

# Using R in Power BI

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## Prerequisite

### R Installation

- R must be installed on the same Windows computer as Power BI Desktop

<https://www.r-project.org/>

Australia - mirrors

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<a href="https://cran.csiro.au/">https://cran.csiro.au/</a>	CSIRO
<a href="https://mirror.aarnet.edu.au/pub/CRAN/">https://mirror.aarnet.edu.au/pub/CRAN/</a>	AARNET
<a href="https://cran.ms.unimelb.edu.au/">https://cran.ms.unimelb.edu.au/</a>	School of Mathematics and Statistics, University of Melbourne
<a href="https://cran.curtin.edu.au/">https://cran.curtin.edu.au/</a>	Curtin University

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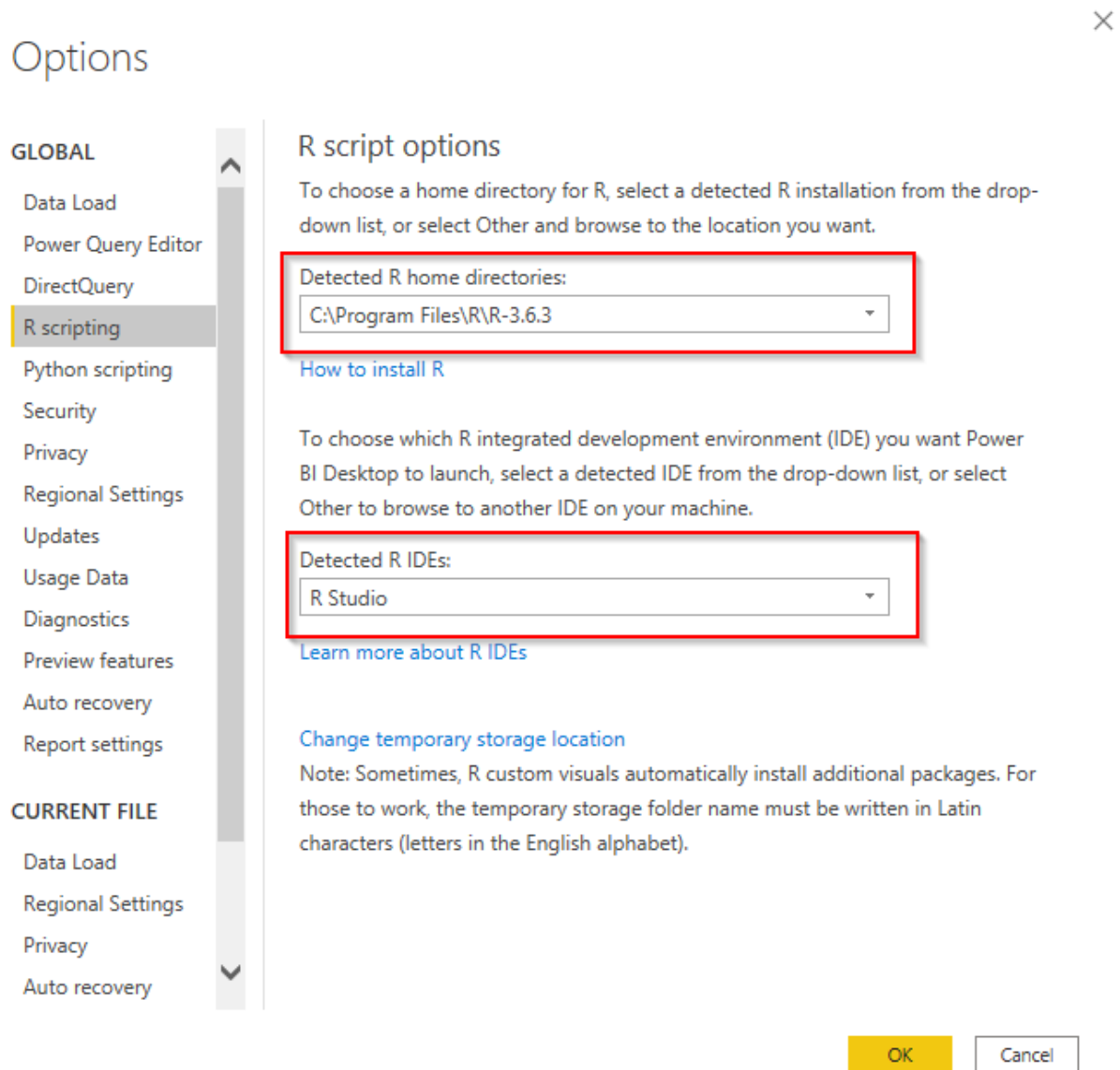
### R IDE

- Good to have

IDE to use with R, Notepad++, R Studio, VS etc.

## Power BI Options

We can verify correct R installation and detected IDEs by opening *Options* dialog box. Also using this we can provide a specific R installation and R IDE to use with Power BI.



## Import Data

To import data you need to create a dataframe. Power BI can access the dataframes and you can select required dataframes to import.

