Crystal Reports for Work

Crystal Reports for Work Orders

This guide goes over particular steps and challenges in created reports for work orders. Most of the following items can be issues found in creating other reports, however; they are very common in Work reports.
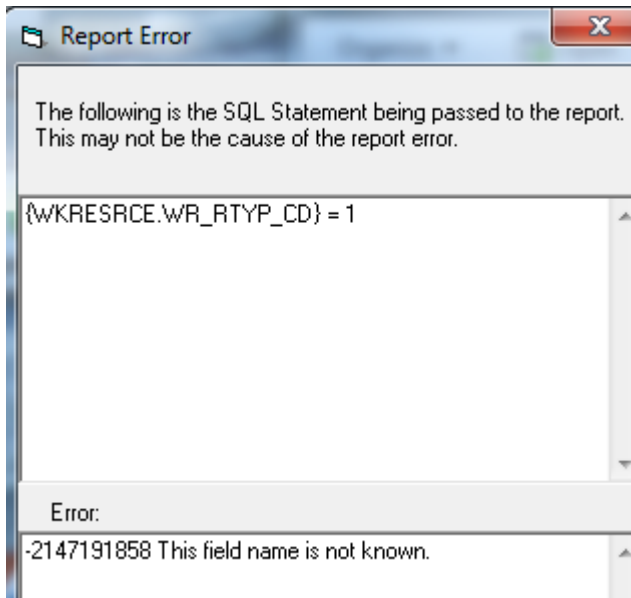
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Adding Tables

1. Bring in all of the tables that could possibly be filtered on in the report.

   The following is a simple Work Order Report with fields from the WKORDER table with only the WKORDER table in the Database Expert.

   Work Order Summary

Work Order #:	Category:	Task:	Total Cost:
WO_NUMBER	WO_CAT_TY	WO_ACTN_TY	O_TOTCOST

   If this report is run in Lucity with a Resource Code equal to 1 (employee) filter then the following error would show up and the report would not run.

   Report Error

   The following is the SQL Statement being passed to the report. This may not be the cause of the report error.

   {WKRESRCE.WR_RTYP_CD} = 1

   Error:

   -2147191858 This field name is not known.

   The reason this occurs is because the WKRESRCE table is not a part of this report.

   Bring in any tables with possible fields to be filtered on into the Database Expert and Link.

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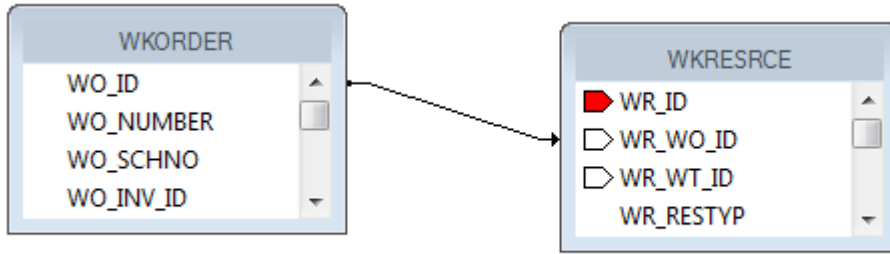
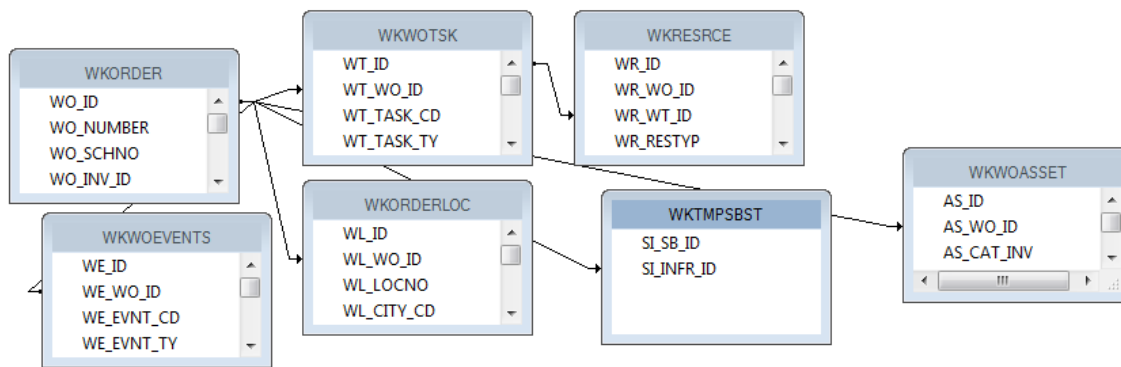The standard Work Order Summary report has the following tables yet only shows fields from the WKORDER and WKORDERLOC tables:

2. In general the tables are linked with "Left Outer Join" connections. If the table on the left is true then move to the right for the next information. This shows with an arrow pointing to the "Connecting" tables. Inner joins can be used – information in both tables has to exist – but sometimes Crystal has some issues with this linking. This shows with a line with no arrows. Some older reports show all of the connections without arrows even though they are "Left Outer Joins". If looking at an old standard report and all of the connections look like inner joins, check each connection by double clicking each line and finding the Join Type description.

3. Many items in the Work Order module are found in grids. Each grid is a different table.

    The normal user wants to start grabbing tables, linking and pulling in fields. As long as you can find the correct linking fields this should work, right? Wrong.

    A typical field users would like to see is the address. You want the WKORDERLOC table among the tables in the main body of the report so the report can be run with an address filter. If the address is brought directly in from this table, the following occurs:

Work Order Summary

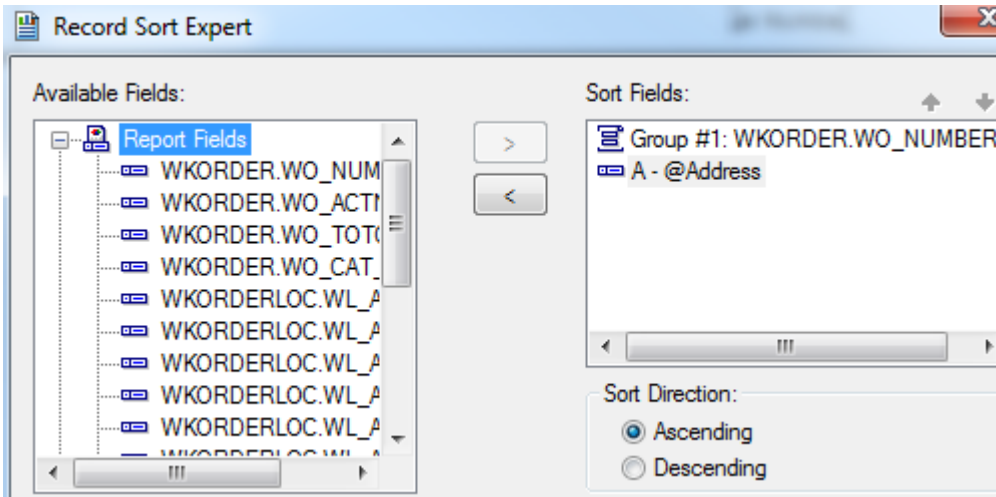| Work Order #:	Category:	Task:	Address:	Total Cost:
2006-01128	Sewer Service	Waste Water Quality Commercial	926 S BANNING ST	270.45
2006-01128	Sewer Service	Waste Water Quality Commercial	821 S ROANOKE ST	270.45
2006-01129	Residential Collection	Residential Collections		0.00
2006-01130	Solid Waste	Uncontained Collections		0.00

The Work Order # 2006-01128 shows up twice because in this record there are two addresses in the Address grid. This might not be a problem to see the work order for each location but the Total Cost is going to show up each time as well which is normally undesirable.

Possible ways to handle this:

- If you just want one of the addresses you could group on the WO # and then place all of the fields in the group header or footer.

Depending on whether you wish to see the top address or bottom address in the Work Order Location grid you could go into the Record Sort Expert and select the address field to sort on in either ascending or descending order.

Another possibility is grouping on the WO# and then putting the address formula in the Detail section. This doesn't look particularly good but you get all of the information.

Work Order Summary

Work Order #:	Category:	Task:	Address:	Total Cost:
2006-01128	Sewer Service	Waste Water Quality Commercial		270.45
			821 S ROANOKE ST	
			926 S BANNING ST	

- There can still be problems if you bring in another field from another grid. In this next example the subtask from the WKWOTSK table is brought in.

Work Order Summary

Work Order #:	Category:	Task:	SubTask:	Address:	Total Cost:
2006-01128	Sewer Service	Waste Water Quality Comme			270.45
			Work Zone	821 S ROANOKE ST	
			Regulatory Research	821 S ROANOKE ST	
			Emergency Response	821 S ROANOKE ST	
			Regulatory Research	821 S ROANOKE ST	
			Regulatory Research	926 S BANNING ST	
			Emergency Response	926 S BANNING ST	
			Regulatory Research	926 S BANNING ST	
			Work Zone	926 S BANNING ST	

There are three subtasks for this work order and one of the Tasks has two resources.   So, for each address each task/resource combination is brought in. You definitely don't want this to happen. The problem is the way Lucity passes the information over to Crystal.

- The best way to handle grid information is with subreports. Both the SubTask and   Address fields can be put in subreports.

PH		**Work Order Summary**				
		Work Order #:	Category:	Task:	SubTask:	Address:	Total Cost:
D		WO_NUMBER	WO_CAT_TY	WO_ACTN_TY	Subtasks	Addresses	O_TOTCOST

Work Order Summary

Work Order #:	Category:	Task:	SubTask:	Address:	Total Cost:
2006-01128	Sewer Service	Waste Water Quality Comme	Work Zone	821 S ROANOKE ST	270.45
			Regulatory Research	926 S BANNING ST	
			Emergency Response		

Secured Fields

Sometimes, fields should be hidden in reports if the person viewing the report does not have the proper level of security. This can be done by using parameters and formatting options. Any field can be set up for security, such as cost, addresses, or phone #'s.

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

Many cost fields in Work Order reports are set to use the "Hidden" option in 2b below. The Total cost field in the WO Summary report is already set up this way. Sometimes you may wish to suppress the fields completely as shown in 2a. The following steps are provided so you can set up your own field security.

1. Right click *Parameter Fields* and select *New*.

- Type in the *Name* - **ViewSecuredFields**.

  o This is a special parameter field that must have this name "ViewSecuredFields". When the report is run within Lucity the security is passed to the report and will not query the user. If the report is run outside of a Lucity module, in Crystal, then the security will be queried.

- Select the *Type* (Crystal XI) or *Value Type* (Crystal 10) - **Number** and under *Options* - **Discreet Value**. Click *OK*.

Field Viewing Options

2. a. Field to Show Blank

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

Right click the field that requires suppression (ex. **WO_TOTCOST**) and select *Format Field*.

  o Click the *Common* tab.

  o Click the formula box next to *Suppress*.

  o Double click the **ViewSecuredFields** parameter from the **Report Fields**. Then, type = 0.

