

Row-level security with Power BI

Version 1.0

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Purpose

This document covers the concept of “Row-level security” in Power BI. This is high level document and assumes that resource has basic knowledge of Power BI Concepts.

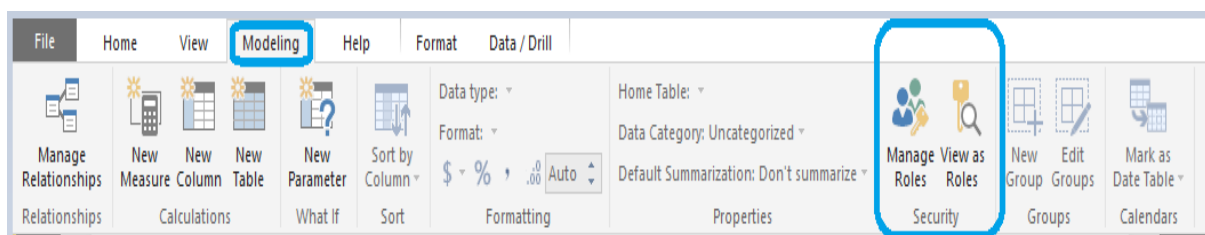
What is Row-level security?

Row-level security is just a way to restrict data access by users by applying security on data row level. At row level, filters restrict data which can be define within roles.

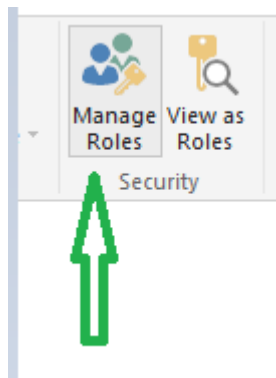
Row-level Security Configuration

Row-level Security enables us to apply security to roles and adds users to each role. We can define roles and rules within Power BI desktop as follows:

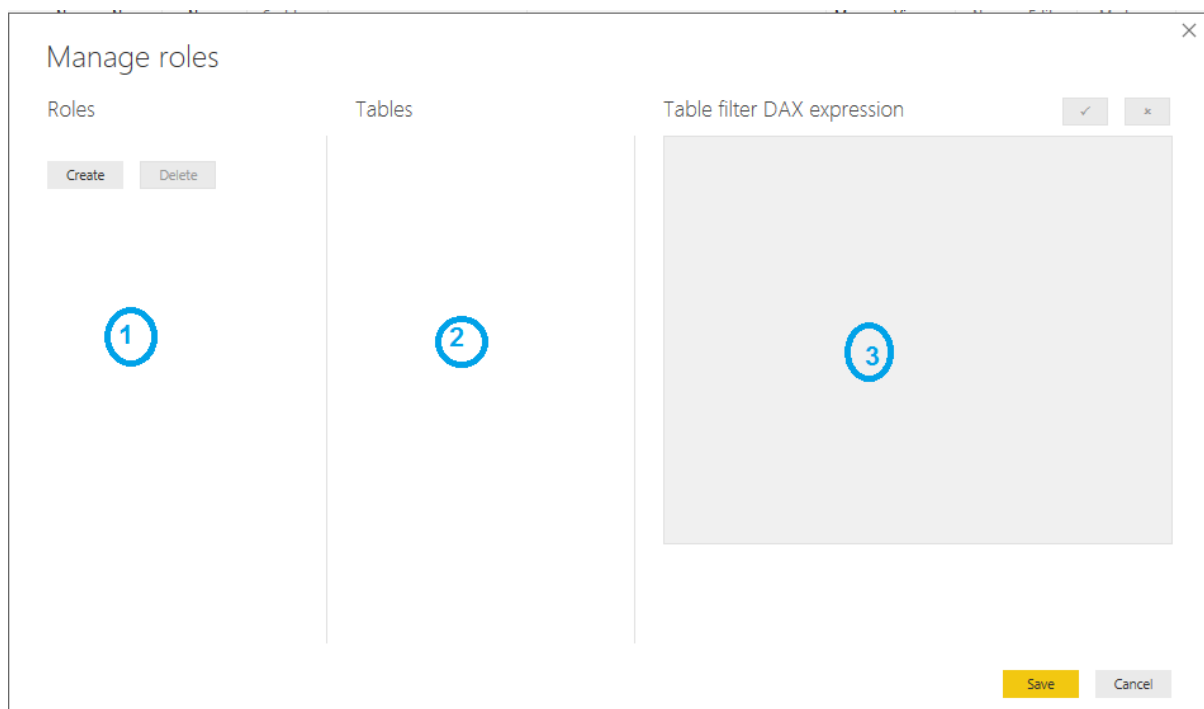
1. Create a sample report in Power BI Desktop and import data into it.
2. Our goal is to build roles for customers of region “Central”. Now let’s begin.
3. For creating roles go to **Modeling** tab and we will see a section named **Security** there as highlighted in below image.



