

# Power BI

# Paginated Reports

# in a Day

Lab 02B - December 2022 release

## Develop a Report Template

# Overview

**The estimated time to complete this lab is 30 minutes.**

In this lab, you will explore Report Builder, and learn how to add and configure various report objects.

To accelerate the development of reports, and to promote consistency of report design, you will also develop a report template. The template will be the starting design for new reports developed in other labs of this course.

# Exercise 1: Develop a report template

In this exercise, you will create a portrait report template.

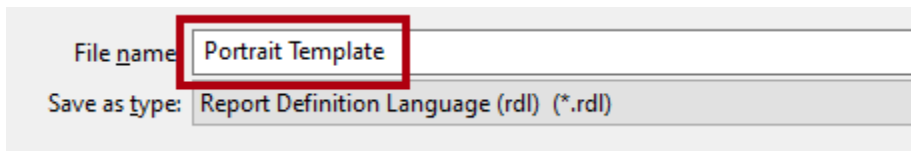
## Task 1: Create the report

In this task, you will create a report template.

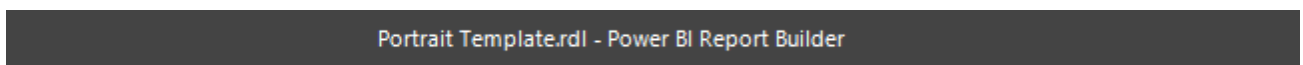
1. Open a new instance of Power BI Report Builder.
2. In the **Getting Started** pane, select **Blank Report**.
3. To save the report, on the **File** ribbon tab, select **Save As**.

*Tip: You can also press **Ctrl+S**, or click the disk icon located at the top-left of the Report Builder window.*

4. In the **Save As Report** window, at the left, select **This PC**.
5. Navigate to the <CourseFolder>\PowerBIPRIAD\MySolution folder.
6. In the **Name** box, replace the text with **Portrait Template**.



7. Click **Save**.
8. At the top of the Report Builder window, notice that the file name is displayed.



*Report Builder can only have one file opened at any one time. However, it's possible to open multiple instances of the Report Builder application—each with one report open.*

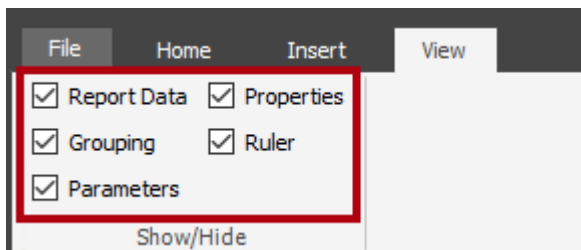
## Task 2: Explore Report Builder

In this task, you will explore Report Builder.

1. Notice the ribbon, consisting of **File**, **Home**, **Insert**, and **View** tabs.

The **Home** ribbon tab supports toggling between design mode and preview mode. It also provides functionality to manage the clipboard and formatting. The **Insert** ribbon tab provides commands to add data regions, data visualizations, report items, and to enable or disable headers and footers. The **View** ribbon tab lets you determine which panes and features to show or hide.

2. On the **View** ribbon tab, if necessary, check all checkboxes to show all panes and the ruler:
  - Report Data
  - Properties
  - Grouping
  - Ruler
  - Parameters



For the duration of this course, it's suggested you leave them all enabled.

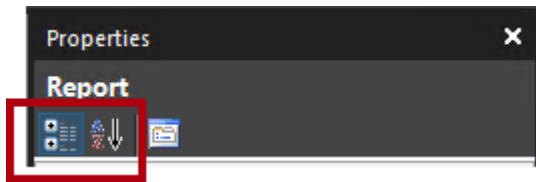
3. In the center, notice the report designer, with the ruler along the left, and along the top.
4. At the left, notice the **Report Data** pane.

This pane enables managing the resources defined within the open report.

5. At the right, notice the **Properties** pane, and notice also that the **Report** object is selected.

This pane presents properties for the selected object, or multi-selected objects. All properties are available for review, and many can be updated in this pane. Note that many commonly configured properties are also available on the **Home** ribbon tab.

By default, the properties are listed alphabetically within categories. You can change this behavior to list all properties alphabetically. The sort button is located at the top-left inside the **Properties** pane.



For the duration of this course, it's suggested you leave them grouped within categories

Some objects have a dedicated properties page. When you see the icon to the right of the sort direction button, you can click it to open the page.