  {?ViewSecuredFields} = 0

2. b. Field to show "Hidden"

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

Right click in the field that requires suppression (ex. **WO_TOTCOST**) and select *Format Field.*

  o Click the *Common* tab

  o Click the formula box next to *Display String*.

  o Type in:

  if {?ViewSecuredFields}= 0 then 'Hidden' else '$'& totext({@WOCost})

  The {@WOCost} is the field that is being hidden or seen depending on security.

  o Save and Close.

  o Then click *OK*

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

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

Adding a Comments Section

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.

    o   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	

    o   Right click in the grid.

    o   Select *Add Comment* or *View Details* for an existing comment.

    o   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**.

    o   Close the comment dialog.

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

2. Open the Work Orders module's Report Dialog.

3. Export the **WOSum.rpt** report and rename it **MS_WOSumComment.rpt**. Then, open the renamed report.

4. Right click in the left margin of the *Group Footer 1a* section and select *Insert Section Below*.

5. Click *Insert Subreport* ⊞ .

    o   Type a name for the subreport (**Comment**) in the *New report name* section.

    o   Click *Report Wizard*.

6. Open Create New Connection>>ODBC>>GBAWork001 (Finish)>>Tables.

    o   Move the **WKGDMEMO** table to *Selected Tables.* Then, choose *Finish* and *OK*.

7. Insert the **Comment** "box" into the *Group Footer 1b* section.

8. Choose subreport formatting options and resize the box.

Notes:_____

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9. Next, right click within the **Comment** box and select *Change Subreport Links.*
   - ○ Select fields so it looks like the following:
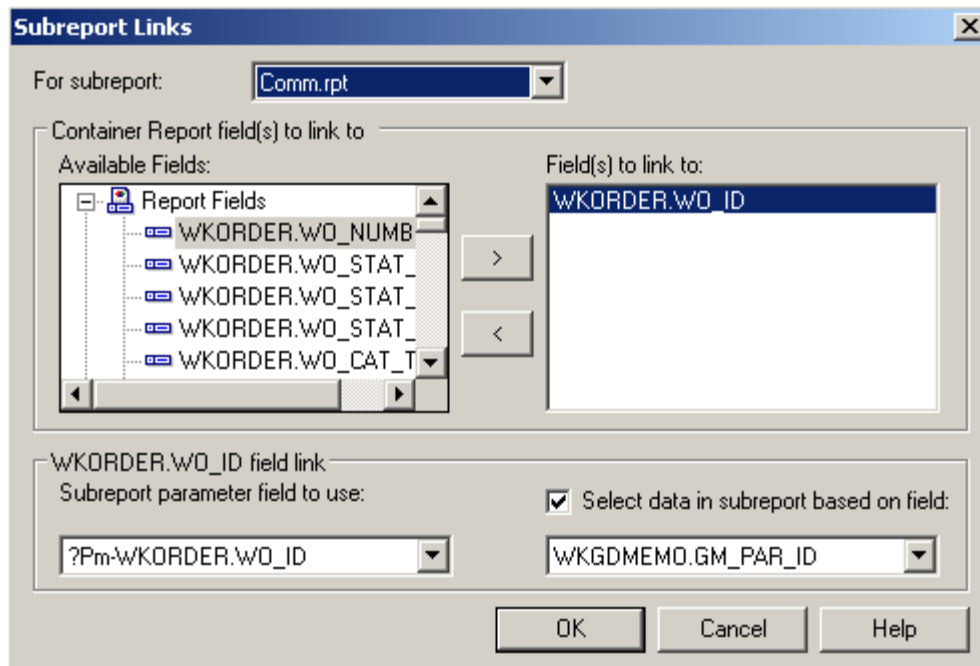
   - ○ Click *OK.*
10. Double click on the **Comment** box. You are now in the **Comment** subreport.
    - ○ Click *Select Expert* and add the following to the formula:

      and {WKGDMEMO.GM_PARENT} = "WKORDER"

      This can be done with the *New* tab.

      OR

      In the Formula Editor > Formula Workshop you can type "and", double click the field, **WKGDMEMO.GM_PARENT**, type in "=", and then right click on **WKGDMEMO.GM_PARENT** within the list of fields and click *Browse Data* and select **WKORDER**, *Paste Data.*

    - ○ Select *Save and Close* and then click *OK.*

Note: The formula in Requests would look like this:

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

11. Add column titles. You'll want to make the titles **bold** and underlined in order to make them distinct.

12. Drag in the appropriate fields.

    o You'll need to create formulas before you can add the **Date** and **Time** fields.

13. Increase the size of the **GM_MEMO** field and format it so it *Can Grow*.

14. 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.

    o Add a title for the box (**Comments**).

    o Format the **Comments** text box with a white background.

Report Header a	
Report Header b	Comments
	Recorded By:	Date:	Time:	Comment:
Details	GM_REC_BY	@Date	@Time	GM_MEMO
Report Footer b	

15. Click the *Design* tab.

16. Click the *Section Expert* button.

    o Select **Group Footer1b** and the Suppress Blank Section option.

    o Select **Group Footer 1** and the Keep Together option. Then, click 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

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# Linking

Linking Work Orders to Requests

In our first step-by-step example, we will link a Work Order subreport to a Request report.

1. Export ReqSum.rpt and rename it MS_ReqSumLinks.rpt.

2. Open MS_ReqSumLinks.rpt.

3. Open the *Database Expert*.

4. Add the WKWOMWO table and link it to WKREQ.

   o The connected fields usually have an **ID** field with a common part; in this case, it is **RQ**.

   o To link the tables, click on the joining field in the "parent" table and drag it onto the joining field in the connecting table.

   o Double click on the joining arrow and select the *Left Outer Join* Link Option.

   o Click *OK* and then click *OK* again.
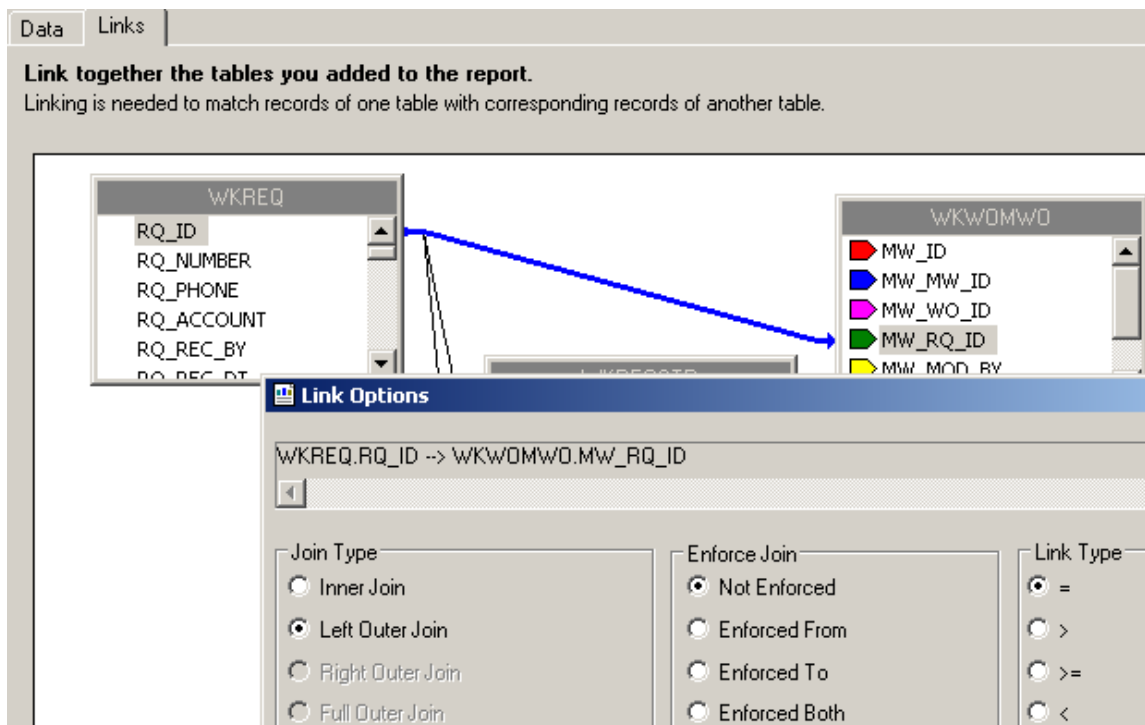
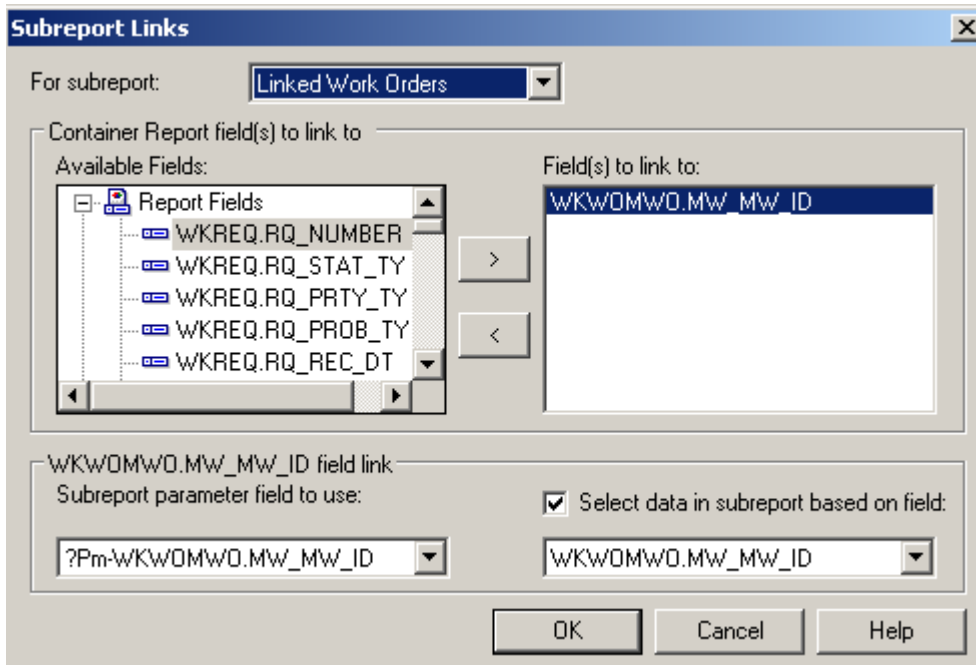5. Add a *Detail* section for the Work Orders subreport.

