BIFOCAL
Clarifying Business Intelligence

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The new Paginated Report Visual in Power BI Reports

From getting started to getting it working

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Contents

Acknowledgements 1
Overview 2
The tracking solution 2
The Power BI dataset 3
Creating the Paginated Report 4
Get Power BI Report Builder 4
Creating the Dataset 6
Creating the dataset 7
Creating the Parameters 8
Testing the query 10
Changing the Parameter 12
Creating the Report 17
Validating the Report data 19
Publishing the Paginated Report 20
Using the Paginated Report visual in the Power BI Report 22
Setting up Power BI Desktop 22
Adding the Paginated Report Visual 23
Configuring the Paginated Report Visual 24
Using the Paginated Report Visual 27
Wrapping it up 29

Acknowledgements

Thanks to reviewers John White, Treb Gatte, Chris Finlan, and Lori Sze.

Overview

The new Paginated Report visual is truly game changing. Now instead of having to move from between Power BI reports to visualize data the way that you want to see it, you are finally able to interact with the data in a single, seamless report. This opens the Paginated Reporting world to lots of new people who may not have considered this report type until now.

The goal of this whitepaper is to help you take data from a Power BI dataset, create a Paginated Report from it, and then visualize that report in a Power BI Report that will allow you to slice the data in the Paginated Report alongside you are the rest of the data in the Power BI Report.

First, let me set the stage for the dataset that I am going to use for this by saying that I am a data geek and go to Orangetheory Fitness (OTF) for my workouts. My first workout at OTF was in late January 2019 and I have been going as often as I can ever since. Obviously, there was a gap due to the pandemic, but I prefer to just think of those as the "Treadmill only" days.

One of the things I like about OTF is that they are focused on your personal data. You wear a heartrate monitor in the class and at the end of the class you get an email with your results, and it shows up in their app. Being a data geek this was never quite enough for me, so I created my own solution to track my fitness data from OTF.

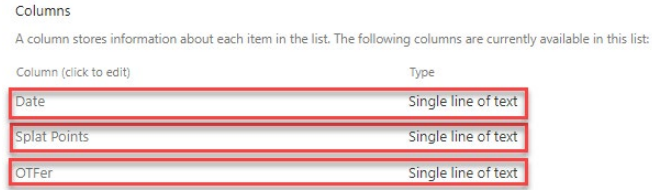
The tracking solution

This may be boring to anyone who just wants to hear about the Power BI side of this, so please feel free to skip this section. I have gotten numerous questions on this, so I wanted to cover it off here for reference.

OTF emails me a report at the end of every class to my Gmail account. After some trials and searching I found a solution called Parseur that allows me to extract the text from an email that I forward to them. There is a Flow trigger in Power Automate that listens for new documents that are processed in Parseur and will create a new SharePoint Online list item. Once the list item is created the Flow action refreshes the Power BI dataset that we are going to be looking at with this solution.

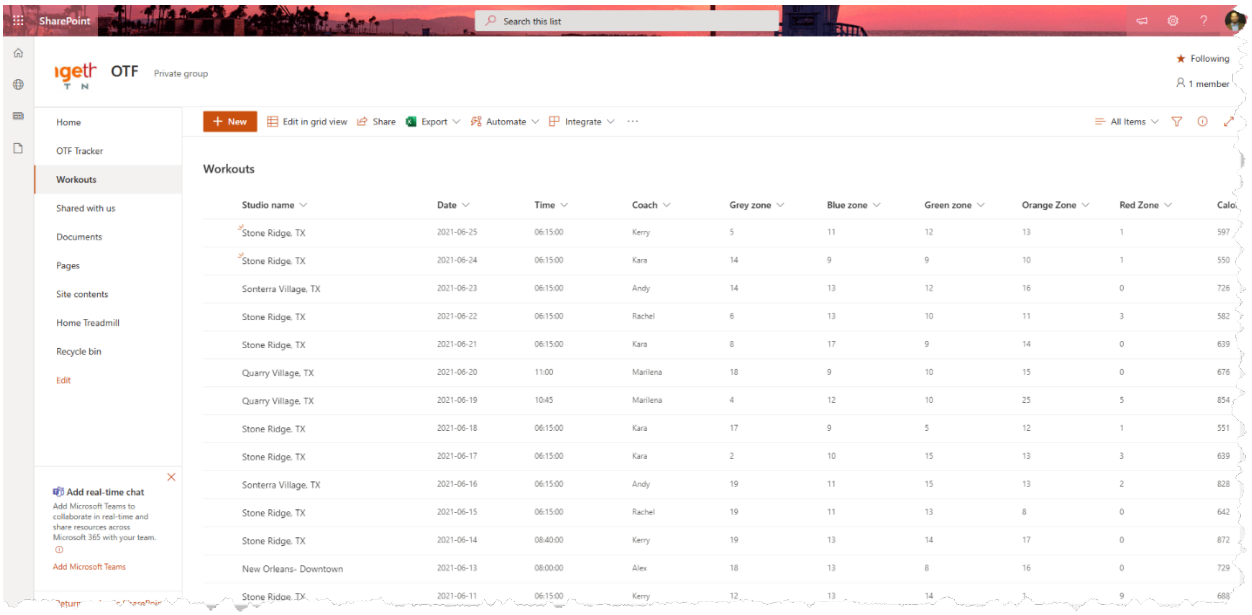
Full transparency: I use the free 20 credits version of Parseur which means that when I run out of credits, I must go fill in the Microsoft Form that I created to get additional data into my SharePoint Online list. This was not a problem for me until that last month or two and I consider it a good problem to have :)

This solution works well for Power BI demos because there are a few text fields, a date field, and the rest are all numeric fields. You can do the same basic reporting that I am doing in this white paper. To recreate this with demo data you need a SharePoint Online list with an OTFer column (person), a date column, and a splats column (fill with random numbers between 1-40). In SharePoint Online all these fields should be single line of text fields. That is all you really must have to build the Paginated Report.

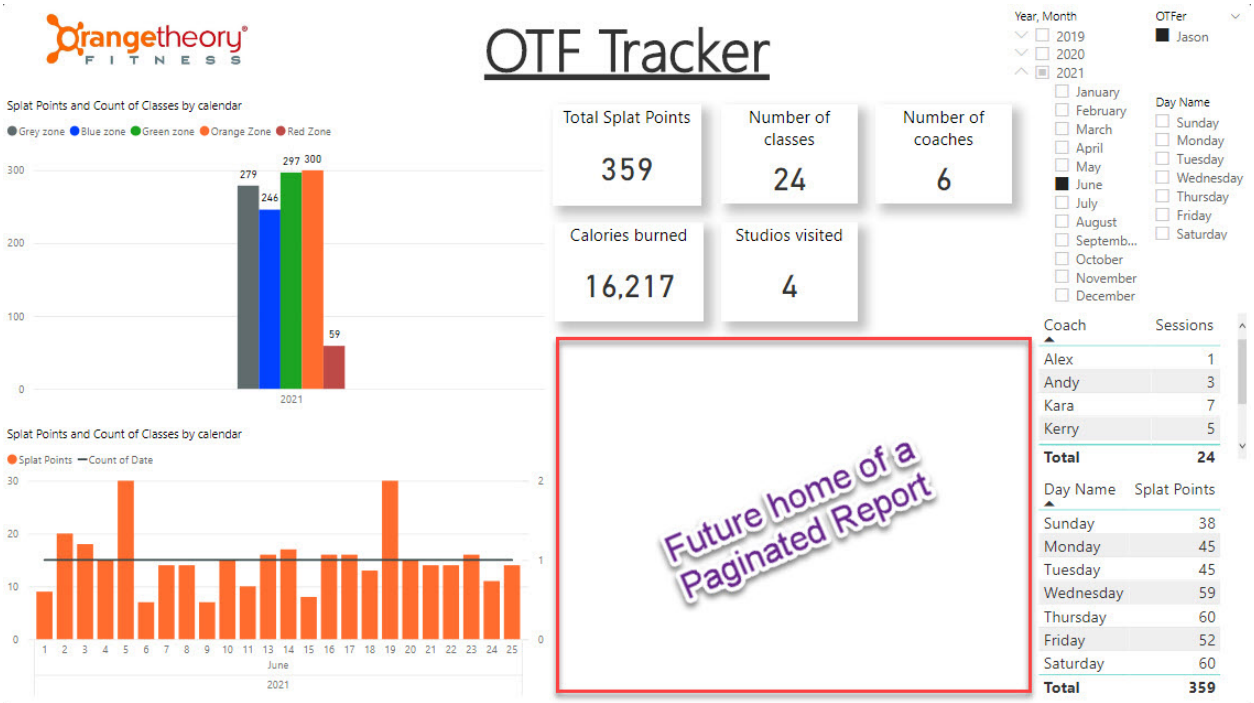


The Power BI dataset

I have created my dataset from a SharePoint Online list. It is a very simple, easy way to keep track of this simple data.



Since the goal of this post is not "How do I geek out on my OTF data" I am going to play Julia Child a bit and show you the Power BI Report I look at every day.



This Power BI Report contains all my OTF data going back to January of 2019 so that I can analyze trends etc. The view I most frequently look at is the current month, however. I like to see how I am tracking

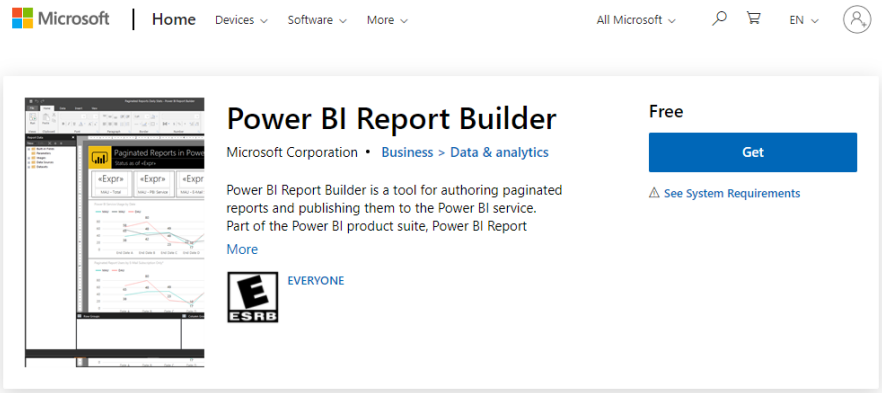
during a month because I am also an Apple Watch wearer and I like to close my Circles & get their silly awards. Right now, I am shooting for the "Perfect Month" which I have never gotten. I have only missed one day at OTF this month, because I was touring my kids around the French Quarter, and we walked over 20k steps that day giving me the ability to close all my Circles.

What I want to be able to see in this report is a view of Date, Day of the week, and Splat points for that day. This is quickly and easily done in Paginated Reports and will fit pane into the white space I have in my Power BI Report. Currently I do not have a Paginated Report built to do this, so let us dive into that process first.

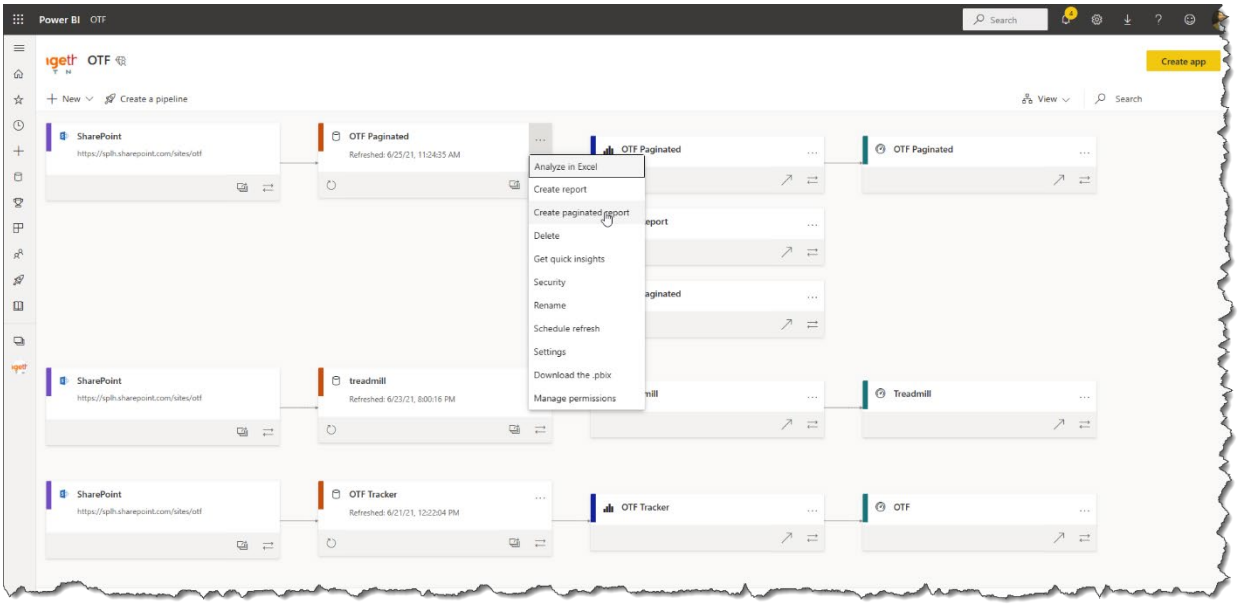
Creating the Paginated Report

Get Power BI Report Builder

Before we begin it is best to get Power BI Report Builder. As of last month, this is now available via the Microsoft Store. You can get more details on this in the blog post by Michael Bruhjell on the [Power BI Blog site.]



