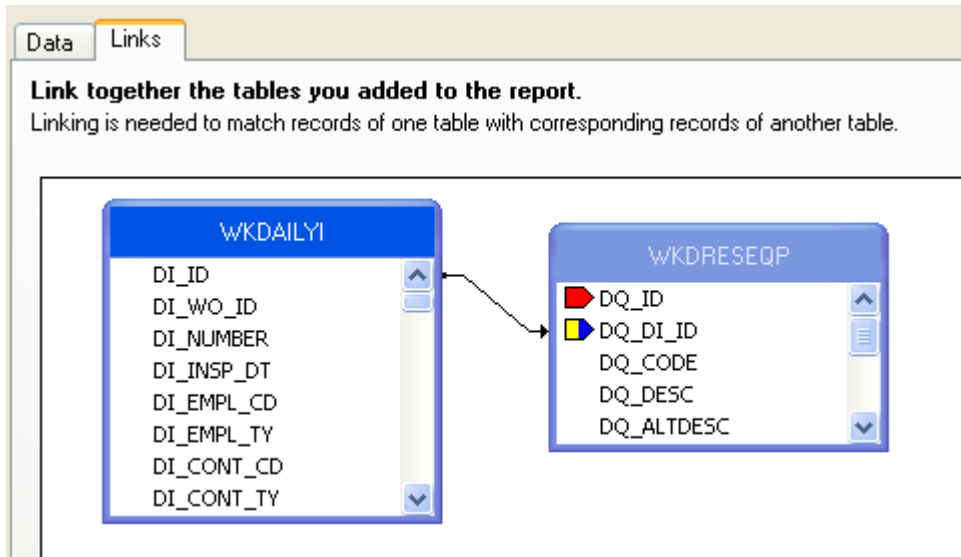
Type ^	Type Text	Quantity
1	Foreman	1
3	Labor	2

Equipment

Equipment	Equipment Description	In Use	Quantity	Model
BGS0385	1998 CHEVROLET SILVERADO	No		
PDP0293	2005 FORD CROWN VIC	No		

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.

The screenshot shows a report design grid for a report named 'Inspections'. The grid is organized into sections:

- RHa**: A shaded header section.
- RHb**: A section containing a subreport titled 'Daily Inspections'. The subreport has a header with fields: Insp Date, Report #, Master Project ID, Master Project Name, Sub-Project ID, Sub-Project Name, and Rec Lock. Below the header is a section titled 'Equipment'.
- GH1**: A group header section with fields: @InspDt, MBER, DI_MP_NUM, DI_MP_NAME, DI_PJ_NUM, DI_PJ_NAME, and DI_U.
- D**: A detail section with fields: DQ_CODE and DQ_DESC.
- GF1**: A shaded footer section.
- RFb**: A shaded footer section.

Notes: _____

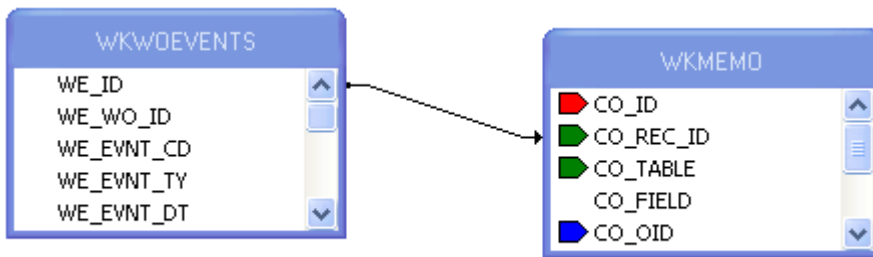
Adding Comments to Non Comment Subreports

Option 1

Subreports may not be put in subreports. So, adding a Comment section that is in a separate MEMO table seems impossible to add to a section in a report that is already a subreport.

A client wanted the Comment for Events added to the Work Order Detail Report. Events is a subreport of this Report. It was done as follows:

1. Bring in the WKMEMO table and link.



2. Group on the ID of the subreport table (WKWOEVENTS).
3. Create a formula (Text) to grab the text of the correct Memo field.

```
WhilePrintingRecords;  
Shared stringVar Text ;  
  
If {WKMEMO.CO_FIELD}="WE_MEMO1" then  
Text:={WKMEMO.CO_TEXT}
```

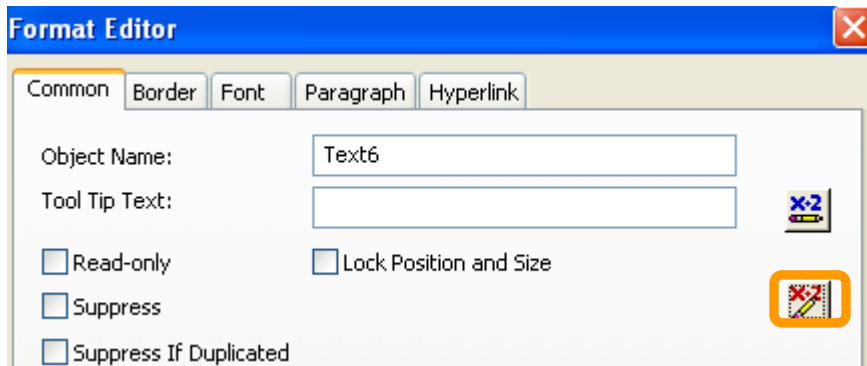
4. Create a zero formula (Zero) for this variable and place it in the group header. The zero in this case is a space " " instead of a zero (0) because it is a string variable.

```
WhilePrintingRecords;  
Shared stringVar Text:=" ";
```

5. Place report info in Group Footer
6. Create another Group Footer section for the Comment.
7. Place Comment text formula (CommentTxt) in the second footer section. Make sure this field is allowed to grow.

```
WhilePrintingRecords;
Shared stringVar Text ;
Text
```

8. For the Comment text field use a suppress formula when the text variable is blank.



```
WhilePrintingRecords;
shared stringVar Text ;
Text=" "
```

9. In Section Expert select Suppress Blank Section for the second Group Footer.

Notes: _____

Option 2

Here is another way in which a Comment was brought into a subreport.

The comment was added to the Notifications subreport within the Request Detail Report.

Notifications					
Initiated Date	Initiated By	Agency	Contact	Purpose Text	
10/20/2009	GBA	DEF	Ted		
10/20/2009	GBA	ABC	Babs	Follow Up	

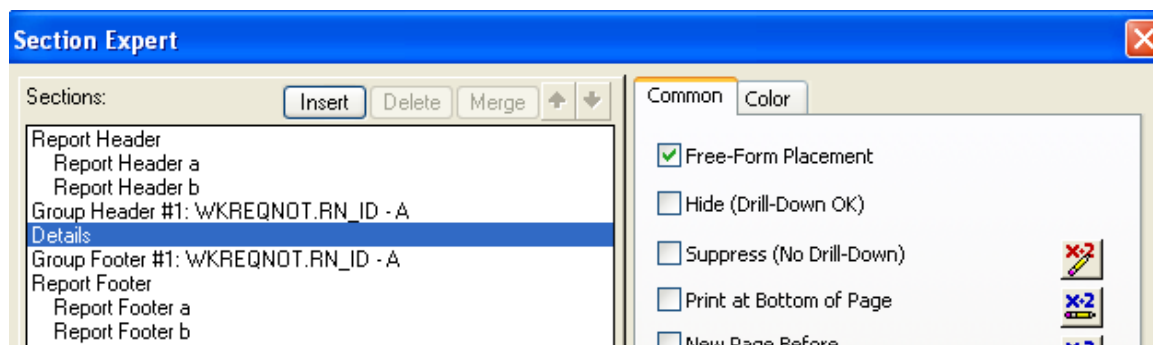
Notification Comments	
Recorded Date	Recorded By
10/20/2009	GBA

Notifications						
Initiated By	Date	Time	Agency	Contact	Purpose	
RN_REC_BY	@Date	@Time	RN_AGENCY	RN_CONTACT	RN_PURP_TY	
@Com Date Time	NC_REC_BY	CO_TEXT				

1. Bring in the WKMEMO table and link.



2. Group on the WKREQNOT_RN_ID field and place the information from this table in the Group Header.
3. In the Detail section place the information from the WKNOTCOM table and the Text field from the MEMO table.
4. In the Section Expert, create a conditional suppression formula for the Details section.



{WKMEMO.CO_FIELD} <> "NC_MEMO1"

Image Reports

Reports using images can be helpful. There are several imaging reports used throughout the Sewer modules. The following items are necessary to bring an image into a report. We will look at the TV Observation Image Report (TVObsrlmg.rpt).

RH	@D:\pp\path	
PH		
TV Observation Image* Report		
Report Subtitle		Print Date Print Time
GH1	US Structure: NT_USMAN DS Structure: NT_DSMAN Date Inspected: @DateInsp	US Address: @USAAddress DS Address: @DSAAddress TV Direction: TL_TVDR_TY Crew: TL_CREW
GH2	Observation #: TO_0 Defect: TO_NOT2_TY Rating: TO_R_	Distance: TO_FOOT Location: TO_NOT1_TY Observed GPM: TO_FLO_
D		
GF2a	Images.rpt	
GF1a		
GF1b		
RF		
PF	Images are limited to bmp, tiff, pex, tga, jpg, plot, png	

1. First a *Parameter field* is set up:

Edit Parameter: GBAMSDOCPATH
✕

Name: Type:

List of Values: Static Dynamic

Value Field: Description Field:

Value	Description
Click here to add item	

Options:

Option	Setting
Prompt Text	Enter GBAPath:
Prompt With Description Only	False
Default Value	
Allow custom values	True
Allow multiple values	False
Allow discrete values	True

2. Then the DocPath formula is created and placed in the *Report Header*:

```
shared stringvar GBADocPath:={?GBAMSDOCPATH};
```