6. Create a subreport (**Linked Work Orders**).
   - o For the *Selected Tables*, bring in **WKORDER** and **WKWOMWO**.
   - o Select *Next* and link the tables. *Left Outer Join.* Click *Finish* and then click *OK*.
   - o The "parent" table will be the table that is linked to the main report.
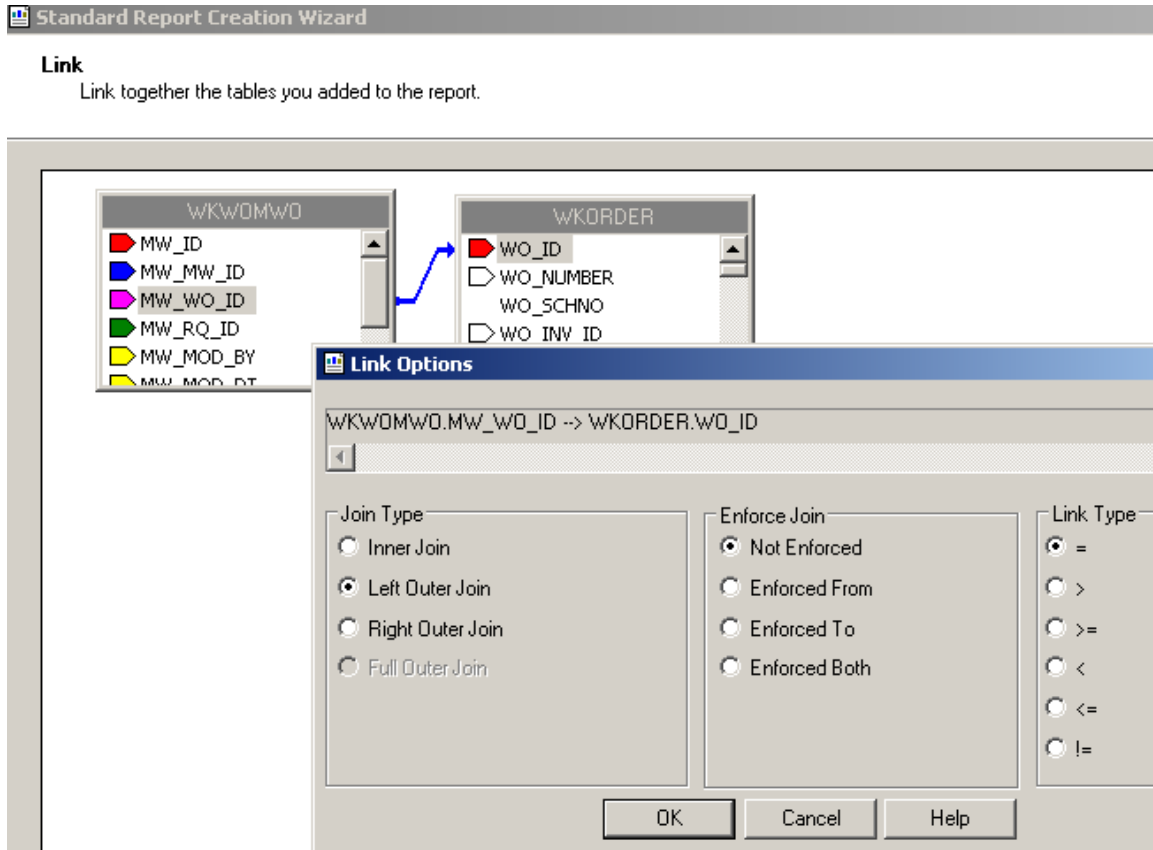
7. Place the subreport in the new *Details* section.
8. Select the formatting options and resize the subreport.

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9. Right click in the **Linked Work Orders** subreport box and select *Change Subreport Links.* Set up as shown below:

10. Open the **Linked Work Orders** subreport.

    o   Set up the subreport with the desired information.

    o   Open the *Section Expert* in the main report and select *Suppress Blank Section* for the subreport *Detail* section.

11. Preview the report.

12. In our example, there is an extra space above the first Work Order record. One way to remove this space is to go back into the **Linked Work Orders** subreport *Select Expert* and add a statement for Work Order IDs greater than zero.

{WKWOMWO.MW_MW_ID} = {?Pm-WKWOMWO.MW_MW_ID}

and {WKORDER.WO_ID} > 0

- o As you can see in the Preview screen below, this additional statement has removed the blank space from above the first Work Order record.
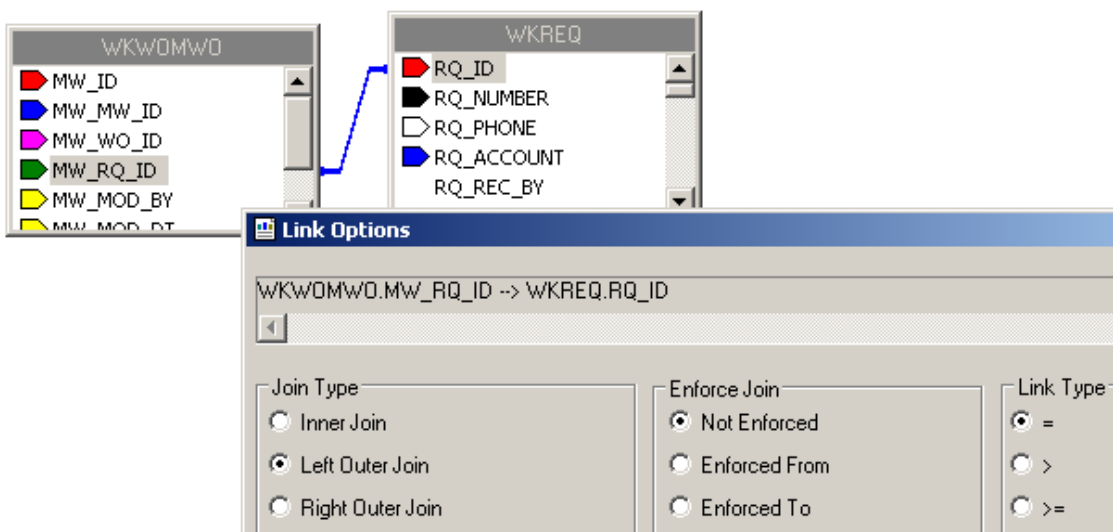

Linking Requests to Requests

For our next example, we'll continue with **MS_ReqSumLinks.rpt** from above. Here, we'll add the linked Requests.

1. Add a *Detail* section beneath the **Linked Work Orders** subreport.

2. Insert a subreport named **Linked Requests**.

- o For the Selected Tables bring in **WKWOMWO** and **WKREQ**.

- o Link as follows:

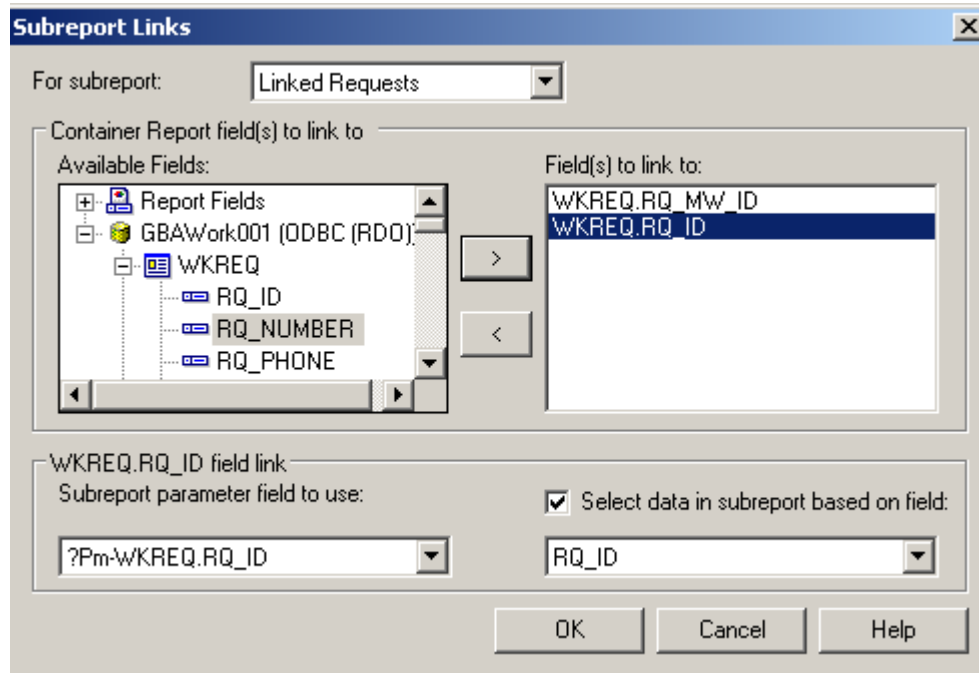- o Place the subreport in the newly created *Detail* section, select formatting options, and resize.

3. Right click on the **Linked Requests** subreport and select *Change Subreport Links.* Set up as shown below:
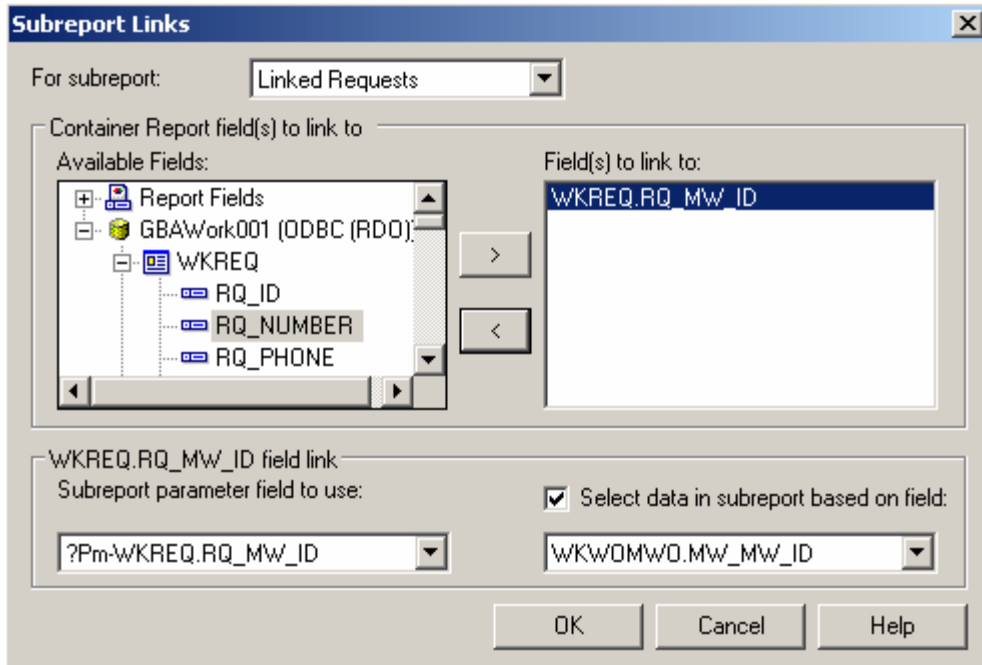
o   You do not want to show the request you are in when listing linked requests, so an additional linking statement needs to be added.