Once we have Power BI Report Builder installed the easiest way to get started building a Paginated Report from a published Power BI dataset is by clicking the ellipsis on the dataset in the Power BI workspace and selecting "Create paginated report". This will download the .rdl that will get you started. When you open the .rdl file it will open Power BI Report Builder.

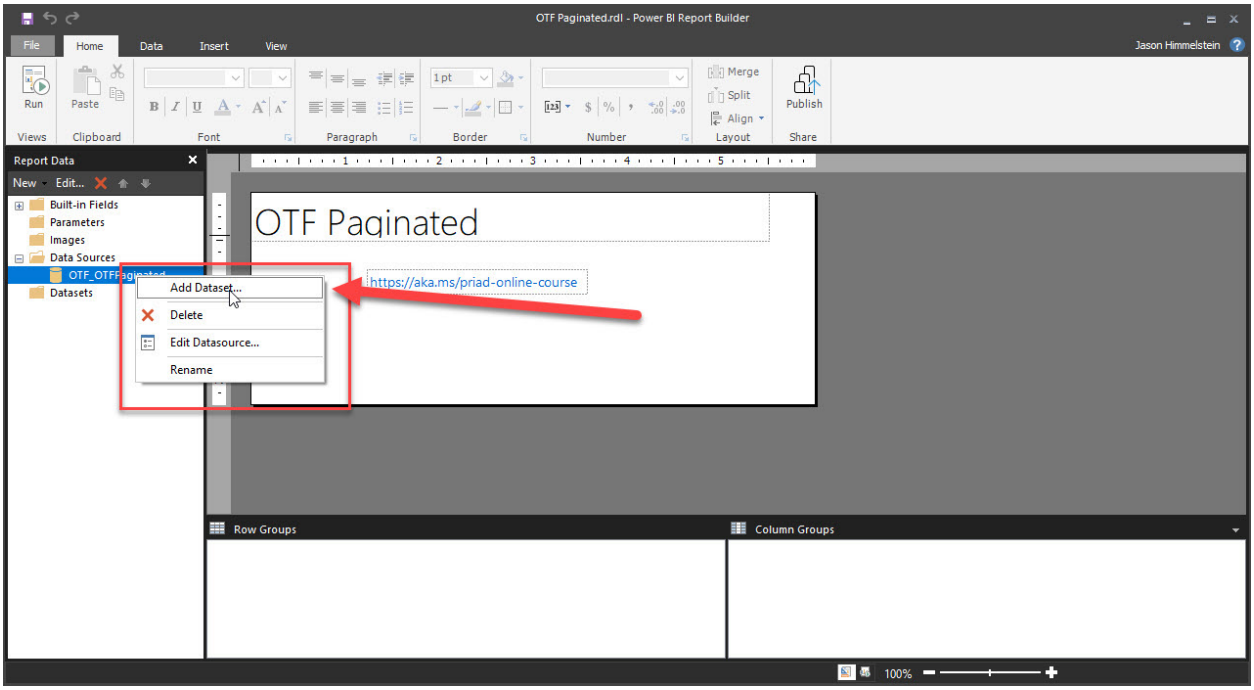


Creating the Dataset

Once we have Power BI Report Builder open we will see the Report Data pane on the left side. We are going to leave the Built-in Fields alone, but when we expand the Data Sources we see the Power BI dataset is listed.

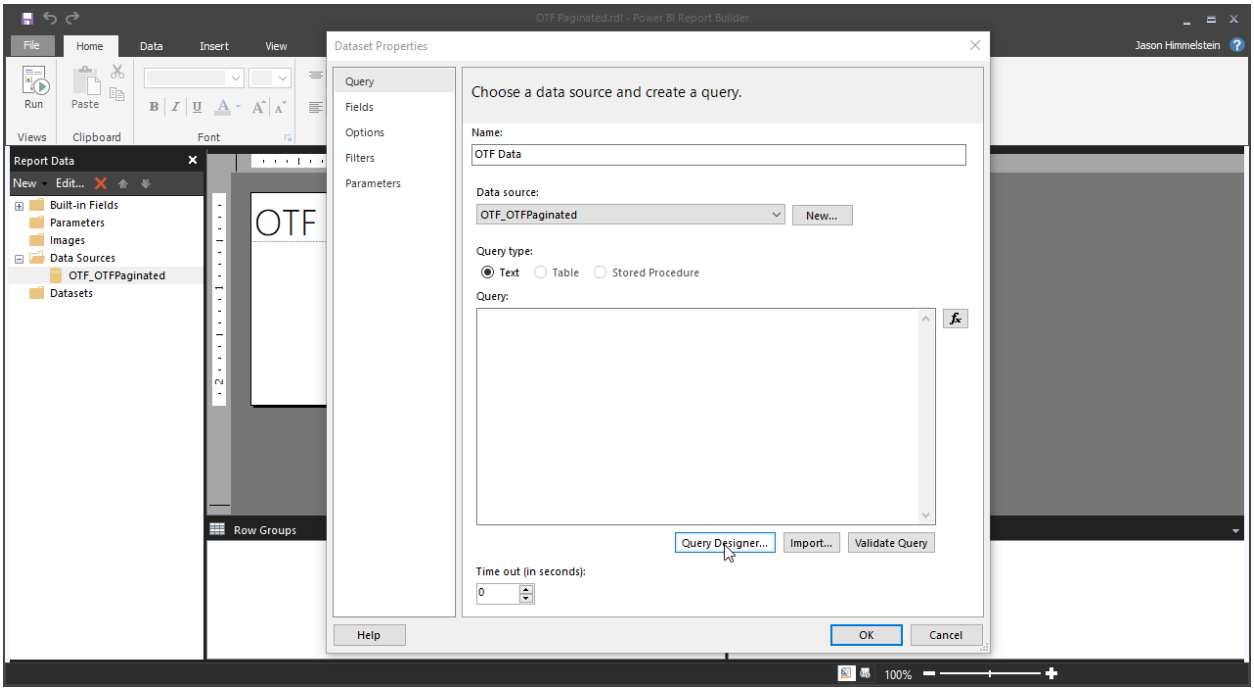
The language here can be a bit confusing between a Power BI dataset and Paginated Report data set. The terminology difference is due to the background of Power BI Report Builder, and that a Paginated dataset is essentially a query. A Paginated Report can connect to multiple data sources, one of which is a Power BI dataset. Therefore, while the words are the same, they refer to different objects.

Now that we have cleared that up the first thing that we need to do is create a Dataset from the Data Source. To do this right click on the Data Source and select "Add Dataset..."

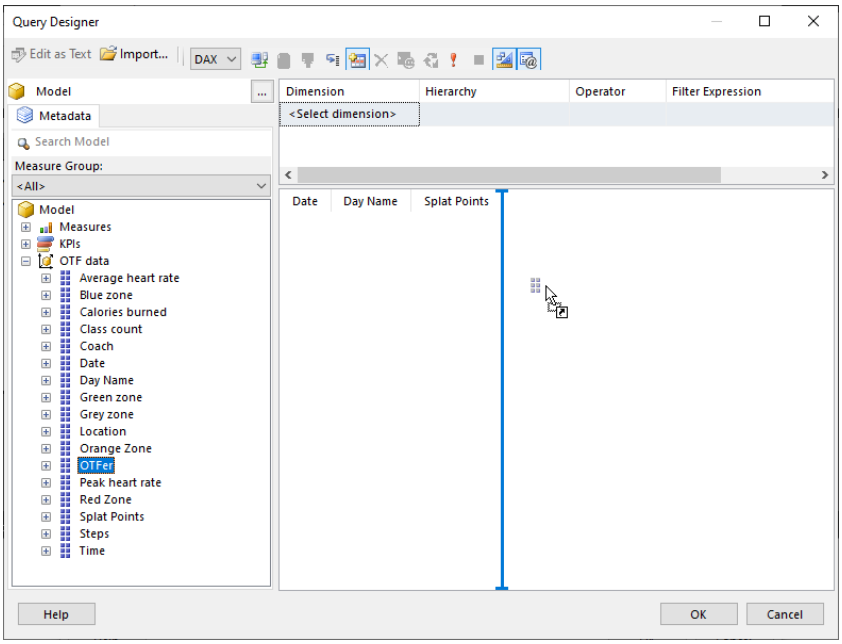


Creating the dataset

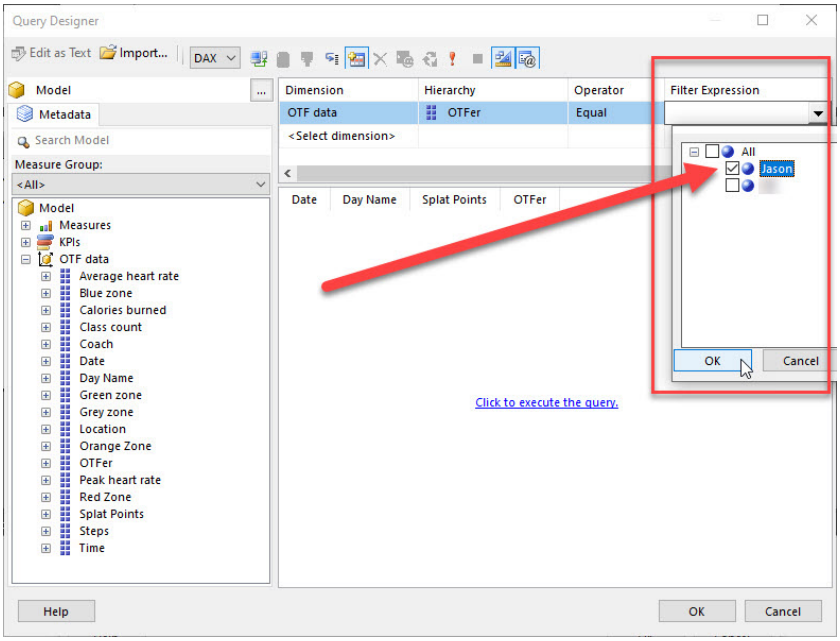
Once we have done this we will get the Dataset Properties dialog. Name the Dataset and then click on Query Designer to build your report.



In the Query Designer we are going to expand the dimension called "OTF data" and drag the Attributes for Date, Day Name, Splat Points, and OTFer into the Query Box.



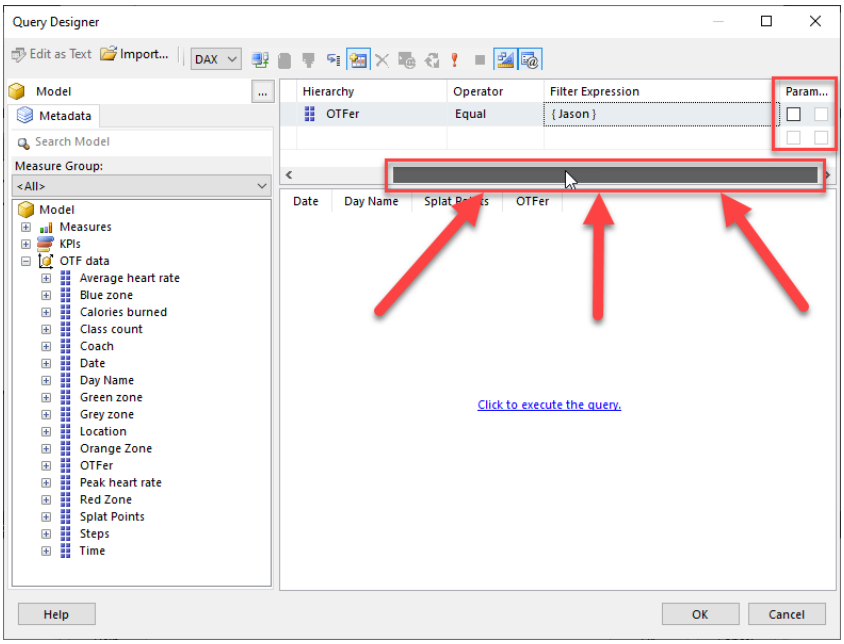
Next, we are going to apply a Filter to remove additional OTFers from returning data since we do not want to share anyone else's info here. We do this by dragging the OTFer attribute into the Dimesions area and selecting "Jason" in the Filter Expressions drop down.