3. The Image subreport is in a *Group Footer*:

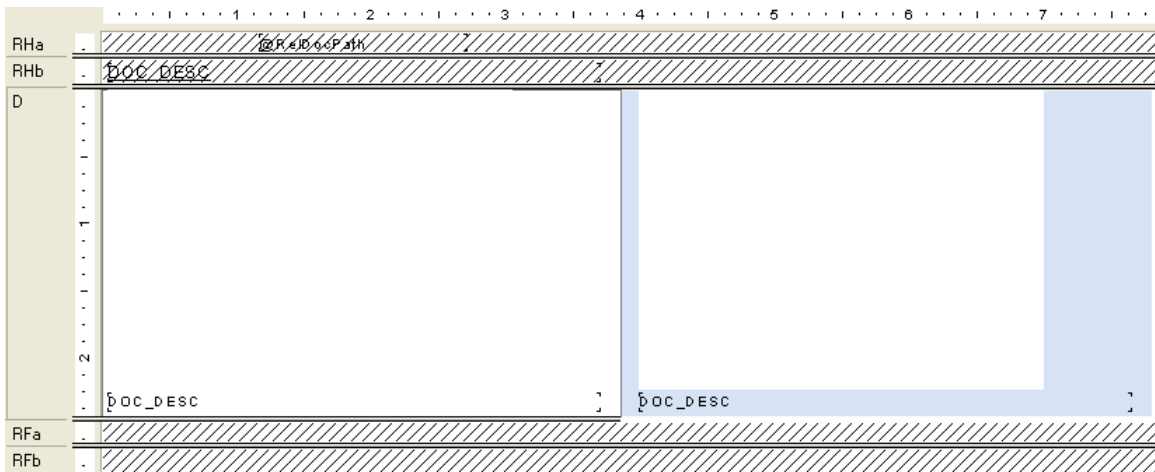
4. Within the subreport's *Select Expert* is the following selection criteria:

```
{SWDOC.DOC_PATH} Like ['*.jpg', '*.bmp', '*.jpeg', '*.tif', '*.tiff', '*.TGA', '*.PNG']
```

and

```
{SWDOC.KEY_ID} = {?Pm-SWTVOBSR.TO_OBS_ID} and
```

```
{SWDOC.CHILD_TABLE} = "SWTVOBSR"
```



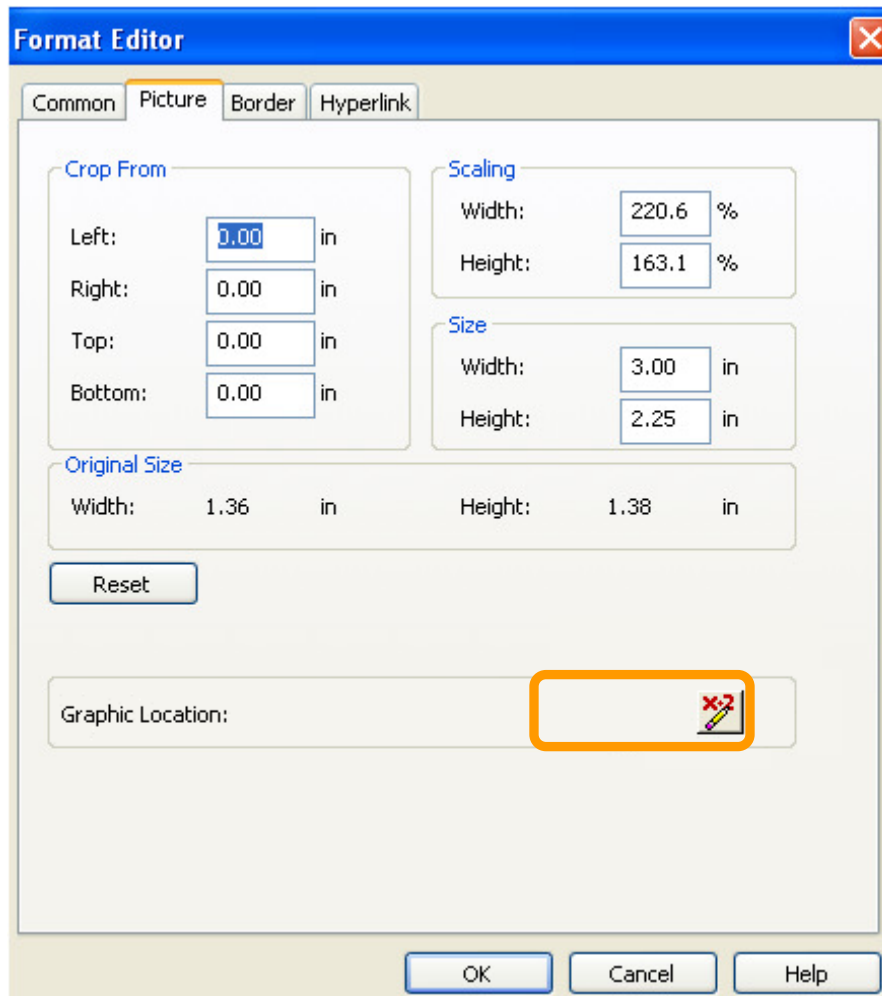
5. The **ReIDocPath** formula in the subreport *Header* looks like this:

```
shared Stringvar GBADocPath;
```

```
GBADocPath
```

Notes: _____

6. The image is in an OLE object in the *Detail* section. Right click the object, select *Format Graphic*, and then click on the *Picture* tab.



7. Click the formula button next to Graphic Location. The following formula appears:
 shared stringvar GBA DocPath;
 if left ({SWDOC.DOC_PATH},13) = "\$GBAMSDOCPATH"
 then {@ReIDocPath} + right ({SWDOC.DOC_PATH}, (Len ({SWDOC.DOC_PATH})-
 13))
 Else {SWDOC.DOC_PATH}

Notes: _____

Work Order Summary Reports and Filters

If you have a module that allows you to filter on a field that is in a grid and you plan on running a report with this field as a filter then the report may have some issues. If you have a field you wish to summarize, you need to set it up with variables.

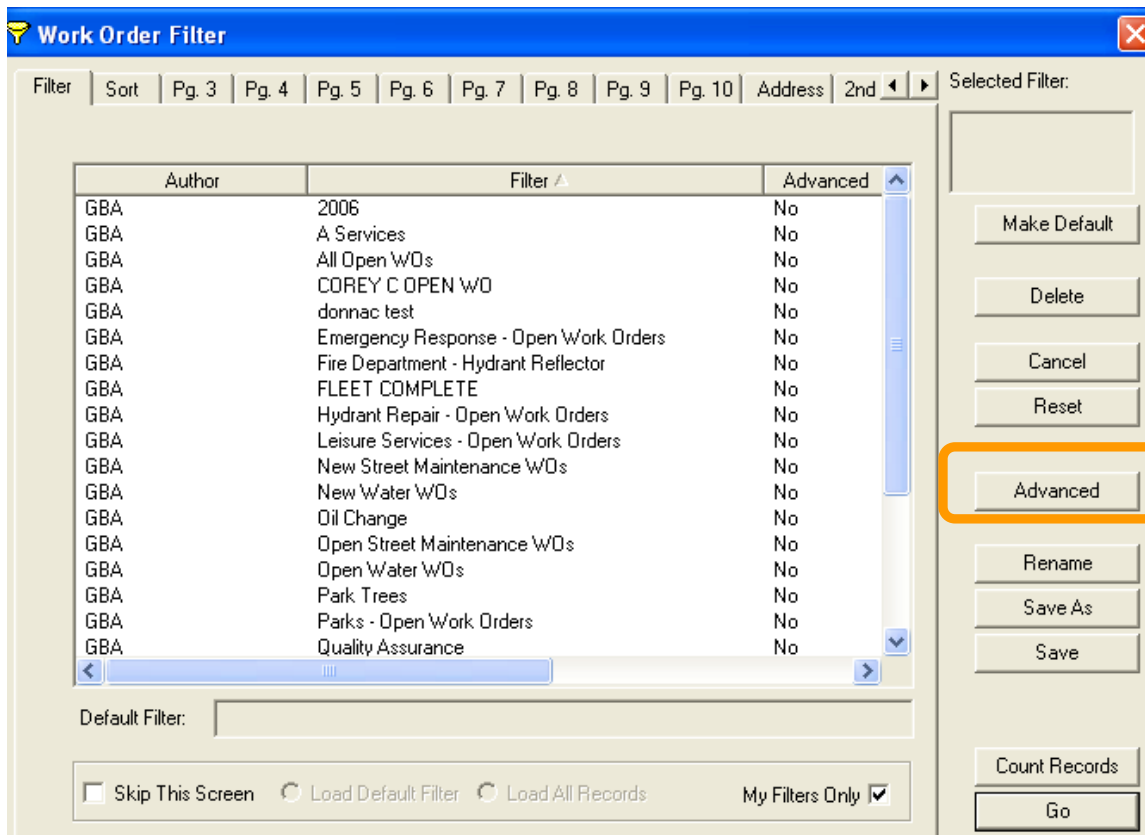
Ex. WOSumCROldNew.rpt

Filter on a grid field that has multiple values and run the report against this filter and see what the numbers do. Resource = 1 (employee) is a good one.

Lucity passes to Crystal the following statement.

```
{WKRESRCE.WR_RTYP_CD} = 1
```

This can be found in the filter screen when you click Advanced.



Then click on the "Report SQL" tab. This will show you what is being sent to the report.

When the report runs, it looks at the record every time the statement is true. If a report had three employees then it would hit the record three times.

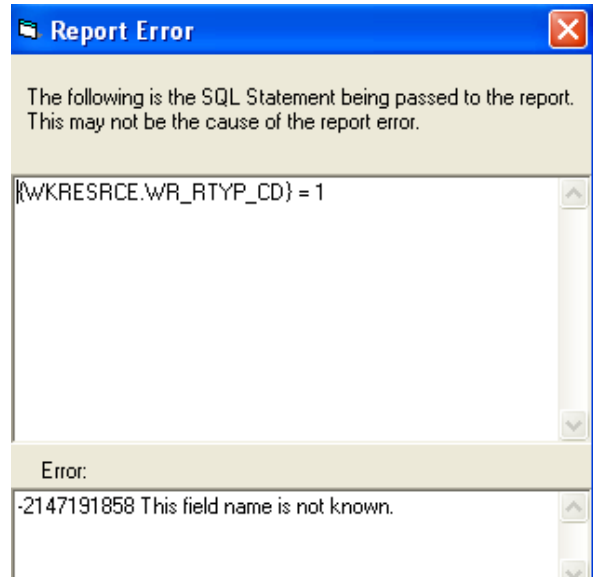
If the information being summarized is in the WKORDER table then grouping on the WO_NUMBER and setting up variables should be sufficient. If you are summarizing a field within Task or Resources you will need to further group and add more variables.

