Sorted Variance

Sorted Variance

The Sorted Variance report displays the actual, budgeted, and respective variance amounts for all revenue and expense accounts.

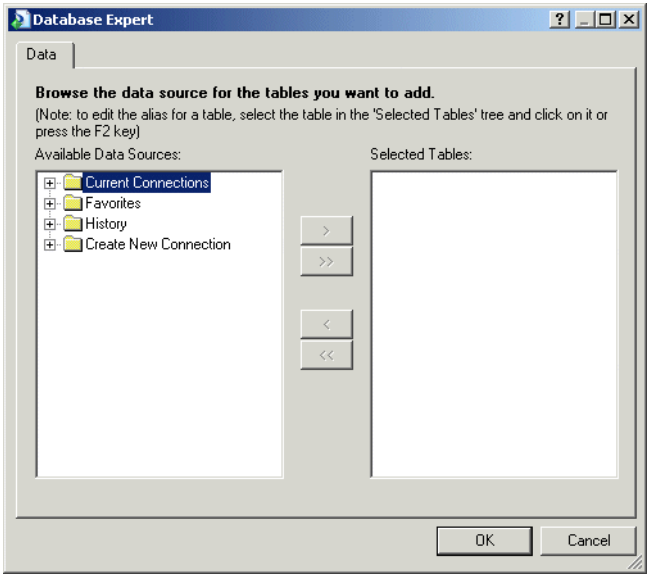
Introduction

The following tutorial assumes that you have completed the “Quick start for new users” tutorial in the *Crystal Reports XI User’s Guide*, which is located in the `Docs` folder of your product distribution.

Creating the report

On the Start Page in Crystal Reports, click Blank Report.

The Database Expert dialog box appears.



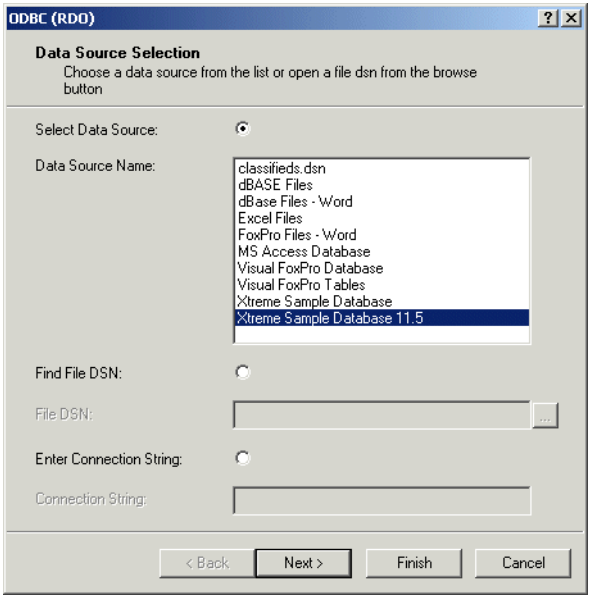
Selecting a database to use

When you create a report, the first thing that you must do is to select a database for the report to use.

To select a database

1. In the Database Expert dialog box, expand the **Create New Connection** folder.
2. Double-click **ODBC (RDO)**.

   The ODBC (RDO) dialog box appears and displays a list of data sources.

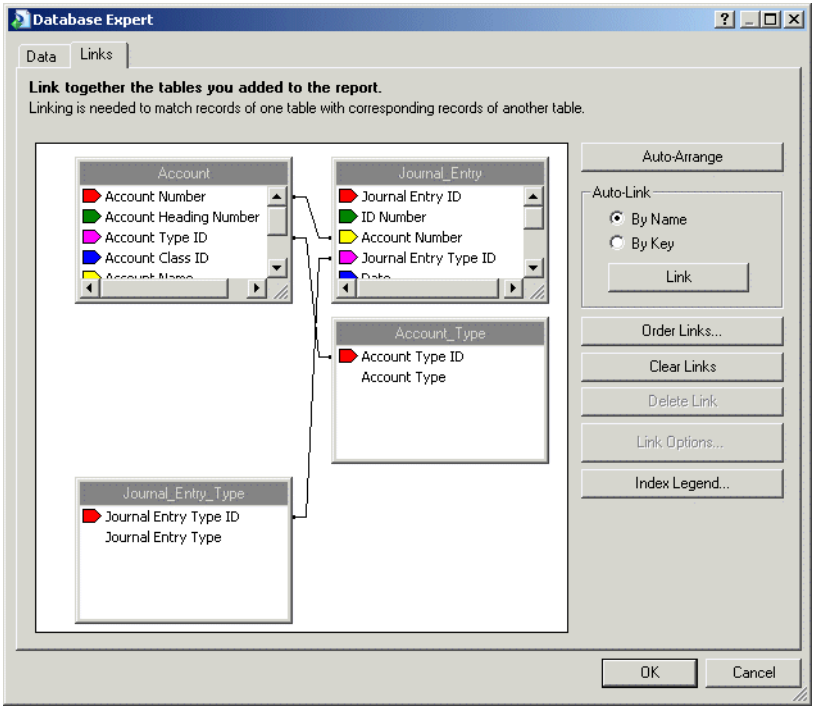


3. From the list, select **Xtreme Sample Database 11.5**, and click **Finish**.

   The Database Expert displays a list of available tables from the Xtreme Sample Database.
4. Select the **Account**, **Account Type**, **Journal Entry**, and **Journal Entry Type** tables, and click **>** to add them to the Selected Tables list.