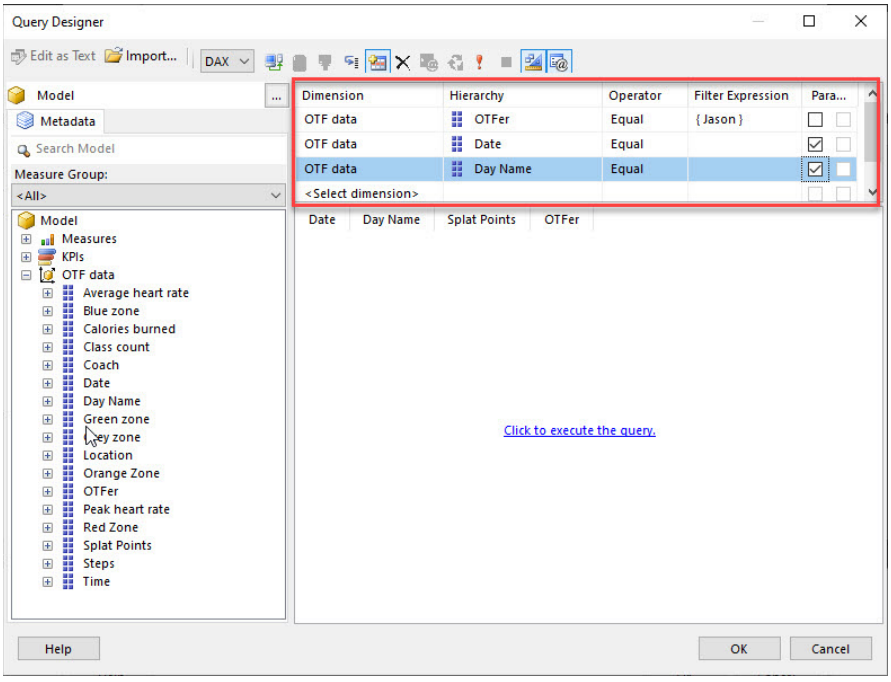
Creating the Parameters

Then we need to add in 2 Parameters for Date and Day Name so that once we go over to the Power BI Report we will be able to use the slicers there to limit the data being visualized in the report the same was that the other Power BI Report visuals work.

At this point I need to point out a foible with Paginated Report Builder. It is something that trips people up (namely me 3 different times in the past month) when adding Parameter in Paginated Reports. Namely that the Parameter check box is hidden in the default resolution of the Query Designer. Use the slider to move to the right and shorten up the Filter Expression region so that the Parameter check box can be seen.



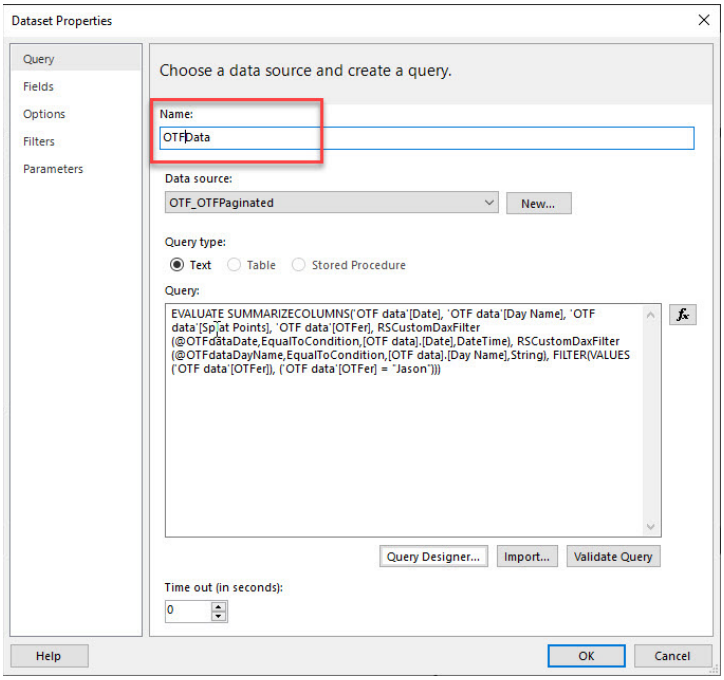
Now that we can see the Parameter check box, we can add our Parameters. Drag the Attributes for Day and Day Name into the Dimension area. Once they are there do not apply a Filter Expression, but instead click the Parameter check box.



Testing the query

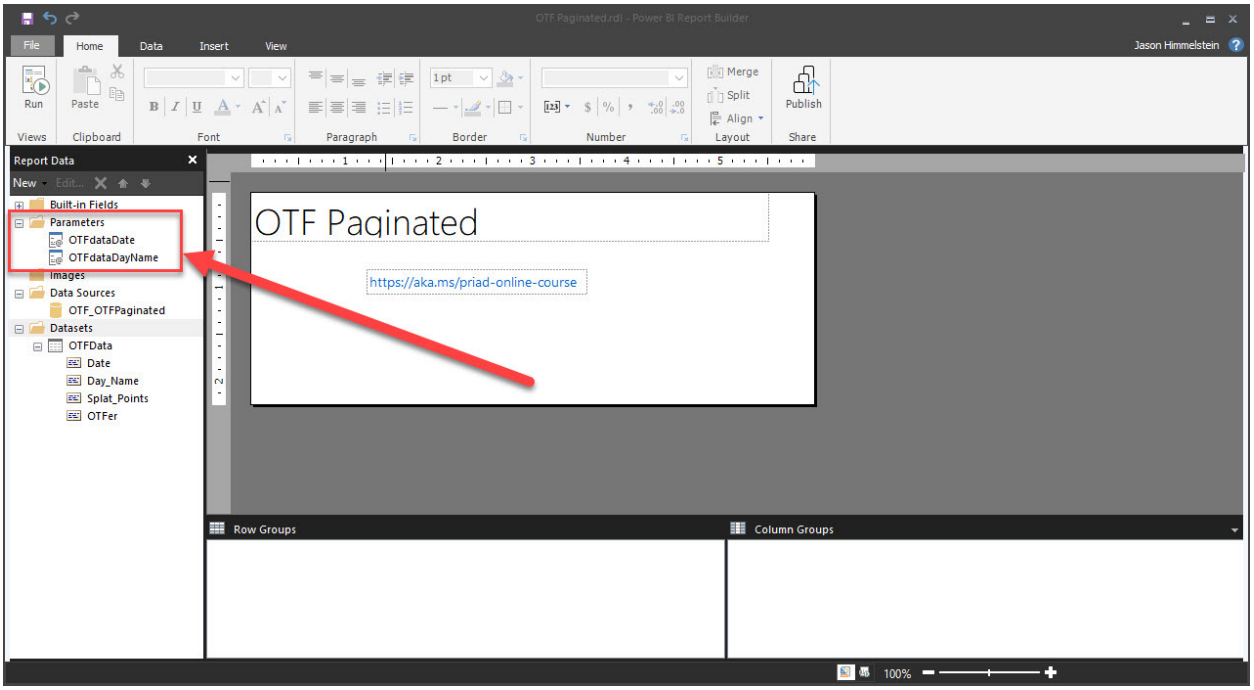
To test the query we can click on the "Click to execute the query" dialog and see that the data is returning as we expect it to. After this is complete, we can click OK. Once we do it will seem like nothing is happening for a moment or two. This is normal. What is happening behind the scenes is that the Query Designer is building the DAX Query. When we see it populate in the Query box we should proceed.

One other tip: Notice that I had to change the name of my query. Spaces are not allowed in query names. I have opted to leave this screw up in my screenshots in the hopes that this saves you a moment or makes you feel in good company if you make the same mistake I made ;)



At this point simply click OK. Normally I would encourage interrogating the other options on the left side, but in this case we should not. Once we click OK things will happen to populate information into those areas that we will revisit later. For now, just carry on…

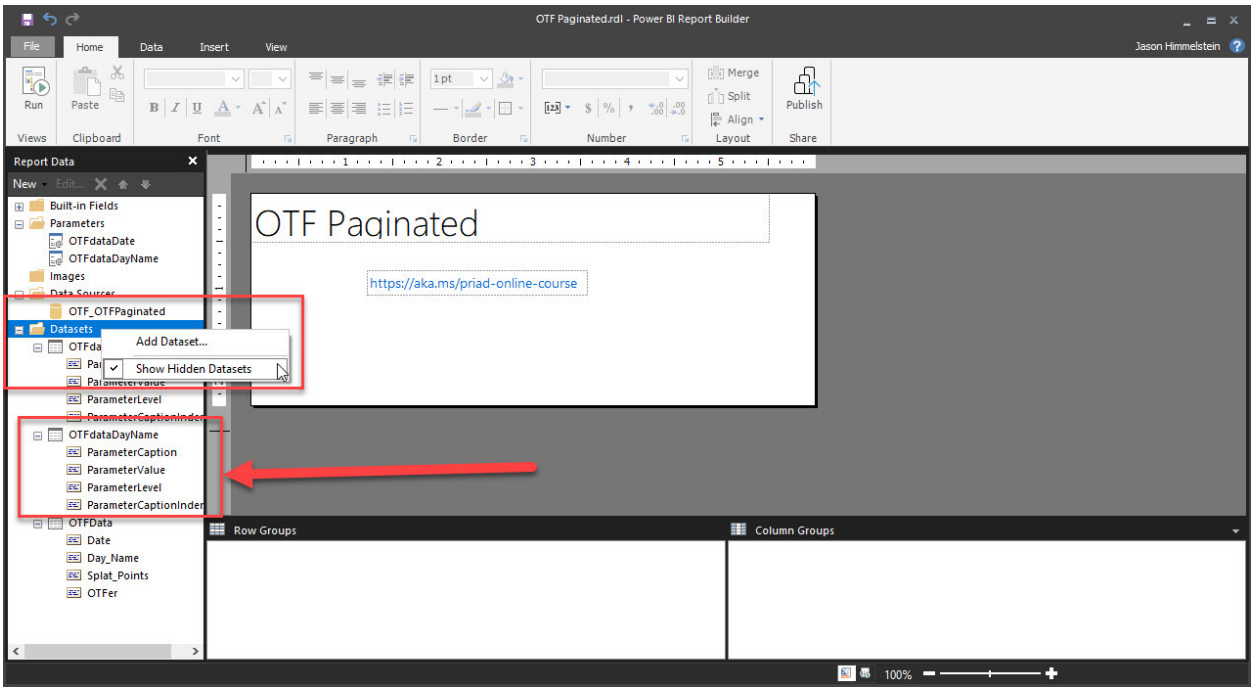
Once we have clicked OK we will see a new Dataset and 2 new Parameters once we expand the Parameters out.



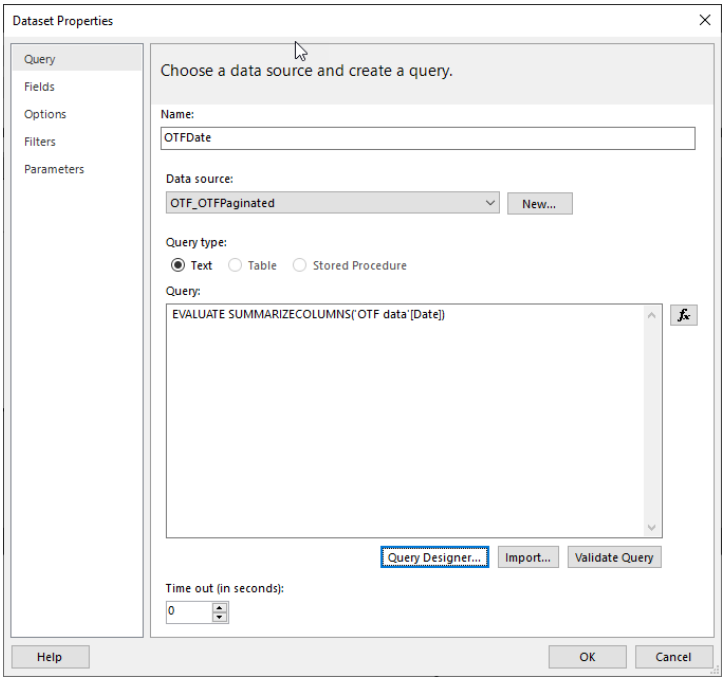
Changing the Parameter

For many use cases this is will work perfectly, however because we are looking to use a date/time report parameter there is more work to do. The tool automatically creates the Parameters and a Hidden Dataset for each of them to be bound to. The problem is that currently these only work for text parameters. That will not help with our Power BI Report Slicer that needs to be bound to a Date hierarchy.

This is what that Hidden Dataset looks like.