4. Open the **Linked Requests** subreport and click *Select Expert*.

5. You'll need to modify one of the linking formulas created in *Subreport Links*.

- o {WKWOMWO.MW_MW_ID} = {?Pm-WKREQ.RQ_MW_ID} and

  {WKREQ.RQ_ID} = {?Pm-WKREQ.RQ_ID}

- o Change the second formula to "not equal".
- o You can do this in the *Formula Workshop* by highlighting the "=" and then opening *Operators>>Comparisons* and double clicking Not Equal (x<>y). OR You can just type in "<>".
- o The "=" will be replaced with "<>". Remember to *Save and Close* the *Formula Workshop* and select *OK* to close the *Select Expert*. The new formula will appear as follows:

- o {WKWOMWO.MW_MW_ID} = {?Pm-WKREQ.RQ_MW_ID} and

  {WKREQ.RQ_ID} <> {?Pm-WKREQ.RQ_ID}

6. Set up the subreport with the desired information.
7. Go back to the main report and open *Section Expert*. Select *Suppress Blank Section* for this new *Detail* section.

Preview

Summary of Requests

Request #	ReqDate	Status	StatDate	Priority	Problem
98-000052	10/5/1998	Completed	2/15/1999	Medium	Potholes

Linked Work Orders

WO #	Category	Problem
98-000019	Sewer Department	Sewer Odor

Linked Requests

Req #	Category	Problem
98-000053	Sewer Department	Sewer Odor

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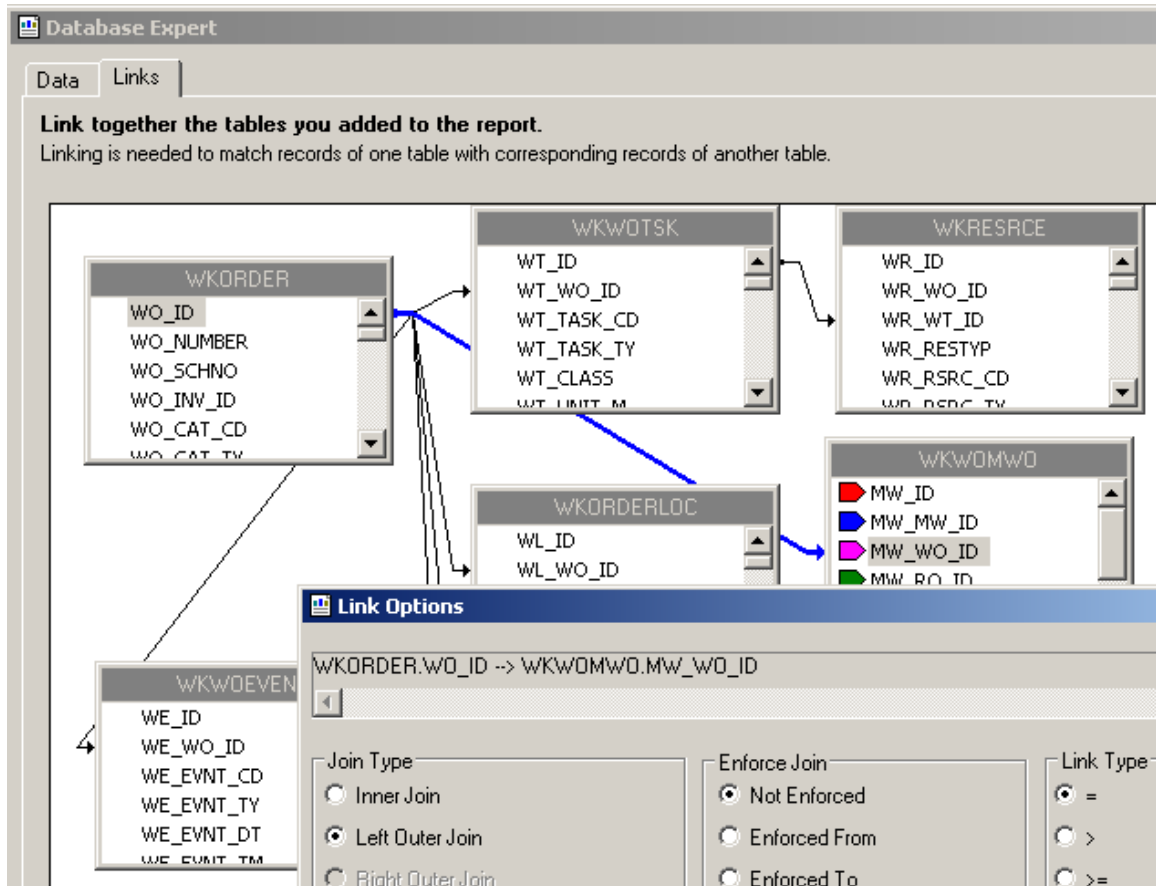
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Linking Requests to Work Orders

The procedure for adding the linked subreports is very similar to the above examples.

In this case, we'll add a **Linked Requests** subreport to the **Work Order Summary Report**.

1. Export WOSum.rpt and rename it MS_WOSumLinks.rpt.
2. Open MS_WOSumLinks.rpt.
3. Open *Database Expert* and add the WKWOMWO table, linking it to WKORDER.

4. Add an additional *Group footer* section beneath *GF1a*. This will be the new *GF1b*.

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5. Create a subreport named **Linked Requests** with the **WKWOMWO** and **WKREQ** tables.
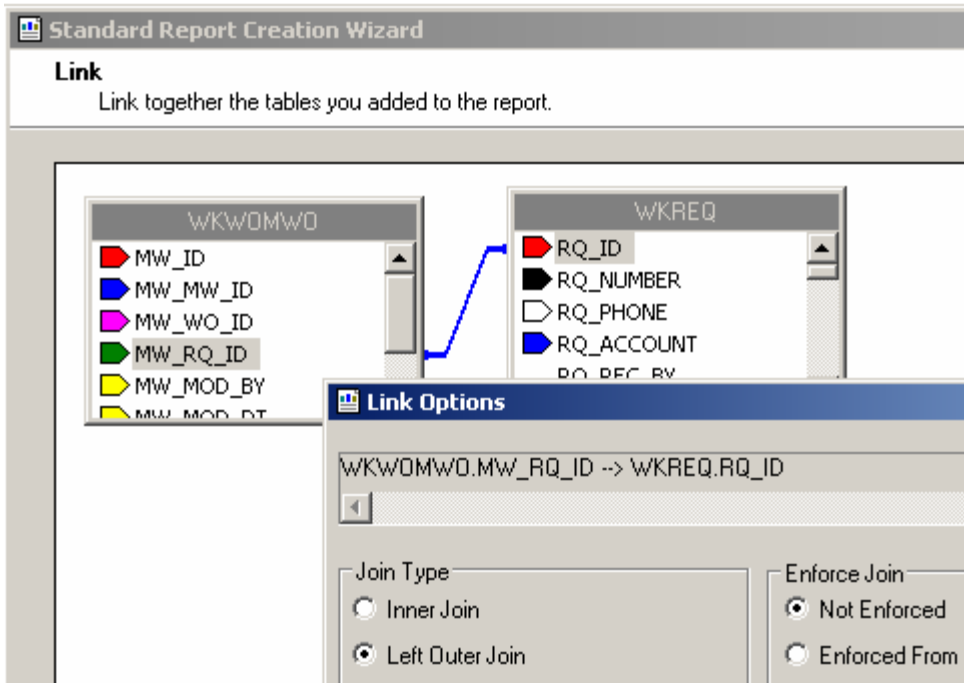
6. Insert the **Linked Requests** subreport into the new *GF1b* section.
7. Right click on the subreport and select *Change Subreport Links*.
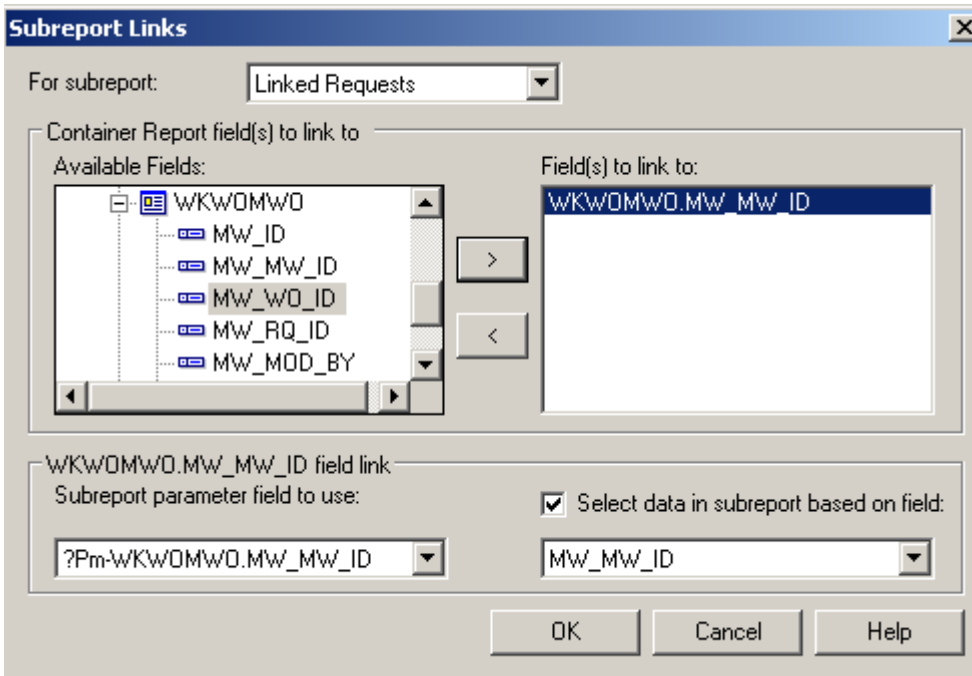
8. Proceed with the subreport details as previously demonstrated.

Linking Work Orders to Work Orders

We will continue with the open **MS_WOSumLinks.rpt** report and add a second subreport, **Linked Work Orders**.

