Report Builder - Student Guide

Define Your Data Source

Create a data source pointing to the TRAKiT database:

1. Click New then select Data Source… or right click and select Add Data Source.
2. Name your data source (use **CRW**)
3. Select **Use a connection embedded in my report**
4. Select **Microsoft SQL Server**
5. Click **Build**
6. Select the SQL Server where TRAKiT database is stored.
7. Select **Use SQL Server Authentication**.
8. Enter the TRAKiT database **User name** and **Password**.
9. Select the TRAKiT database name.
10. Click Test Connection.
11. Click OK.
12. Click OK.

Define the Dataset

Define a dataset using query designer. The dataset will include Permit Number, Applied Date, Permit Type, Permit Subtype, and Status

1. Click New then select Dataset… or right click and select Add Dataset.
2. Enter a name for the data set. Do no use spaces.
3. Select **Use a Dataset embedded in my report**.
4. Select the data source.
5. Select **Text** as the Query Type.
6. Click **Query Designer**.
7. Select the fields from the **Database View** to include in the report.
8. Click **Run Query** to display data from the database.
9. Click
10. **OK**.
11. Click OK.

Create a Report Header

Add a header with the agency name field. The agency name is stored in **Prmry_Main**.

1. Create a dataset called AgencyInfo from Prmry_Main and include **Agency Name, Agency Address1, Agency Address 3**
2. Click **Header**.
3. Click **Add Header.**
4. Click **Rectangle**.
5. Click in the header section and draw rectangle.
6. Click **Text Box**.
7. Draw a text box inside of the header and enter **Permit Information**.

Create three Placeholders for Agency Name, Address, City, State and Zip Code using the expression builder.

1. Press the return key after Permit Information
2. Right-click and select **Create Placeholder**
3. Click **Expression Builder**
4. Click **Datasets**
5. Click **AgencyInfo** 6. Double-click **Agency_Name**
7. Click **OK.**
8. Press the return key after **Agency_Name**
9. Right-click and select **Create Placeholder**
10. Click **Expression Builder**
11. Click Datasets
12. Click **AgencyInfo**
13. Double-click **Agency_Address1**
14. Click **OK.**
15. Press the return key after **Agency_Name**
16. Right-click and select **Create Placeholder**
17. Click **Expression Builder**
18. Click **Datasets**
19. Click **AgencyInfo**
20. Double-click **Agency_Address3**
21. Click **OK.**

Create a Report Footer

Create a footer that contains the title of your report and the page number Page N of M using the expression builder. Footer elements are contained within text boxes.

1. Click **Text Box.**
2. Click in the footer area.
3. Enter your report title and size as required.
4. Click **Text Box.**
5. Click in the footer area.
6. Click outside of the text box to enable the bounding box.
7. Right-click on the text box.
8. Select **Expression**.Type **= "Page " &**
9. Select **Built in Fields**
10. Double-click **Overall Page Number.**
11. Type **& " of " &**
12. Double-click Overall Total Pages.

Create a Table

Create a Table using the Table Wizard.

1. On the ribbon bar, click **Insert**.
2. Select **Table Wizard** from the Table button.
3. Select the dataset you just created.
4. Click **Next**.
5. Drag and drop the available fields into the **Values** box.
6. Click **Next**.
7. Click **Next**.
8. Select a style.
9. Click **Finish**.

Create a Static Sort

Add static sort options to the table:

1. Select the Tablix
2. Click **Properties.**
3. Select **Sorting**.
4. Add **Permit Type** (A to Z)
5. Add **Permit Number** (A to Z)
6. Run report.

Create an Interactive Sort

Add interactive sorting to the Permit Type, Status & Applied date.

1. Select Permit Type text box.
2. Click **Properties.**
3. Select **Interactive Sorting**.
4. Click **Enable interactive sorting on this text box.**
5. Select **Permittype** from the **Sort By** list.
6. Click **OK**.
7. Run report.

Grouping Data in a Table

Create a Table and Group the data by Permit Type.

1. Select **Table Wizard** from the Table button.

2. Select the PermitInfo dataset.
3. Click **Next**.
4. Drag and drop all the available fields into the **Values** box except for Permittype.
5. Add Permittype to **Row Groups**.
6. Click **Next**.
7. Select the appropriate **Layout** option.
8. Click **Next**.
9. Select a style.
10. Click **Finish**.
11. Click Run.