   Tip: You can use CTRL+click to select multiple tables simultaneously.
5. Click **OK**.

The Links tab is displayed.



6. Verify that the links between the tables are consistent with what is displayed in the screenshot above. If necessary, create the appropriate links by dragging fields from one table to corresponding fields in another table.

   Note: Ensure that the following links exist:

   - `Account. Account Type ID` to `Account Type.Account Type ID`
   - `Account.Account Number` to `Journal Entry.Account Number`
   - `Journal Entry.Journal Entry Type ID` to `Journal Entry Type.Journal Entry Type ID`

7. Click **OK**.

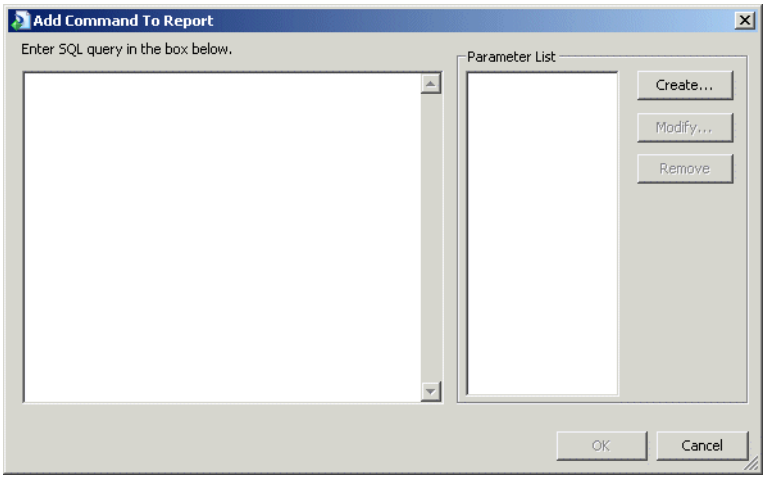
Creating commands

A command object is an SQL expression that is used to return data. The report makes use of two command object.

▶ To create a command

1. Click **Database Expert**.
2. In the Available Data Sources area, under the **Xtreme Sample Database 11.5** connection, select **Add Command**, and click **>**.

   The Add Command to Report dialog box appears.



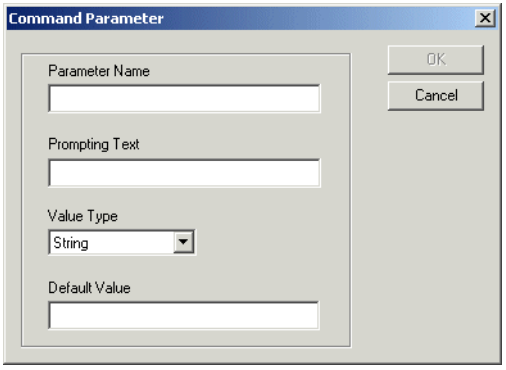
3. In the text area, type the following SQL query:

```
SELECT Sum(Amount) AS Year_Budget, [Account Number]
FROM [Monthly Account Budgets]
WHERE Year=Year({?End Date}) and Month <=Month({?End
    Date})

GROUP BY [Account Number];
```

4. Click **Create ...**.

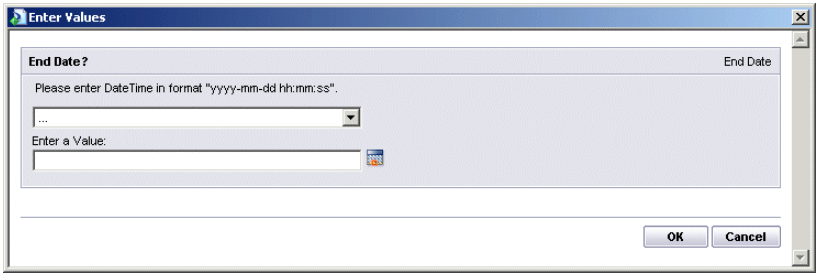
   The Command Parameter dialog box appears.



5. In the **Parameter Name** field, type `End Date`.
6. In the **Prompting Text** field, type `End Date?`.
7. From the **Value Type** list, select **DateTime**.

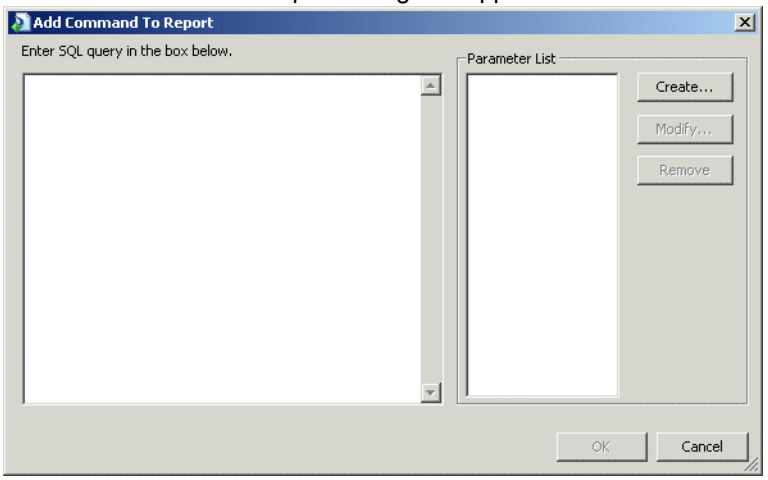
   The program automatically enters the current date and time in the Default Value field.
8. Click **OK**, and click **OK** again.

   The Enter Values window appears.