1. Add a new *Group Footer* section.

2. Create a new subreport named **Linked Work Orders** and bring in the WKWOMWO and WKORDER tables.
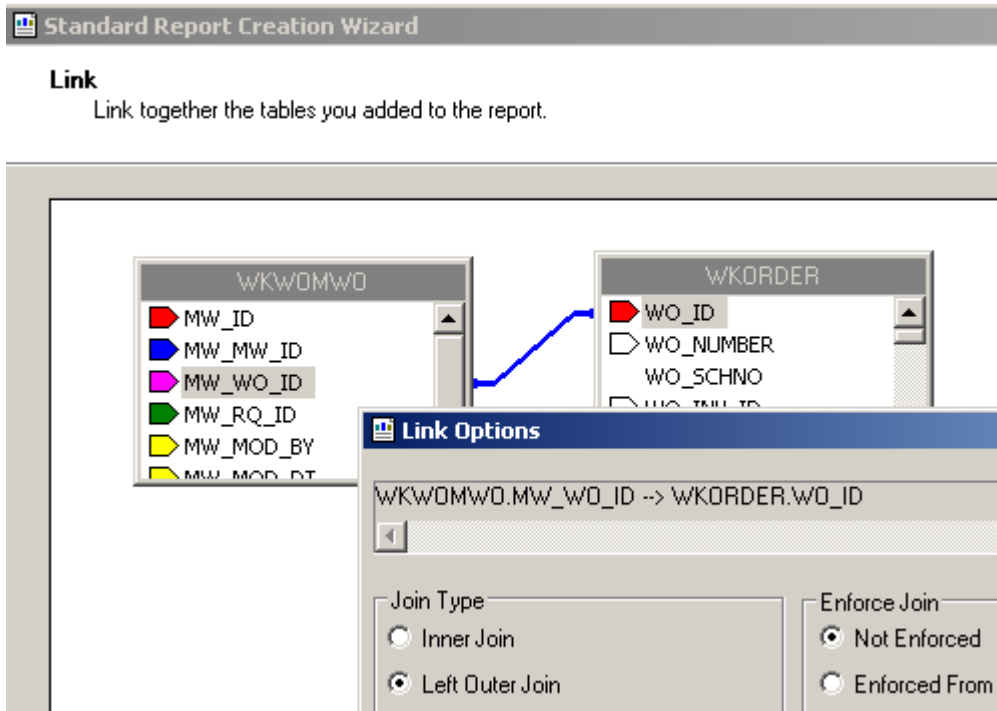
3. Place the **Linked Work Orders** subreport in the new *Group Footer* section.

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4. Right click on the subreport and select *Change Subreport Links*.

AND
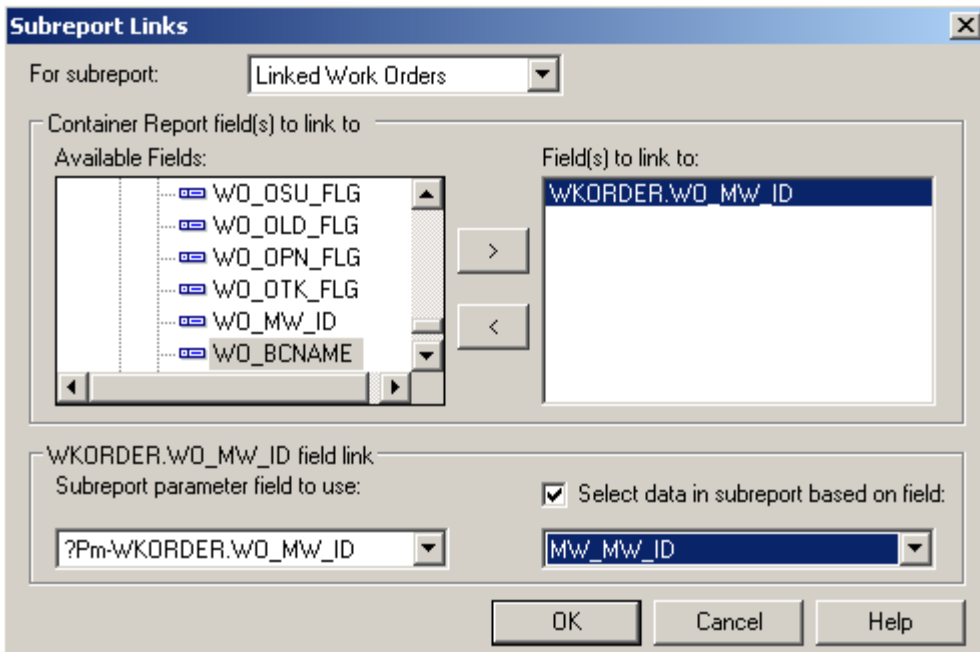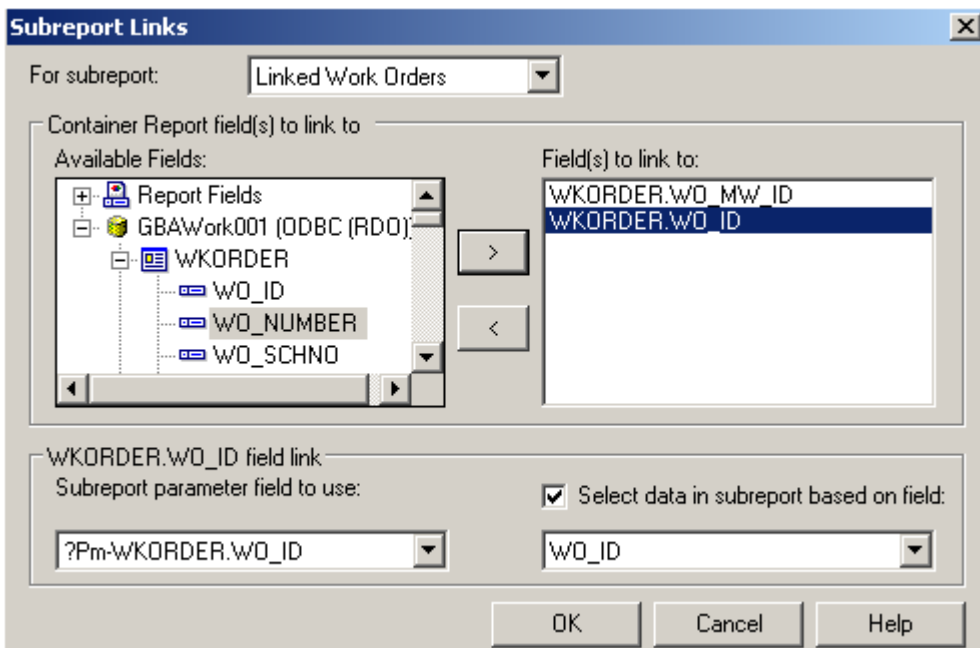
5. Open the **Linked Work Orders** subreport and click *Select Expert*.
6. Change the formula as discussed previously.
   - {WKWOMWO.MW_MW_ID} = {?Pm-WKORDER.WO_MW_ID} and
   - {WKORDER.WO_ID} <> {?Pm-WKORDER.WO_ID}
7. Proceed with the subreport details.

Using Work Order Asset Inventory Numbers

You can use the Asset number for record selection. By adding a formula in the *Select Expert* section, you can limit records to the desired assets. Additionally, you can use the Asset number for select suppression

The following Asset values are required to create any formulas that would select specific Assets.

| CI_ID	CI_NAME	CI_ID	CI_NAME	CI_ID	CI_NAME	CI_ID	CI_NAME
1	No Inventory Item	57	Street Preemptive Signal	109	Recycled Control Valve	161	Elec Open Point
2	Sewer Structure	58	Street Junction Box	110	Street Ramp	162	Elec Circuit Breaker
3	Sewer Pump Station	59	Street Meter Box	111	Recycled Hydrant	163	Elec Recloser Location
4	Sewer Pump	60	Street Snow Shoe	112	Recycled Service Tap	164	Elec Recloser Unit
5	Sewer Service	61	Street Cabinet	113	Recycled AMR	165	Elec Sectionalizer Loc
6	Sewer Pipe	62	Street Auxilary Equipment	114	Raw Water AMR	166	Elec Sectionalizer Unit
7	Street Segment	63	Street Signal Head	115	Recycled Supply Source	167	Elec Fault Interrupter
8	Street Intersection	64	Signal Controller	116	Recycled Vault	168	Elec Fuse Location
10	Water Pipe	65	Street Sidewalk	117	Raw Water Vault	169	Elec Fuse Unit
11	Water Valve	66	Street Curb	118	Street Parking	170	Elec Switch Location
12	Water Hydrant	67	Street Pavement Marking	119	Water Loss	171	Elec Switch Unit
13	Water Pump Station	68	Street Median	120	Water Flushing	172	Elec Capacitor Bank
14	Water Storage Facility	69	Street Guard Rail	121	Facility Site	173	Elec Series Cap Location
15	Water Meter Location	70	Street Bus Stop	122	Facility Site Asset	174	Elec Capacitor Unit
16	Water Node	71	Street Railroad Xing	123	Facility Door	175	Elec Shunt Reactor
17	Water Vault	72	Street Wall	124	Water Site	176	Elec Fault Indicator
18	Water Supply Source	73	Street Fence	125	Water Sampling Station	177	Elec Fault Limiter
19	Street Structure	74	Street Steps	126	Street Road Attribute	178	Elec Ground
20	Street Subsegment	75	General Custom	127	Street Road Segment	179	Elec Surge Arrestor
22	Water Pumps	76	Facility Building	128	Street Road Ramp	180	Elec Street Light
23	Water Backflow Preventers	77	Facility Roof	129	Street Road Asset	181	Elec Recloser Elect Ctrl
24	Water Service Taps	78	Facility Floor	130	Street Road	182	Elec Recloser Hydr Ctrl
25	Storm Structure	79	Facility Room	132	Solid Waste	183	Elec Section Elect Ctrl
26	Storm Conduit	80	Facility Furnishing	133	Solid Waste Container	184	Elec Section Hydr Ctrl
27	Storm Pump Station	81	Park Meter	134	Solid Waste Route	185	Elec Relay Control
28	Storm Pump	82	Park Pool	135	Elec Underground Struc	186	Elec Regulator Control
29	Storm Detention Basin	83	Park Refuse	136	Elec Surface Struc	187	Elec Capacitor Control
30	Street Post/Pole	84	Light Controller	137	Elec Elec Station	188	Elec Load Tap Control
31	Street Sign	85	Street Light	138	Elec Switching Station	189	Elec Network Protector
32	Fleet	86	Bridge	139	Elec Support Struc	190	Elec Generator
33	Equipment	88	Water Control Valve	140	Elec Warning Sign	191	Elec Meter
34	Street Supersegment	89	Water Meter Device	141	Elec Aerial Marker	192	Elec Induction Motor
38	Water Main Breaks	90	Water AMR	142	Elec Riser	193	Elec Synchr Motor
39	Park	91	Raw Water Meter Location	143	Elec Anchor Guy	218	Park Pool Site
40	Park Parking Lot	92	Raw Water Meter Device	144	Elec Span Guy	219	Park Pool Appurtenances
41	Park Path	93	Raw Water Node	145	Elec Pushbrace	220	Park Playground
42	Park Structure	94	Raw Water Pipe	146	Elec Assembly	221	Park Fence
43	Park Field	95	Raw Water Pump	147	Elec Joint Use Attachment	222	Park Modular Equipment
44	Park Court	96	Raw Water Pump Station	148	Elec Conduit Inventory	223	Raw Water Main Breaks
45	Park Landscape	97	Raw Water Storage Facil	149	Elec Prim Under Line Seg	224	Sewer FOG Facilities
46	Park Lighting	98	Raw Water Supply Source	150	Elec Sec Under Line Seg	225	Sewer IPT Facilities
47	Park Playground Equipment	99	Raw Water System Valves	151	Elec Prim Over Line Seg	226	Sewer FOG Extractor
48	Park Furniture	100	Raw Water Control Valve	152	Elec Sec Over Line Seg	227	Customer Address
49	Park Irrigation Control	101	Recycled Meter Location	153	Elec Circuit Source	228	Facility Building Asset
50	Park Irrigation Valve	102	Recycled Meter Device	154	Elec Bus Bar	229	Facility Floor Asset
51	Tree	103	Recycled Node	155	Elec Communication Cable	230	Facility Roof Asset
52	Street Main Line	104	Recycled Pipe	156	Elec Transformer Bank	231	Facility Room Asset
53	Street Conduit	105	Recycled Pump	157	Elec Transformer Location		
54	Street Conductor	106	Recycled Pump Station	158	Elec Transformer Unit		
55	Street Traffic Detector	107	Recycled Storage Facility	159	Elec Volt Regulator Loc		
56	Street Fiber Optic Line	108	Recycled System Valve	160	Elec Volt Regulator Unit		