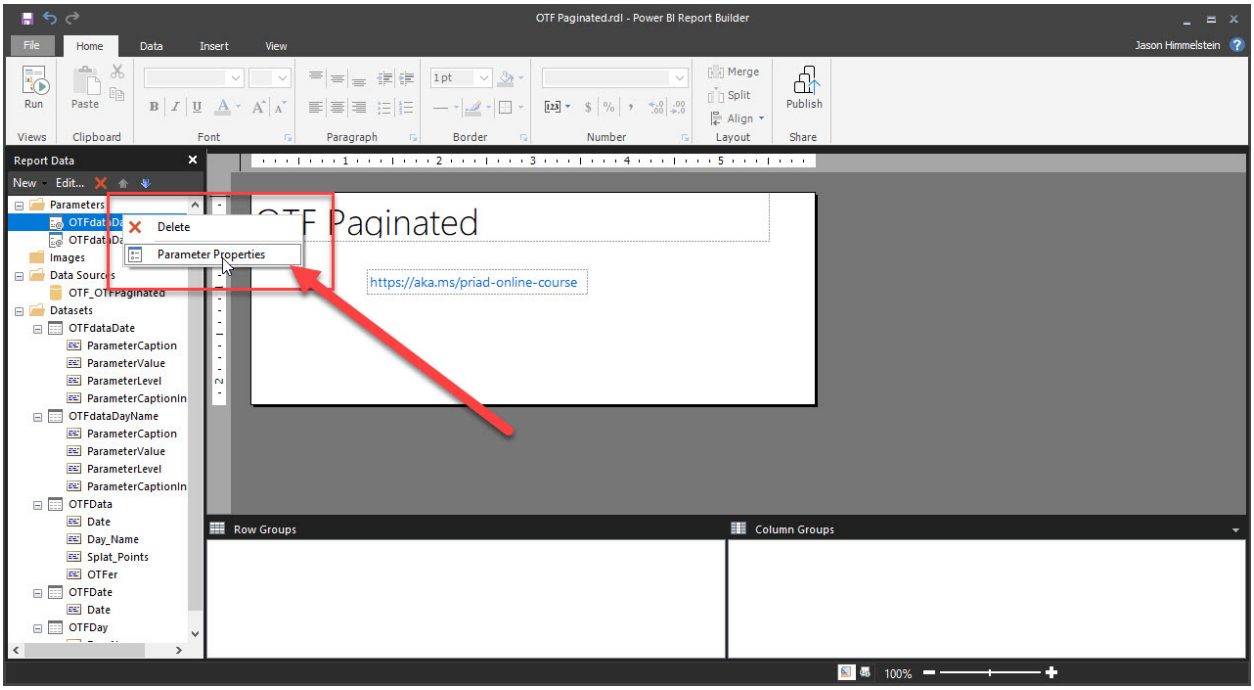


To do what we want we will need to create a new Dataset for the Date parameter to bind to. Simply go to "Add Dataset…" and follow the previous process except we are only adding the Date attribute into the Query area and clicking OK. The DAX in the Query area of the Dataset Properties will look like this.

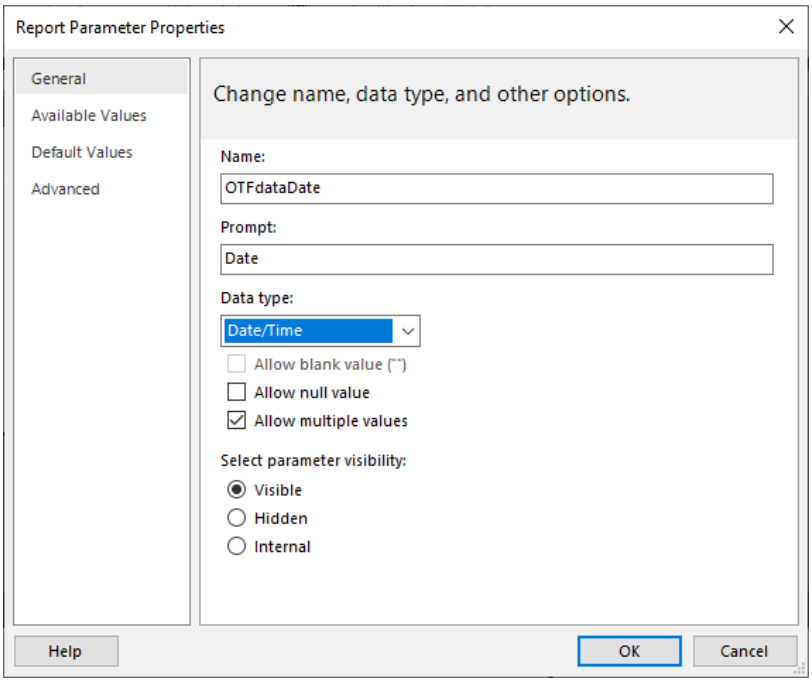


I have done the same operation for Day Name even though I do not have to, but I find it to be cleaner and easier to remember how things are setup this way.

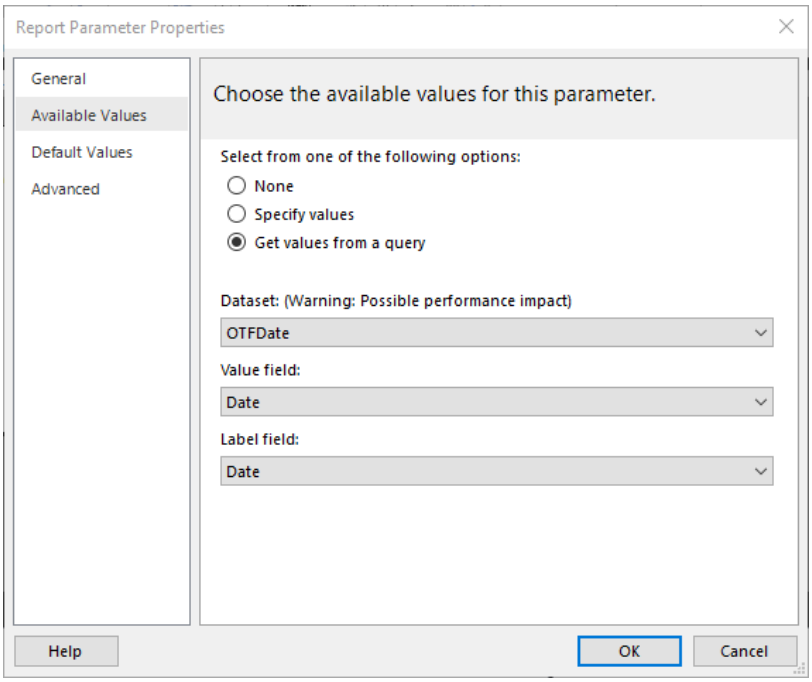
In order to make the slicing in the Power BI Report work properly we need to go into the Parameters and change the bindings to our new Datasets. To do this right click we right click on the OTFdataDate parameter and go to the Parameter Properties.



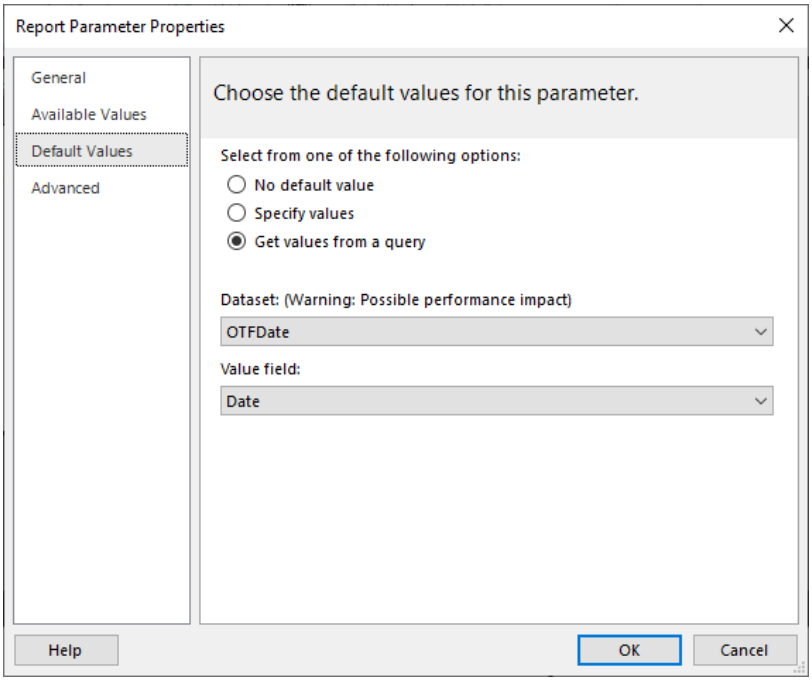
Once in the Report Parameter Properties window we change the Data type from Text to Date/Time and uncheck the “Allow Blanks” option.



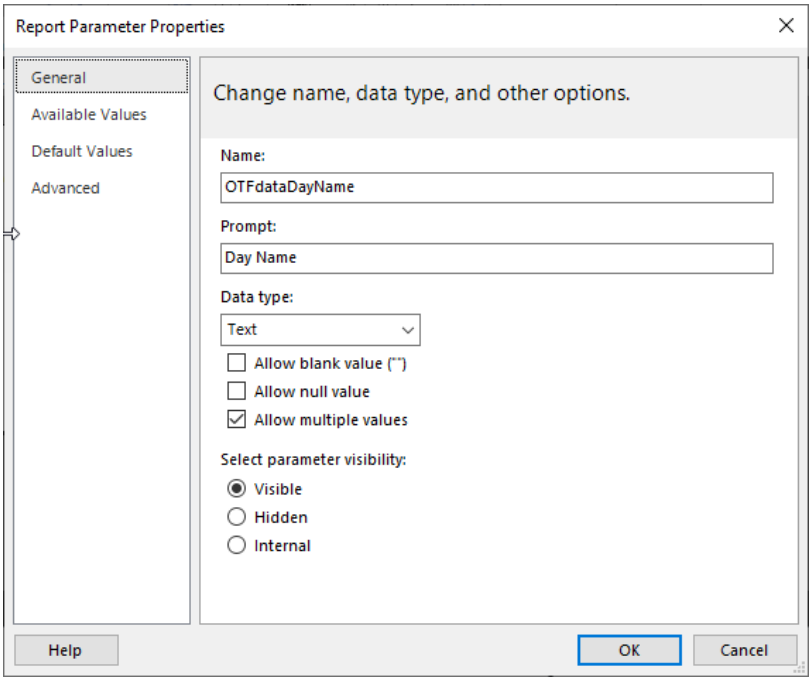
Next go to the Available Values tab and change the Dataset to the OTFDate dataset, the Value field to Date, and the Label field to Date.



After that we go to the Default Values tab and change the selection to “Get values from a query” then set the Dataset to the OTFDate dataset and the Value field to Date.



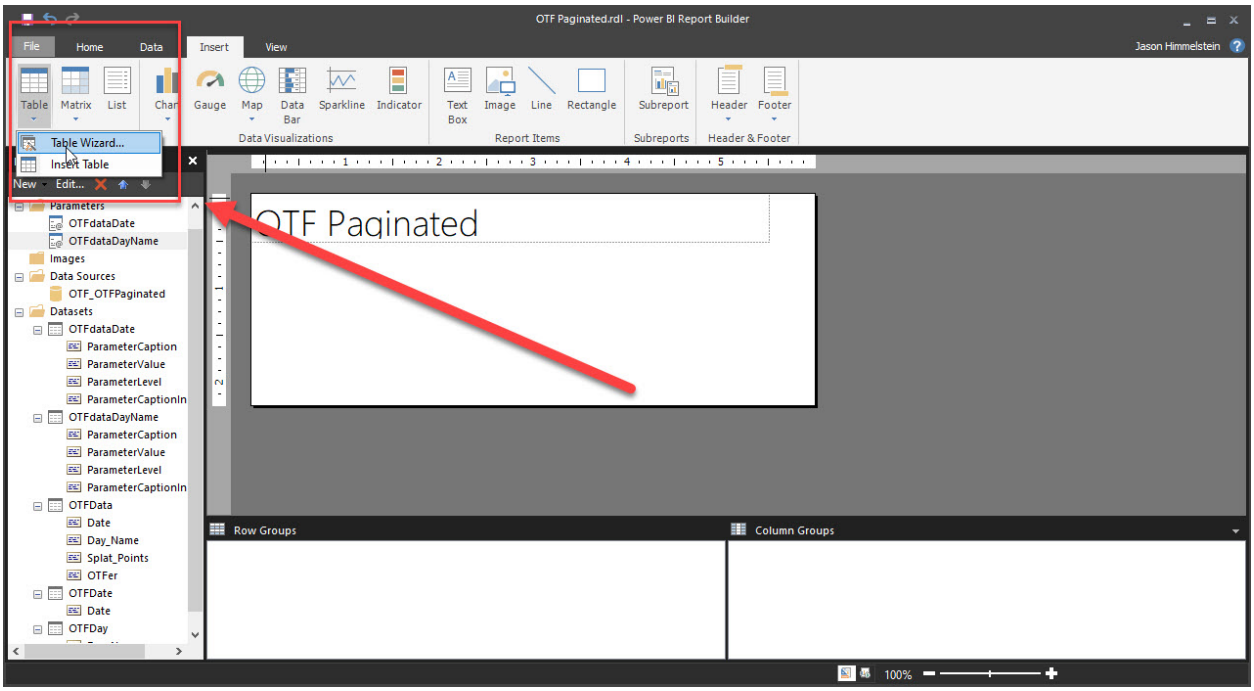
Follow the same process for OTFdataDay except for the Data type which should be left as Text. Removing allow blanks should be done as pane at this point to avoid those annoying blanks in the Report.