Adding Grand Totals & Subtotals

Add a grand total and subtotal

1. Right-click on the last cell in the table.
2. Select **Expression**.
3. Expand **Common Functions** from the Category list.
4. Click **Aggregate**.
5. Double-click **Count**.
6. Click **Fields**.
7. Click the field that will be counted.
8. Add the closing parenthesis.
9. Click **OK**.
10. Click **Run**.
11. Repeat steps 1-10, this time adding in a subtotal for each group.

Joining Tables

create a report that joins two tables together (Permit_Main & Permit_People).

1. Click New then select Dataset… or right click and select Add Dataset.
2. Enter a name for the data set. Do no use spaces.
3. Select **Use a Dataset embedded in my report**.
4. Select the data source.
5. Select **Text** as the Query Type.
6. Click **Query Designer**.
7. Select the fields from the **Database View** to include in the report.
8. In **Relationships** deselect **Auto Detect**.
9. Click **Add Relationship**.
10. Add **Permit_Main** as the **Left Table**.
11. Select **Left Outer Joint** as the **Join Type**.
12. Add **Permit_People** as the **Right Table**.
13. Add the **Join Fields** (Permit_Main.PERMIT_NO and Permit_People.PERMIT_NO).
14. Click **Add Filter**.
15. Select Permit_People.NAMETYPE for the **Field Name**.
16. Select **is** for the operator.
17. Enter **OWNER** as the **Value**.

18. Click **OK**.
19. Click **Run Query** to display data from the database.
20. Click **OK**. 21. Click **OK**.

Format a Table for Multiple Header & Data Rows

Create a Table with multiple header and data rows.

1. Select table.
2. Click gray bar next to header row to select.
3. Right-click gray bar.
4. Select **Insert Row**… **Below**.
5. Repeat process on data row
6. Select **Insert Row**…**Inside Group – Below**
7. Arrange fields as desired.

Repeating Header Rows

Modify the header row so that it repeats across a multi-page document.

1. To enable your header row(s) to repeat on the top of each page.
2. Select **Advanced Mode** from the **Colum Groups** menu. This will enable the ability for you to define the properties for each line.
3. Next, select the row that you want to repeat at the top of each page by selecting its definition in **Row Groups**.
4. Set the **Repeat on New Page** property to **True**. For reports with multiple lines for the header…repeat this process for each line of the header.

Functions

Create a report that uses functions.

1. Create a new dataset from Permit_Main with just Balance_Due Field
2. Add text box with Total Fees Due, Number of Permits, Average Amount Due
3. Drag Balance_Due onto the report and run report
4. Drag Balance_Due a second time and convert the function to count.
5. Drag Balance_Due a third time and convert to Average. =Avg(Fields!BALANCE_DUE.Value, "PermitFees")

Create a Matrix

Create a report that contains a matrix.

1. Create a new blank report

2. Create a new datasource
3. Create a new dataset from Permit_Main with Permittype, Permitsubtype, and PERMIT_NO
4. Add a matrix using the wizard
5. On Arrange Fields Screen, add Permit Type to the row, Permit Subtype to the Column and Permit Number to the Values area.
6. Select Permit Number and aggregate by Count.
7. Select the generic formatting.
8. Run report. **Create a List**

Create a report that contains a list.

1. Create a new blank report
2. Create a new data source
3. Create a new dataset from Permit_Main with Permittype, Permitsubtype, and PERMIT_NO
4. Add a list.
5. Insert Permit Number, Permit Type and Permit Subtype into the list area.
6. Add a line using the line tool.

Parameters

Create a report that displays the following items in a matrix and allows the user to limit the records based on the applied date: Permit Number, Permit Type, Permit Subtype, Status, Applied Date.

1. Create a new blank report
2. Create a new datasource
3. Create a new dataset from Permit_Main with Permittype, Permitsubtype, and PERMIT_NO
4. Click **Add Parameter**.
5. Enter **FromDate** in **Name:** field.
6. Enter **From Date:** in **Prompt** field.
7. Select **Date/Time** from the **Data Type** list.
8. Click **Add Parameter**.
9. Enter **ToDate** in **Name:** field.
10. Enter **To Date:** in **Prompt** field.
11. Select **Date/Time** from the **Data Type** list.
12. Add **where** clause to SQL statement in dataset.
13. Add a matrix using the wizard

14. On Arrange Fields Screen, add Permit Type to the row, Permit Subtype to the Column and Permit Number to the Values area. Use Count to Aggregate the Permit Number value
15. Select Permit Number and aggregate by Count.
16. Select the generic formatting.
17. Run report.

Add to the last report a parameter to limit by Permit type and applied date.