9. Provide a value for the End Date, and click **OK**.
10. In the Available Data Sources area, under the **Xtreme Sample Database 11.5** connection, select **Add Command**, and click **>**.

    The Add Command to Report dialog box appears.

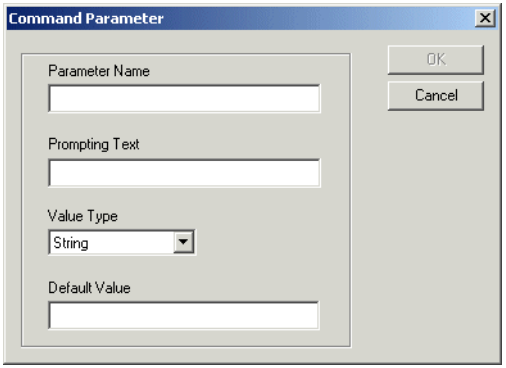


11. In the text area, type the following SQL query:

```
SELECT [Amount], [Account Number]
FROM [Monthly Account Budgets]
WHERE Year=Year({?End Date}) and Month=Month({?End Date})
```

12. Click **Create ...**.

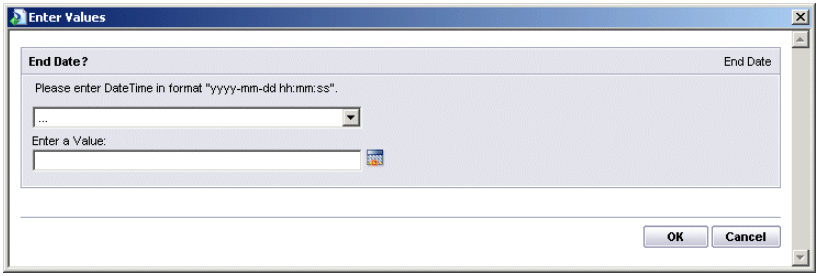
The Command Parameter dialog box appears.



13. In the **Parameter Name** field, type `End Date`.
14. In the **Prompting Text** field, type `End Date?`.
15. From the **Value Type** list, select **DateTime**.

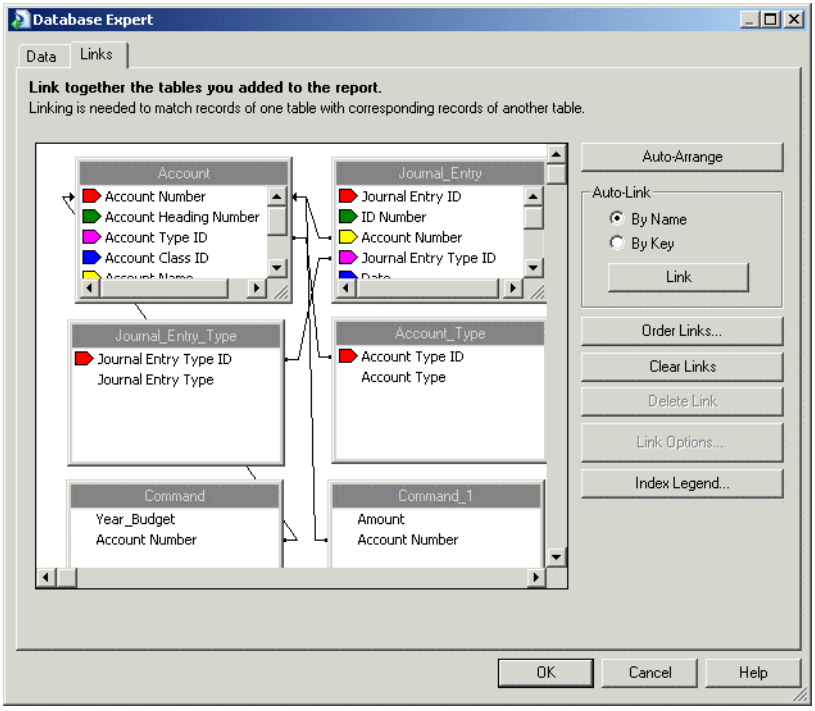
    The program automatically enters the current date and time in the Default Value field.
16. Click **OK**, and click **OK** again.

    The Enter Values window appears.



17. Provide a value for the End Date, click **OK**, and click **OK** again.

The Links tab is displayed.



18. Verify that the links between the tables are consistent with what is displayed in the screenshot above. If necessary, create the appropriate links by dragging fields from one table to corresponding fields in another table.

    The following links should be shown:

    - `Account.Account Type ID` to `Account Type.Account Type ID`
    - `Account.Account Number` to `Journal Entry.Account Number`
    - `Journal Entry.Journal Entry Type ID` to `Journal Entry Type.Journal Entry Type ID`
    - `Command.Account Number` to `Account.Account Number`
    - `Command_1.Account Account Number` to `Account.Account Number`

19. Click **OK**.

Setting up the report date

When you created the command object, a new parameter field named End Date was also created. (Check the Parameter Fields in the Field Explorer to ensure that the field was made.)