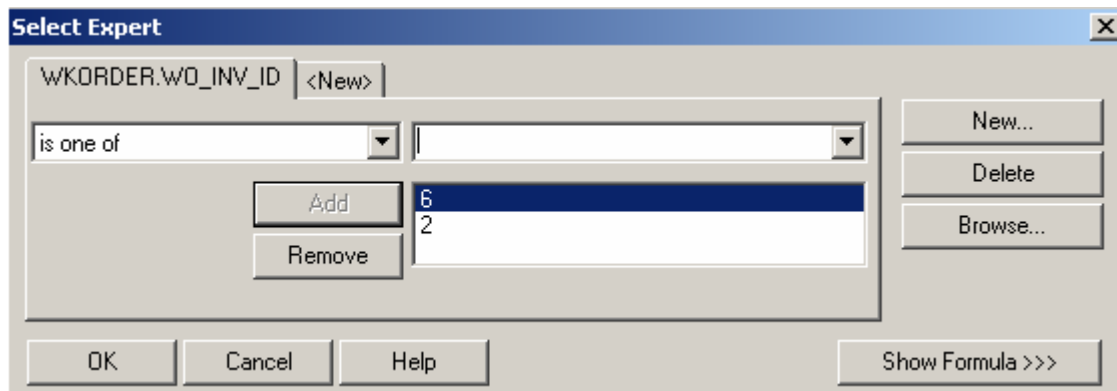*Note: These Assets come from the WKCATINV table.*

Limiting Record Selection to Specific Assets

We will create a **Work Order Summary Report** that will show only Sewer Pipe and Manhole records with their assets.

1. Export the **WOSum.rpt** report and rename it **MS_WOSumPipeMan.rpt**.

2. You can view just Sewer Pipe and Manhole records by adding the following formula:

   o Open Select Expert.
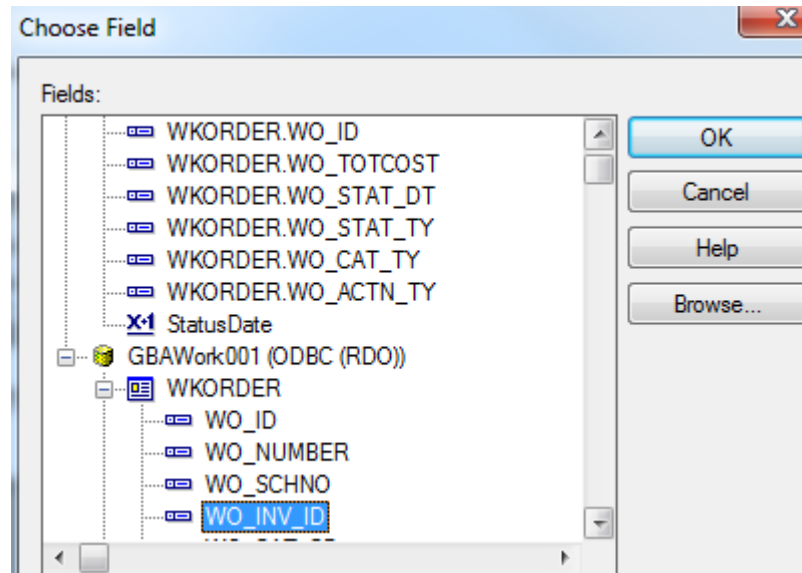
   o Click *OK.*

   o Click *OK.*

   o The 6 (Sewer Pipe) and 2 (Sewer Structure) values come from the **WKCATINV** table on the previous page.

   OR

   o You can click Report>>Selection formulas>>Record.

   o Type in the following formula:

      ▪ {WKORDER.WO_INV_ID} in [2, 6]

Preview

Work Order Summary Report

WO #	Status	Status Date	Category
98-000037	Complete		Pipe Maintenance
98-000038	Completed		Pipe Maintenance
98-000040	Complete		Manhole Maintenance

As you can see in the above example, the **Work Order Summary Report** displays only the Sewer Pipe and Manhole records.

Asset Subreports

We will now add Asset subreports to the limited **Work Order Summary Report** we created above.

1. We are going to "borrow" subreports from **WOFormSewerAsset.rpt**.

   o Click *File* in the top tool bar, then *Open*, and then double click **WOFormSewerAsset.rpt**.

   o Right click on the **SWPipe.rpt** subreport.

   o Select *Save Subreport As*.

   o Enter a name for your subreport (**SWPipeSub.rpt**) and then *Save* the subreport.

   o Repeat these steps for the **SWStruc.rpt** subreport, giving it a new name as well.

     ▪ For example, we've named this subreport, **SWStrucSub.rpt**.

   Note: When you are finished with these subreports, you may want to delete them from your "family" of Work reports. This will help avoid confusion in the future.

2. Close **WOFormSewerAsset.rpt** by clicking on the **X** in the tab.

3. You are back in MS_WOSumPipeMan.rpt. Insert two new *Group Footer* sections.

4. In your new *Group Footer* sections, insert the two subreports using the *Choose an existing report* option.

5. Choose the subreport formatting options. Remember to suppress the blank subreports within formatting and in the *Section Expert*.

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6. Link the subreports.
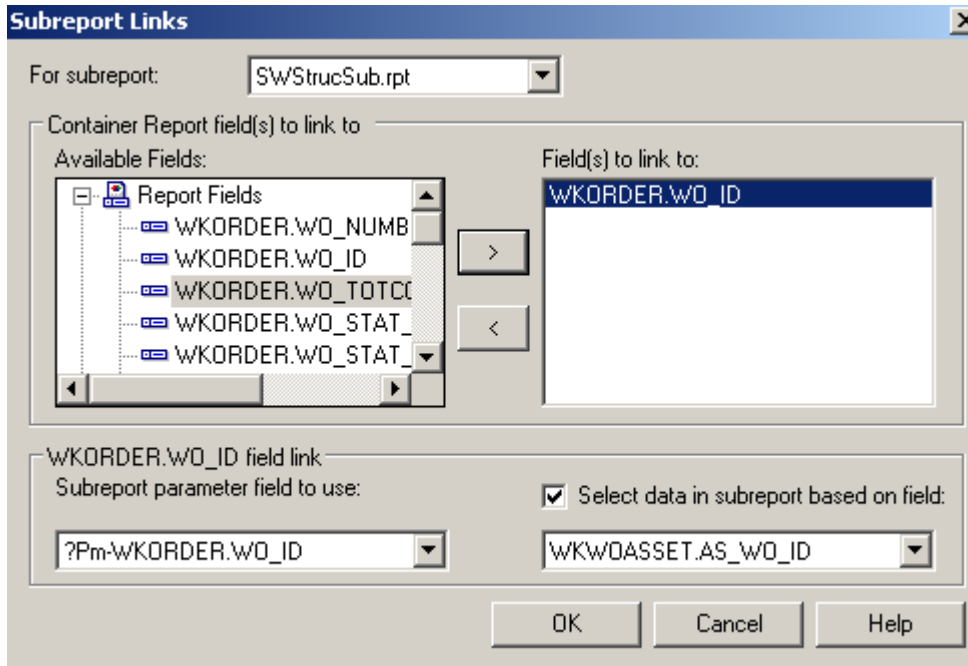
7. Within the subreports, remove the blank sections.

8. Remove the "old" linking formula in each subreport's *Select Expert*.

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Preview

Work Order Summary for Sewer Pipe and Manholes

WO #	Status	Status Date	Category	Main Task	Address
98-000037	Complete		Pipe Maintenance	Flush Sewer	717 WAVE

Asset List (Sewer Pipes)

US Structure DS Structure	US Address DS Address	Length Diameter	US Map Page Material	DS Map Page	Completion Date
5847-205	403 WAVERLY ST	140.0			
5847-204	411 WAVERLY ST	8	VCP		1/22/2007
5847-204	411 WAVERLY ST	141.0			
5847-203	423 WAVERLY ST	8	VCP		
5847-203	423 WAVERLY ST	175.0			
5847-202	437 WAVERLY ST	8	VCP		
5847-202	437 WAVERLY ST	299.0			
5847-146	458 LEXINGTON RD	8	VCP		
4 Pipes		755.0	Total Length		

Asset List (Sewer Structures)

Structure Material	Address	Dia	Structure Type	Map Page	US Loc	Completion Date
						1/22/2007
4 Manholes						

9. As you can see in the report Preview, the normal subreport suppression options are not working here. For this **Work Order Summary Report**, the **Sewer Structure** subreport needs to be suppressed. Subreports can be suppressed using the *Section Expert – Suppress (No Drill-Down)* option.

   o Select Section Expert.

   o For **Group Footer #1**, click Keep Together.

   o For the **Sewer Pipe** subreport, **Group Footer 1b**, click the formula button next to Suppress (No Drill-Down). Enter the following formula:

      {WKORDER.WO_INV_ID} <> 6

   o For the **Sewer Structure** subreport, *Group Footer 1c*, click the formula button next to *Suppress (No Drill-Down)*. Enter the following formula.