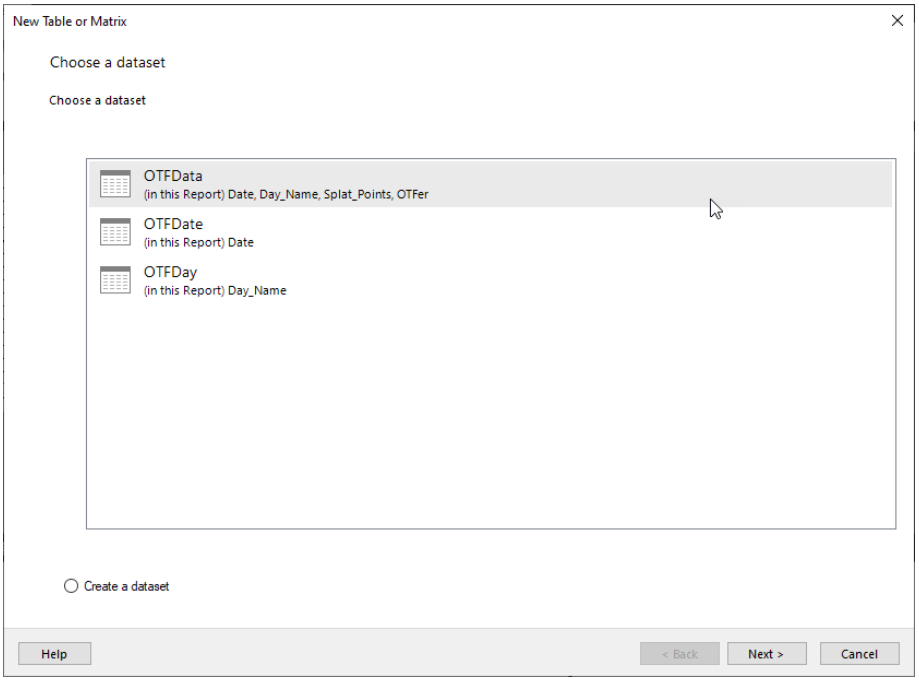
Creating the Report

At this point we can add a table of data to our report and get ready to publish. First, we need to get rid of the link to the [Paginated Reports in a day training link] that shows up in every blank Paginated Report. If you are just getting started with Paginated Reports, I highly recommend this free training.

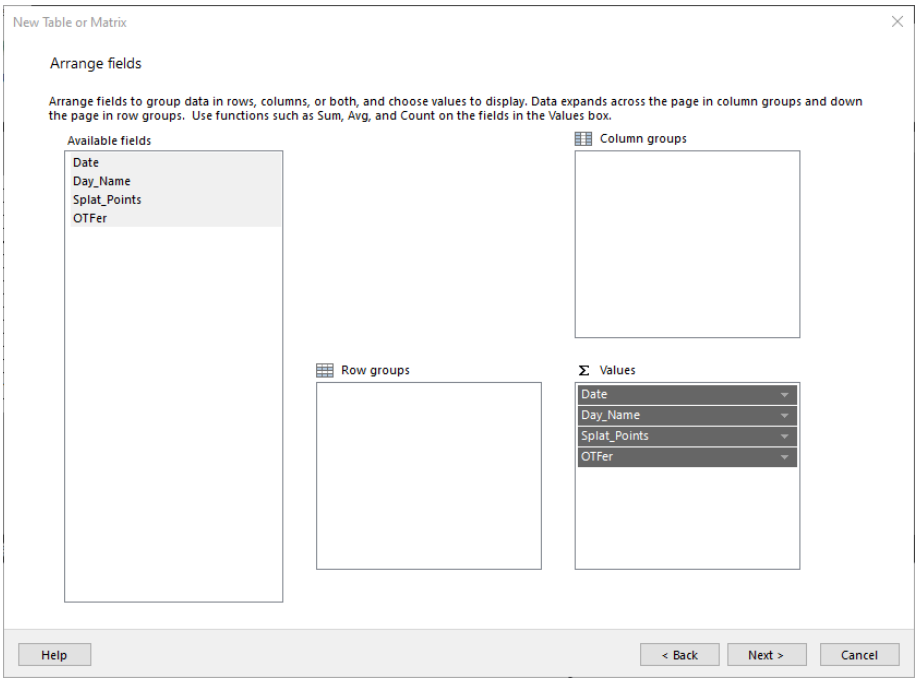
Once that is removed, we can go to the Insert tab and choose Table Wizard.



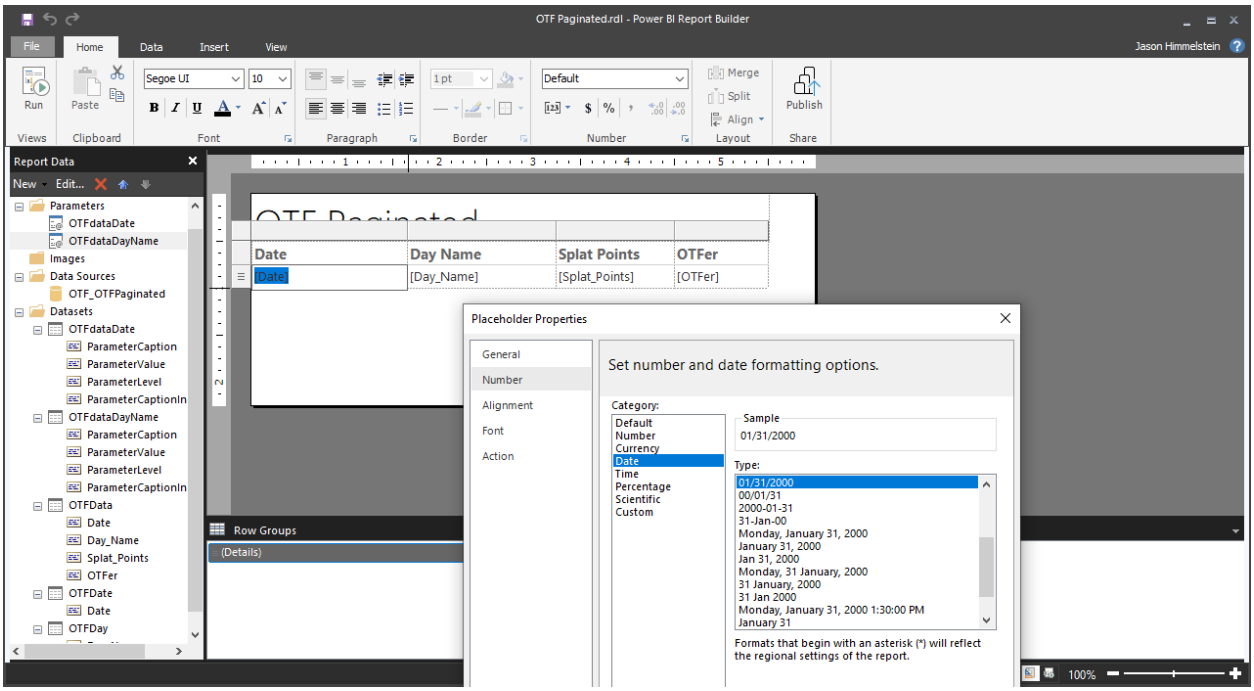
In the wizard we choose the dataset with the data we want to see, in this case it is called OTFData, and click Next.



Since we are just looking for a very simple table of data, we are going to select all of the available fields and put them into the Values area and click Next until Finish.

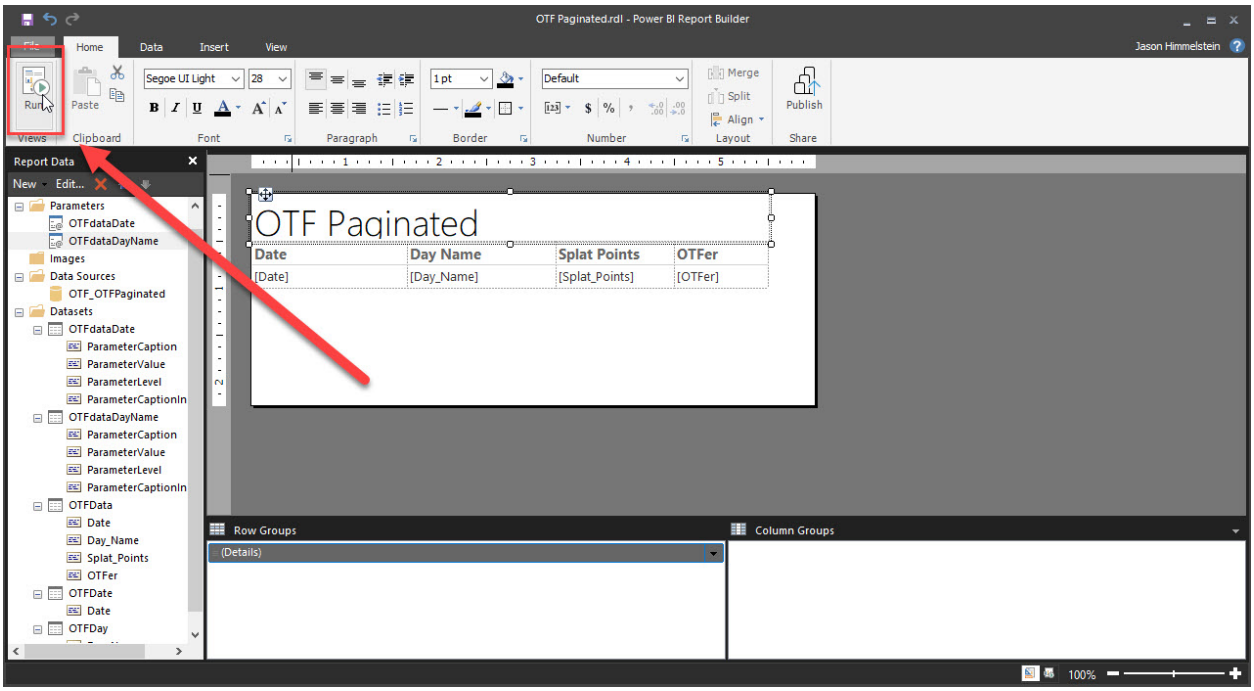


Once we see the table of data in the report canvas, we can tweak the columns and headers to make them look how we want. We also can modify the Date field so that we get MM/DD/YYYY format returned by right clicking on the field and clicking “Placeholder Properties…”

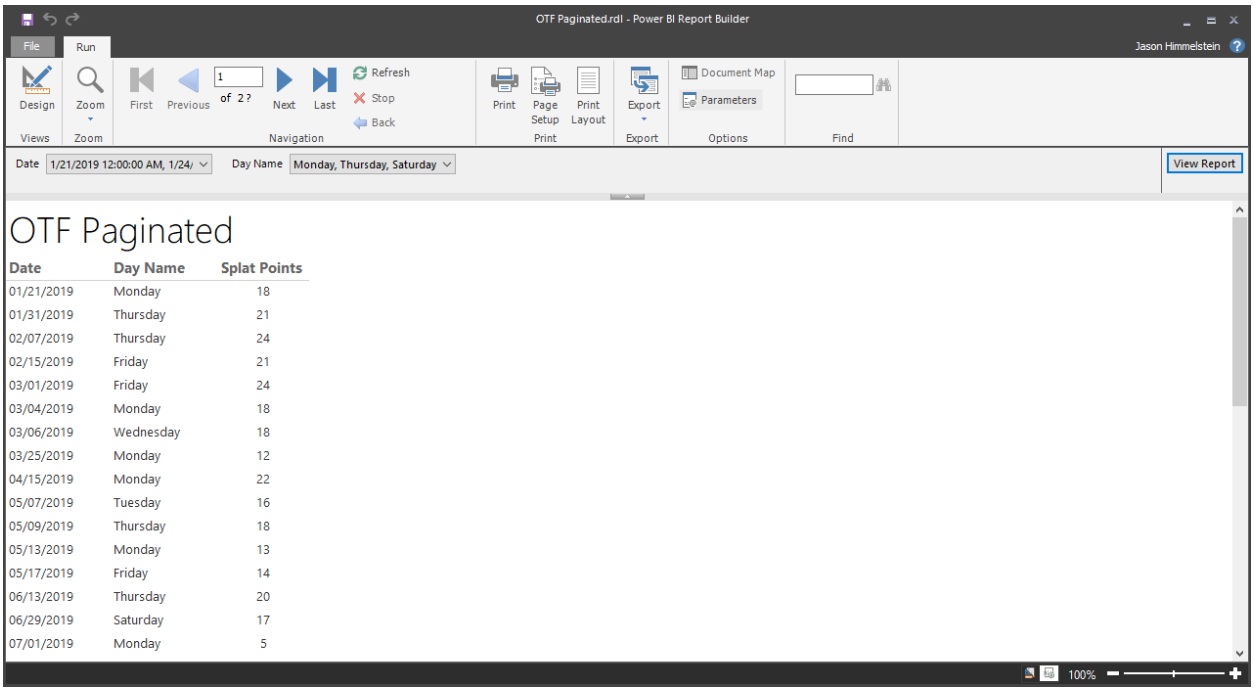


Validating the Report data

Once we are ready, we click Run to test the Report.