1. Create new dataset of distinct permit types called PermitTypeList. (SQL: select distinct PERMITTYPE from PERMIT_MAIN order by PERMITTYPE)
2. Click **Add Parameter**.
3. Enter **PermitTypeList** in **Name:** field.
4. Enter **Permit Type:** in **Prompt** field.
5. Select **Text** from the **Data Type** list.
6. Click **Allow Multiple Values.**
7. Select **Available Values** from the Menu.
8. Select **Get Values from Query**.
9. Select the **PermitTypeList** dataset.
10. Select **Permittype** as the Value field.
11. Select **Permittype** as the Label field.
12. Click **OK**
13. Modify your **where** clause.
14. Run report.
15. Add a where clause to the **PermitTypeList** that limits the list of types to only those that are within the date range specified by the @FromDate and @ToDate parameters. **Linking Reports**

Create a linked report.

1. Open Permit_Info report.
2. Click **Add Parameter**.
3. Enter **Permittype** for parameter name.
4. Enter **Permit Type:** for label.
5. Select **Text** as data type.
6. If your report contains blanks in permit type. You may need to select **Allow Blank Values**.
7. Select **Hidden** for parameter visibility.
8. Create new blank report

9. Add data source.
10. Add dataset with SQL for unique list of permit types.
11. Add table using wizard 12. Select text (**Selected Text**) in table.
13. Click **Properties.**
14. Select **Action**.
15. Select **Go to Report**.
16. Select the **Permit_Info** report.
17. Click **Add** from **Use These Parameters to Run the Report**.
18. Select Permittype from both dropdown lists.
19. Click **OK**.
20. Run report

Style the text on the report to look like a link.

1. Select the Text (Selected Text).
2. Click **Properties**.
3. Click **Font**.
4. Select dark blue under the **Color**.
5. Select underline under Effects.

Charts

Create a column chart to display Finaled permits.

1. Create a new blank report
2. Create a new datasource
3. Create a new dataset from Permit_Main with Permittype and finaled date.
4. Click **Add Parameter**.
5. Enter **FromDate** in **Name:** field.
6. Enter **From Date:** in **Prompt** field.
7. Select **Date/Time** from the **Data Type** list.
8. Click **Add Parameter**.
9. Enter **ToDate** in **Name:** field.
10. Enter **To Date:** in **Prompt** field.
11. Select **Date/Time** from the **Data Type** list.
12. Add where clause to SQL statement in dataset.

Add Report Title that includes the From and To date parameters.

1. Edit Report Title to Permits Finaled.
2. On the second line add **For the Period of** 3. Right-click and select **Create Place Holder**.
4. In the **Value** add **[@FromDate]**.
5. Insert the word **and**.
6. Right-click and select **Create Place Holder**.
7. In the Value add [@ToDate].
8. Click **Chart Wizard**.
9. Select **PermitInfo** dataset.
10. Select **Column Chart**.
11. Add Permit Type to **Category Group**.
12. Add Finaled to **Values** and aggregate by **Count**.
13. Run Report

Modify the Chart Axis interval properties.

1. Select Axis Title.
2. Click **Chart Axis** properties.
3. On **Axis Options**
4. Change Interval from Auto to **1**.
5. Run Report.

Change the Chart Type.

1. Right-click in a blank area of the chart
2. Select **Change Chart Type…**
3. Select **Shape** -> **Pie**.
4. Run Report.

Pie Charts

Create a pie chart that will display the total number of inspections for a specified time frame.

1. Create a new blank report
2. Create a new datasource
3. Create a new dataset from Permit_Inspections with Inspector and completed date.
4. Click **Add Parameter**.
5. Enter **FromDate** in **Name:** field.
6. Enter **From Date:** in **Prompt** field.

7. Select **Date/Time** from the **Data Type** list.
8. Click **Add Parameter**.
9. Enter **ToDate** in **Name:** field.
10. Enter **To Date:** in **Prompt** field.
11. Select **Date/Time** from the **Data Type** list.
12. Add **where** clause to SQL statement in dataset.

Insert the Pie chart using the chart wizard.

1. Click Chart Wizard.
2. Select **InspectorInfo** dataset.
3. Select **Pie**.
4. Add **Inspector** to **Categories.**
5. Add **COMPLETED_DATE** to **Values**.
6. Select Count as the aggregate function.
7. Select the Generic style.

Create a SQL statement using query designer to display the inspectors name instead of the user id.