6. At the top, beneath the ribbon, notice the **Parameters** pane.

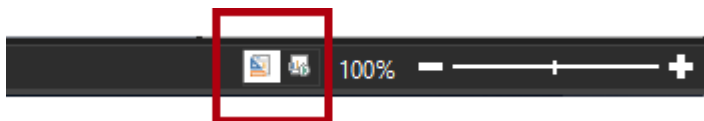
*This pane is used to layout report parameters. You will work with it in **Lab 04A**.*

7. At the bottom, beneath the report design canvas, notice the **Grouping** pane.

*This pane is used to configure the layout of a Tablix data region. You will work with it in **Lab 05A**.*

8. At the bottom right-corner, notice the zoom control, and at the right of the control, the buttons.

*These buttons allow you toggle between design mode and preview mode.*



## Task 3: Design the report layout

In this task, you will design the report template layout.

*The default blank report consists of the report body and footer, and it already contains two text boxes. The first text box is designed to display the report title, and the second text box uses an expression to display the report execution time. As the first text box is inside the report body, it would only ever be rendered once—at the top of the report.*

1. In the report designer, click directly beneath the **Click to add title** textbox.
2. In the **Properties** pane, notice that the **Body** object is selected.

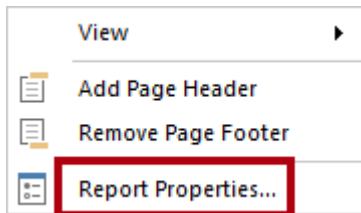
*All reports have a body, and it contains other report objects that represent the main layout of your report design.*

3. In the report designer, click directly to the left the **[&ExecutionTime]** textbox.

4. Notice that the **Page Footer** object is now selected.

*As the default blank report consists only of a report body and footer, you will now modify the design to become your report template.*

5. To select the report, click a gray area outside the report layout.
6. Notice that the **Report** object is now selected.
7. To open the report property pages, right-click a gray area outside the report layout, and then select **Report Properties**.



8. In the **Report Properties** window, ensure that the **Page Units** property is set to **Inches**.

*Your report may be set to centimeters due to your regional settings.*

*Important: In the labs, however, the page units should be set to inches.*

9. Ensure that the **Paper Size** property is set to **Letter**.

10. Set the four margin properties to **0.5in**.

*Important: In all labs, to produce the correct report layouts, it's important you set the location and size properties exactly as instructed.*

*Tip: You only need to enter the value **0.5**, and the "in" suffix will be added automatically.*



11. For printing purposes, note the available width for the report design is 7.5 inches.

*The paper size width is 8.5 inches, less the left and right margins, each 0.5 inches.*

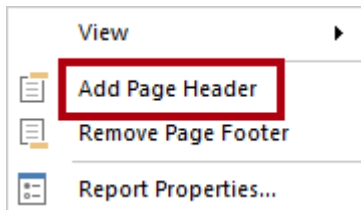
*When Power BI renders a report by using a hard page format (for example, PDF), it's important that the report layout works within the confines of the page dimensions.*

12. Click **OK**.

13. In the report designer, select the report body.
14. In the **Properties** pane, expand the **Size** category, and set the following properties:
  - Width: **7.5**
  - Height: **2**

*The report body height of 2 inches is to allow for the report layout design. When you finish designing the report, any trailing space should always be removed as it will be rendered at the bottom of a report. This is probably the main reason that sometimes a blank page is rendered at the end of a report.*

15. To add a page header, right-click a gray area outside the report layout, and then select **Add Page Header**.



16. Select the page header, and then in the **Properties** pane, notice that the **Height** property is **1**.

*The page header will repeat on every page, and typically displays the report title, report parameter values and possibly a company logo.*

17. Select the page footer, and then set the **Height** property to **0.5**.

*The maximum height of the report body for a single page is now 8.5 inches (10 inches less 1 inch for the page header, and 0.5 inches for the page footer).*

18. To move the first (report title) text box, first select it.

*The text box item can be configured in two modes.*

*The first mode—the mode required to select the text box—is achieved by clicking the edge of the text box. In this mode, the text box is surrounded by a dotted outline and resize points.*

*The second mode allows entering—or modifying—the value displayed by the text box. This is achieved by clicking inside the text box. In this mode, a cursor appears inside the text box.*