4. To create a new role, click on **“Manage Roles”** option.

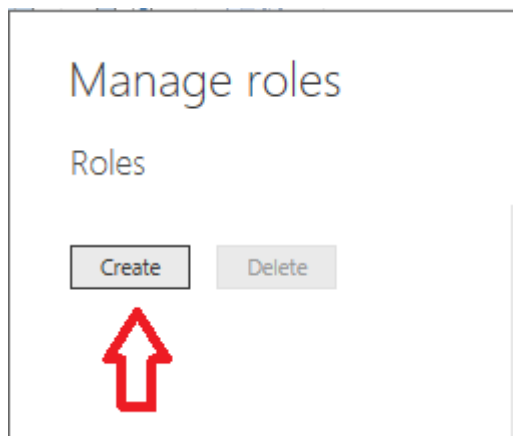


5. A window will open having three panes as seen below

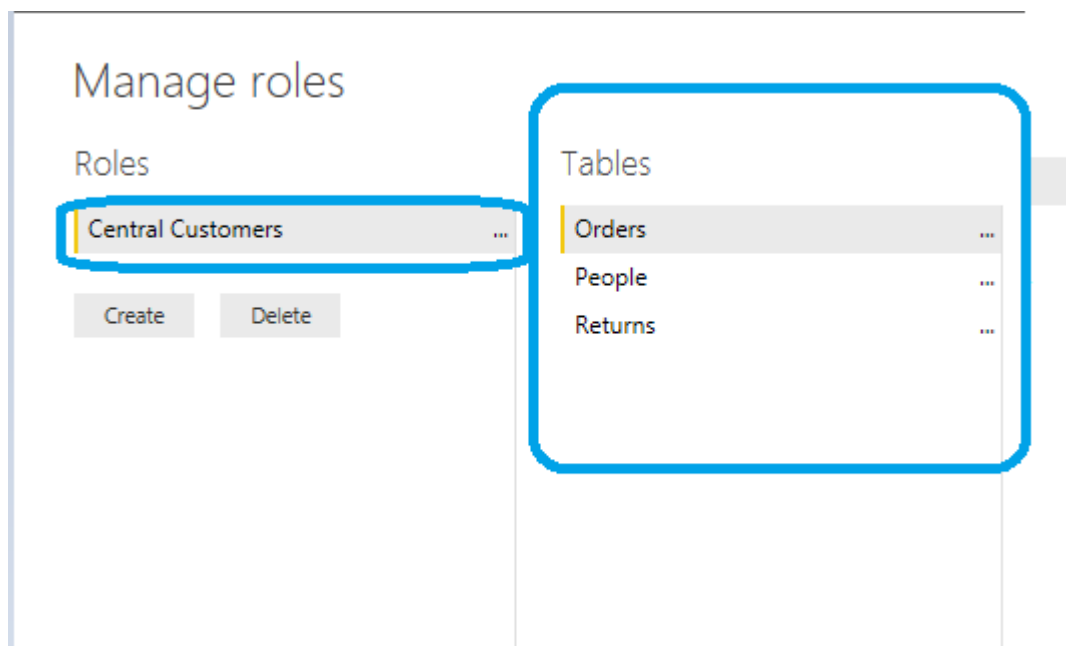


We can create or delete roles in first pane and can choose tables(used in the model) on which we want to apply a DAX rule from second pane and in third pane we can write DAX filtering expression.