1. Delete the pie chart from the previous example.
2. Double-click on the data set and delete the SQL statement.
3. Click **Query Designer**.
4. Expand the **Permit_Inspections** table.
5. Select **Completed_Date**.
6. Expand the **Prmry_Users** table. This table contains the Users Name and User ID.
7. Select **UserName**.
8. Next **Relationships** click **Auto-Detect**.
9. Click **Add Relationship** and expand the relationship pane.
10. Select **Permit_Inspections** as the **Left Table**.
11. Select **Prmry_Users** as the **Right Table**.
12. Double-click on **Join Fields**.
13. Click **Add Field**.
14. Select **Inspector** as the **Left Join Field**.
15. Select **=** as the **Operator**.
16. Select **UserID** as the **Right Join Field**.

17. Click **OK**.
18. Click **Run Query**.
19. Click **Add Filter** next to **Applied Filters**.
20. Select **COMPLETED_DATE** (if not automatically displayed).
21. Select **is not** as the **Operator**.
22. Select **null** as the **Value**.
23. Click **Run Query**.
24. Click **OK**.
25. Click **Chart Wizard**.
26. Select **InspectorInfo** dataset.
27. Select **Pie**.
28. Add **Inspector** to **Categories.**
29. Add **COMPLETED_DATE** to **Values**.
30. Select Count as the aggregate function.
31. Select the **Generic** style.
32. Add From and To date parameters to the chart.

Enable data labels on pie chart.

1. Click on the pie chart.
2. Right-click and select show data labels.

Display data labels as percentages instead of total.

1. Click on the data labels.
2. Select **Select Label Properties**.
3. On the **General** screen select **#percent** from the Label Data menu.
4. Click **Yes** on the **Confirm Action** dialog window.

Sparkline Charts

Create a sparkline chart of Permits by issued date.

1. Create a new blank report
2. Create a new datasource
3. Create a new dataset from Permit_Main with issued date.
4. Click **Add Filter** next to **Applied Filters**.
5. Select **ISSUED** (if not automatically displayed).
6. Select **is not** as the **Operator**.

7. Select **null** as the **Value**.
8. Click **OK.**
9. Click **Sparkline**.
10. Drag a sparkline onto the report.
11. Select **Line** type.
12. Click **OK**.
13. Click on the **Sparkline** to display the **Chart Data**.
14. Drag & Drop **Issued** into both the **Values** and **Category Groups**.

Embedding a Sparkline in a Matrix

Create a matrix of Permit Types and embed a sparkline that shows the trend of the issued date.

1. Create a new blank report
2. Create a new datasource
3. Create a new dataset from Permit_Main with Permit Type and issued date.
4. Change the order of the fields to Permit Type and then Issued date.
5. Change the aggregate dropdown to **GroupBy**
6. Click **Add Filter** next to **Applied Filters**.
7. Select **ISSUED** (if not automatically displayed).
8. Select **is not** as the **Operator**.
9. Select **null** as the **Value**.
10. Click OK.
11. Create two fields from the Issued date (YearIssued and MonthIssued).
12. Add these two columns to the **Group By** clause.

Add a matrix using the wizard.

1. Select PermitInfo dataset.
2. Click **Next**.
3. Add **Permittype** to **Row Groups**
4. Add **YearIssued** and **MonthIssued** to **Column Groups**
5. Add **Issued** to Values and aggregate by **Count**
6. Click **Next** on **Choose the Layout Type**
7. Select a style
8. Click **Finish**
9. Click **Run**

10. Click **Design**.
11. Select the **Total** column to select the table.
12. Click the grey bar above total and right-click
13. Select **Insert Column…Left**.
14. Click the data cell on the Permit Type line.
15. Click **Insert** on the ribbon bar.
16. Click **Sparkline**
17. Click in the blank field on the Permit Type line.
18. Select a **bar chart**.
19. Click **OK**
20. Click the **Sparkline** to display the chart data
21. Drag & Drop **ISSUED** to **Values**
22. Drag & Drop **YearIssued** and **MonthIssued** to **Categroy Groups.**
23. Click **Run**.

Adjust the Sparkline axis.

1. Click the Sparkline, then Right-Click
2. Select Horizontal Axis Properties
3. Click Align axis in and select Tablix1 from the drop down.
4. Click OK.
5. Repeat this for the vertical axis.

Add a data bar to the matrix example create for sparklines.

1. In report designer click on Total…then click on the gray bar at the top of the total column and right-click.
2. Select **Insert Column…Right**
3. Click **Insert** on the ribbon bar.
4. Click **Data bar**
5. Click on the cell in the permit type data row.
6. Select **Data Bar**.
7. Click **OK**.
8. Click on the **Data Bar** to display the **Chart Data**.
9. Click & Drag the **Issued** date into the values section and aggregate by **count**.

Indicators & Gauges

Create a Permit Reviews report that uses a red, green, yellow indicator to visually represent the status.