Setting up selection criteria

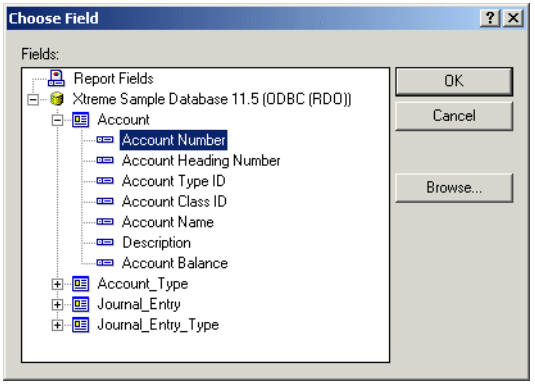
A selection criteria restricts the range of journal entries that are included in the report. For this report, you need to restrict the journal entries to those that fall between January 1st of the End Date year (for YTD calculations) and the End Date parameter. For example, if the End Date parameter has a value of November 14, 2005, then the journal entries are restricted to those between January 1, 2005 and November 14, 2005.

In addition to restricting journal entries based on dates, you need to restrict journal entries based on type. On January 1st of each year, the process of closing accounts is performed. These closing entries include the closure of all revenue and expense accounts and adjustments to Retained Earnings to reflect a net gain or net loss. Therefore, closing entries must not be included in the calculations; such entries must be restricted. You also need to restrict journal entries to display only Revenue and Expense accounts.

▶ **To create selection criteria**

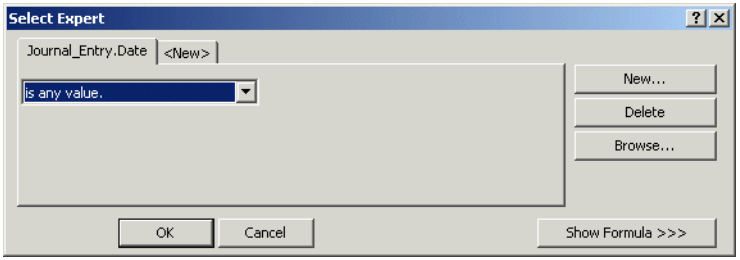
1. Click **Select Expert**.

   The Choose Field dialog box appears.



2. Expand the **Journal Entry** table, and select **Date**.
3. Click **OK**.

The Select Expert dialog box appears.



4. Ensure that the Journal Entry.Date tab is selected, and from the list, choose **formula:**.
5. To restrict journal entries, type the following formulas in the text area:

```
{Journal_Entry.Date} <= {?End Date} and
{Journal_Entry.Date} >= dateserial(year({?End Date}),1,1)
```

Note:

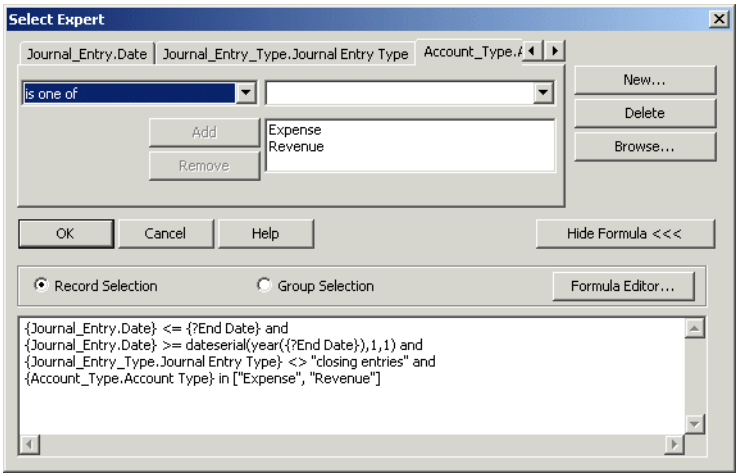
- `dateserial` is an SQL function that accepts three parameters (year, month, and day) and returns a valid date.
- `year` is an SQL function that accepts a datetime value and returns the year as an integer value.

6. With the journal entry dates restricted by the formulas, you now need to add criteria to restrict closing entries. In the Select Expert dialog box, click the <New> tab.

   The Choose Field dialog box appears.
7. Expand the **Journal_Entry_Type** table, and select **Journal Entry Type**.
8. Click **OK**.
9. Ensure that the Journal_Entry_Type.Journal Entry Type tab is selected, and from the list, choose **is not equal to**.
10. From the list that appears, select **closing entries**.
11. Click the <New> tab.
12. In the Choose Field dialog box, expand the **Account_Type** table, and select **Account Type**.
13. Click **OK**.
14. Ensure that the Account_Type.Account Type tab is selected, and, from the list, choose **is one of**.
15. From the list that appears, select **Revenue** and **Expense**.
16. To display the entire selection criteria click the ‘Show Formula >>>’ button.

17. Click **Show Formula >>>**.

    The dialog box displays your selection criteria.



18. Click **OK**.

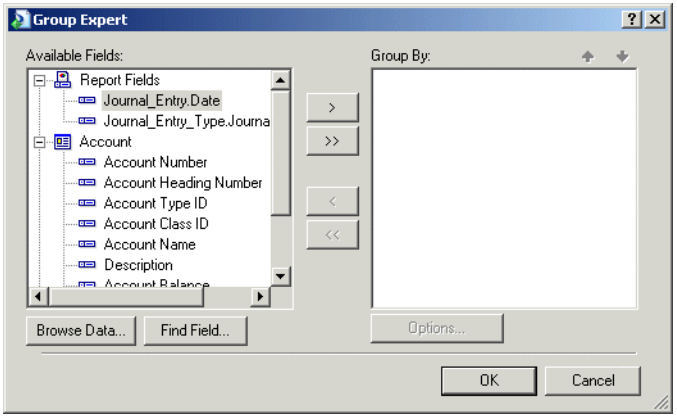
Setting up groupings

For this report, you must group records based on Account Type and Account Name.