Work(WOtaskResDet.rpt)

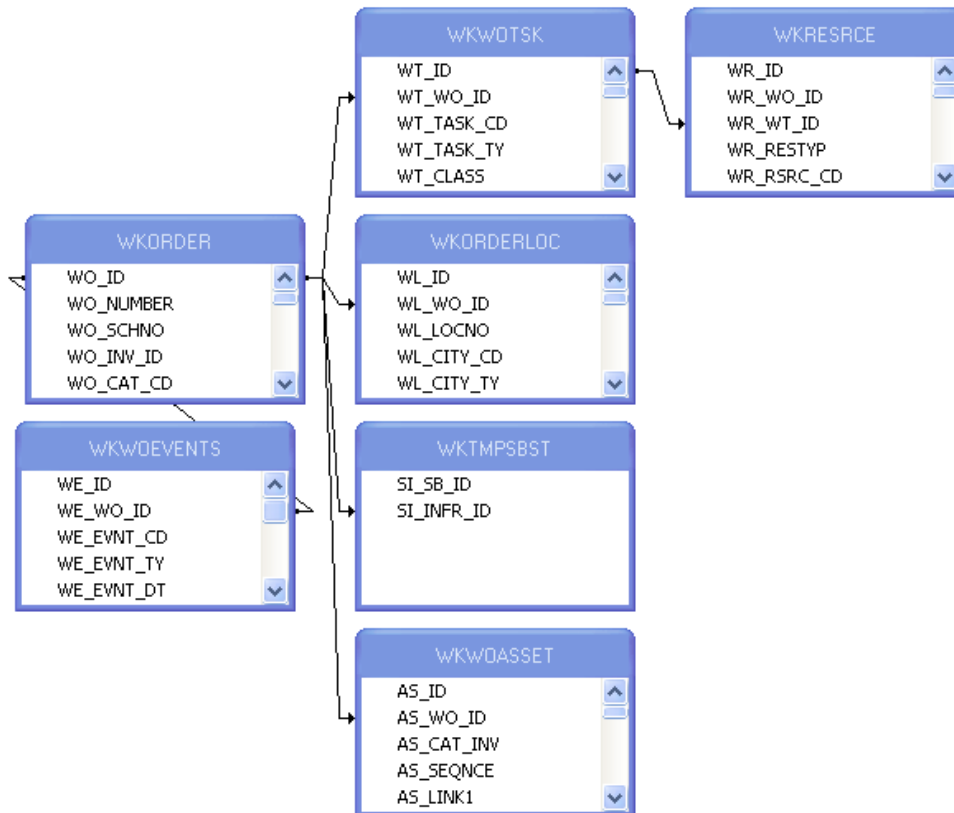
More Filtering Issues

You may have a simple report that only uses the table that the fields are pulled from. But if there is any chance that the report will be run against a filter with data from another table, then that table needs to be brought into the report.

A simple Work Order Summary report with just the WKORDER table in it will give you the following Error statement if you run it with the previous filter (RTYPE_CD=1) because it is looking for the WKRESRCE table.



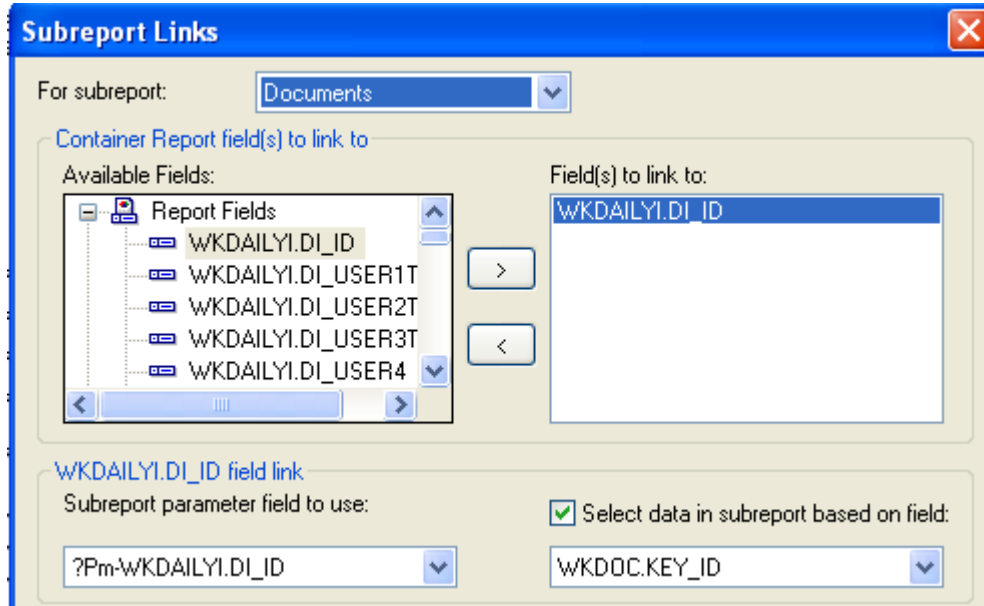
The normal Work Order Summary report has the following tree of tables in it.



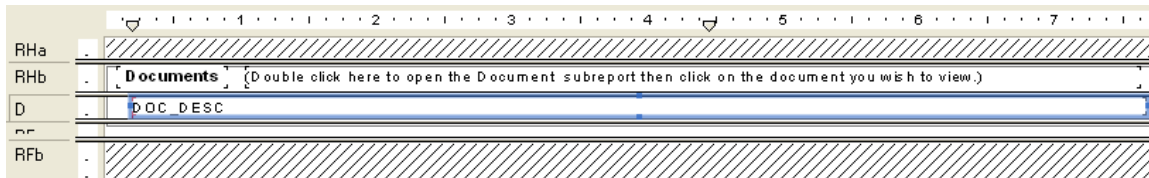
Hyperlinking

Modules can have documents attached to them. A client wished to have a link to these documents in the Daily Inspection Detail Report.

A Notification subreport was added. The subreport used the WKDOC table. It was linked as follows:



The subreport was set up like this:

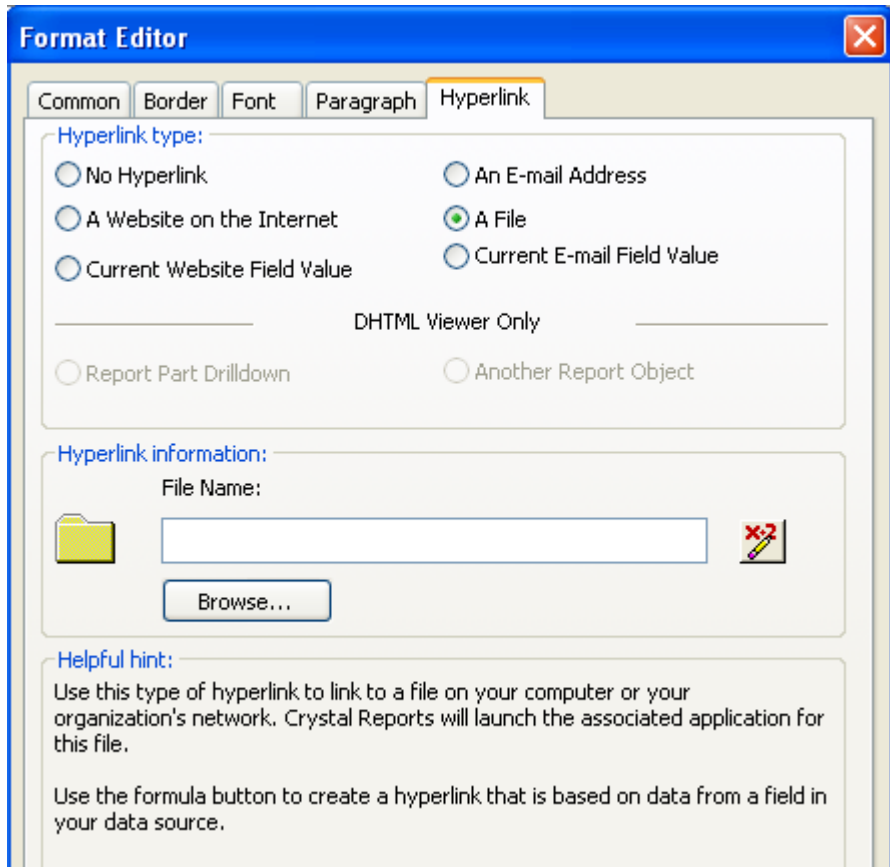


Within the Select Expert the formulas looked like this:

```
{WKDOC.MODULE_NAME}="WKDAILYI" and  
{WKDOC.KEY_ID} = {?Pm-WKDAILYI.DI_ID}
```

Notes: _____

For the DOC_DESC field you right click and select Format Field. Click on the Hyperlink tab.



In the File Name Formula Workshop bring in the Document Path field:

{WKDOC.DOC_PATH}

In the subreport Report Header add a statement so the report user knows what to do to access the documents. Something like this:

(Double click here to open the Document subreport then click on the document you wish to view.)