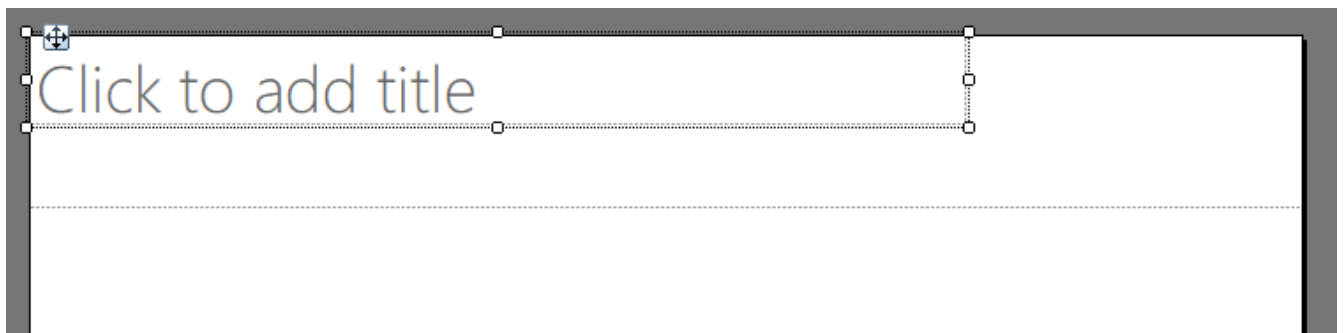
*To change modes, select another report object (like the report body), and then click the text box in the appropriate way, depending on the mode you want.*

19. Drag the four-headed arrow, to drop the text box inside the report header, at the very top-left corner.

*When the text box (or many report objects) is selected, it will include resize points at each corner, and midway on each side. Hovering over a point results in a two-headed arrow cursor, which indicates that the object can be resized by dragging.*

*Tip: For precision when repositioning or resizing a report item, it's often better to set the location and size properties in the **Properties** pane.*

20. In the **Properties** pane, verify that both location properties are **0**.



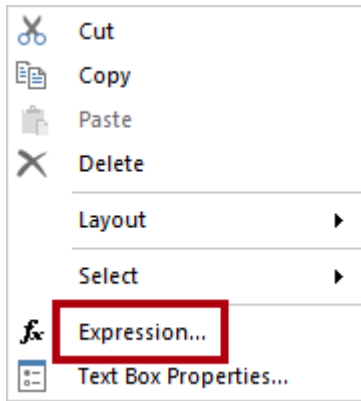
21. Set the **Width** properties of the text box to **6.5**.
22. Set the following format properties:

*Tip: You can configure the properties in three different ways: You can use the **Properties** pane, the **Home** ribbon tab commands, or right-click inside the text box and then use the context menu to open the text box properties page.*

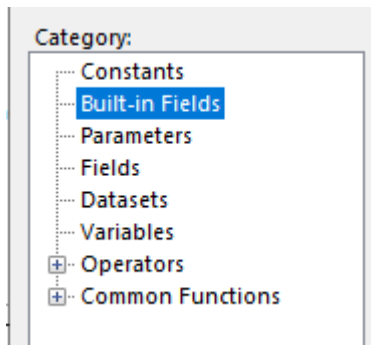
- Font size: **20pt**
- Font weight: **Bold**
- Border style, bottom: **Solid**



23. To assign an expression to the text box, right-click inside the text box, and then select **Expression**.



24. In the **Expression** window, in the **Category** list, select **Built-in Fields**.



25. To insert an item into the expression, in the **Item** list, double-click **ReportName**.

26. Verify that the expression looks like the following.

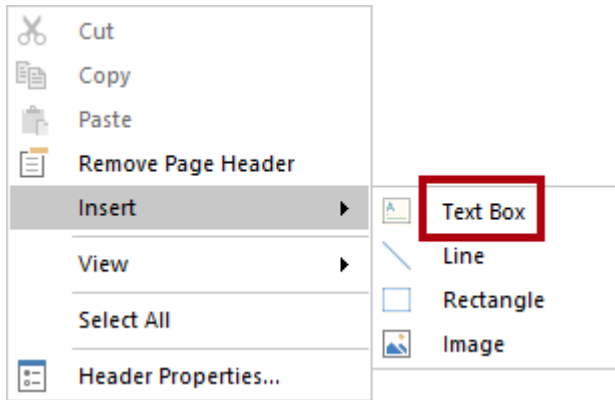
**VB.NET**

=Globals!ReportName

27. Click **OK**.
28. Notice that the text box displays **[&ReportName]**.

*When you see a value in a text box enclosed inside square brackets, it's a shorthand notation for an expression based on a single field, report parameter, or built-in field. A report parameter is prefixed with the @ character, and a built-in field is prefixed with the & character.*

29. To add a second text box, right-click inside the report header, beneath the report title text box, and then select **Insert | Text Box**.