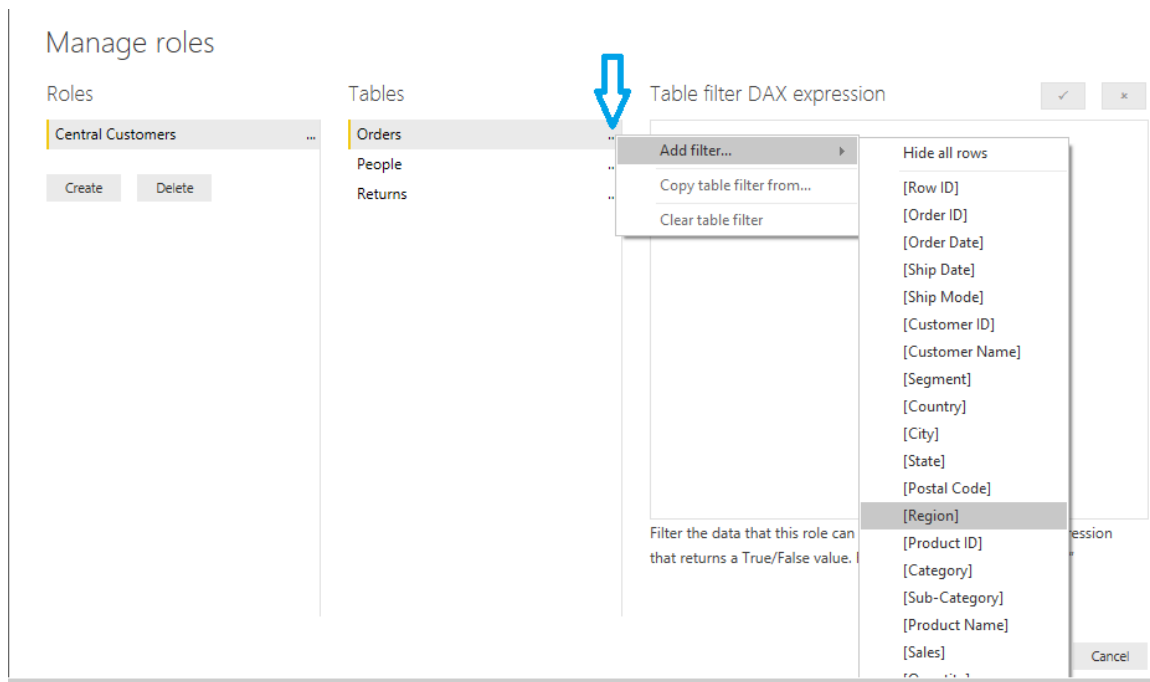
6. Select “**Create**” option.



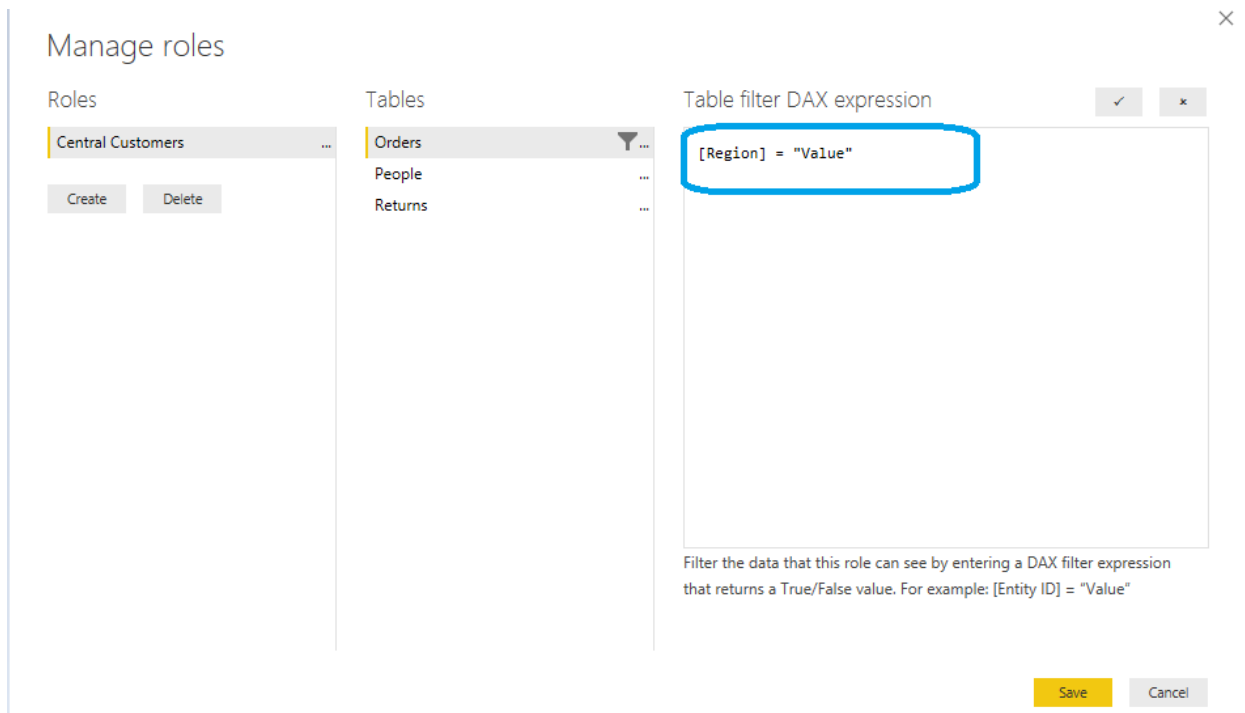
7. Give a suitable name to the rule and select table from the list displayed in second pane for which we want to apply a DAX rule.