▶ **To create report groupings**

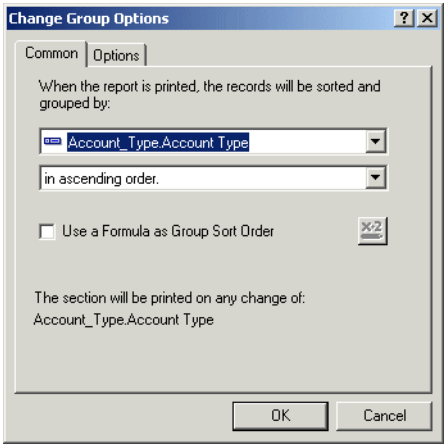
1. Click **Group Expert**.

    The Group Expert dialog box appears.



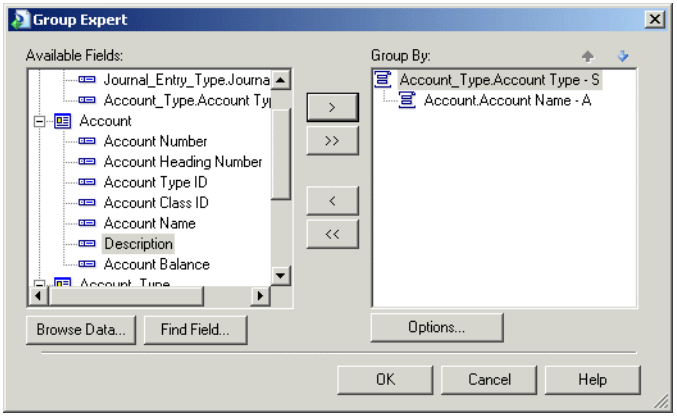
2. In the **Available Fields** area, expand the **Account_Type** table, select **Account Type**, and click **>**.
3. Click **Options...**.

   The Change Group Options dialog box appears.



4. From the second list, select **in specified order**.
5. From the Named Group: list, select the following values in order:
   - Revenue
   - Expense
6. Click **OK**.
7. Expand the **Account** table, select the **Account Name** field, and click **>** to create a second group.

The dialog box displays your groupings.



8. Click **OK**.

Creating formula fields

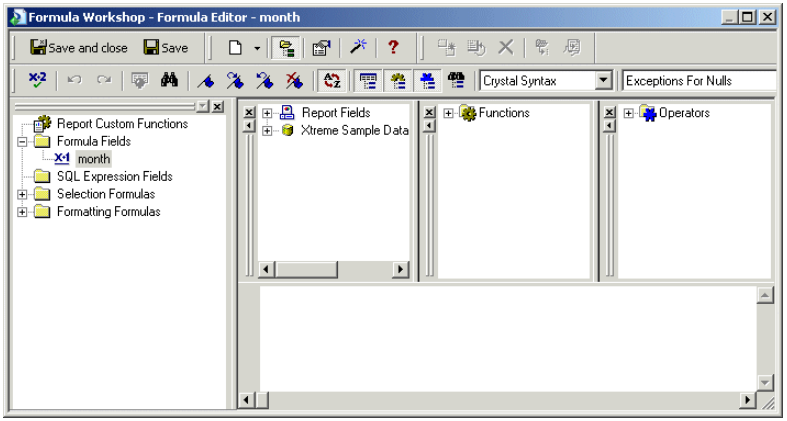
The Sorted Variance report uses several formula fields. You must create the necessary fields and add them to the report.

▶ **To create formula fields**

1. Click **Field Explorer**.
2. In the Field Explorer, right-click **Formula Fields**, and click **New**.

   The Formula Name dialog box appears.
3. Type `month`, and click **OK**.

The Formula Workshop appears.



4. Type the following formula:

```
MonthName (Month ({?End Date}))
```

This formula displays the textual representation of the End Date month.

5. Click **Check** to verify that the syntax of the formula is correct.
6. Click **Save and close**.
7. Repeat steps 2 through 6 to create the following formula fields:
   - **month_balance**: This formula reverses the sign of all Credit amounts for the reporting month.

     ```
     if Month({Journal_Entry.Date}) = Month({?End Date})
        then
     if {Journal_Entry.Debit Or Credit} = 'Credit' then
     {Journal_Entry.Amount} * -1
     else
     {Journal_Entry.Amount}
     ```

   - **month_variance**: This formula compares the sum of actual amounts versus budgeted for each account for the month.

     ```
     if {Account_Type.Account Type} = 'Revenue'
     and {Account.Account Name} <> 'Sales Returns' then
     (
     {Command_1.Amount} +
     Sum ({@month_balance}, {Account.Account Name})
     )
     else
     (
     {Command_1.Amount} -
     Sum ({@month_balance}, {Account.Account Name})
     )
     ```

- **YTD_balance**: This formula reverses the sign of all Credit amounts.

```
if {Journal_Entry.Debit Or Credit} = 'Credit' then
{Journal_Entry.Amount} * -1
else
{Journal_Entry.Amount}
```

- **YTD_variance**: This formula compares sum of actual amounts versus budgeted for each account for the year and excludes the Sales Returns account.

```
if {Account_Type.Account Type} = 'Revenue'
and {Account.Account Name} <> 'Sales Returns' then
(
{Command.Year_Budget} +
Sum ({@YTD_balance}, {Account.Account Name})
)
else
(
{Command.Year_Budget} -
Sum ({@YTD_balance}, {Account.Account Name})
)
```

Adding fields to the report

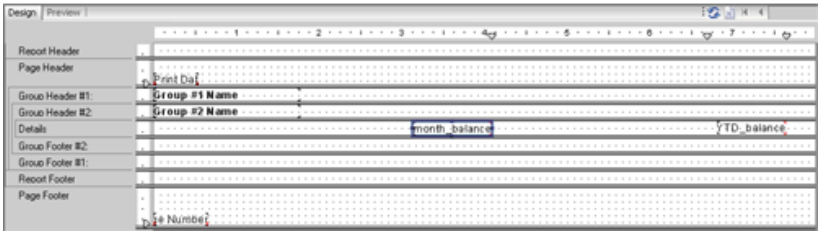
After you create the formula fields, you can begin to add fields to the report.