Notes: _____

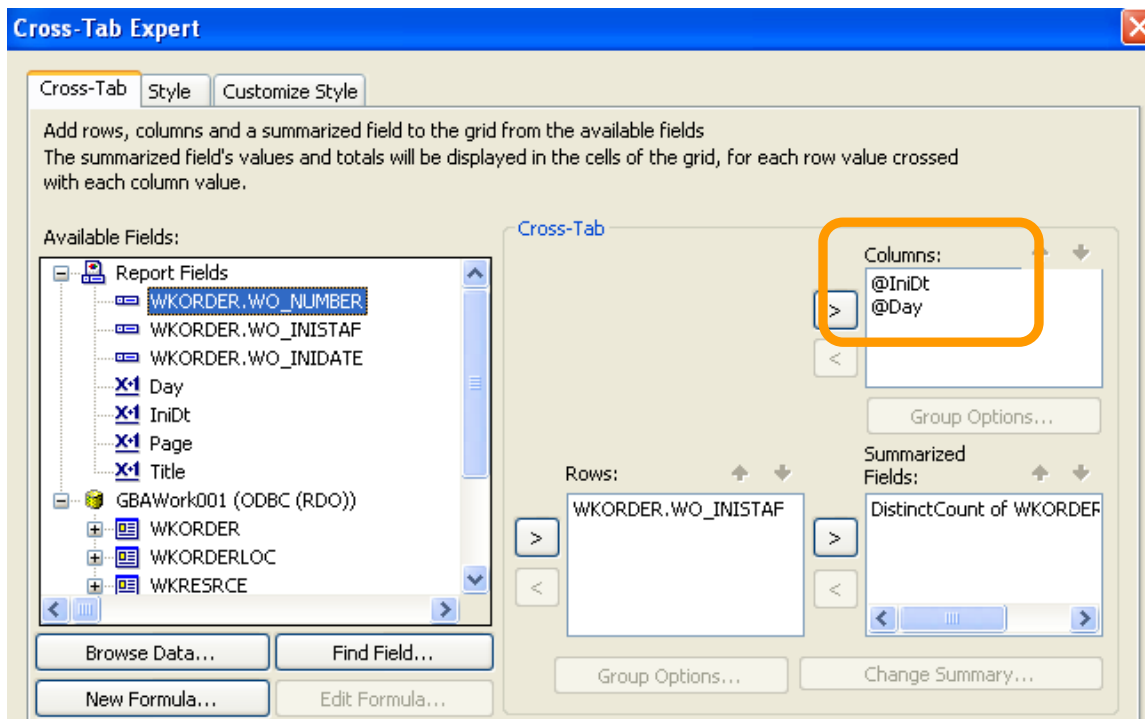
Cross-Tab Dates

This report shows the number of Work Orders a person created in a specific date range. It shows the number for each day and day of the week.

Work Order Count Report			
?Report Subtitle			
@ Title			

Group #1 Name			

GH1	WO_NUMBER	WO_INISTAF	@IniDt
D	@Day		
GF1a	ORDER.WO_NUMBER		
GF1b	WO_INISTAF		
RF		Column #1 Name	Total
		Column #2 Name	Total
	Row #1 Name	NUMBER	NUMBER
	Total	NUMBER	NUMBER



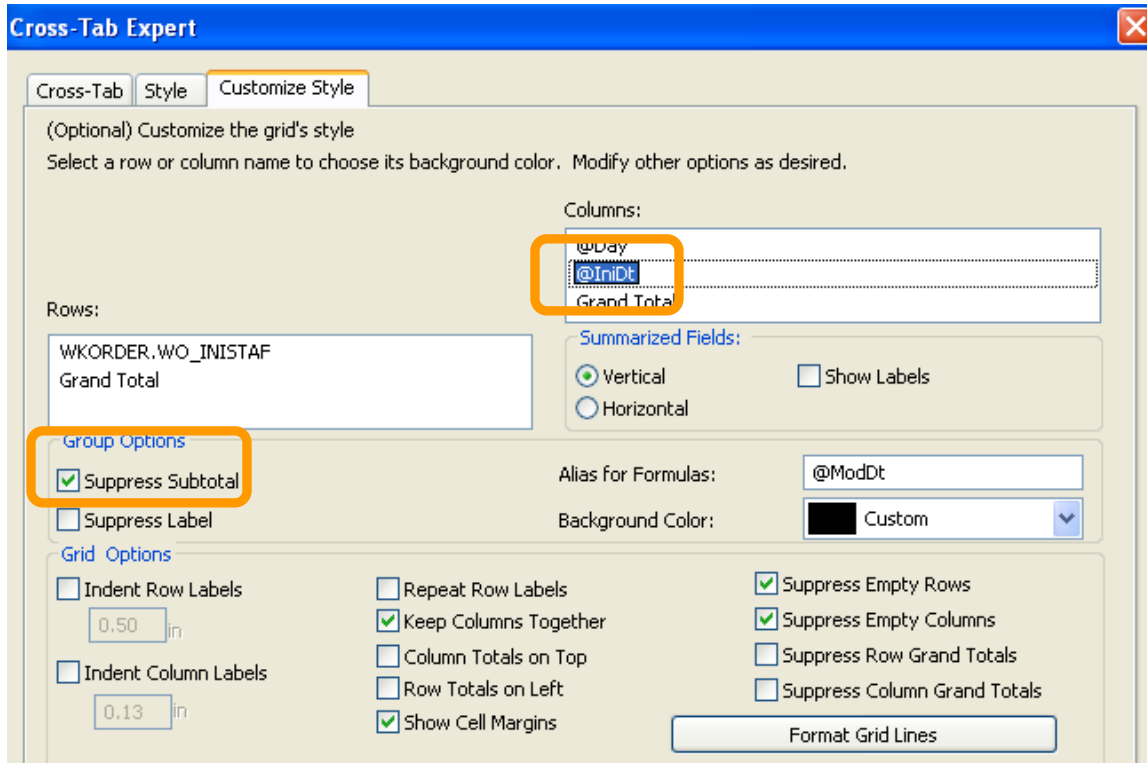
IniDt formula:

Date({WKORDER.WO_INIDATE})

Day formula:

["Sun", "Mon", "Tues", "Wed", "Thur", "Fri", "Sat"] [DayOfWeek({@InIDt})]

In the Customize Tab make sure the “suppress subtotal” box is checked.



Work Order Count Report

7/1/2010 To 8/30/2010

	7/22/10	7/28/10	Total
	Thur	Wed	
p thomas	0	1	1
y cortez	1	0	1
Total	1	1	2

To format the date field, you can right click on the date field and choose Format Field then click on the Date tab and select the formatting.

Cross-Tab Column and Row Titles

		Leave Type				
		Administrative Leave	Docked Family Leave	Docked Unexcused	Family Leave Holiday	Family Leave Sick
Employee	Ben Burges	0	0	0	0	0
	David Gossman	0	0	0	0	2.00

The titles “Leave Type” and “Employee” are part of the Cross-Tab. Formulas were created for the titles:

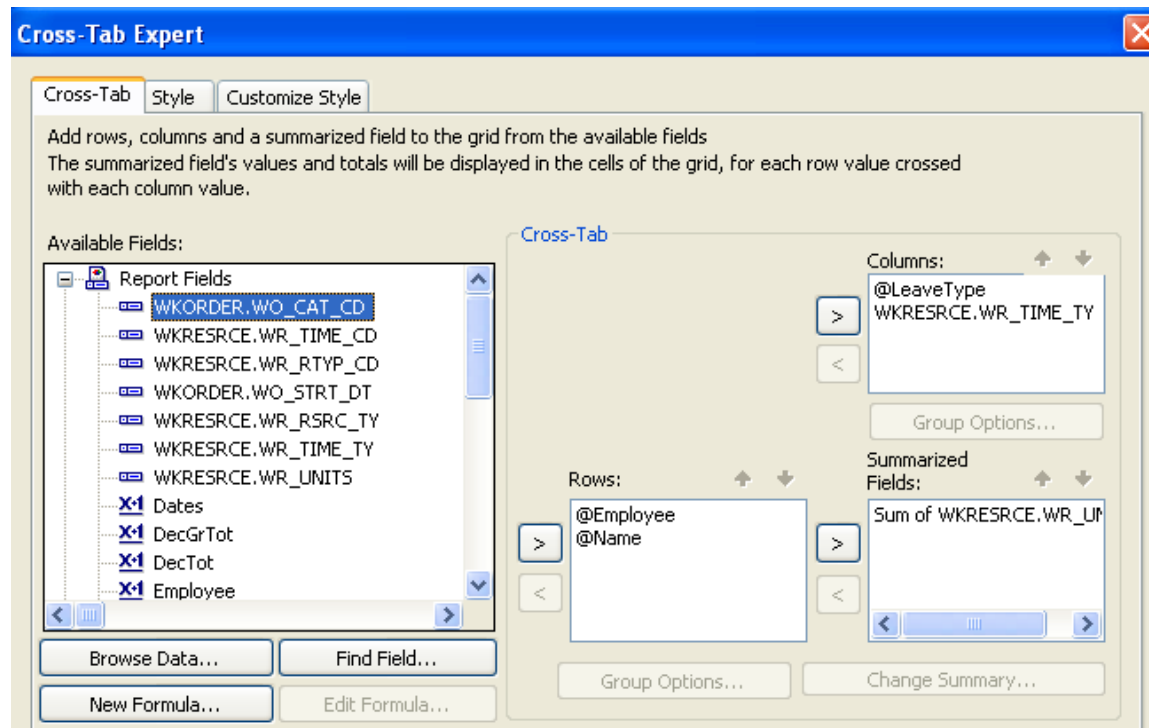
@Leave Type

“Leave Type”

@Employee

“Employee”

Then the cross-tab uses the formulas as the first field in the Columns and Rows choices.



Notes:

Subtraction

Crystal is powerful when adding numbers together but it gets pretty tricky when you want to find the difference in running numbers.

The Flow Meter Location Usage Report (WTMTUsage.rpt) is a good example of this. I have revised it to a single Reading to clarify the process.

The report is grouped on the Meter Location Number and then the Device ID.

