

# PASS Business Analytics Virtual Group



# Power BI Report Server: a Deep Dive

Luca Gualtieri, MCP

PBI Lab Inc.

[pbilab.com](http://pbilab.com)





# Luca Gualtieri

CTO at PBI Lab Inc

- BI and Analytics consultant
- Power BI expert (MCP)
- Project management
- Co-founder of PBI Lab
- Passion for data

[luca.gualtieri@pbilab.com](mailto:luca.gualtieri@pbilab.com)

[pbilab.com](http://pbilab.com)



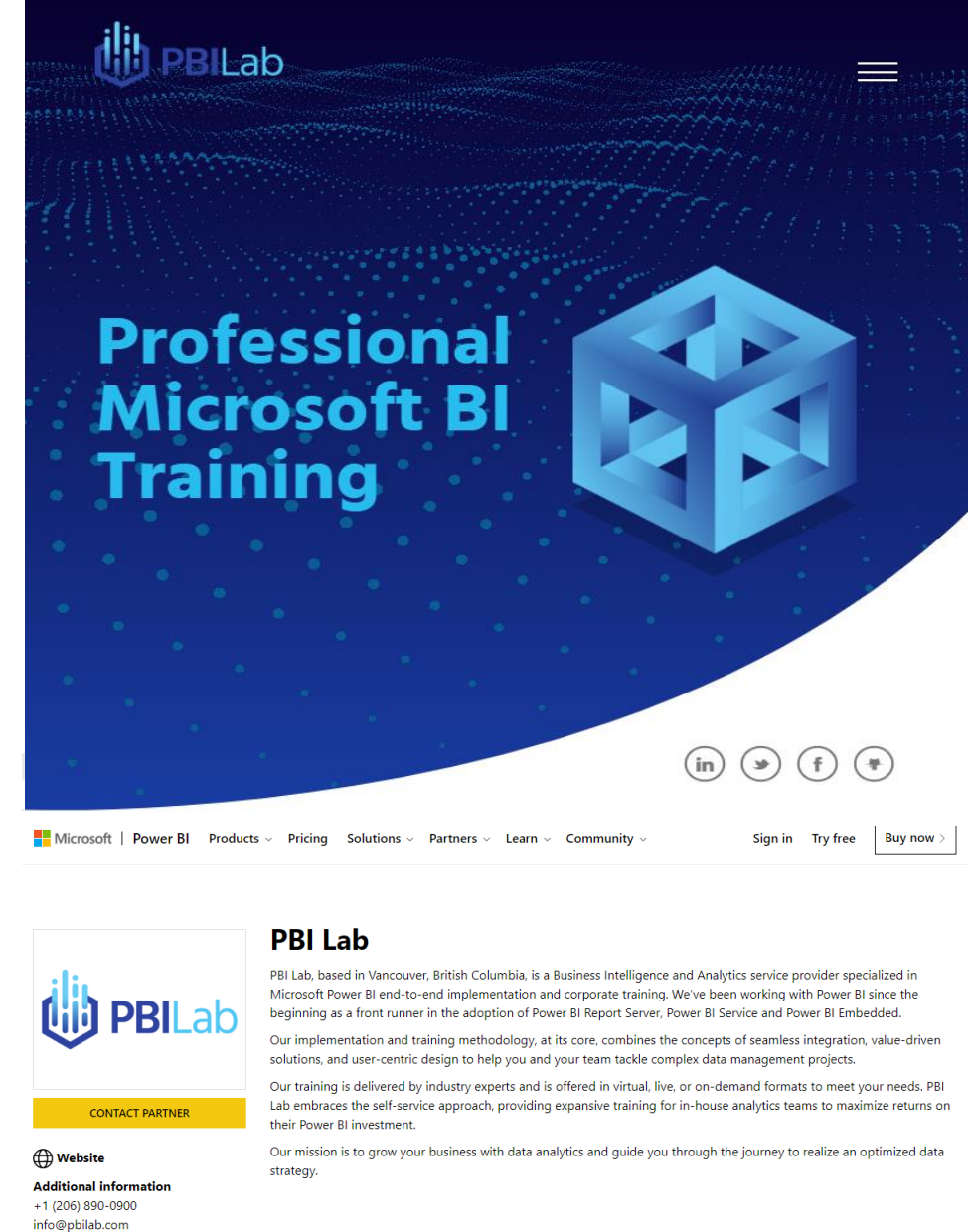
# PBI Lab

## BI and Analytics Consulting

- Microsoft Silver Partner in Data Analytics
- Microsoft Power BI Partner
- Microsoft Power BI Training Provider