      {WKORDER.WO_INV_ID} <> 2

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Work Order Summary for Sewer Pipe and Manholes

WO #	Status	Status Date	Category	Main Task	Address
98-000037	Complete		Pipe Maintenance	Flush Sewer	717 WAVE

┌─ Asset List (Sewer Pipes) ─

US Structure	US Address	Length	US Map Page	DS Map Page	
DS Structure	DS Address	Diameter	Material		Completion Date
5847-205	403 WAVERLY ST	140.0			
5847-204	411 WAVERLY ST	8	VCP		1/22/2007
5847-204	411 WAVERLY ST	141.0			
5847-203	423 WAVERLY ST	8	VCP		
5847-203	423 WAVERLY ST	175.0			
5847-202	437 WAVERLY ST	8	VCP		
5847-202	437 WAVERLY ST	299.0			
5847-146	458 LEXINGTON RD	8	VCP		
4 Pipes		755.0	Total Length		

| 98-000038 | Completed | | Pipe Maintenance | TV Existing Sewer | N OLD MA |

Bringing in Asset Work Orders with Comment

In a Work Order report with Assets, it is sometimes desirable to see all of the Work Orders associated with the Assets.
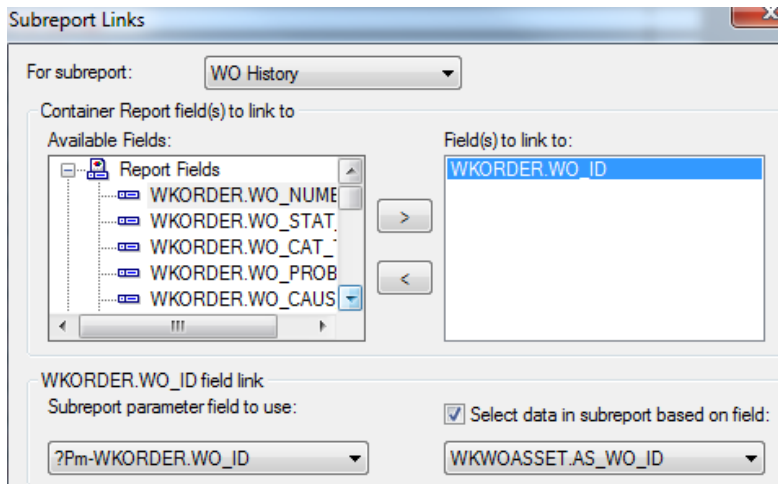
A subreport is added with the following tables and internal links:
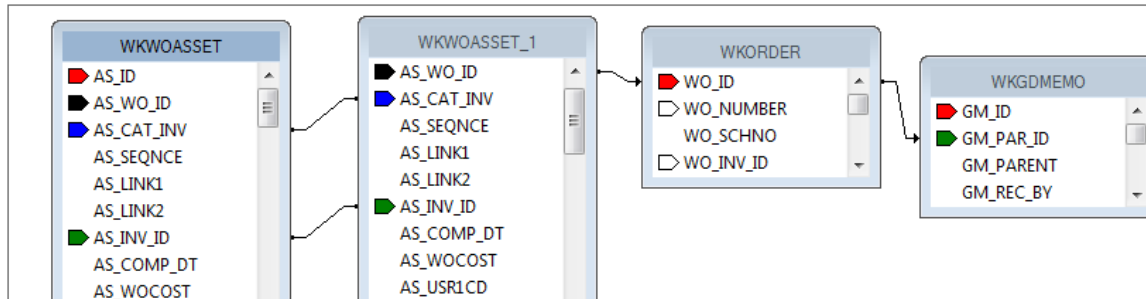
The WKWOASSET table is brought in twice then linked with inner joins. The WKORDER table is a left outer join.

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The subreport is linked to the main report as follows:

The Select Expert, in addition to the linking formula, is given an additional statement so the list of WOs does not include the current WO.

{WKWOASSET.AS_WO_ID} = {?Pm-WKORDER.WO_ID} and

{WKORDER.WO_ID} <> {?Pm-WKORDER.WO_ID}

The subreport in this example looks like this:

The grouping is on the Asset AS_LINK1 field. If there are multiple assets on the work order they will show up with the correct Asset.

The Work Order Comment is shown by bringing in the WKGDMEMO table then linking to the WKORDER table. The GM_MEMO field is placed in the report and then in the field Format Editor, Common tab, within in the Suppress formula button is the following formula:

{WKGDMEMO.GM_PARENT}<>"WKORDER"
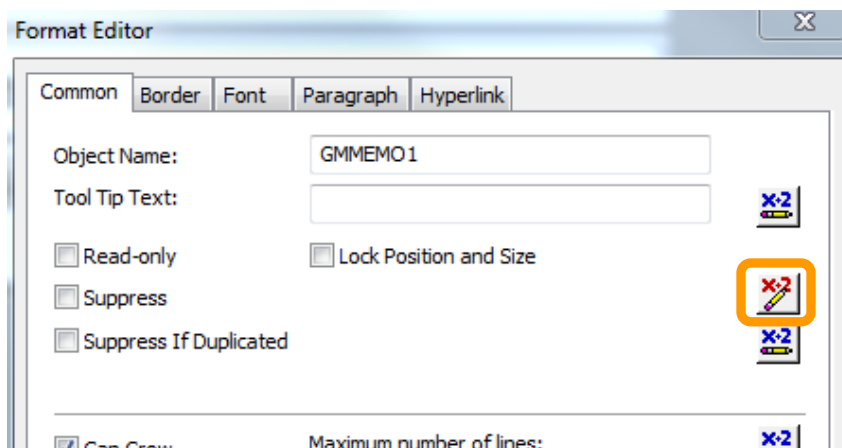
Work Order Summary Reports and Filters

If you have a module that allows you to filter on a field that is in a grid with multiple records and you plan on running a report (without groupings) 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 groupings and variables.

For example, in a Work Order report where the fields have been placed in the Detail section without Grouping - the following could occur:

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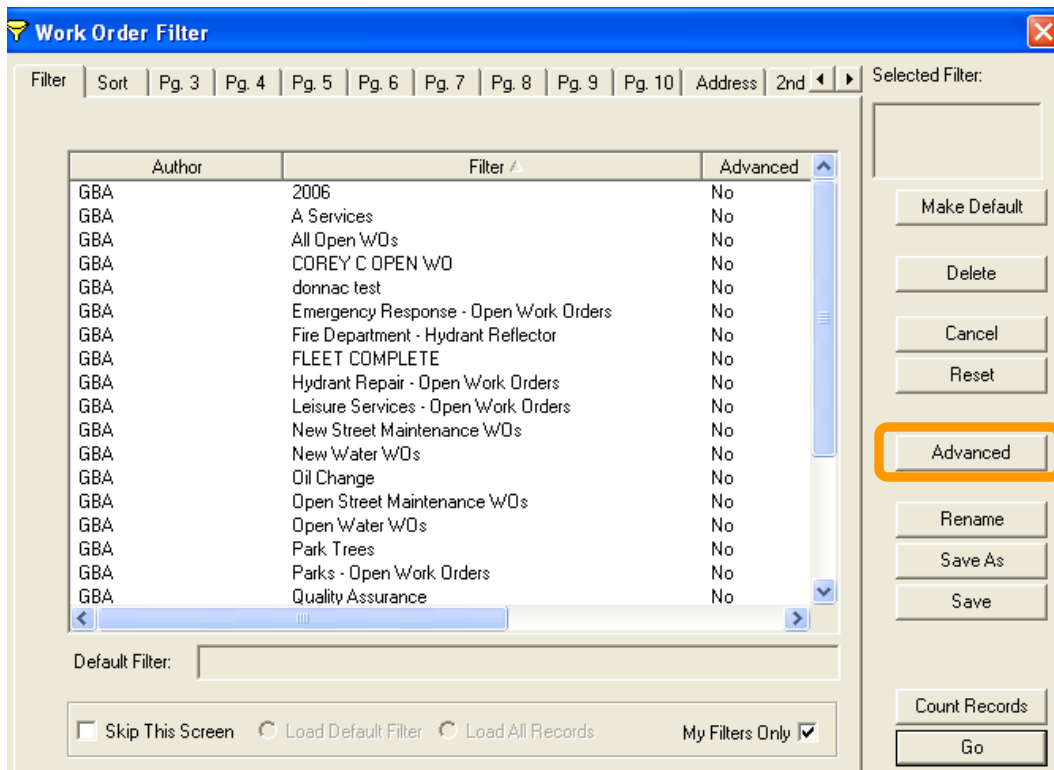
Then click on the "Report SQL" tab. This will show you what is being sent to the report.

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.

In WO# 2006-01128 there are two employees so when the report is run with a resource filter the WO line shows up twice.

| 2006-01128 | Sewer Service | Waste Water Quality Commercial | 821 S ROANOKE ST | 230.40 |
| 2006-01128 | Sewer Service | Waste Water Quality Commercial | 821 S ROANOKE ST | 230.40 |

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.

Using Variables in a Report

The original Work Order Category Summary report looked like this:

It was a very simple report which grouped on Category and used the Crystal Summary tool to calculate the Group Total and Grand Total. This worked fine if run without filters. There were certain filters that caused duplicate Work Order costs. The problem filters are the fields that come from grid data. In the Work Order module these would include Location, Assets, Tasks and Resources. This occurs because of the filter statement being passed from Lucity to Crystal. If there are two Tasks on a Work Order that are true for a Task filter being run then the report will run the record twice. To correct this issue we used grouping and variables. Open WOCatSum.rpt and follow the steps used to correct the report:

1. Added a second grouping on the Work Order Number, WO_NUMBER.

2. Created a formula for the Work Order Cost (**WOCost**) and placed it in the WO Number *Group Footer 2*.

   WhilePrintingRecords;

   Shared numberVar WOCost ;

   WOCost:={WKORDER.WO_TOTCOST}

3. Created a formula to summarize the cost for the Category (WOCostTot). Added a new section below the WO Number *Group Footer* 2. This is a second *Group Footer* (*GF2b*) for this section. Place this new formula in this section.

   WhilePrintingRecords;

   Shared numberVar WOCostTot ;

   Shared numberVar WOCost ;

   WOCostTot:= WOCostTot + WOCost

4. Created a formula to summarize the total cost for the Work Orders (TotSum). This was placed in *GF2b*.

   WhilePrintingRecords;

   Shared numberVar GrWOCost ;

   Shared numberVar WOCost ;

   GrWOCost:= GrWOCost + WOCost

5. Created a formula to Zero the Work Order cost variable (**ZeroWO**). Placed this in the WO Number *Group Header #2*.

   Shared numberVar WOCost :=0;

6. Created a formula to Zero the Category Cost (**Zero**). Placed this in the Category *Group Header #1*.

   Shared numberVar WOCostTot :=0 ;

   Shared numberVar WOCost :=0;

7. Created a formula to show the Category total cost (**TaskTot**). Placed this in the Category *Group Footer #1*.

   WhilePrintingRecords;

   Shared numberVar WOCostTot ;

   WOCostTot

8. Created a formula to show the Grand total cost (**Total**). Placed this in the *Report Footer*.

   WhilePrintingRecords;

   Shared numberVar GrWOCost ;

   GrWOCost

Suppressed the new *Group Header* and *Footer* sections.