Note: Before you add the fields, adjust the page setup of the report to use legal size paper with a landscape orientation. This arrangement is required to accommodate the fields in the report.

▶ **To add fields to the report**

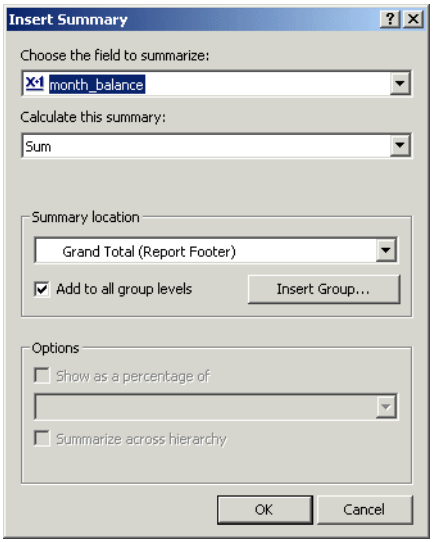
1. Drag the `YTD_balance` field into the right side of the **Details** section.
2. Drag the `month_balance` field to the left side of the `YTD_balance` field in the **Details** section.
3. Right-click all of the headings that were automatically created in the **Page Header** section, and click **Delete**.

   The report should now look similar to the following screenshot:



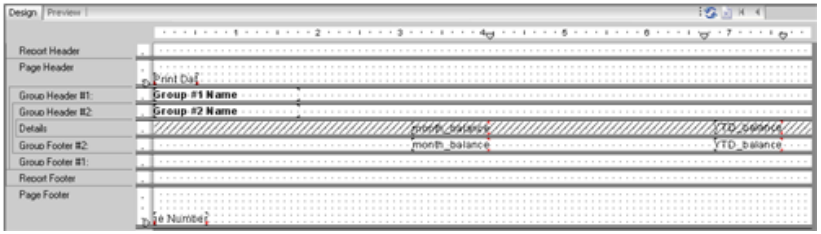
4. Right-click the `month_balance` field, and choose **Insert** > **Summary**.

   The Insert Summary dialog box appears.



5. For the **Summary Location**, select Group #2, and click **OK**.
6. Right-click the `YTD_balance` field, and choose **Insert** > **Summary**.
7. For the **Summary Location**, select Group #2, and click **OK**.
8. Right-click **Details**, and click **Hide (Drill-Down OK)**.

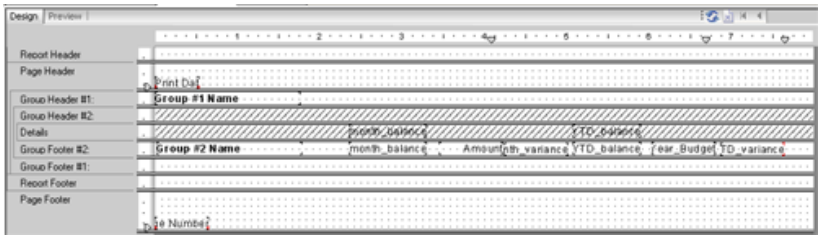
   The report should now look similar to the following screenshot:



9. Move the `Group #2 Name` field from the **Group Header #2** section to the **Group Footer #2** section.
10. Remove the bold formatting that is applied to the `Group #2 Name` field and the `Group #2` summary fields.
11. Right-click **Group Header #2**, and click **Suppress (No Drill-Down)**.

12. From the Field Explorer, drag the `Amount` field from the **Command_1** table to the right side of the `month_balance` summary field in the **Group Footer #2** section.
13. Drag the `Year_Budget` field from the **Command** table to the right side of the `YTD_balance` summary field in the **Group Footer #2** section.
14. Drag the `month_variance` field to the right side of the `Amount` field in the **Group Footer #2** section.
15. Drag the `YTD_variance` field to the right side of the `Year_Budget` field in the **Group Footer #2** section.

    The report should now look similar to the following screenshot:



16. Drag the `Journal Entry ID` field from the **Journal_Entry** table to the **Details** section, offset the left edge by 1/2 inch. Delete the column heading that is created in the **Page Header** section.
17. Drag the `Date` field from the **Journal_Entry** table to the right side of the **Journal Entry ID** field in the **Details** section, offset the left edge by 1/2 inch. Delete the column heading that is created in the **Page Header** section.

After you add the appropriate fields to the data in the report, you can create create column headings.