In GH1 there is a Zeroing formula (ZeroLoc):

```
shared Numbervar LocTot1:=0;
```

In GH2a there is a Zeroing formula (ZeroDev):

```
shared Numbervar MetTot1:=0;
```

In GH2b there is a Zeroing formula (ZeroPrev):

```
Shared Numbervar prevval1:=0;
```

In Da there is a formula for the amount used (Diff1):

```
Shared Numbervar prevval1;
if PreviousIsNull ({WTMTMD.RM_READ1}) then 0
else if Previous ({WTMTMD.RM_READ1}) = 0 then 0
else if (previous ({WTMETDEV.MD_ID}) <> {WTMETDEV.MD_ID})then 0
else {WTMTMD.RM_READ1}-prevval1;
```

In Db there are two formulas:

(PrevVal)

```
Shared Numbervar prevval1;
prevval1:={WTMTMD.RM_READ1};
```


(CalcTots)

shared Numbervar MetTot1;

shared Numbervar LocTot1;

MetTot1:=MetTot1 + {@Diff1};

LocTot1:=LocTot1 + {@Diff1};

In GF2 there is a formula for Device total usage (TotMet1):

shared Numbervar MetTot1;


MetTot1

In GF1 there is a formula for the Location total usage (TotLoc1):

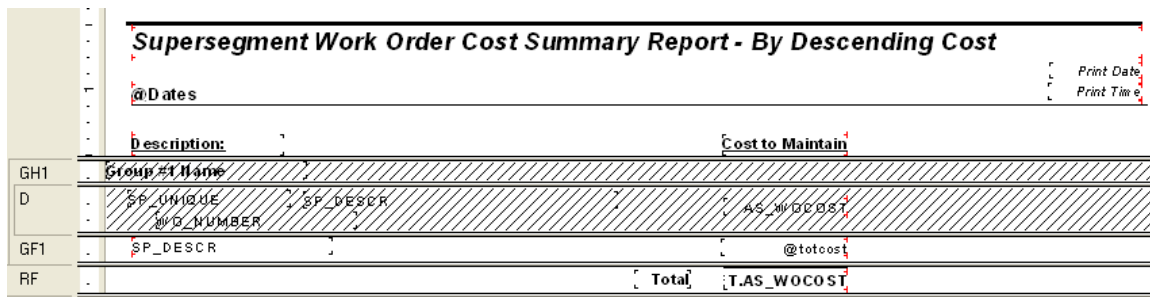
shared Numbervar LocTot1;

LocTot1

Group Sort Expert

When a report uses grouping the report automatically sorts on the first group and then within the group any other groups. You can sort ascending, descending or a specific order but it still wants to base the sort off the group field. To change the field the report will sort on you can use the Group Sort Expert .

An example of this is the Supersegment Work Order Cost Summary Report – By Descending Cost (SupersegDWOCost.rpt).



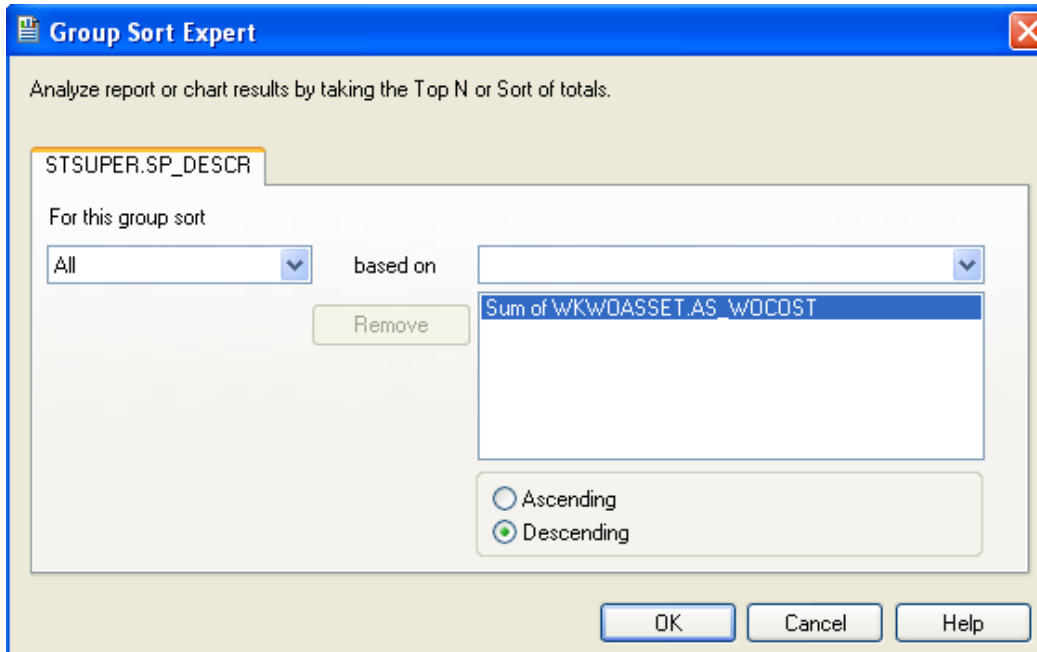
Supersegment Work Order Cost Summary Report - By Descending Cost		Print Date
@D dates		Print Time
Description	Cost to Maintain	
GH1 Group #1 Name		
D SP_UNIQUE	SP_DESCR	AS_WOCOST
WD_NUMBER		
GF1 SP_DESCR		@totoost
RF	Total	T.AS_WOCOST

This report is grouped on the Supersegment description field.

Notes:

The asset WO cost is being summed in the group footer.

Within the Group Sort Expert you can change the sort to the cost field.



Section Expert and Grouping


If different Heading information is needed for data in the same group you can use the Section Expert to create this affect.

GH2a	<p>The following streets are designated as <u>one-way streets</u> pursuant to authority granted in Section 35-303:</p> <table border="1"> <thead> <tr> <th>Regulation Number</th> <th>Location</th> <th>Restriction</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	Regulation Number	Location	Restriction									
Regulation Number	Location	Restriction											
GH2b	<p>Trucks over 12,000 lbs. shall be prohibited on the following streets pursuant to authority granted in Section 35-782:</p> <table border="1"> <thead> <tr> <th>Regulation Number</th> <th>Location</th> <th>Restriction</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	Regulation Number	Location	Restriction									
Regulation Number	Location	Restriction											
GH2c	<p>The following streets are designated for a <u>maximum speed limit</u> as indicated, and for day and/or night as indicated, pursuant to authority granted in Section 35-267:</p> <table border="1"> <thead> <tr> <th>Regulation Number</th> <th>Location</th> <th>Restriction</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	Regulation Number	Location	Restriction									
Regulation Number	Location	Restriction											

The Select Expert of the report is selecting only records where the following is true.

{STSIGNREG.SR_REGS_CD} in [1, 2, 3 TO 12]

Each Group Header 2 section is grouping on REGS_CD in the Traffic Regulations table. Within the

Section Expert  each Group Header section has a suppress formula so it will only show the records that coincide with that group heading.

GH2a suppresses when the following is true:

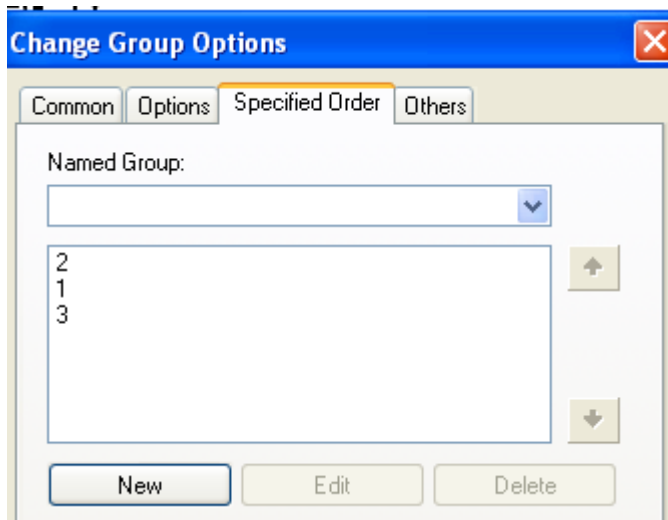
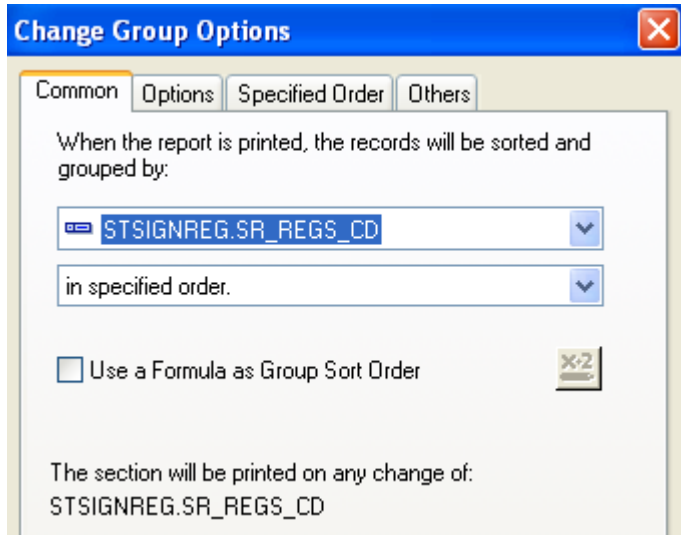
{STSIGNREG.SR_REGS_CD}in[1,3 TO 12]

This means that GH2a will show up when the REGS_CD is equal to 2.

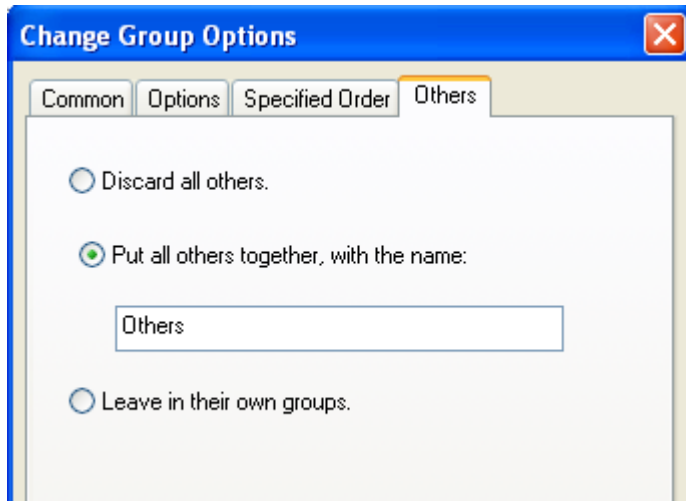
The other two GH2 sections granted have different suppression formulas.

Specific Order of Grouping

In the previous example it was important to have the groups show up in a specific order. This was done using the Change Group option. For group 2 the following option was used.



Notes: _____



More on Section Expert and Grouping

Not only can you have different information in the Group Header sections, you can do this in the Group Footer as well.