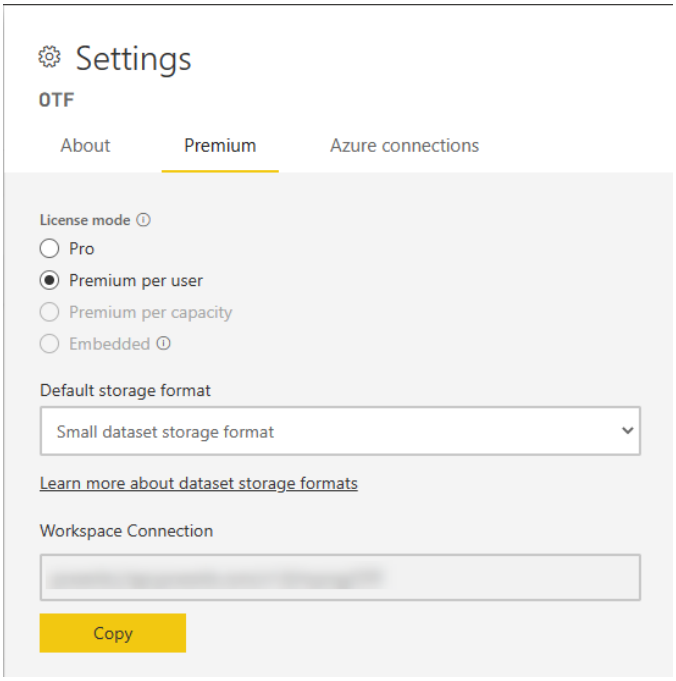
When successful we will see the report run and return data in the pane. After a few tweaks to the look and realizing that we do not need the OTFer column since we have filtered the data out in the dataset, we are happy with our simple report.



A few things worthy of note about the final version of this report. I have default parameters set here which makes it so that the report automatically renders without user interaction. Those parameters are set to include all data. This will matter when we get to the Power BI Report shortly.

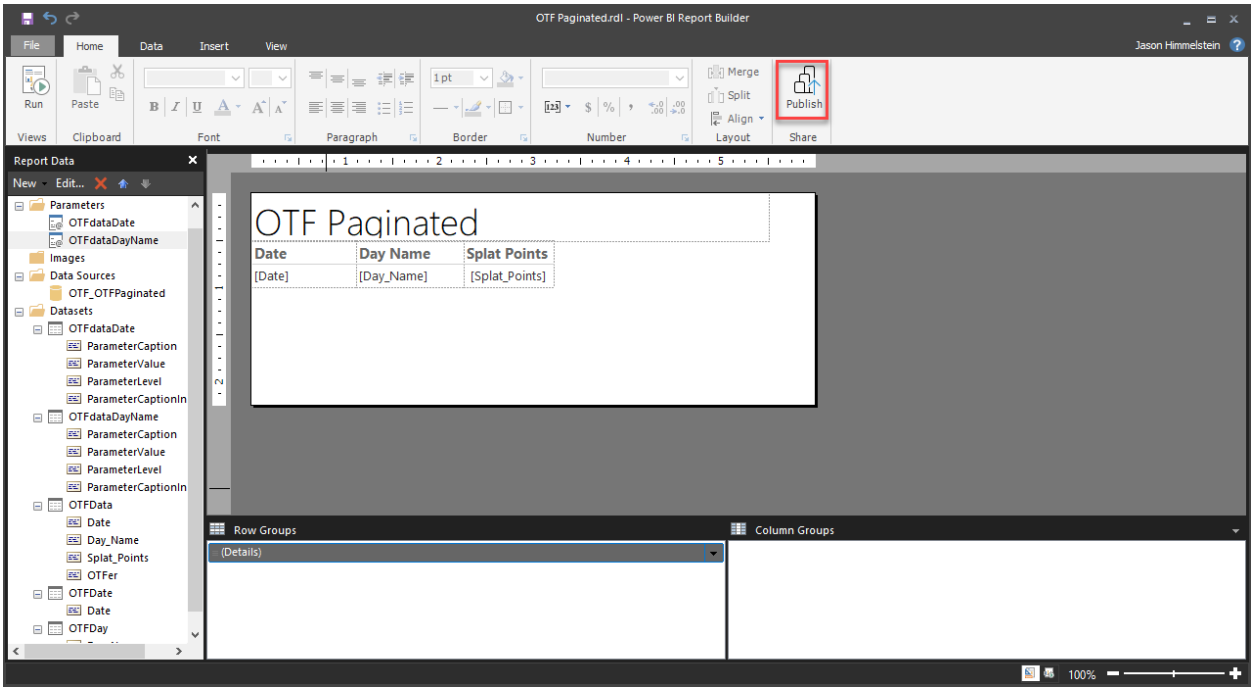
Publishing the Paginated Report

Now it is time to publish this Paginated Report into the Service. It is important to remember that Paginated Reports are a Power BI Premium feature and either need to publish into a Power BI Premium per User (PPU) Workspace, a Power BI Premium per capacity workspace, or a Power BI Embedded Workspace.

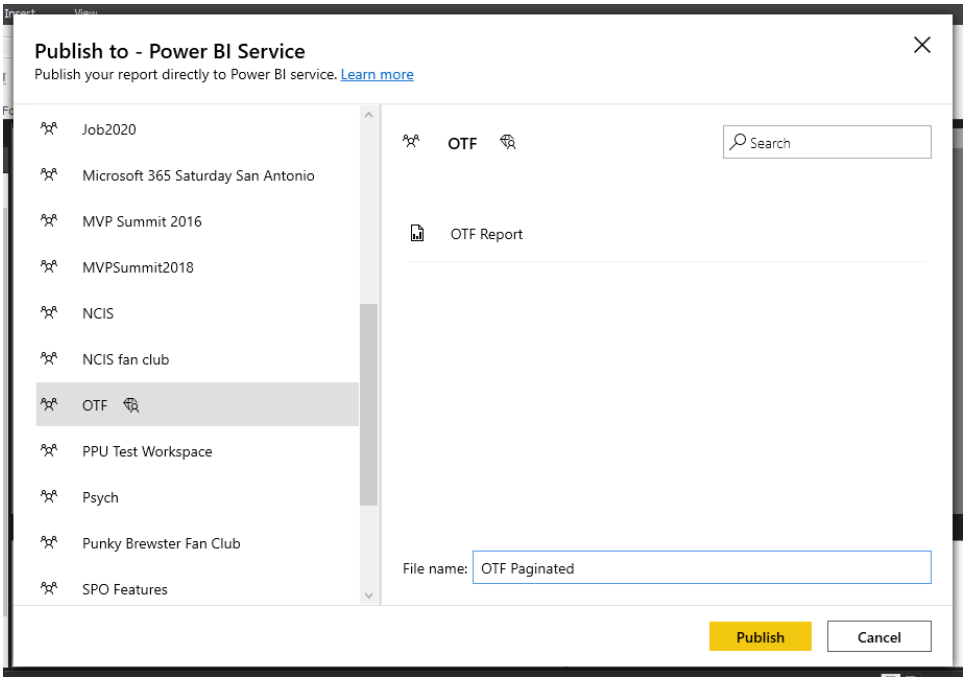


For this use case we are using a PPU workspace for this example. Remember that to access a report published to a PPU workspace everyone who will be accessing the report must have a PPU license. You can get a free 60 day trial of PPU.

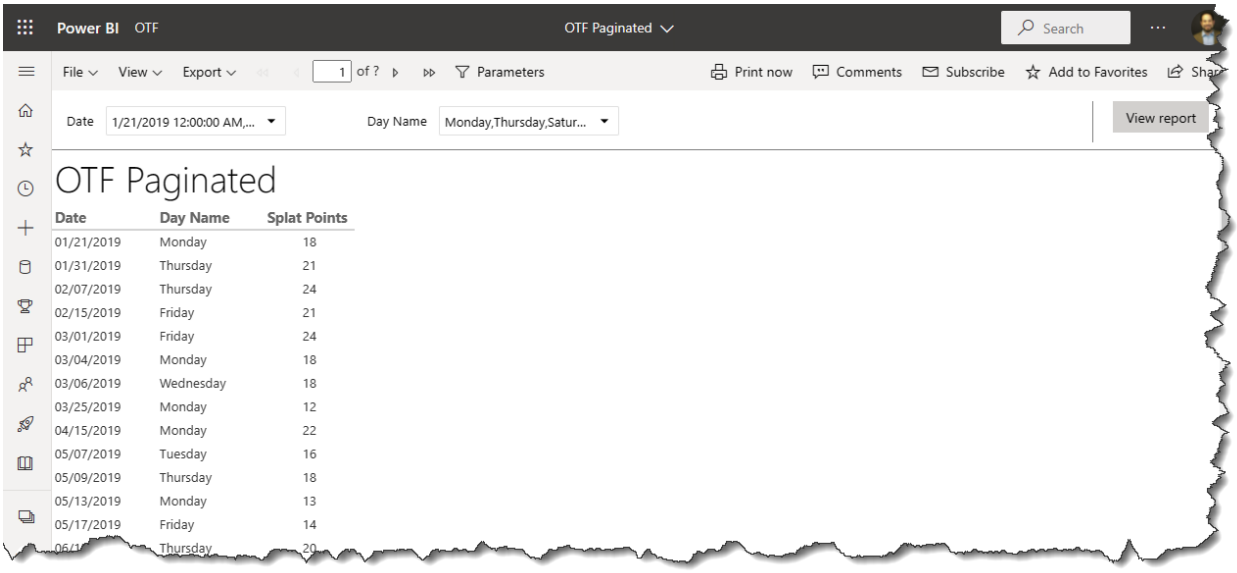
In Power BI Report Builder, we will select the Publish button on the far-right side of the Home Ribbon.



Next select the Workspace and name the report. Then click Publish.



Relatively quickly we should be rewarded with a success message and an option to open the report. This is highly recommended so that you can validate it is working the same way it was working in Power BI Report Builder.



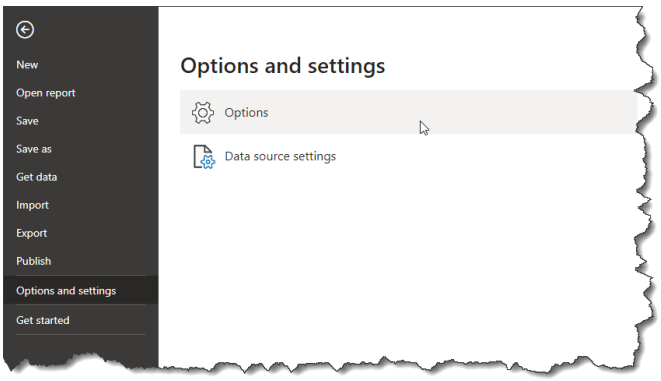
Now that we have a working Paginated Report, we are ready to add the Paginated Report to the Power BI Report!

Using the Paginated Report visual in the Power BI Report

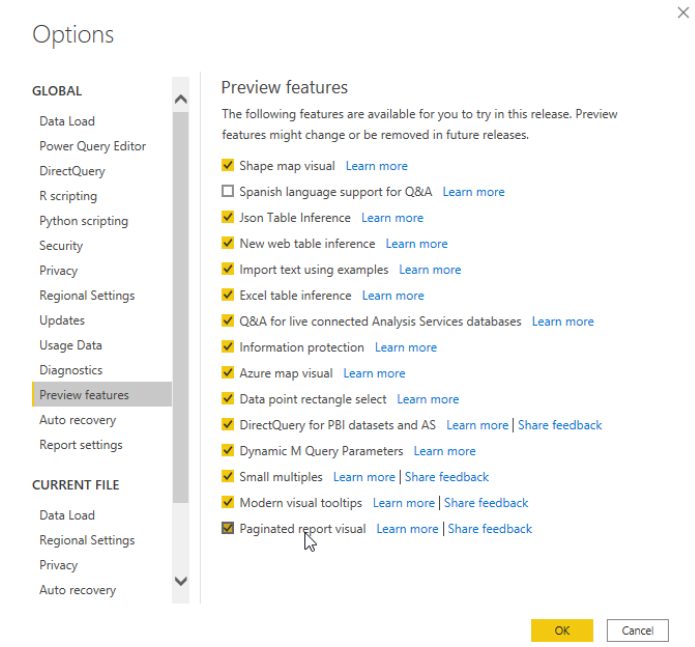
Setting up Power BI Desktop

Earlier we saw the Power BI Report that I look at daily and saw where our Paginated Report Visual was going to go. Now we need to open Power BI Desktop and add our Paginated Report visual to the canvas.