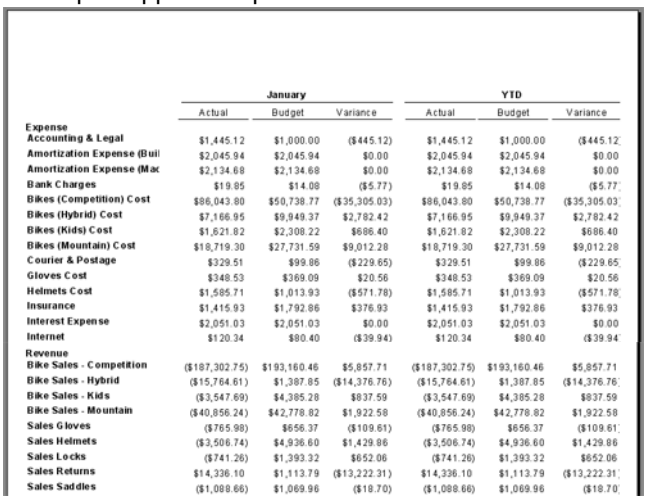
▶ **To create column headings**

1. From the Field Explorer, drag the `@month` formula field to the **Page Header** section. Resize the heading so that it spans the three month bound columns.
2. For the second column heading, add a text field to the Page Header section, and type `YTD`. Resize the heading so that is spans the three YTD bound columns.
3. Format the two column heading fields to display bold text aligned to the center and with a single line bottom border.

Reviewing your work

To see how the report looks with the fields in place, click **Print Preview** to activate the Preview tab.

The report appears in preview mode.



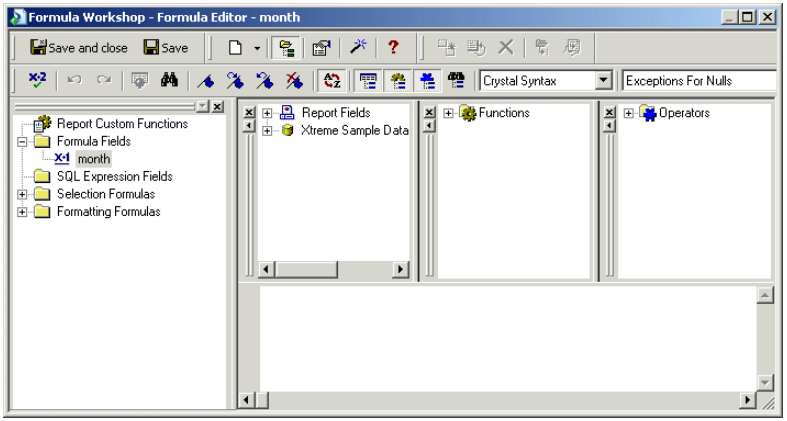
	January			YTD		
	Actual	Budget	Variance	Actual	Budget	Variance
Expense						
Accounting & Legal	$1,445.12	$1,000.00	($445.12)	$1,445.12	$1,000.00	($445.12
Amortization Expense (Buil	$2,045.94	$2,045.94	$0.00	$2,045.94	$2,045.94	$0.00
Amortization Expense (Mac	$2,134.68	$2,134.68	$0.00	$2,134.68	$2,134.68	$0.00
Bank Charges	$19.85	$14.08	($5.77)	$19.85	$14.08	($5.77
Bikes (Competition) Cost	$86,043.80	$50,738.77	($35,305.03)	$86,043.80	$50,738.77	($35,305.03
Bikes (Hybrid) Cost	$7,166.95	$9,949.37	$2,782.42	$7,166.95	$9,949.37	$2,782.42
Bikes (Kids) Cost	$1,621.82	$2,308.22	$686.40	$1,621.82	$2,308.22	$686.40
Bikes (Mountain) Cost	$18,719.30	$27,731.59	$9,012.28	$18,719.30	$27,731.59	$9,012.28
Courier & Postage	$329.51	$99.86	($229.65)	$329.51	$99.86	($229.65
Gloves Cost	$348.53	$369.09	$20.56	$348.53	$369.09	$20.56
Helmets Cost	$1,585.71	$1,013.93	($571.78)	$1,585.71	$1,013.93	($571.78
Insurance	$1,415.93	$1,792.86	$376.93	$1,415.93	$1,792.86	$376.93
Interest Expense	$2,051.03	$2,051.03	$0.00	$2,051.03	$2,051.03	$0.00
Internet	$120.34	$80.40	($39.94)	$120.34	$80.40	($39.94
Revenue						
Bike Sales - Competition	($187,302.75)	$193,160.46	$5,857.71	($187,302.75)	$193,160.46	$5,857.71
Bike Sales - Hybrid	($15,764.61)	$1,387.85	($14,376.76)	($15,764.61)	$1,387.85	($14,376.76
Bike Sales - Kids	($3,547.69)	$4,385.28	$837.59	($3,547.69)	$4,385.28	$837.59
Bike Sales - Mountain	($40,856.24)	$42,778.82	$1,922.58	($40,856.24)	$42,778.82	$1,922.58
Sales Gloves	($765.98)	$656.37	($109.61)	($765.98)	$656.37	($109.61
Sales Helmets	($3,506.74)	$4,936.60	$1,429.86	($3,506.74)	$4,936.60	$1,429.86
Sales Locks	($741.26)	$1,393.32	$652.06	($741.26)	$1,393.32	$652.06
Sales Returns	$14,336.10	$1,113.79	($13,222.31)	$14,336.10	$1,113.79	($13,222.31
Sales Saddles	($1,088.66)	$1,069.96	($18.70)	($1,088.66)	$1,069.96	($18.70

Note: Revenue accounts that are also credit accounts may display negative amounts. To display positive values, you need to apply conditional formatting on the sum fields for both the month_balance and the YTD_balance fields.

▶ **To apply conditional formatting**

1. Right-click sum of the `month_balance` field, and select **Format Field**.
2. On the Number tab, click **Customize...**.
3. Select the **Reverse Sign for Display** option, and click the **Formula** button beside the option.