8. Click on ellipsis button besides the table for which we want to create DAX filters. In below figure, we are creating filter for Region from table “Orders”.



9. Now we can see in third pane, a DAX Filter expression created automatically as ***[Region] = "Value"*** as seen below.



10. Change the value to "Central" and validate the DAX expression by selecting check option as highlighted below.

Table filter DAX expression

[Region] = "Central"

✓ ✕

11. After validation, click on "Save" button to apply the newly created role.

Manage roles

Roles

Central Customers ...

Create Delete

Tables

Orders ...

People ...

Returns ...

Table filter DAX expression

[Region] = "Central"

✓ ✕

Filter the data that this role can see by entering a DAX filter expression that returns a True/False value. For example: [Entity ID] = "Value"

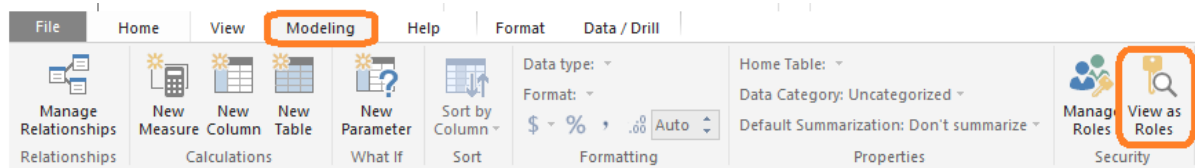
Save Cancel

In this way, a new role is created "Central Customers".

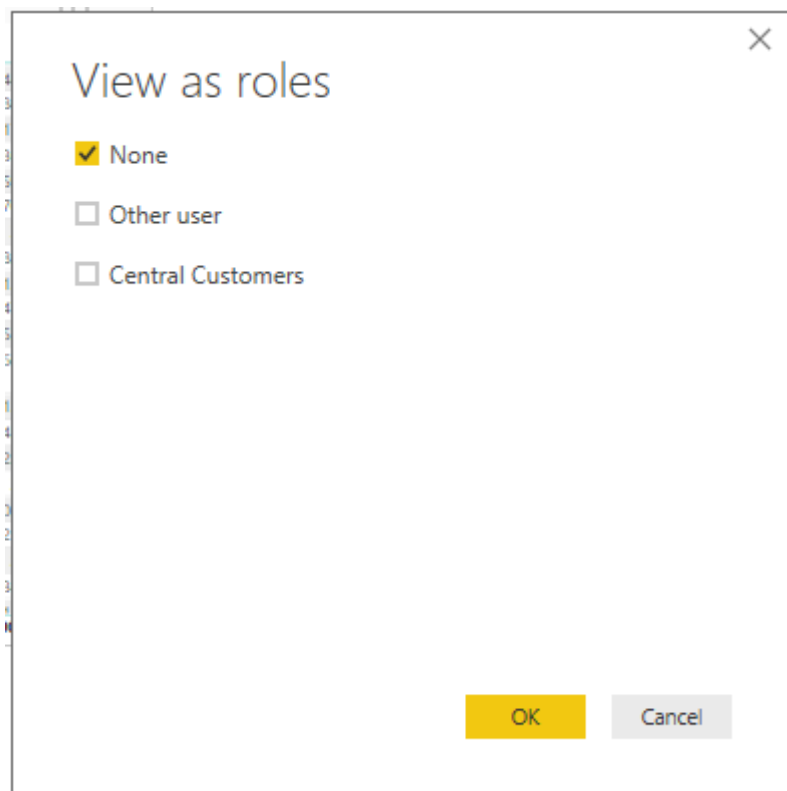
How to test roles in Power BI Desktop?