[pbilab.com](https://pbilab.com)

@pbilab



The screenshot shows the PBI Lab website. The header features the PBI Lab logo and a navigation menu. The main content area has a large blue background with a 3D cube graphic and the text "Professional Microsoft BI Training". Below this, there are social media icons for LinkedIn, Twitter, Facebook, and YouTube. The footer includes a navigation bar with links to Microsoft, Power BI, Products, Pricing, Solutions, Partners, Learn, and Community. It also has a "Sign in" button, a "Try free" button, and a "Buy now" button. A section titled "PBI Lab" provides a brief description of the company and its services, including a "CONTACT PARTNER" button and "Additional information" such as a website link, phone number, and email address.

**PBI Lab**

PBI Lab, based in Vancouver, British Columbia, is a Business Intelligence and Analytics service provider specialized in Microsoft Power BI end-to-end implementation and corporate training. We've been working with Power BI since the beginning as a front runner in the adoption of Power BI Report Server, Power BI Service and Power BI Embedded.

Our implementation and training methodology, at its core, combines the concepts of seamless integration, value-driven solutions, and user-centric design to help you and your team tackle complex data management projects.

Our training is delivered by industry experts and is offered in virtual, live, or on-demand formats to meet your needs. PBI Lab embraces the self-service approach, providing expansive training for in-house analytics teams to maximize returns on their Power BI investment.

Our mission is to grow your business with data analytics and guide you through the journey to realize an optimized data strategy.

**CONTACT PARTNER**

**Website**  
Additional information  
+1 (206) 890-0900  
info@pbilab.com

# Session Objectives & Agenda

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## Power BI Report Server

- Live Dashboard Demo
- Introduction to Power BI and Power BI Report Server
- Power BI Report Server for the BI user + Demo
- Editions, Licensing, Download & Installation + Demo
- Branding, Configuration, Utilities and API + Demo
- Summary & QA

# Live Dashboard Demo

# Live Survey with Power BI



## Applications

- Gives users the ability to stream real-time results into a dashboard
- Think about data sources like social media, IoT devices, in our example MSFT Forms