- Connect to available dataset in R
- import csv, xlsx, sql etc. data to R then connect
- import data to R, transform, clean up data and then connect

### Example 1 - Connect to available dataset in R

We can use available dataset in R and import this to Power BI  
cars dataset in R consist of breaking distances vs. speed data.  
we can preview the data using `head()` function.

```
head(cars)
```

```
##    speed dist
## 1      4     2
## 2      4    10
## 3      7     4
## 4      7    22
## 5      8    16
## 6      9    10
```

Lets import this dataset to Power BI by assigning to a dataframe.

In **Power BI**, click *Get Data -> Other -> R script*

## Get Data

All

File

Database

Power Platform

Azure

Online Services

Other

### Other

- Web
- SharePoint list
- OData Feed
- Active Directory
- Microsoft Exchange
- Hadoop File (HDFS)
- Spark
- Hive LLAP (Beta)
- R script**
- Python script
- ODBC
- OLE DB
- Acterys : Model Automation & Planning (Beta)
- Automation Anywhere (Beta)
- Solver
- Cherwell (Beta)

[Certified Connectors](#)

ConnectCancel

Click Connect

Use the following R script to get the data from *cars* dataset.

```
cars_data <- cars
```

## R script



Script

```
cars_data <- cars
```

The script will run with the following R installation C:\Program Files\R\R-3.6.3.

To configure your settings and change which R installation you want to run, go to Options and settings.

OK

Cancel


Click OK

We can select required dataframe to Load/Tranform in Power BI

# Navigator

Display Options ▾

▲  R [1]

☒  cars\_data

cars\_data

speed	dist
4	2
4	10
7	4
7	22
8	16
9	10
10	18
10	26
10	34
11	17
11	28
12	14
12	20
12	24
12	28
13	26
13	34
13	34
13	46
14	26
14	36
14	60
14	80
15	20

Load

Transform Data

Cancel

Queries [1] <

cars\_data

1.2 speed 1.2 dist

1	4	2
2	4	10
3	7	4
4	7	22
5	8	16
6	9	10
7	10	18
8	10	26
9	10	34
10	11	17
11	11	28
12	12	14
13	12	20
14	12	24
15	12	28
16	13	26
17	13	34
18	12	24

2 COLUMNS, 50 ROWS Column profiling based on top 1000 rows

Query Settings

PROPERTIES

Name

cars\_data

All Properties

APPLIED STEPS

Source

X Navigation

PREVIEW DOWNLOADED AT 3:48 PM

## Example 2 - import csv, xlsx, sql etc. to R / transform

```
library(readxl)

CompletedWORwA <- read_excel("C:/<directory path>/CompletedWORwA.xlsx")

HFC_NSW <- subset(CompletedWORwA, TECHNOLOGY == 'HFC' & STATE == 'NSW')
```

Power BI Navigator

## Navigator

Display Options ▾

▲

R [2]

☒ ☐ CompletedWORwA

☒ ☐ HFC\_NSW

### HFC\_NSW

WORKORDERNO	ACTIVITYID	TECHNOLOGY	WORKORI
BSA100002604551-1	WOR700078998916	HFC	REMEI
BSA100002414188	WOR700071899856	HFC	HFCCN
BSA100002415859	WOR700071964242	HFC	HFCCN
BSA100002432671	WOR700072594067	HFC	HFCCN
BSA100002439329-1	WOR700072839451	HFC	HFCCN
BSA100002458866	WOR700073558516	HFC	HFCCN
BSA100002489478	WOR700074601158	HFC	HFCCN
BSA100002521493	WOR700075737337	HFC	HFCCN
BSA100002495090-2	WOR700075983700	HFC	HFCCN
BSA100002492936-1	WOR700076060192	HFC	HFCCN
BSA100002491779-2	WOR700076203633	HFC	HFCCN
BSA100002528070-2	WOR700076435180	HFC	HFCCN
BSA100002543872	WOR700076505639	HFC	HFCCN
BSA100002546758	WOR700076601643	HFC	HFCCN
BSA100002557842	WOR700076957974	HFC	HFCCN
BSA100002560601	WOR700077049867	HFC	HFCCN
BSA100002540295-2	WOR700077207188	HFC	HFCCN
BSA100002517060-2	WOR700077246585	HFC	HFCCN
BSA100002567886	WOR700077293682	HFC	HFCCN
BSA100002568138	WOR700077302392	HFC	HFCCN
BSA100002568144	WOR700077302578	HFC	HFCCN
BSA100002550578-1	WOR700077325522	HFC	HFCCN
BSA100002569882	WOR700077360777	HFC	HFCCN

Load

Transform Data

Cancel

## Tranform Data

We can transform Power BI data using R scripts. Power BI Query Editor can apply R Scripts to a dataset in order to transform the data.