GH1a	Employee Usage Detail	Employee Number	Employee Name	Labor Hrs	Labor Cost	OT Hrs	OT Cost	Total Cost
GH1b	Equipment Usage Detail	Equipment Number	Equipment Name	Hours Used	Total Cost			
GH1c	Material Usage Detail	Material Number	Material Name	Unit of Measure	Qty Used	Total Cost		
GH2	Group #2 Name							
D		@LbHrs	@LbCost	#UNITS	#LbCost	#OTLbCost	#WR_UNITS	#WR_UNITS
GF2a	WR_RSRC_CD	WR_RSRC_TY	#LbHrs	#LbCost	#OTHrs	#OTCost	#EmTotCost	
GF2b	WR_RSRC_CD	WR_RSRC_TY	#HrsUsed	#Cos				
GF2c	WR_RSRC_CD	WR_RSRC_TY	WR_UOM_TY	#Qty	#MatCost			
GF1a			Totals:	#TotLbHrs	#TotLbCost	#TotOTHrs	#TotOTCost	#GrTotCost
GF1b			Totals:	#TotHrs	#EqTotCost			
GF1c			Totals:	#TotQty	#MtTotCost			
RF	The referenced date is the Resource End Date.							

You can use the Section Expert to suppress the different Header and Footer sections. For example the GH1a and GF2a and GF1a all use the following suppression formula:

```
{WKRESRCE.WR_RTYP_CD}in[2,3]
```

Parameter Dates

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.

Edit Parameter: Start Date

Name: Type:

List of Values: Static Dynamic

Value Field: Description Field:

Insert Actions

Value	Description
Click here to add item	

Options:

Option	Setting
Prompt Text	Enter Start Date as MM/DD/YYYY:

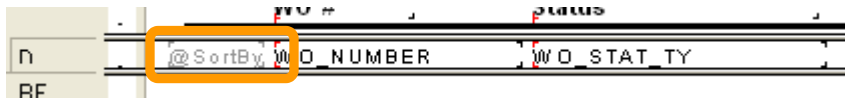
When the parameters were used in the Select Expert they were converted to Date type fields.

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

Notes: _____

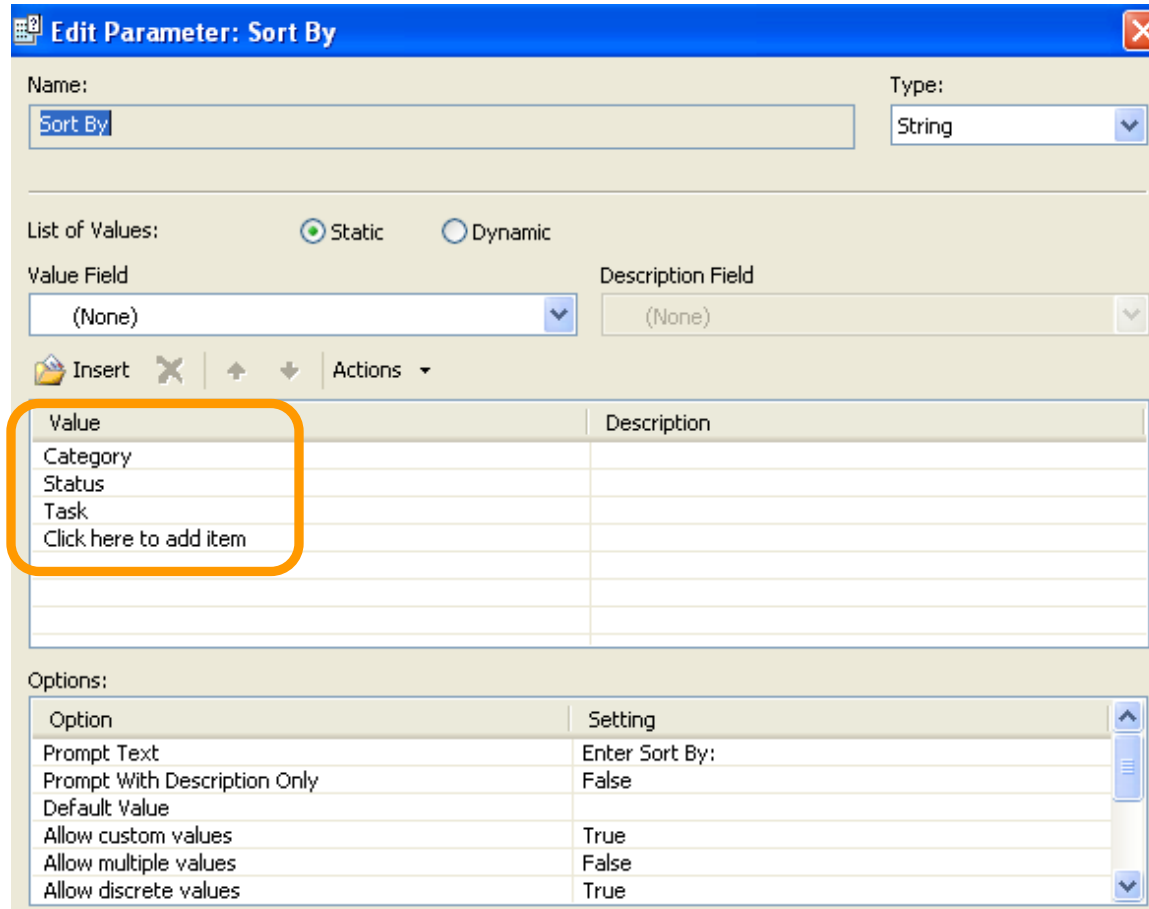
Sort by Query

Instead of creating different reports for different sorting orders you can create a query on the fields you wish to possibly sort from and then run the report.



RF	WO NUMBER	WO_STAT_TY

The parameter was set up like this:



Edit Parameter: Sort By

Name: Type:

List of Values: Static Dynamic

Value Field: Description Field:

Insert Actions

Value	Description
Category	
Status	
Task	
Click here to add item	


Options:

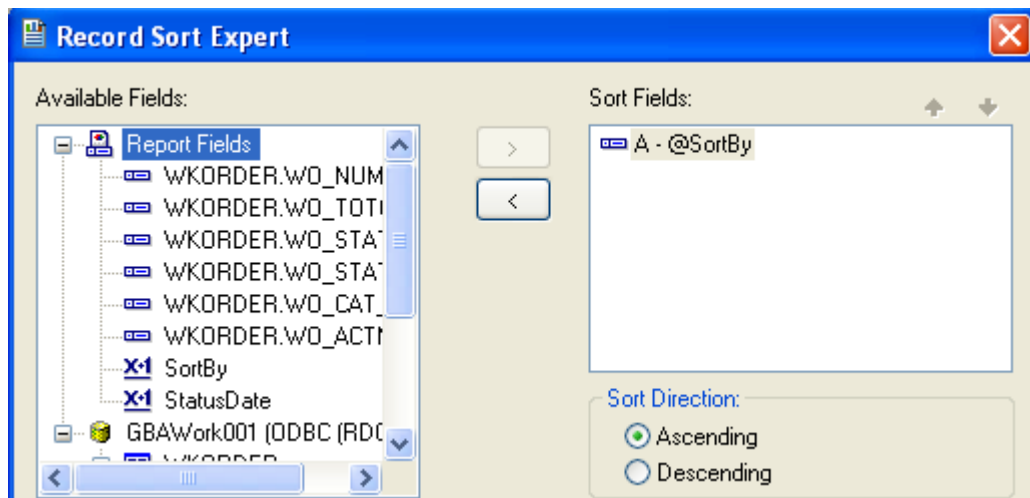
Option	Setting
Prompt Text	Enter Sort By:
Prompt With Description Only	False
Default Value	
Allow custom values	True
Allow multiple values	False
Allow discrete values	True

A formula was created using the parameter field:

```
If {?Sort By} = "Category" then {WKORDER.WO_CAT_TY}
Else If {?Sort By} = "Status" then {WKORDER.WO_STAT_TY}
Else If {?Sort By} = "Task" then {WKORDER.WO_ACTN_TY}
```

Notes:

The Record Sort Expert  used the formula and was set up like this:



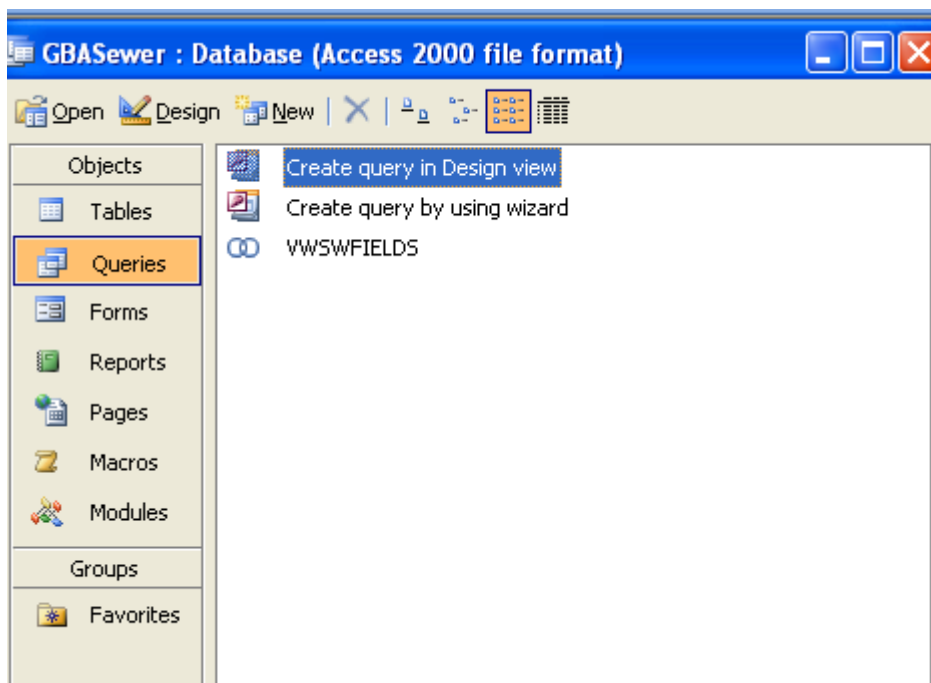
Add Command

One case where Add Command is used is when you need to Select records with an OR statement that uses fields from different tables. You need to create one “View” with the multiple tables and fields in it.