1. Create a new blank report.
2. Create a new datasource.
3. Create a new dataset from Permit_Reviews with Review Type, Date Sent, Date Received and Status.
4. Click **OK.**
5. Click **Insert** on the ribbon bar.
6. Click **Table Wizard**.
7. Select **PermitReviews** dataset.
8. Click **Next**.
9. Select all available fields and insert them into the **Values** section.
10. Click **Next**.
11. Select the **Generic** layout style.
12. Click **Finish.**
13. Click **Status**.
14. Click the gray bar above **Status** and right-click.
15. Select **Insert Column…Right**
16. Click **Indicator**.Click in the blank field on the Review type line.
17. Select the **Red, Green, Yellow (with symbols)**.Click
18. **OK.**
19. Select the **Indicator**.
20. Right-click and select **Indicator Properties**.
21. Select Values & States from the menu.
22. Select **Expression Builder** next to the **Value** field.
23. Expand **Common Functions…Program Flow**
24. Double-click **SWITCH** under **Item**.
25. Click **Fields**
26. Double-click **STATUS** from the **Values** section. 27. Enter **= "FAILED", 0,**
28. Double-click **STATUS** from the **Values** section. 29.

Enter **= "APPROVED W/CONDITIONS", 35,**

30. Double-click **STATUS** from the **Values** section.
31. Enter **= "APPROVED", 75)**

Gauges

Add a gauge to the previous report by creating a column that determines the number of days between the DATE_SENT and DATE_RECEIVED.

1. Add to SELECT statement DATEDIFF (day, Permit_Reviews.DATE_SENT, Permit_Reviews.DATE_RECEIVED) AS ReviewLength
2. Execute the query in Query Designer and view the ReviewLength field
3. Click on a field in the table.
4. Click on the gray bar above the
5. **Indicator** and right-click.
6. Select **Insert Column…Right** 7. Click on **Insert** on the ribbon bar.
8. Click **Gauge**.
9. Click on the empty field on the **Review Type** line
10. Select **Bullet Graph**
11. Click **OK**.
12. Expand the length and width of the row.
13. Select the **Pointer...**right-click and select **Properties**.
14. Select **ReviewLength** from the **Value** dropdown.
15. Run Report.
16. Select **Scale…**right-click and select **Scale Properities**.
17. Change Maximum to the longest length possible for a review. (e.g., 200).
18. Click on the **Number** menu
19. Select **Number** from Category
20. Change the **Decimal Places** to **zero**
21. Run report
22. Adjust the row height as needed.

Maps

Create a report that plots analytical data spatially. Using owner information associated to a permit.

1. Create new blank report.
2. Create a data source.
3. Create a data set from Permit_People that includes, PERMIT_NO, NAME, ADDRESS1, CITY, STATE where the NAMETYPE is OWNER. We will order these in descending order by state, just so that we can see the non-California homeowners.
4. Click on **Map Wizard**.

5. Select the source for your spatial data.
6. Select **USA by State Inset**.
7. Click **Next**.
8. Position Map as required.
9. Click **Next.**
10. Select **Bubble Map**.
11. Click **Next**.
12. Select your analytical dataset.
13. Click **Next**.
14. Select **STUSPS** in the **Match Fields**
15. Select **STATE** from the **Analytical Dataset Fields** dropdown.
16. Click **Next**.
17. Select a color theme
18. Select **count[STATE]**
19. Select **Display Labels**
20. Select count[STATE]

Report Parts

Create report parts from an existing report.

1. Select the report part that you wish to publish
2. Locate the name property and rename the report part.
3. Click the **Office** button.
4. Click **Publish Report Parts.**
5. Select the second option **(Review and Modify Report Parts before publishing)**.
6. Select a report part and expand using the triangle button.
7. Insert a description for the Report Part.Text boxes cannot be published as Report Parts. To save a text box as a Report Part, embed it into a rectangle object. Report Parts are saved to a folder on the server called Report Parts…if that folder doesn't exist, Report Builder will create it
8. Click **Publish**.
9. Click **Close**.

Create a new report that incorporates a Report Part.

Create a new report using existing Report Parts.

1. Create a new blank report.

2. Click **Insert** on the ribbon bar.
3. Click **Report Parts**. Report Parts gallery is searchable.
4. Enter parameter to search.
5. Click **Search**. If you leave the search field blank and click search, it will return all Report Parts.
6. Drag the report part from the gallery onto your report.Report Parts can be modified. This will not affect the previously saved Report Part. Report Builder will notify you if a Report Part has been modified and provide you the opportunity to import the updated Report Part.