## My Purpose

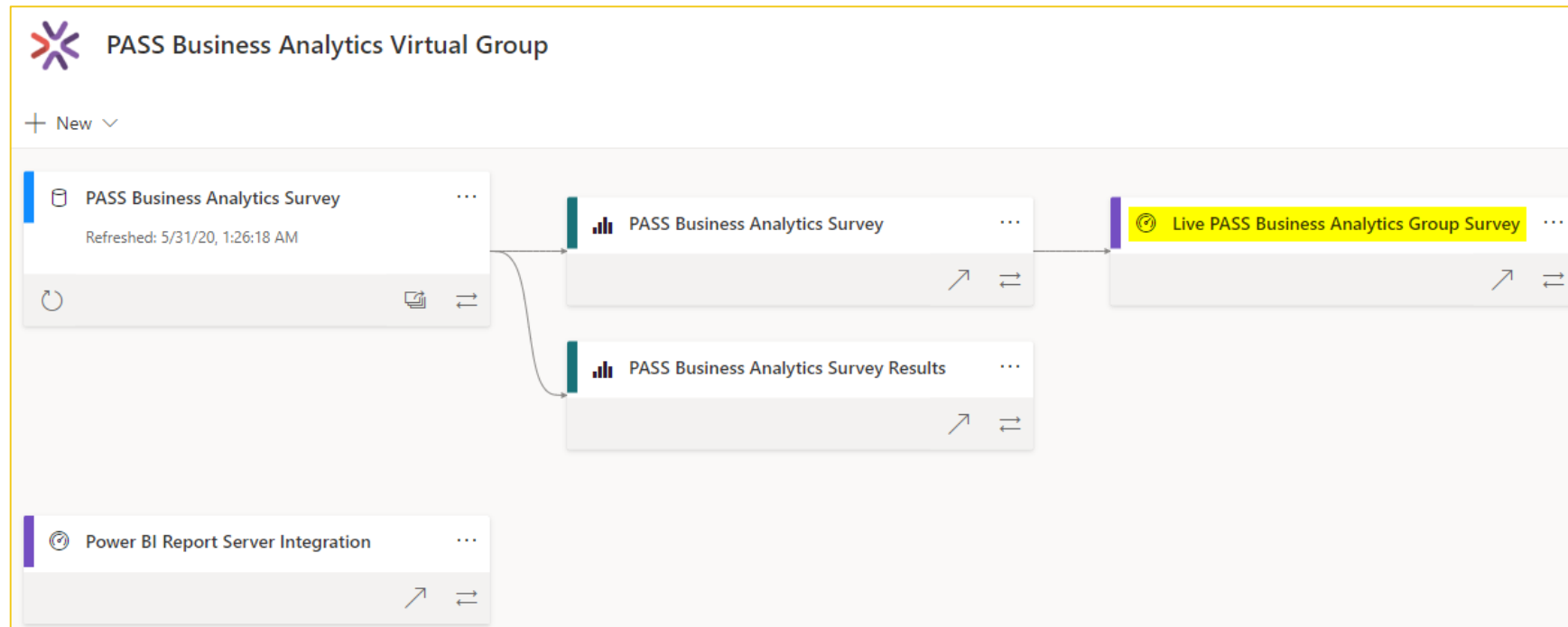
- Understand your level of expertise in Power BI Report Server
- Add a little bit of flexibility at the presentation flow