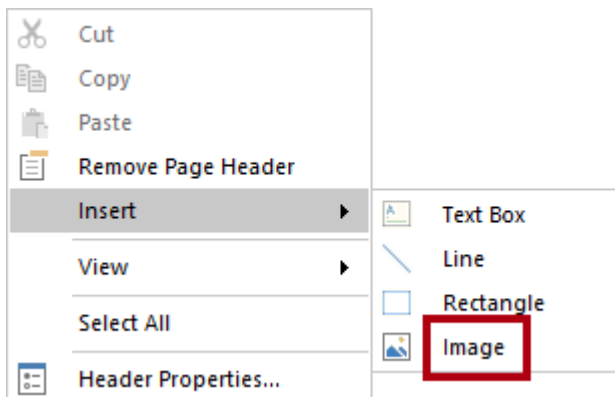
30. Set the following properties for the new text box:

- Alignment, vertical alignment: **Middle**
- General, name: **ReportSubtitle**

*Report object names must be unique. It's only common to set a specific name when the item will be referenced by an expression.*

- Location, left: **0**
- Location, top: **0.5**
- Size, width: **6.5**
- Size, height: **0.3**

31. To add an image, right-click inside the report header at the right, and then select **Insert | Image**.



32. In the **Image Properties** window, in the **Name** box, replace the text with **CompanyLogo**.

33. To embed an image, click **Import**.

Change name, image, and tooltip options.

Name:  
CompanyLogo

ToolTip:

Select the image source:  
Embedded

Use this image:

34. In the **Open** window, navigate to the <**CourseFolder**>\PowerBIPRIAD\Lab02B\Assets folder.

35. Select the **AdventureWorksLogo.jpg** file, and then click **Open**.

36. In the **Image Properties** window, click **OK**.

37. Set the following properties for the image:

- Location, left: **6.7**
- Location, top: **0**
- Size, width: **0.8**
- Size, height: **0.8**

38. In the report footer, set the following properties for the text box:

- Alignment, text align: Left
- Border style, top: Solid
- General, name: Footer
- Location, left: **0**
- Location, top: **0.1**
- Size, width: **7.5**
- Size, height: **0.4**

39. Notice that the text box displays **[&ExecutionTime]**.

*The text box displays a shorthand notation for an expression using the **ExecutionTime** built-in field.*

40. To modify the text box expression, right-click inside the textbox, and then select **Expression**.
41. In the **Expression** window, in the large box, replace the entire expression—including the equals symbol—with the following:

*For convenience, the expression can be copied from the <CourseFolder>\PowerBIPRIAD\Lab02B\Assets\Snippets.txt file.*

#### VB.NET

```
= "Generated at " & Format(Globals!ExecutionTime, "MM/dd/yyyy HH:mm:ss") & " UTC" & vbCrLf & "Page " & Globals!PageNumber & " of " & Globals!TotalPages
```

*The expression produces a string describing the report execution time formatted by using a custom date and time format. It appends the acronym UTC, because the report will be rendered by the Power BI service. Reports rendered by the service always return the execution time as Coordinated Universal Time. Lastly, the page number details are appended to the end.*

*The **Format** function is very useful to convert numbers, dates, and times to a formatted text value. There are many predefined format codes, which can be found documented online at [Custom date and time format strings](#).*

*The **vbCrLf** constant adds a carriage return followed by a line feed character.*

42. Click **OK**.
43. Notice that the text box displays <<**Expr**>>.

*Complex expressions are represented by the **Expr** shorthand notation.*

## Task 4: Finalize the design

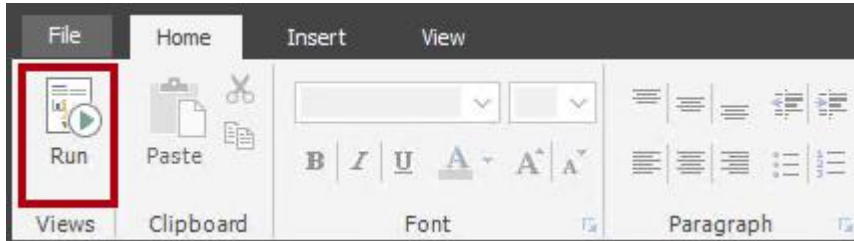
In this task, you will finalize the design the report template.