To set this up you need to know the tables required, the fields used in the report and the selection criteria.

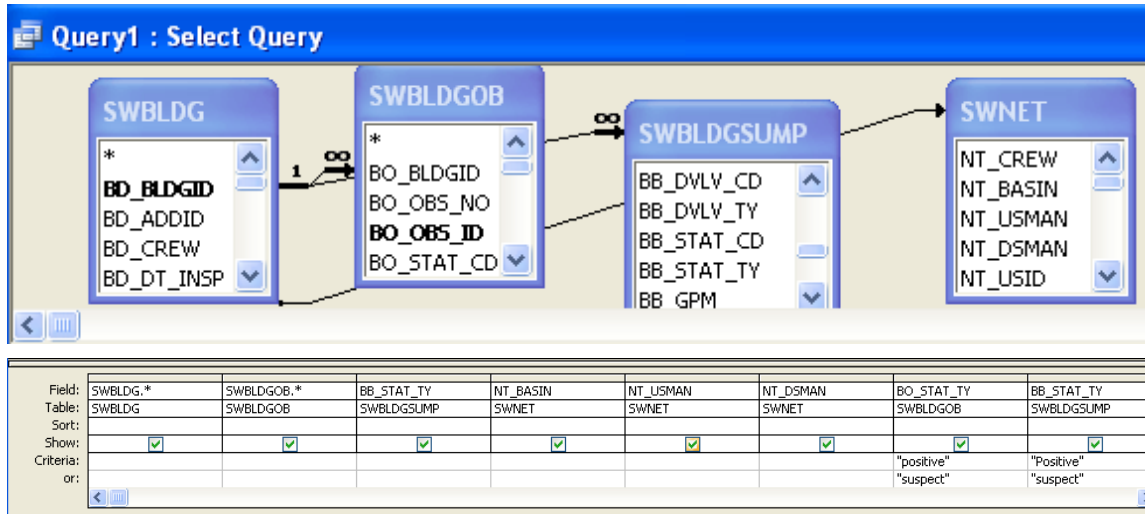
You need to be able to create a SQL statement before the data goes into the report.

In Access you can click on the Lucity data base:



Double click "Create query in Design view".

Select the tables the report will need and then the fields. Then set up the selection criteria.



Then click on the View button . Select SQL View.

```
SELECT SWBLDG.*, SWBLDGOB.*, SWBLDGSUMP.BB_STAT_TY, SWNET.NT_BASIN,
SWNET.NT_USMAN, SWNET.NT_DSMAN, SWBLDGOB.BO_STAT_TY, SWBLDGSUMP.BB_STAT_TY
FROM ((SWBLDG LEFT JOIN SWBLDGOB ON SWBLDG.BD_BLDGID = SWBLDGOB.BO_BLDGID)
LEFT JOIN SWBLDGSUMP ON SWBLDG.BD_BLDGID = SWBLDGSUMP.BB_BLDGID) LEFT JOIN
SWNET ON SWBLDG.BD_NETID = SWNET.NT_ID
WHERE (((SWBLDGOB.BO_STAT_TY)="positive") AND ((SWBLDGSUMP.BB_STAT_TY)="Positive"))
OR (((SWBLDGOB.BO_STAT_TY)="suspect") AND ((SWBLDGSUMP.BB_STAT_TY)="suspect"));
```

Then review the statement and correct the WHERE portion. The AND statements need to be OR. Remove the parenthesis and replace the quotes (") with (').

```
SELECT SWBLDG.*, SWBLDGOB.*, SWBLDGSUMP.BB_STAT_TY, SWNET.NT_BASIN,
SWNET.NT_USMAN, SWNET.NT_DSMAN, SWBLDGOB.BO_STAT_TY, SWBLDGSUMP.BB_STAT_TY
FROM ((SWBLDG LEFT JOIN SWBLDGOB ON SWBLDG.BD_BLDGID = SWBLDGOB.BO_BLDGID)
LEFT JOIN SWBLDGSUMP ON SWBLDG.BD_BLDGID = SWBLDGSUMP.BB_BLDGID) LEFT JOIN
SWNET ON SWBLDG.BD_NETID = SWNET.NT_ID
WHERE
SWBLDGOB.BO_STAT_TY='positive' or
SWBLDGOB.BO_STAT_TY='suspect' or
SWBLDGSUMP.BB_STAT_TY='positive' or
SWBLDGSUMP.BB_STAT_TY='suspect'
```

Within the Create New Connection >> ODBC >> Sewer (our example), double click Add Command. Enter the SQL query that you created. Then create the report like normal.

Calculating Percentages

Often with percentages you are trying to figure out the percentage of an item or group compared to the total items or whole group. The problem in Crystal is sometimes finding the total, so you can take a percentage of it, isn't always straight forward. Sometimes adding another group or group section and putting the total formula before the percent calculation will work.

GF3	.			@DeptArea					
GF2a	.							BuildingArea	
GF2b	.	BR_DEPT_TY		@DeptArea1	RoomArea%			@Prc	

The total Building Area is calculated in the GF2a section then used in the GF2b section in the Percent calculation.

Another possibility is putting a separate subreport in the report header and not connecting it.

RHa	.	Sewer Division Production Report							total
	.	?Start Date	To	?End Date		?Report Subtitle			

The subreport was placed in the top of the report to get the total so that the tasks could show a percent of the total. The date parameters were passed into it and used the same record selection as was used in the main report.

Within the subreport the units were conditionally summed.

RHb	.	
GH1	.	Group #1 N
GH2	.	Group #2 N @zero
Da	.	@Rtot
Db	.	@RtotSum
GF2	.	
GF1	.	
RFa	.	@RtotTot

```
WhilePrintingRecords;
```

```
shared numbervar Rtot;
```

```
if ({WKRESRCE.WR_RTYP_CD} = 1 and {WKRESRCE.WR_TIME_CD} in [1 to 999]) then
```

```
Rtot:={WKRESRCE.WR_UNITS}
```

Rtot was summed for the entire report before the body of the report even started so the total of the units, RtotTot, could be used in percent calculations within the report.

So a percentage per task was calculated:

```
WhilePrintingRecords;
```

```
shared numbervar TotTsk;
```

```
shared numbervar RTotTot;
```

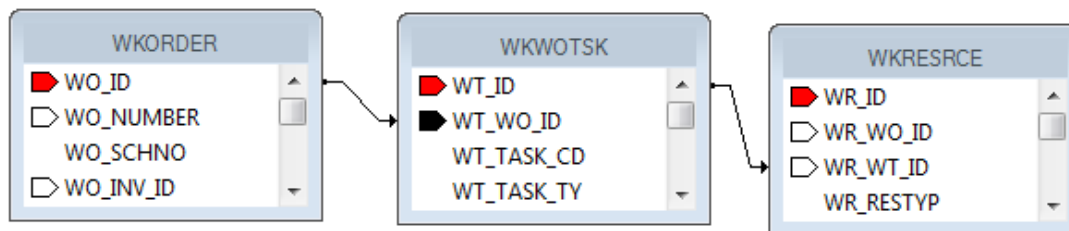
```
If RTotTot<>0 then
```

```
100 * TotTsk/RTotTot
```

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.)

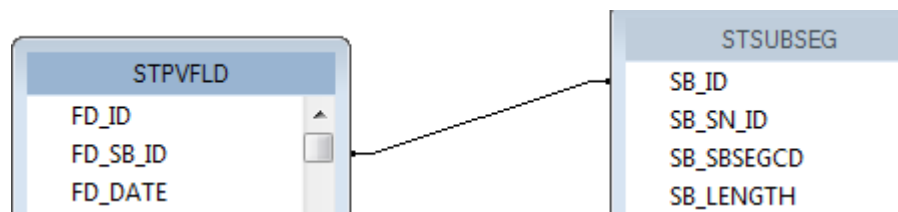
Left Outer Join:



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.

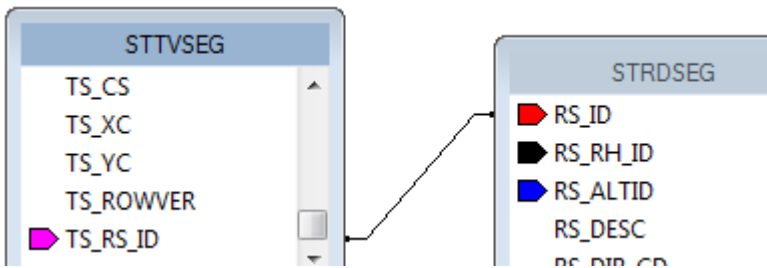
There are some cases within Lucity where an inner join is required. One example is where both Subsegment and Road share the same table (STPVFLD) for storing Inspection data. Chances are good that you would not use both Subsegment and Road so this shouldn't be an issue but if you do, then an inner join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



Using Subreport Date/Times in the Main Report

A customer report was sent in to be modified to use dates and times from the Work Order Event grid and the Request grid. This was the best documented report I have ever seen.