- Focus on the right topics

## Real Purpose

A little bit of fun 😊

# Live Survey with Power BI

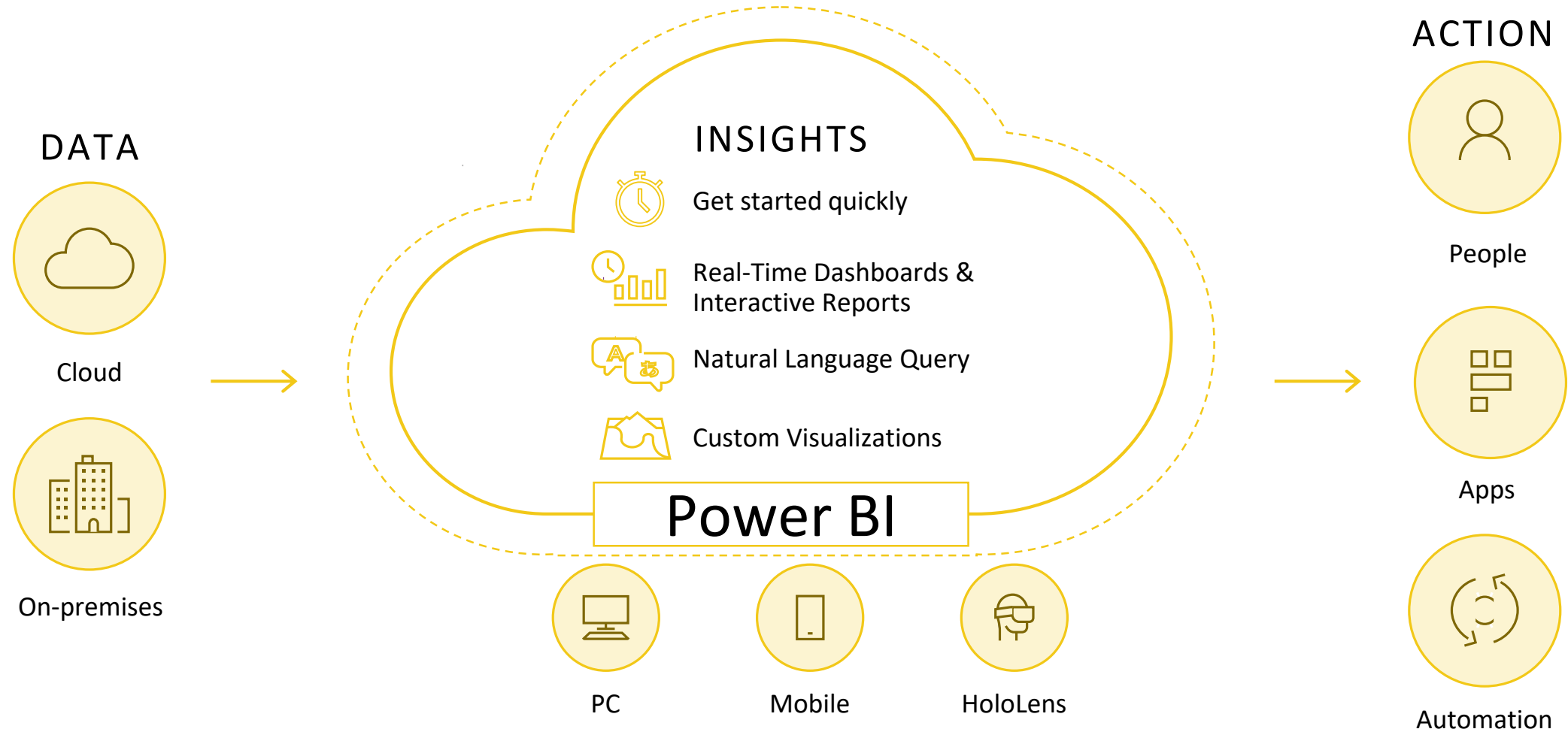
## PBI Lab Power BI Workspace – PASS Business Analytics Group