Untitled - Power Query Editor

File Home Transform Add Column View Tools Help

Data Type: Text ▾  
Detect Data Type  
Rename

Any Column

ABC 123  
Text Column ▾

Statistics ▾  
Standard  
Scientific

Trigonometry ▾  
Rounding ▾  
Information ▾

Number Column

Date ▾  
Time ▾  
Duration ▾

Date & Time Column

Structured Column ▾

**R** Run R script  
**Py** Run Python script

Scripts

Queries [2]  
CompletedWORwA  
HFC\_NSW

fx = Source{[Name="CompletedWORwA"]}[Value]

	WORKORDERNO	ACTIVITYID	TECHNOLOGY
1	BSA100002262507	WOR100155979271	FTTP
2	BSA100002569828-1	WOR700077803974	HFC
3	BSA100002567705-1	WOR100172879250	FTTC
4	BSA100002567145	WOR700077187614	HFC
5	BSA100002612673	WOR100173032363	FTTC
6	BSA100002598922-1	WOR100173228097	FTTC
7	BSA100002613552-1	WOR100173627929	FTTC
8	BSA100002565559-1	WOR700078495439	HFC
9	BSA100002615817	WOR700078802810	HFC
10	BSA100002615813	WOR700078802950	HFC
11	BSA100002606529-1	WOR700078934989	HFC
12	BSA100002607313-1	WOR100173398425	FTTC
13	BSA100002602526-1	WOR100173424451	FTTC
14	BSA100002615289-1	WOR100173438600	FTTC
15	BSA100002610527-1	WOR100173537123	FTTC
16	BSA100002604551-1	WOR700078998916	HFC
17	BSA100002600383-1	WOR700079021544	HFC
18	BSA100002564160-2	WOR100173523313	FTTN
19	BSA100002583491-1	WOR100173572034	FTTC
20	BSA100002553323-1	WOR70007772508	HFC
21			

14 COLUMNS, 999+ ROWS Column profiling based on top 1000 rows

PREVIEW DOWNLOADED AT 1:56 PM

Query Settings

PROPERTIES  
Name  
CompletedWORwA  
All Properties

APPLIED STEPS  
Source  
Navigation

```
library(dplyr)
```

```
output <- summarise(group_by(dataset,TECHCODE), freq = n())
```

HFC\_NSW

1	BSA100002604551-1	WOR700078998916	HFC	REMED	OPERATE \ DEMAND INSTALL \ HF
2	BSA100002414188	WOR700071899856	HFC	HFCN	OPERATE \ DEMAND INSTALL \ HF
3	BSA100002415859	WOR700071964242	HFC	HFCN	OPERATE \ DEMAND INSTALL \ HF
4	BSA100002432671	WOR700072594067	HFC	HFCN	OPERATE \ DEMAND INSTALL \ HF
5	BSA100002439329-1	WOR700072839451	HFC	HFCN	OPERATE \ DEMAND INSTALL \ HF
6	BSA10000				ISTALL \ HF
7	BSA10000				ISTALL \ HF
8	BSA10000				ISTALL \ HF
9	BSA10000				ISTALL \ HF
10	BSA10000				ISTALL \ HF
11	BSA10000				ISTALL \ HF
12	BSA10000				ISTALL \ HF
13	BSA10000				ISTALL \ HF
14	BSA10000				ISTALL \ HF
15	BSA10000				ISTALL \ HF
16	BSA10000				ISTALL \ HF
17	BSA10000				ISTALL \ HF
18	BSA10000				ISTALL \ HF
19	BSA10000				ISTALL \ HF
20	BSA10000				ISTALL \ HF
21	BSA10000				ISTALL \ HF
22	BSA10000				ISTALL \ HF
23	BSA10000				ISTALL \ HF
24	BSA10000				ISTALL \ HF
25	BSA10000				ISTALL \ HF
26	BSA100002573572	WOR700077492035	HFC	HFCN	OPERATE \ DEMAND INSTALL \ HF
27	BSA100002576289	WOR700077577539	HFC	HFCN	OPERATE \ DEMAND INSTALL \ HF
28	BSA100002576717	WOR700077593453	HFC	HFCN	OPERATE \ DEMAND INSTALL \ HF
29	BSA100002561767-1	WOR700077640334	HFC	HFCN	OPERATE \ DEMAND INSTALL \ HF
30	BSA100002560506-1	WOR700077654565	HFC	HFCN	OPERATE \ DEMAND INSTALL \ HF

Run R script

Enter R scripts into the editor to transform and shape your data.

Script

```
# 'dataset' holds the input data for this script

library(dplyr)

output <- summarise(group_by(dataset,TECHCODE), freq = n())
```

The script will run with the following R installation C:\Program Files\R\R-3.6.3.  
To configure your settings and change which R installation you want to run, go to Options and settings.

OK Cancel

Query Settings

PROPERTIES  
Name  
HFC\_NSW  
All Properties

APPLIED STEPS  
Source  
Navigation



*# The following code to create a dataframe and remove duplicated rows is always executed and acts as a preamble for your script:*

```
# dataset <- data.frame(dist, speed)
# dataset <- unique(dataset)
```

*# Paste or type your script code here:*

```
plot(dataset$speed, dataset$dist)
```