We can test our created role in Power BI Desktop with "View As Roles" option. This option permits us to view the report exactly for that particular user with this role will see. We can also combine multiple roles to see a combined view of a user who has multiple roles assigned.

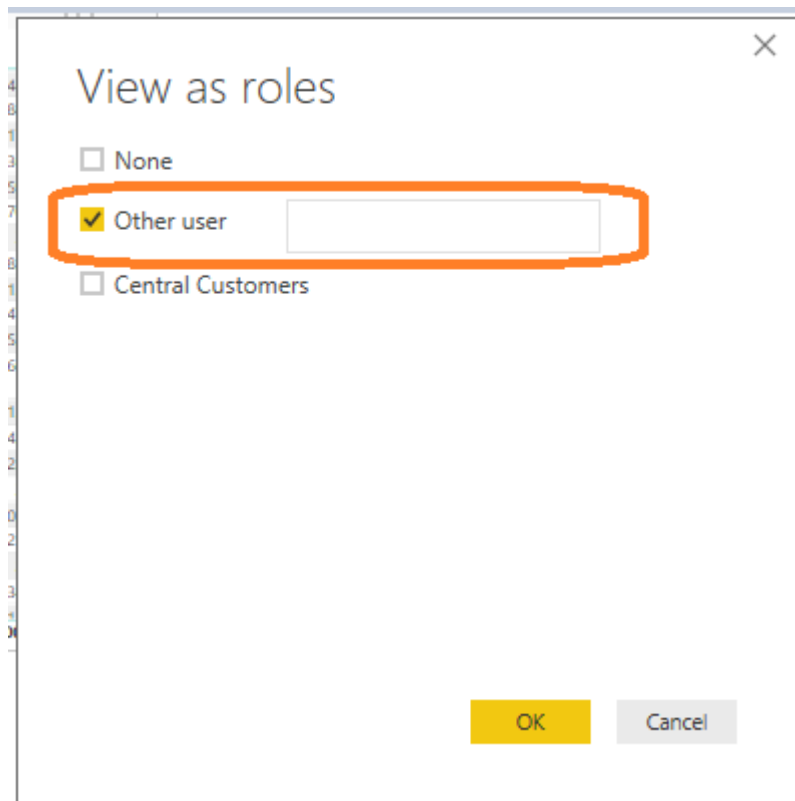
1. To achieve this, click on **Modeling** tab icon, and choose **“View As Roles”** next to **“Manage Roles”** option.



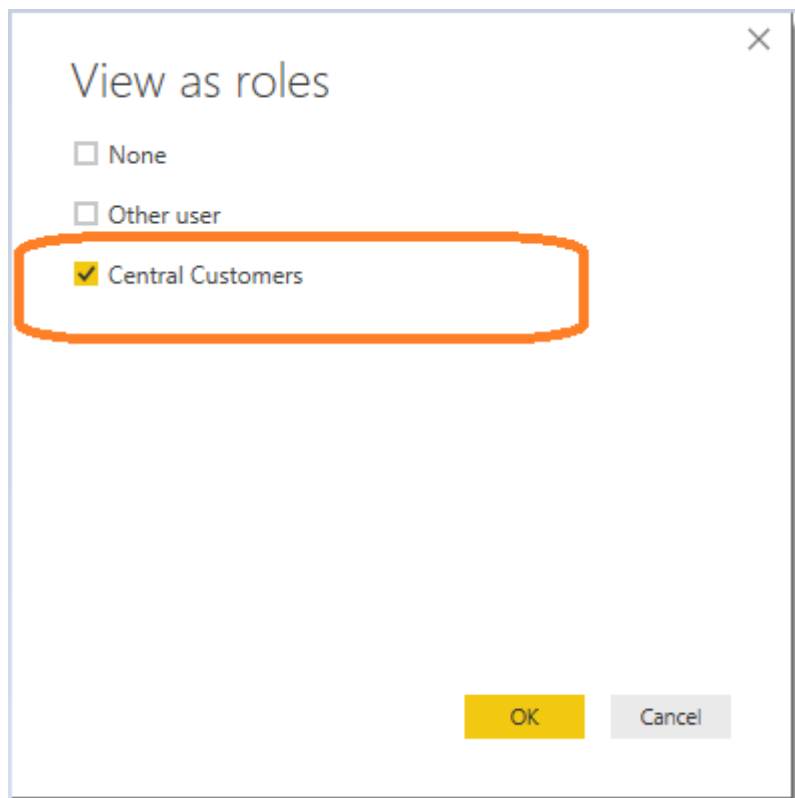
2. A dialog box appears in which we can change the view of our sight for that specific user or role. Here we can see the roles which we have created.