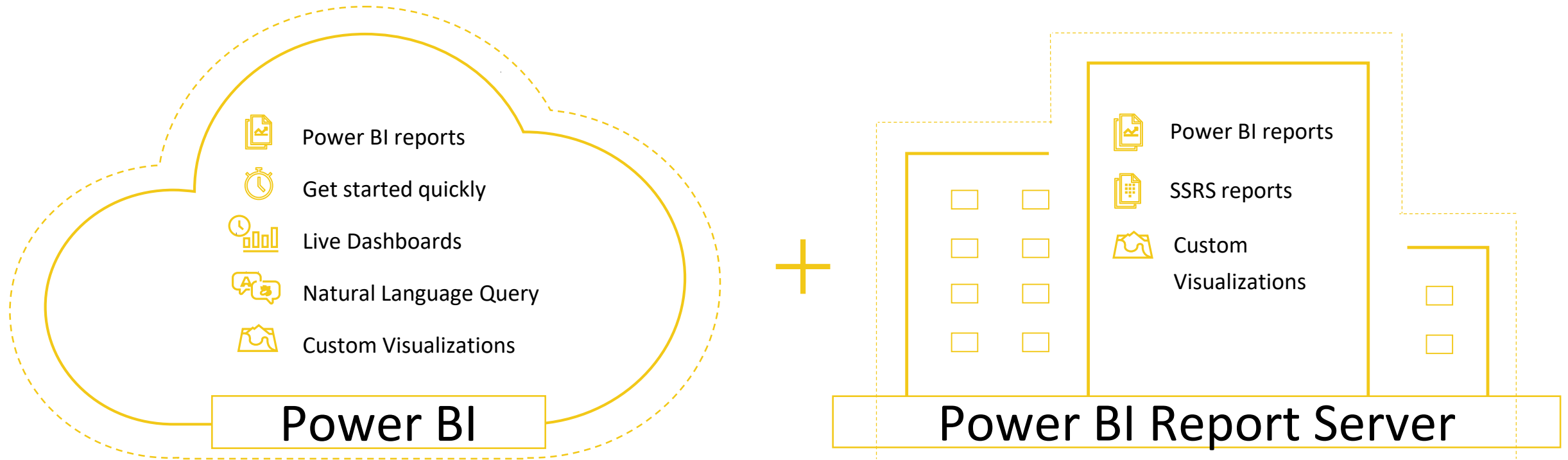


# Power BI Report Server

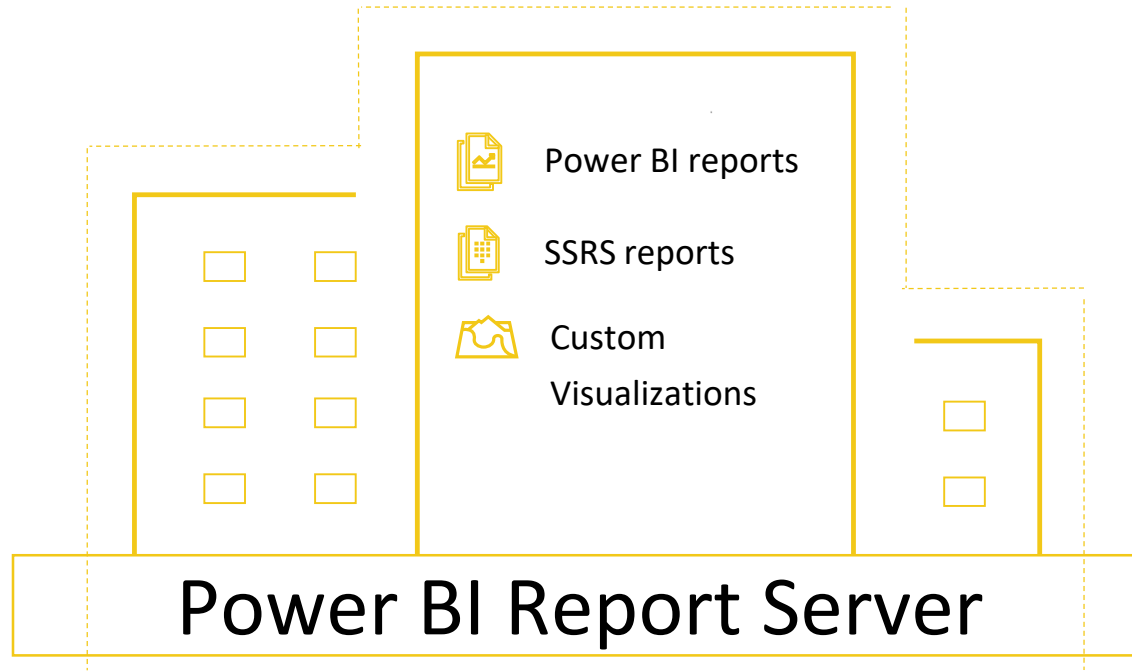
# Introduction to Power BI



# Power BI: extended on-premises



# Power BI Report Server



Keep Power BI reports on-premises



Compatible with SSRS

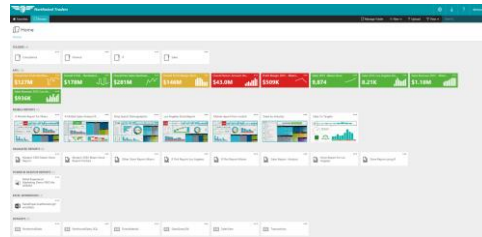
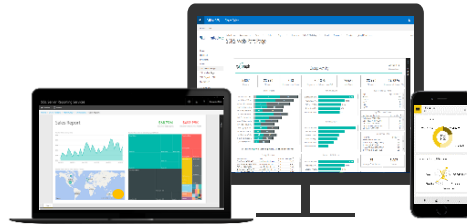
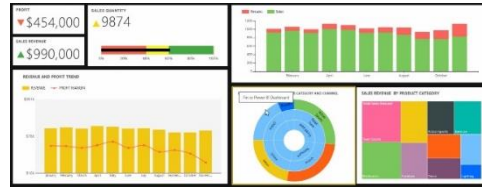


Move to the cloud on your terms



# Compatible with SSRS

Built on proven SQL Server Reporting Services technology



Publish SSRS reports  
Create precisely-formatted paginated reports

Consume in multiple ways  
Web browser, mobile app, or embedded into your app

Benefit from an enterprise-ready solution  
Organize reports, manage permissions, audit usage



# Scenarios for all reporting products

My organization wants an **on-premises** solution to generate **precisely-formatted operational reports**



SQL Server Reporting Services

My organization wants an **on-premises** solution for **self-service BI** as well as operational reporting



Power BI Report Server

My organization wants a **managed Software-as-a-Service (SaaS)** solution for **next-generation, business user-led BI**, complete with Apps, real-time Dashboards, Q&A, and more



Power BI service

# Scenarios for all reporting products

## Hybrid Scenario.

My organization wants to use all of them!