The Paginated Report visual became available in the June 2021 update of Power BI Desktop as a Preview Feature. This means that you must manually enable it once you have updated to the June 2021 version of Power BI Desktop. To do this you go to File | Options and settings | Options.

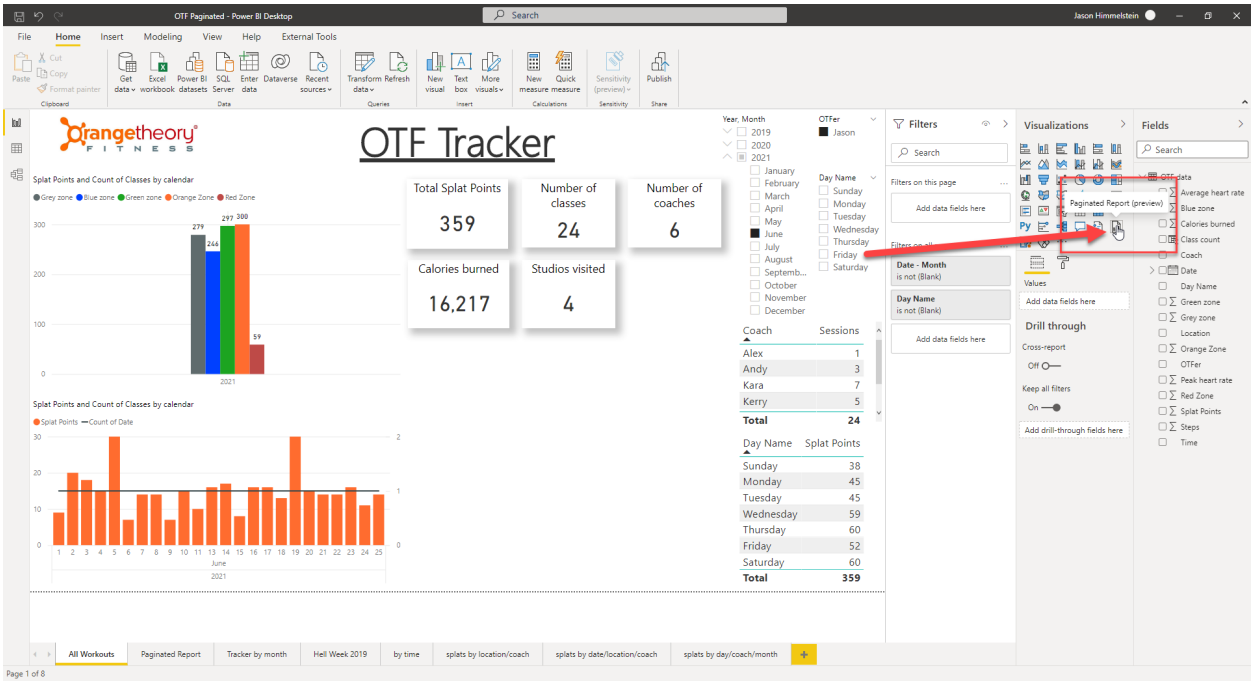


Next go to Preview features under GLOBAL and check the box for “Paginated report visual”. We will be required to restart Power BI Desktop once you are done with this step.

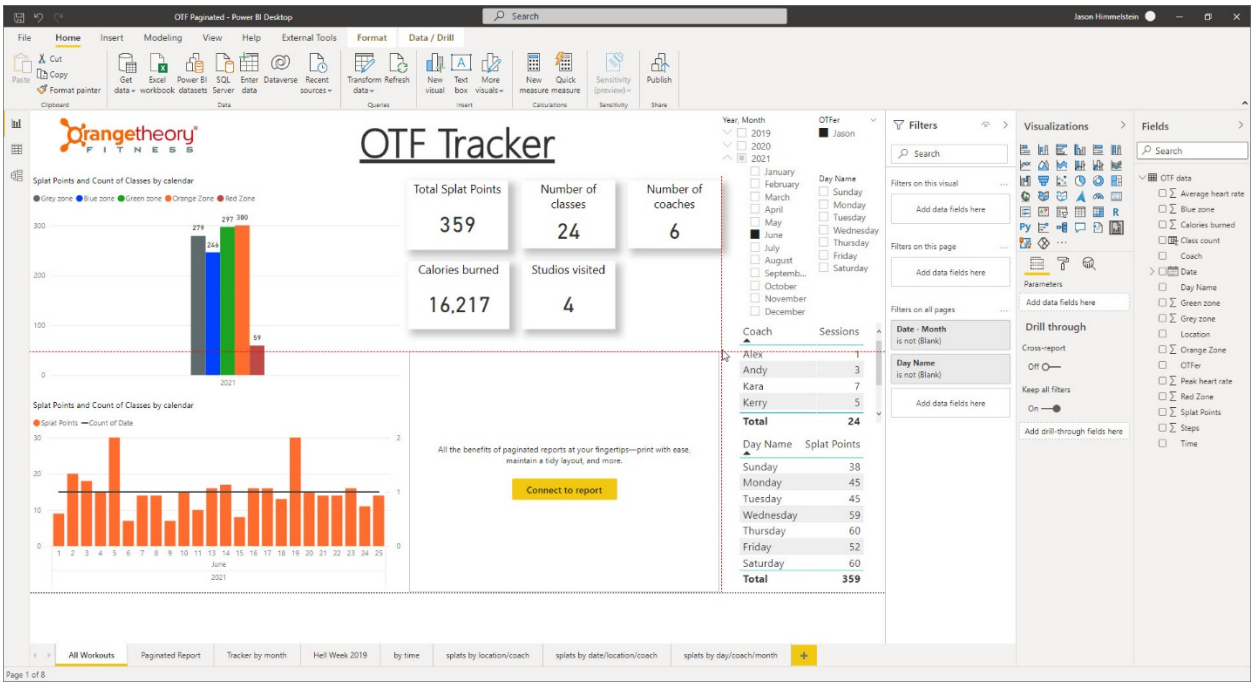


Adding the Paginated Report Visual

Now that Power BI Desktop is reopened, we will find the Paginated Report Visual in the Visualizations pane.

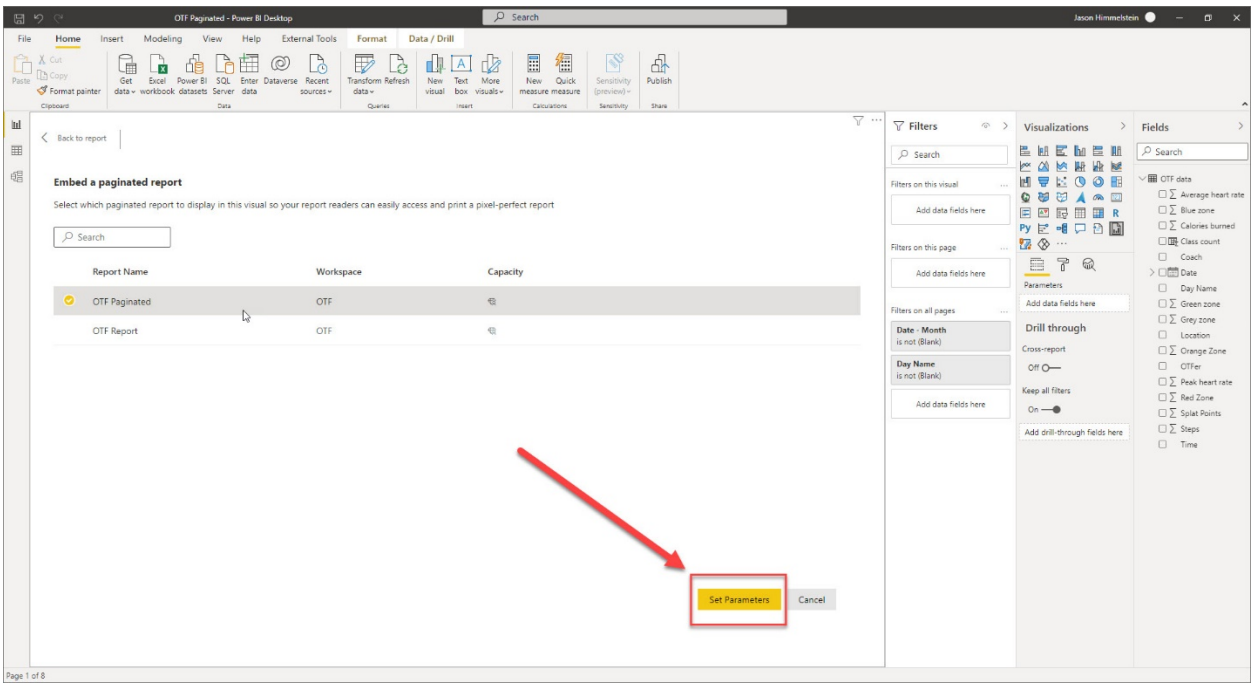


Once we click the visual icon it will drop into the open space on the canvas, and we can resize it to your desired size.



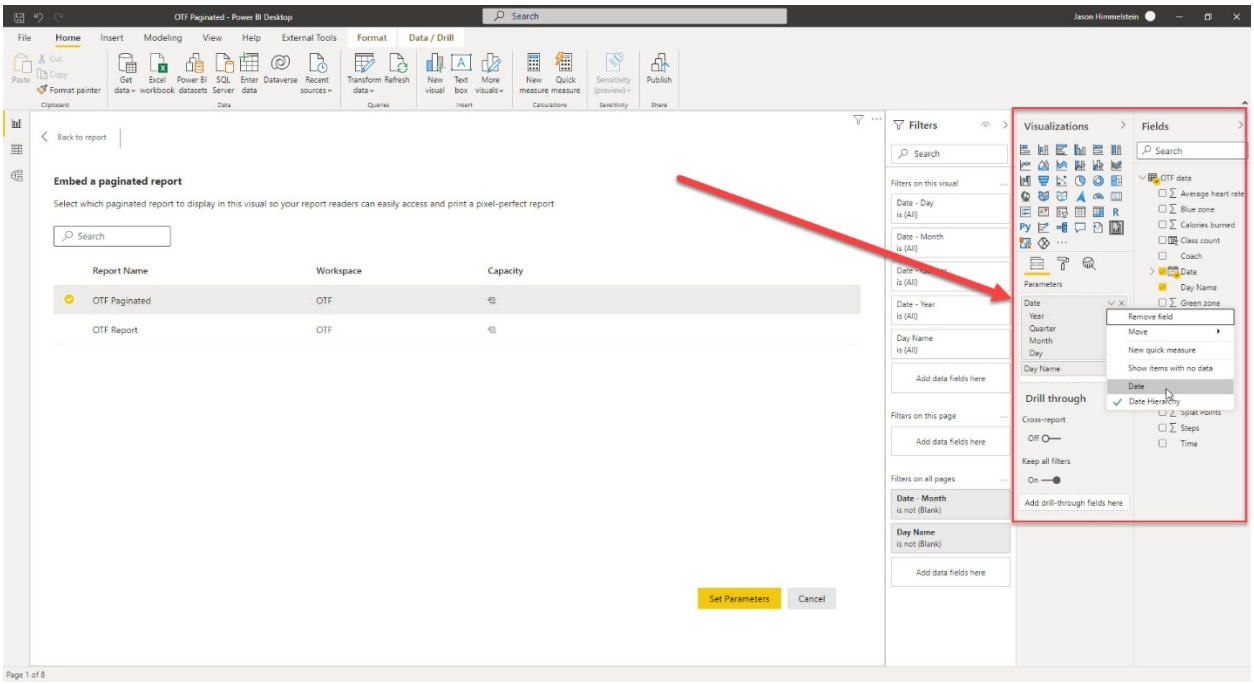
Configuring the Paginated Report Visual

Now it is time to connect to the report. Click the big yellow button and the screen will change to show us the available Paginated Reports that you can choose from.