By default “None” option is selected, we can also select “Other user” and can provide any user name. It is best practice to provide User Principal Name (UPN) same as we use in Power BI service.



In this dialog box, “Central Customers” role is appeared which we have created. Select the role and click OK to apply the same.



The report will render data based on the new role “Central Customers” applied to the report as seen in below highlighted line as well. If we click on “Stop viewing” then report will return to its normal view.

Customer ID	Country	Product Name	Region	Sales
MP-10295	United States	"White you Were Out" Message Book, One Form per Page	Central	8.90
AS-10040	United States	#10 - 4 1/8" x 9 1/2" Recycled Envelopes	Central	26.24
AS-10040	United States	#10 - 4 1/8" x 9 1/2" Recycled Envelopes	Central	27.47
SB-20170	United States	#10 - 4 1/8" x 9 1/2" Recycled Envelopes	Central	13.46
AS-10075	United States	#10 - 4 1/8" x 9 1/2" Security-Tint Envelopes	Central	32.32
CS-12250	United States	#10 Gummed Flap White Envelopes, 100/Box	Central	6.61
SH-12745	United States	#10 Gummed Flap White Envelopes, 100/Box	Central	9.91
SB-20540	United States	#10 White Business Envelopes, 4 1/8 x 9 1/2	Central	78.35
SH-20710	United States	#10 4 1/8" x 9 1/2" Premium Diagonal Seam Envelopes	Central	113.33
SH-19875	United States	#6 3/4 Gummed Flap White Envelopes	Central	15.84
SM-13625	United States	1.7 Cubic Foot Compact "Cube" Office Refrigerators	Central	416.52
GA-13450	United States	12 Colored Short Pencils	Central	6.24
LS-17185	United States	12 1/2 Diameter Round Wall Clock	Central	23.98
MD-17860	United States	12 1/2 Diameter Round Wall Clock	Central	39.96
MD-17800	United States	12 1/2 Diameter Round Wall Clock	Central	23.98
TB-21355	United States	14 7/8 x 11 Blue Bar Computer Printout Paper	Central	115.30
AS-10875	United States	24 Capacity Mini Date Stamp Ratio Pad	Central	505.24
CT-11995	United States	3.6 Cubic Foot Counter Height Office Refrigerator	Central	58.42
SC-19890	United States	3.6 Cubic Foot Counter Height Office Refrigerator	Central	294.83
SC-20020	United States	3.6 Cubic Foot Counter Height Office Refrigerator	Central	176.77
SC-11065	United States	30x48 HARDWOOD CHAIRMAT	Central	25.16
CD-13885	United States	30x48 HARDWOOD CHAIRMAT	Central	16.78
LS-17170	United States	3M Jargens With Command Adhesive	Central	2.36
LS-17200	United States	3M Office Air Cleaner	Central	155.88
SB-19840	United States	3M Organizer Strips	Central	16.35
SB-13705	United States	3M Polarizing Light Filter Sleeves	Central	22.38
SM-16225	United States	3M Polarizing Light Filter Sleeves	Central	37.98
NA-18010	United States	3M Polarizing Task Lamp with Clamp Arm, Light Gray	Central	273.96
Total				5,01,259.89

Row Level Security provides different views of the data to users from the same Power BI content. Despite this, it has few limitations as well which are discussed as below:

Limitations

- 1.Previously defined (Existing) roles and rules in Power BI service won't work. We will have to recreate in Power BI Desktop.
- 2.Row- level security is only available on data imported in Power BI desktop or for direct query connections
- 3.Roles can be created only inside Power BI Desktop.
- 4.Analyze in Excel and external sharing are not available for the datasets that have Row-level security enabled and also we cannot share with external users.
5. Q&A and Cortana are not supported in Power BI.