SQL Server Reporting Services






Power BI Report Server



Power BI service



# Compare reporting options

	SQL Server Reporting Services 	Power BI Report Server 	Power BI Service 
Deployment	On-premises	On-premises	Cloud
Power BI dashboards			✓
Power BI apps			✓
Natural language query (Q&A)			✓
Power BI reports		✓	✓
Paginated reports (RDL)	✓	✓	
Mobile reports	✓	✓	
How to buy	SQL Server <sup>[1]</sup>	Power BI/SQL Server <sup>[2]</sup>	Power BI
Feature updates	SQL Server release cycle	Rapid release cycle	Rapid release cycle
Support lifecycle	SQL Server support policy	Modern Lifecycle Policy	Managed service

1. SQL Server Standard or Enterprise.

2. Power BI Premium (or SQL Server Enterprise with Software Assurance) per core + Power BI Pro per report publisher



# PBIRS for the BI User

# Power BI Report Server

Create



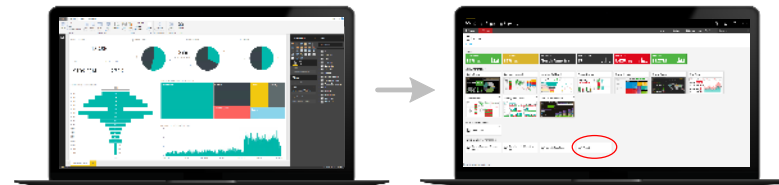
Create interactive reports  
in Power BI Desktop