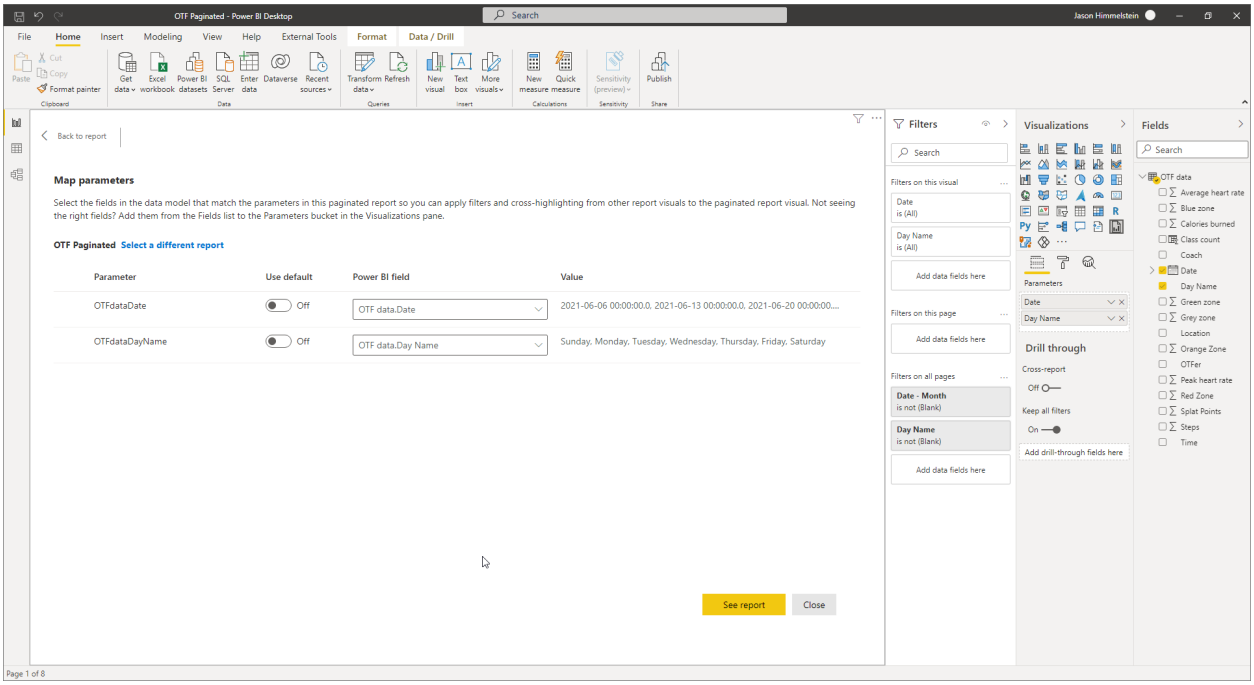


Once we select the Report, we need to add in our Parameters before moving forward. Drag the Date & Day Name Fields into the Parameters field in the Visualization pane.

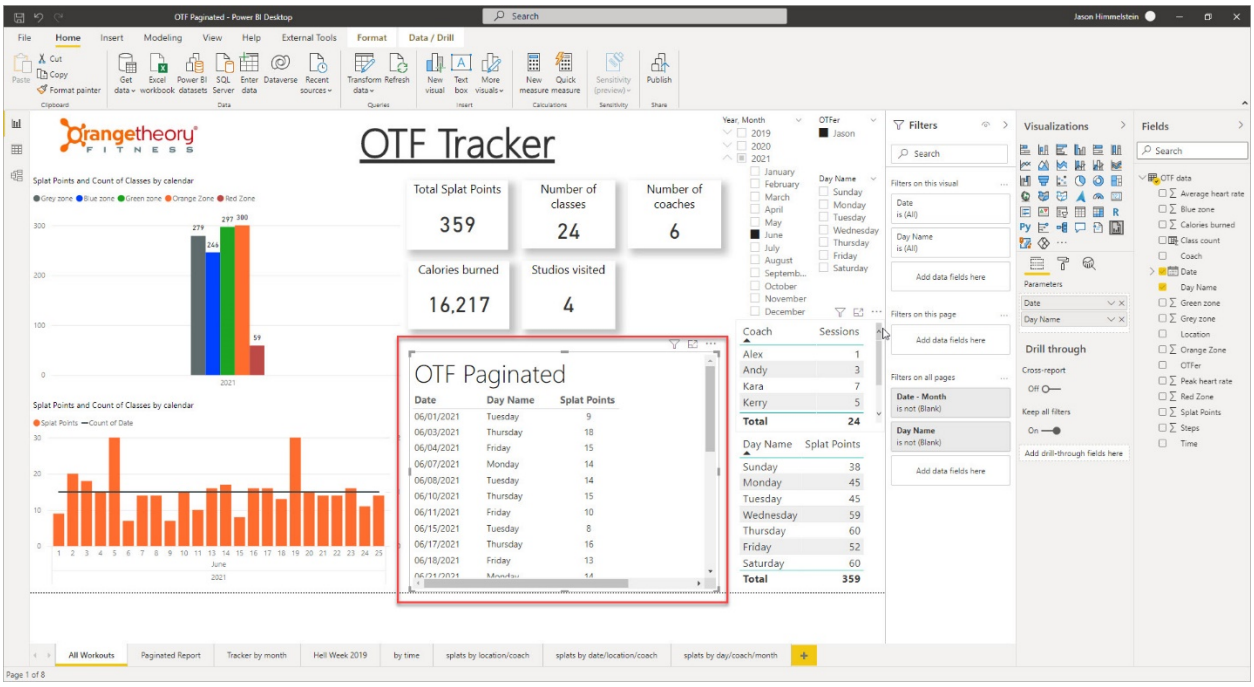
After we have done that we will want to change the Date from a hierarchy to a single date so that it can be sliced properly.



Next, we click the “Set Parameters” button and change the parameters from the “use default” option to the specific Power BI fields that we want to use. Once that is done, we click the “See Report” button.



Once the report renders, we will see the Paginated Report showing up in the visual space we placed it in and filtered to match the rest of the Power BI Report.

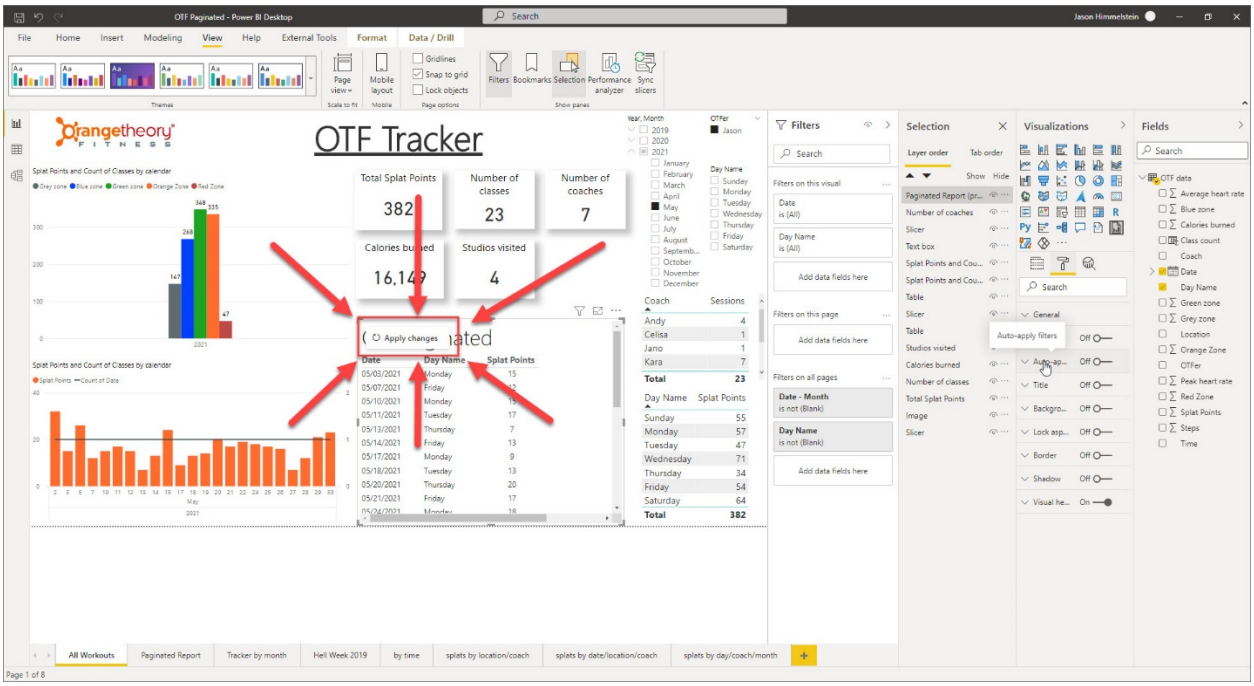


Using the Paginated Report Visual

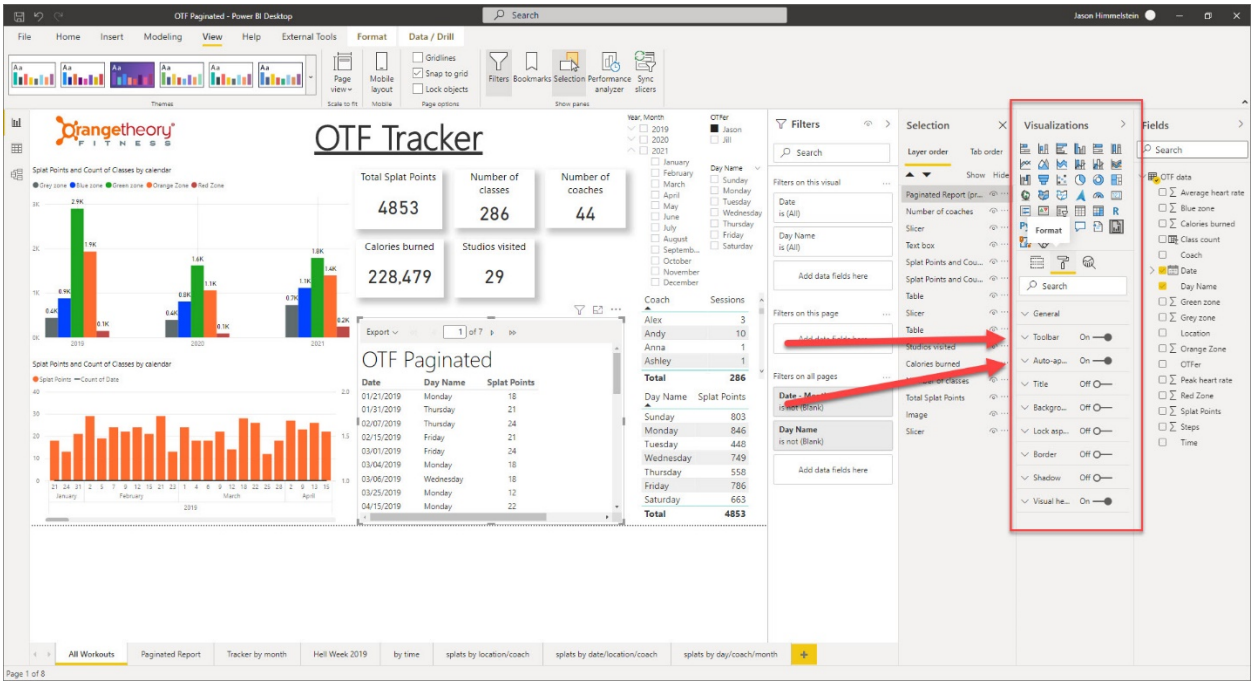
If we change the month from June to May in the Year,Month slicer we will get a dialog at the top left of the Paginated Report visual that says “Apply Changes” while the rest of the report simply changes. This is the default setting as of the June 2021 release and allows us to not have to wait for the Paginated Report visual to refresh, which takes longer than the other visuals, incase we want to tweak our slicers a few times before seeing the Paginated Results.

This behavior changed under the Formatting tab of the Visualizations pane when the Paginated Report visual is selected. That can be tricky at times, so I recommend using the Selection pane (found under the View menu in the ribbon) to help us get this visual selected.

In the formatting options we will find “Auto-apply filters” as a toggle. We will only see “Auto-ap…” as the default layout of the Visualizations pane is small. Once toggled we will see the “Apply changes” box disappear, and it will automatically refresh as we change the slicers.



While we are making updates in the Visualizations pane, I would encourage you to enable the Toolbar in the visual so that you can do things like change pages and Export data to all of the formats Paginated Reports is able to export to.



Wrapping it up

In this white paper we have given you an overview of the overall solution, how to create a simple Paginated Report & publish it to the Power BI Service, and how to use the Paginated Report visual in a Power BI Report. Along the way we covered changing parameters in the Paginated Report to allow the use of a Date/Time parameter and overcame some of the pitfalls I have found along the way.

I hope that you find the Paginated Report visual as amazing as I do. It is going to change the way my customers work with their data.