Example portion (all lines starting with // are strictly for documentation):

```
// Here we are determining what time category the time difference falls into
//
// We declare the variable for use in the formula.
// It is shared because we are passing the value to and from other formulas.
// These are variable that we cleared in group 2 header.
shared numbervar Min60_OH;
shared numbervar Min90_OH;
shared numbervar Min120_OH;
shared numbervar Min60_AH;
shared numbervar Min90_AH;
shared numbervar Min120_AH;
//shared stringvar negwotime;
if ((not ({@DateTest} = ""))and (not({@EventDt}=""))) then
// we take the current value of the variable
// and make it equal to that value plus the current value of the @Mins formula.
if {@Mins} <= 60 and {@Mins} >= 0 and {@Afterhrs} = 0 and not (totext ({@DateTest}) = "") then
Min60_OH:= Min60_OH + 1;
if {@Mins} > 60 and {@Mins} <= 120 and {@Afterhrs} = 0 and not (totext ({@DateTest}) = "") then
Min90_OH:= Min90_OH + 1;
if {@Mins} > 120 and {@Afterhrs} = 0 and not (totext ({@DateTest}) = "") then Min120_OH:= Min120_OH
+ 1;
if {@Mins} <= 60 and {@Mins} > 0 and {@Afterhrs} <> 0 and not (totext ({@DateTest}) = "") then
Min60_AH:= Min60_AH + 1;
```

```

if {@Mins} > 60 and {@Mins} <= 120 and {@Afterhrs} <> 0 and not (totext ({@DateTest}) = "") then
Min90_AH:= Min90_AH + 1;

if {@Mins} > 120 and {@Afterhrs} <> 0 and not (totext ({@DateTest}) = "") then Min120_AH:= Min120_AH
+ 1;

```

```

//if {@Mins} < 0 then negwotime = negwotime & " " & {WKORDER.WO_NUMBER} & ", ";

```

Response Time Summary Report											
?Report Subtitle											
		Office Hours				After Hours					
Category	Problem	Total Responses	Responses with in 1 Hr.	Responses between 1 & 2 Hrs.	Responses greater than 2 hrs.	Total Responses	Responses with in 1 Hr.	Responses between 1 & 2 Hrs.	Responses greater than 2 hrs.	# Svc not restored within 12 hrs.	
GH1	Group #1 Name	The user wanted the report grouped by category and then by problem (for request)									
GH2	Group #2 Name	@ReqResq									
GH3	Group #3 Name	@Zero									
Da	Request										
Db	event										
Dc	@DateTest	@MinR	@EventD1				@MinE				
Dd	@EventDt	@DateTest	@Afterhrs	@srvtot	@Reqs	@norequest	@MinD1	@After	@Mins	@Diff	@negwotime
GF3											
GF2a	WO_CAT_TY	WO_PROB_TY	howR	w60m	wmin	wmin1	wReg	Miq	wmin	wmin12	wserv
GF2b	WO's with negative times (counts included): @shownegwotime										
GF2c	WO's with no request (counts not included): @shownorequest										
GF2d	int_totals										
RF		[total]	[Htotal]	[Htotal]	[Htotal]	[Htotal]	[rtotal]	[Htotal]	[Htotal]	[Htotal]	[esttotal]

The Request Date and Time came from the Request subreport and the Event Date and Time came from the Event subreport. These values were brought to the main report as variables.

Notes: _____

There were a number of formulas using variables so I really didn't want to start from scratch. Therefore, I worked with what was there. This was the reason for some of the challenges.

From the way the date field was originally used, it needed to be a text field.

The date and time fields were then handled separately. The difference in days was taken and then the difference in times.

The days were converted to minutes:

```
// In this step, we want to display the time difference from when the request was entered
// to when the first task was started.
```

```
// First we see if there are values in the date formulas (the Request and Event dates)
shared Numbervar DtMin;
```

```
if ((not ({@DateTest} = ""))and (not({@EventDt}=""))) then
```

```
//
```

```
// If there are values, then we get the difference between the two date values.
```

```
DtMin:= DateDiff ("n", Date ({@DateTest}), Date ({@EventDt}));
```

```
// the "n" part indicates that we want minutes returned.
```

The time portions were then looked at.

The Request minutes were found:

```
RMin:=60*(hour(time({WKREQ.RQ_REC_TM}))) + minute(time({WKREQ.RQ_REC_TM}))
```

And then the Event minutes were found:

```
EMin:=60*(hour(time({WKWOEVENTS.WE_EVNT_TM}))) +
minute(time({WKWOEVENTS.WE_EVNT_TM}))
```

Then the Difference in Date/Time of the Request being entered and the Event occurring was found (@Mins):

```
if ((not ({@DateTest} = ""))and (not({@EventDt}=""))) then
```

```
DtMin - Rmin + Emin
```

Notes: _____

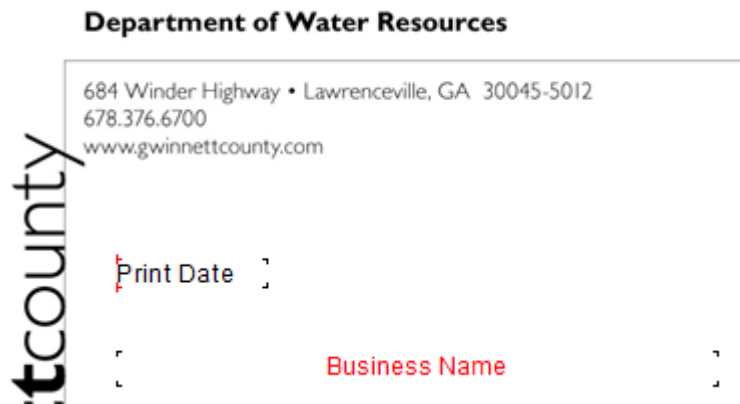
Requester information to a Work report

A report was created that was to be run from Work but needed to bring in data from the Request module's Requesters grid.

That means we were bringing in information that was a child of a child. Sometimes grid information can be brought in to the main report directly but it can get messy depending on how many records are in the grid or if information from any other grids is being used. It can get pretty tricky very quickly. Request is even more challenging because it doesn't directly link to Work Order, it uses a connecting table (WKWOMWO).

In order for the Requester data to show up it needed to be put in a subreport.

The WKWOMWO table needed to be in both the main report and the subreport.

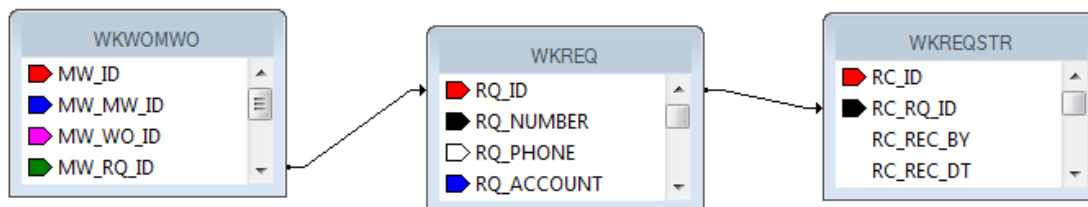


The Business Name subreport was set up as follows:

Da	-	@Business Name
Db	-	@C/O
Dc	-	@PO Box
Dd	-	RC_ADR_APT
De	-	@CityStateZip

Much of the information was put into formulas to deal with Proper Case issues. Each formula had its own Detail section so the line could be suppressed if there was no data instead of leaving blank spaces in the address.

With internal linking:



And linking to the main report:

Available Fields:

- Report Fields
 - WKORDER.WO_USER
 - WKORDER.WO_NUME
 - WKORDER.WO_USER
 - WKORDER.WO_END_
 - WKORDER.WO_ID

Field(s) to link to:

- WKWOMWO.MW_MW_ID

WKWOMWO.MW_MW_ID field link

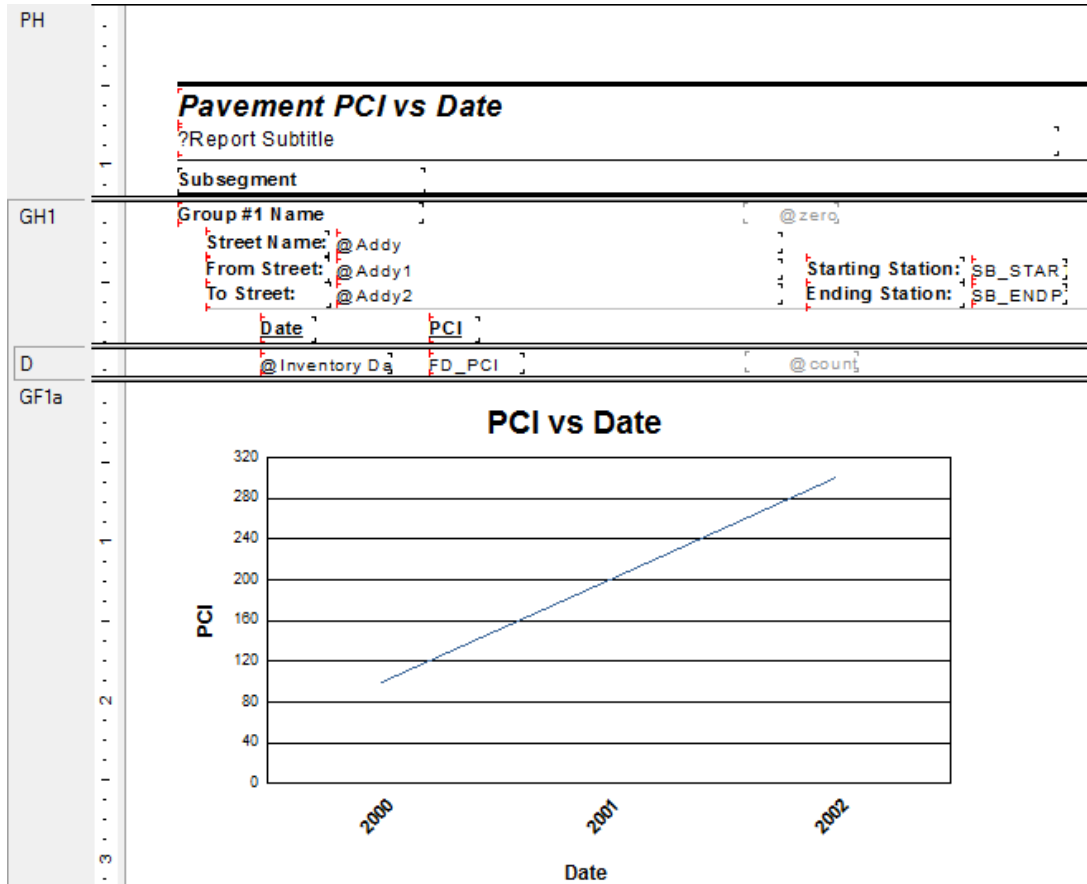
Subreport parameter field to use:

Select data in subreport based on field:

Notes: _____

Using Count for Section Suppression

A report was created to view Street Subsegment information including its PCI on a given date. A graph was created for each subsegment that had more than one date. The graph needed to suppress when there were no or one date/PCI values.



The {@count} formula was created:

```
WhilePrintingRecords;
Shared numberVar cnt ;
cnt:=cnt +1
```

Then within the Section Expert, GFa1 Suppress formula was added:

```
WhilePrintingRecords;
Shared numberVar cnt ;
cnt in[0,1]
```

The section suppresses when cnt is equal to 0 or 1.