Publish



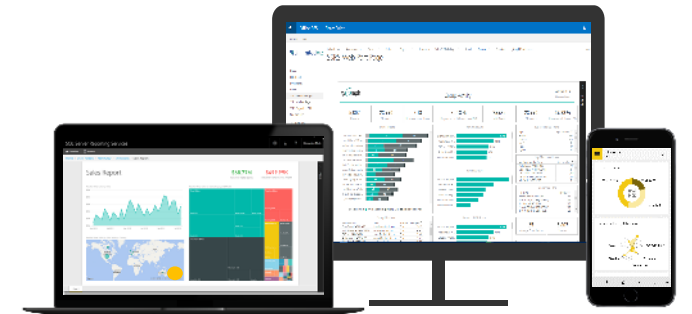
Publish to Power BI Report Server



Consume



View and interact in  
Power BI Mobile or web browser



# Create beautiful, interactive reports

## Using Power BI Desktop



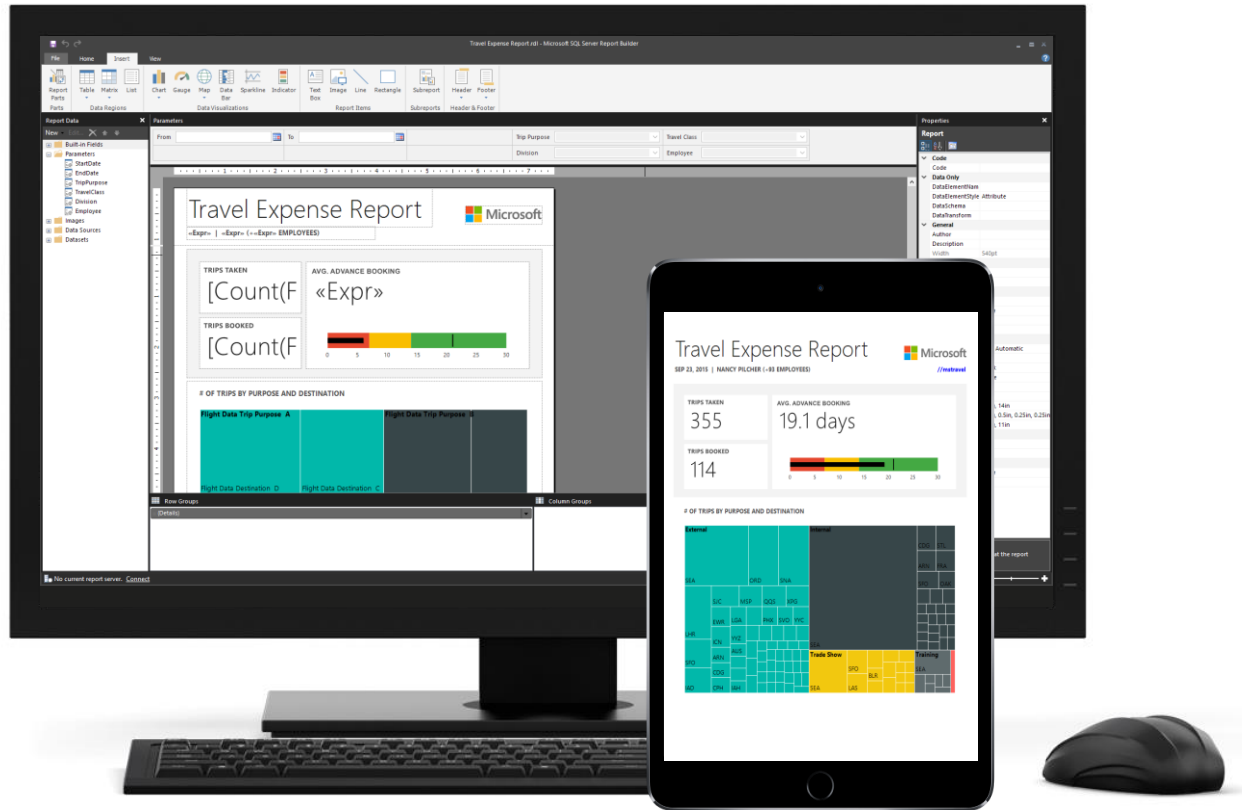
Connect to Analysis Services (Tabular or Multidimensional) and many other data sources