1. Verify that the following report object size and location properties are set:

*When you add new report objects and configure their size and location properties, it's possible they have indirectly modified the properties of their container. To avoid printing blank pages, it's always a good practice to verify the container size and location properties before finalizing the report design.*

- Page header height: **1**
- Body width: **7.5**
- Body height: **2**
- Report footer height: **0.5**

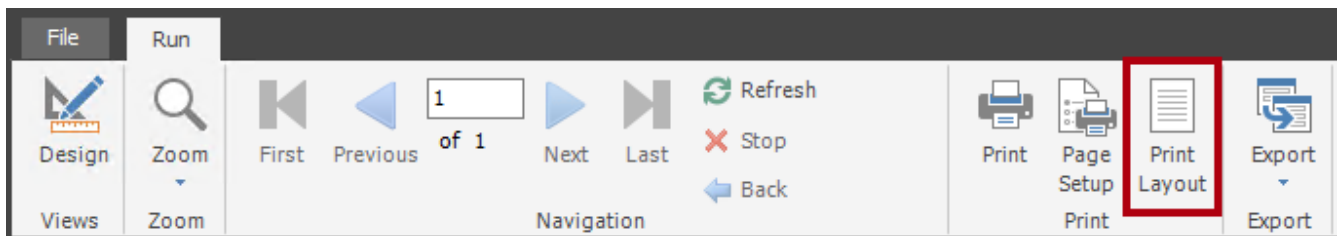
- To preview the report, on the **Home** ribbon tab (or at the bottom-right), from inside the **Views** group, click **Run**.



- In the report preview, notice that the report title does not display a value.
- Notice also that the execution time is local time (the time on your machine).

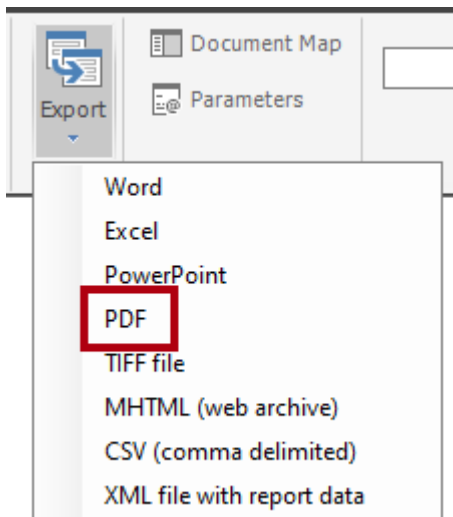
*Some built-in fields behave differently in Power BI Report Builder. Specifically, the **ReportName** built-in field doesn't return a value, and the **ExecutionTime** built-in field returns your machine date and time. Rest assured, once the report is published to Power BI, the report title and footer will display correct information.*

- On the **Run** ribbon tab, from inside the **Print** group, click **Print Layout**.



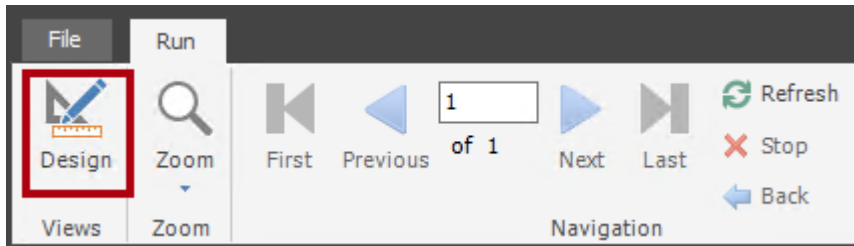
*Print layout is a helpful way to understand how the report will be rendered to the report page size.*

- On the **Run** ribbon tab, from inside the **Export** group, click **Export**, and then select **PDF**.



- In the **Save As** window, navigate to the **<CourseFolder>\PowerBIPRIAD\MySolution** folder.

8. Click **Save**.
9. In Windows Explorer, navigate to the <CourseFolder>\PowerBIPRIAD\MySolution folder, and then open the PDF document.
10. Verify that the PDF document consists of one page only.  
*If it has more than one page, review the instructions in this lab to fix the issue.*
11. Delete the PDF document.
12. In Report Builder, to return to design mode, on the **Run** ribbon tab, from inside the **Views** group, click **Design**.



13. Save the report.
14. Close Report Builder.

*Your report template is now complete. You will use this template to create several reports in this course. The lab instructions will guide you to open the template, and then immediately save it as the new report.*

*Important: Be sure to follow these instructions carefully to avoid corrupting your report template file.*

# Summary

In this lab, you explored Report Builder, and learnt how to add and configure various report objects.

To accelerate the development of reports, and to promote consistency of report design, you also developed a report template. The template will be the starting design for new reports developed in other labs in this course.

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