Secured Fields in Subreports

When you add the simple **ViewSecuredFields** parameter formula to a field format in a subreport, it does not carry over to the main report without first asking for the security of the subreport. This defeats the purpose of security. The subreport should be responding to the Lucity Security setup. The main body of the report needs to communicate with the subreport. This requires the use of variables.

We will look at the Work Order Detail report and see how security was added to the cost fields in the Task/Resource subreport.

1. First, we used a shared variable called **Security**. It was declared in both the report and subreport.

   o Open **MS_WODetail.rpt**. The **ViewSecuredFields** parameter was created. For additional information, please refer to the related workbook, Beginning Crystal 2.

   o A new formula was created called **Security** to declare the variable.

   Shared NumberVar Security := {?ViewSecuredFields};

2. The new Security formula was placed into the *Report Header* section. The field size was reduced and the field text formatted to have white font. This ensured that the formula was not visible in the report.

3. In the **TaskRes.rpt** subreport a new formula called **SecuritySub** was created.

   Once again, the Security variable was declared .

   Shared NumberVar Security;

   o The formula was dragged into the suppressed *Report Header*.

4. There are four fields set up to show "Hidden" if the user does not have proper security. See the Beginning Crystal 2 handbook to see how the fields were set up.

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More on Variables – Passing information from a subreport to the main report

Let's create a report that shows the number of Requests and Work Orders for each Request Problem type. The number of Requests is straightforward enough with the use of a Running Total field. The number of Work Orders gets a little trickier because Work Orders are attached to Requests through a grid and thus need to be brought into the report as a subreport. Information from a subreport to a parent report can be done by using variables.

2. Create a new Work Report and name it **MS_ReqSumRQWO**.

3. Bring in the WKREQ table. Bring in the Problem field and the Request Number:

RH	.		
PH	.	**Summary of Requests and Work Orders**	
	.	Problem	Number of Requests
D	.	RQ_PROB_TY	RQ_NUMBER
RF	.		
PF	.		

4. Group by Problem Type. Move the Problem field to the *Group Footer*.

5. Add a **Number of Requests** column title. Then, create a Distinct Count of the Request Numbers for each Problem Type and place it under the column header in the *Group Footer* section.

6. Add a "Total" text in the Report Footer. Then put in a Distinct Count of the Request Numbers into the *Report Footer*.

RH	.		
PH	.	**Summary of Requests and Work Orders**	
	.	Problem	Number of Requests
GH1	.	Group #1 Name	
D	.		RQ_NUMBER
GF1	.	RQ_PROB_TY	DistinctCount of WKREQ
RF	.		Total: DistinctCount of WKREQ.f
PF	.		

7. Add the **WKWOMWO** table in the *Database Expert* and link as shown in the related workbook, Advanced Examples 2.

8. Create a **Work Order** subreport with the WKORDER and the WKWOMWO tables and place it in the *Detail* section. Link as shown in the Advanced Examples 2 workbook.

9. In the subreport, drag the **WO_Number** field into the *Detail* section. Create one formula (**WOCount**):

WhilePrintingRecords;

Shared numberVar WOCount;

WOCount :=DistinctCount({WKORDER.WO_NUMBER})

Place the formula and the **WO_NUMBER** field as follows and suppress the subreport sections. This subreport is counting the Work Orders for each Request. WOCount is a shared variable that is available to the main report.

10. In the main report, create five formulas:

  o Zero

     WhilePrintingRecords;

     Shared numberVar WOCount :=0;

     Shared numberVar ProbWOCount :=0 ;

  o WOCount (The shared variable WOCount is being passed in from the subreport)

     WhilePrintingRecords;

     Shared numberVar WOCount;

     WOCount

  o WOSum   (WOCount is being summed to calculate the Problem Total for Work Orders and the Grand Total for Work Orders.)

     WhilePrintingRecords;

     Shared numberVar WOCount ;

     Shared numberVar ProbWOCount ;

     Shared NumberVar GrTotWOCount;

     ProbWOCount:=ProbWOCount + WOCount;

     GrTotWOCount:=GrTotWOCount + WOCount;

  o ProbTot

     WhilePrintingRecords;

     Shared numberVar ProbWOCount ;

     ProbWOCount

  o TotalWO

     WhilePrintingRecords;

     Shared numberVar GrTotWOCount ;

     GrTotWOCount

11. Add another *Detail* section.

12. Create a column header, **Number of Work Orders**, and place the formulas as follows:

13. In *Section Expert*, make sure you select *Suppress Blank Section* for the *Detail* section with the **Work Order** subreport.

   o   Suppress sections as follows:

Preview

Summary of Requests and Work Orders

Problem	Number of Requests	Number of Work Orders
Concrete Sidewalk Repair	2	0
TS - Flashing	3	2
TS - Misalignment	3	0
TS - Red Out	3	2
TS - Timing	4	3
Total:	15	7

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WO Subtask Information to Assets

The Work module now allows Subtasks to be assigned to specific Assets. In order to show these relationships in a report, some fairly odd table linkings are required.
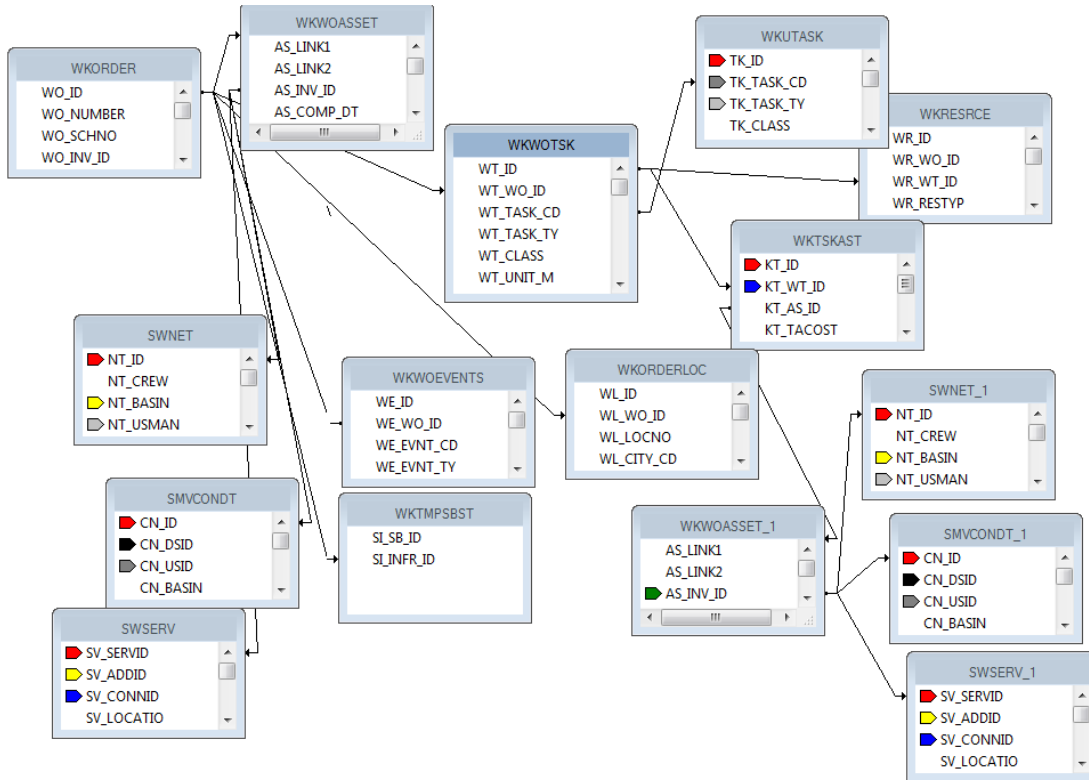
This seemingly simple one line report took nine groupings and two subreports to get to the information.

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Something new in Lucity version 7.4 is the availability of the WKTSKAST and WKWOTSK tables in the list of synonym tables. This will allow the addition of subtasks when creating reports for the various inventory items.
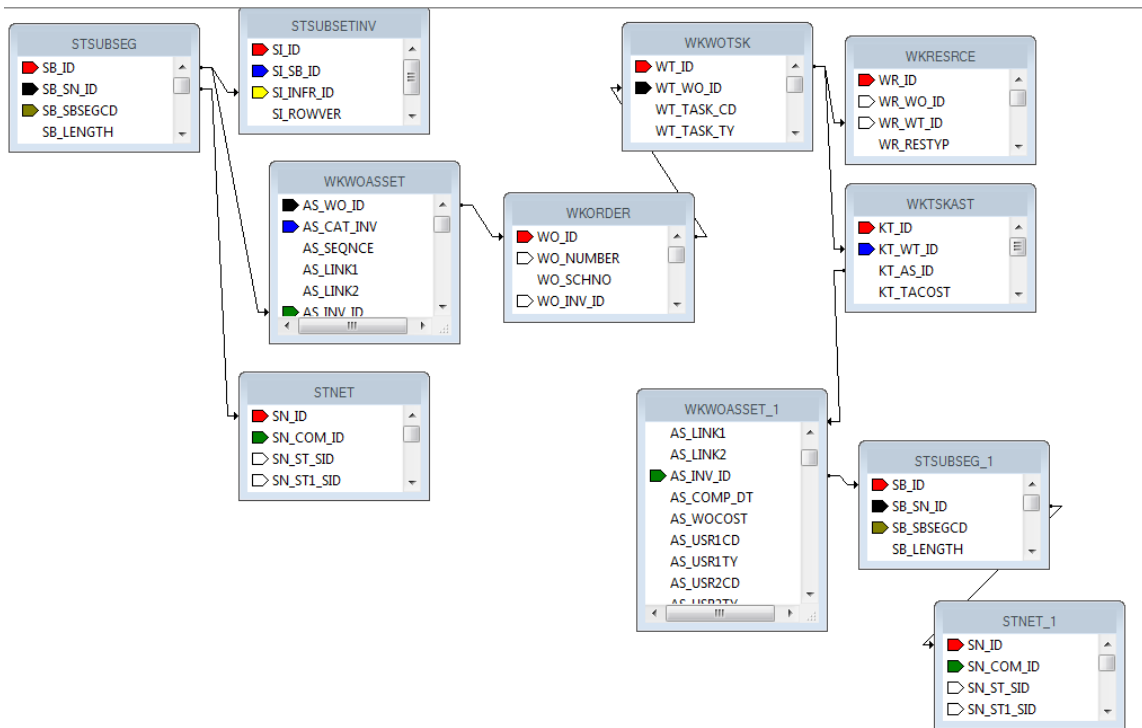

This too had some interesting table linkings:

This report had five groupings and three subreports to assist the information out of the tables and into the report.

If you are interested in creating a report with this subtask information, contact the Lucity Help Desk and we can help step you through the process.

The information is there; sometimes it is challenging to get it out.

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