The Formula Workshop appears.



4. Type the following formula, and then click **Save and close**:

```
{Account_Type.Account Type} = 'Revenue' and
{Account.Account Name} <> 'Sales Returns'
```

5. In the **Group Footer #1** section, right-click the sum of the `month_balance` field, and select **Format Field**.
6. On the Number tab, click **Customize...**.
7. Repeat steps 3 to 5 for sum of the `YTD_balance` field.

After you finish reviewing the report, click the Design tab to correct any mistakes.

Completing the report

Now that the report has been built to display the correct data, you can add the report title, the report date, and the company logo.

▶ **To add a report title and report date**

1. Expand the **Page Header** section to be approximately 2 inches in height.
2. Create a new text field at the center of the **Page Header** section, and type `Xtreme Mountain Bikes`.
3. Create another text field directly underneath the Xtreme Mountain Bikes text field, and type `Variance Analysis`.
4. Create another text field directly underneath the Variance Analysis text field, and type `For the months ending`.

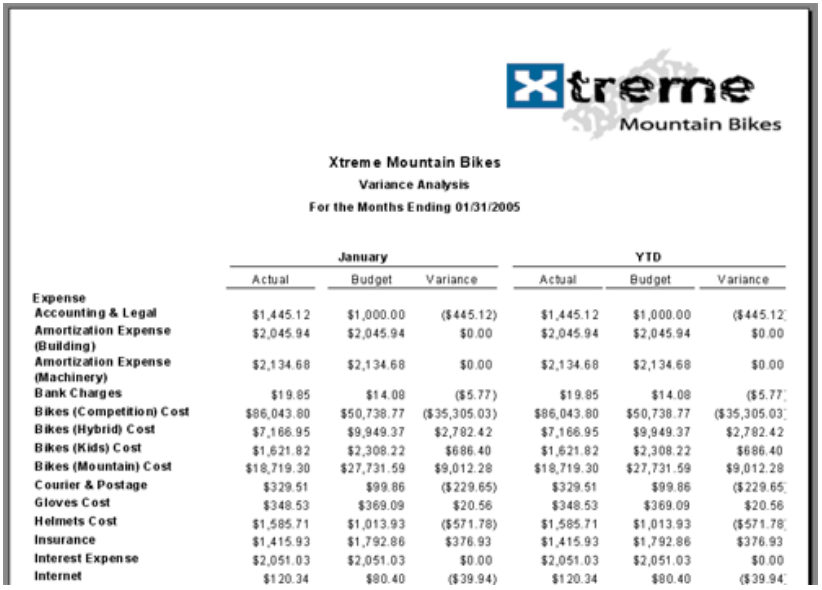
5. Drag the **End Date** parameter field to anywhere in the **Page Header** section.
6. Right-click the **End Date** field, and click **Format Field**.

   The Format Editor appears.
7. Select **03/01/1999** as the Date and Time format, and click **OK**.
8. Drag the End Date field into the text field that contains **For the months ending**.

▶ To add a company logo to the report

1. Click the Design tab, and click **Insert Picture**.
2. Choose a bitmap (.bmp) logo file, and click **Open**.
3. Position the object frame in the upper right-hand corner of the **Report Header (RH)** section of the report.
4. Click the Preview tab.

   The report should now look similar to the following screenshot:



Xtreme Mountain Bikes

Xtreme Mountain Bikes
Variance Analysis
For the Months Ending 01/31/2005

	January			YTD		
	Actual	Budget	Variance	Actual	Budget	Variance
Expense						
Accounting & Legal	$1,445.12	$1,000.00	($445.12)	$1,445.12	$1,000.00	($445.12)
Amortization Expense (Building)	$2,045.94	$2,045.94	$0.00	$2,045.94	$2,045.94	$0.00
Amortization Expense (Machinery)	$2,134.68	$2,134.68	$0.00	$2,134.68	$2,134.68	$0.00
Bank Charges	$19.85	$14.08	($5.77)	$19.85	$14.08	($5.77)
Bikes (Competition) Cost	$86,043.80	$50,738.77	($35,305.03)	$86,043.80	$50,738.77	($35,305.03)
Bikes (Hybrid) Cost	$7,166.95	$9,949.37	$2,782.42	$7,166.95	$9,949.37	$2,782.42
Bikes (Kids) Cost	$1,621.82	$2,308.22	$686.40	$1,621.82	$2,308.22	$686.40
Bikes (Mountain) Cost	$18,719.30	$27,731.59	$9,012.28	$18,719.30	$27,731.59	$9,012.28
Courier & Postage	$329.51	$99.86	($229.65)	$329.51	$99.86	($229.65)
Gloves Cost	$348.53	$369.09	$20.56	$348.53	$369.09	$20.56
Helmets Cost	$1,585.71	$1,013.93	($571.78)	$1,585.71	$1,013.93	($571.78)
Insurance	$1,415.93	$1,792.86	$376.93	$1,415.93	$1,792.86	$376.93
Interest Expense	$2,051.03	$2,051.03	$0.00	$2,051.03	$2,051.03	$0.00
Internet	$120.34	$80.40	($39.94)	$120.34	$80.40	($39.94)

Saving the report

To save the report

1. Click **Save**.

   Because this is the first time that you are saving the report, the Save As dialog box appears and displays the location where the file will be saved.
2. In the **File name** field, type `Sorted Variance.rpt`, and click **Save**.

   The report is saved to the location that you chose.