Variety of built-in and custom visuals

Direct deployment to Power BI Report Server

# Create modern paginated reports

Design beautiful documents quickly and easily



Optimized for document generation and printing

Page headers, footers, and page breaks

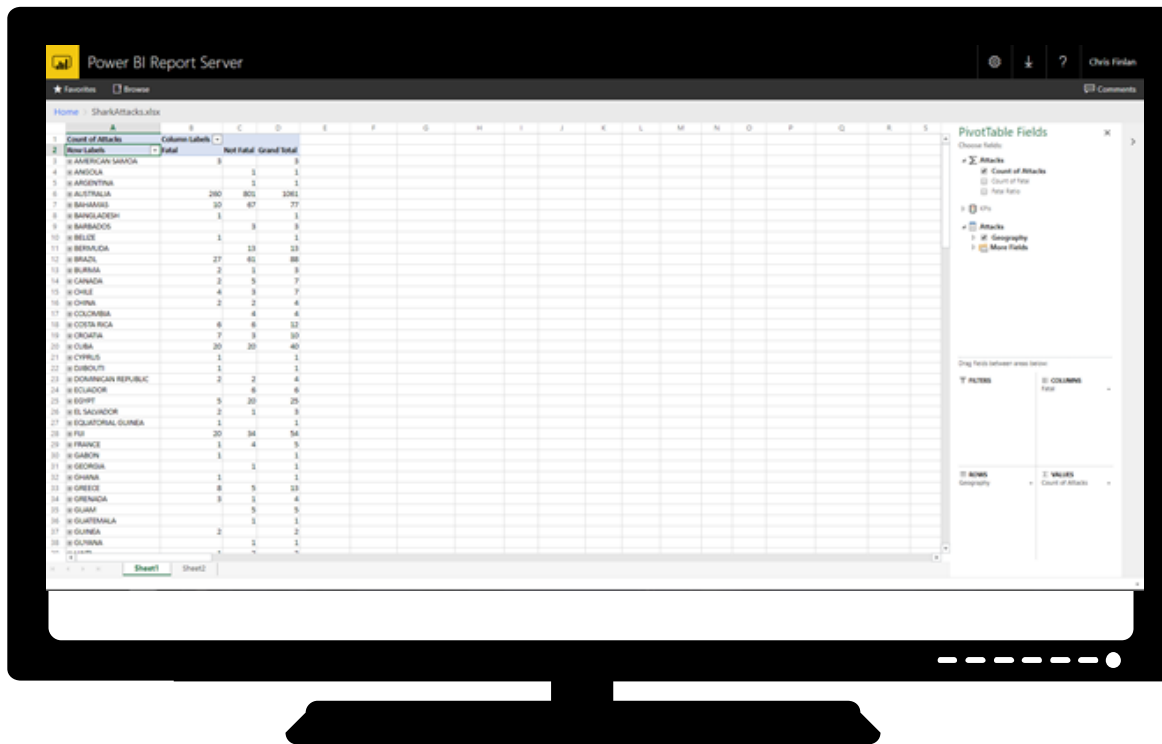
Precise layout and formatting

Conditional formatting and visibility

Modern chart and gauge styles



# View and interact with Excel workbooks

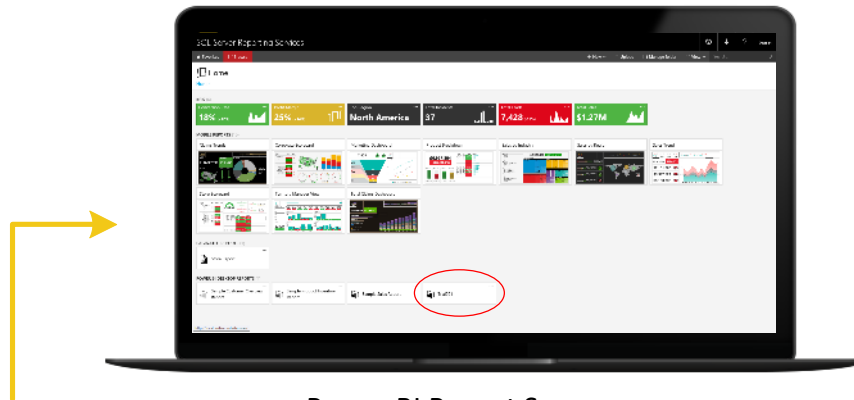


Publish paginated, Power BI, and Excel reports in a single location

Use live connection to Analysis Services (Tabular)

Use a PowerPivot data model

# Publish and manage reports

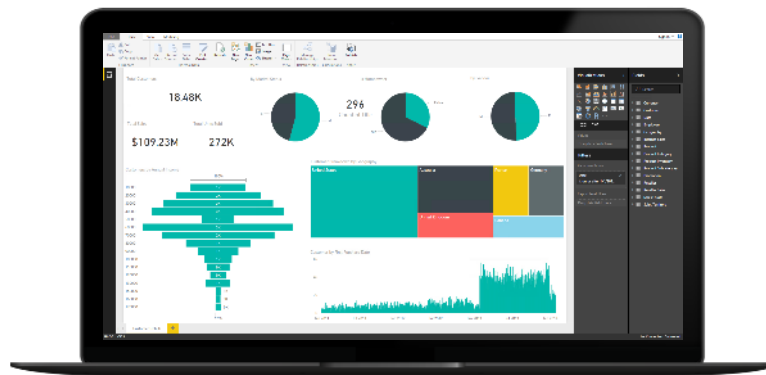


Power BI Report Server

Publish to Power BI Report Server

Organize and manage access to reports

Re-open, edit, and save back



Power BI Desktop

# Consume reports in multiple ways

## Mobile apps

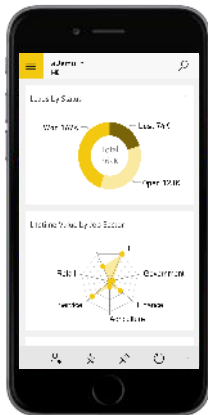
Windows



Android



iOS



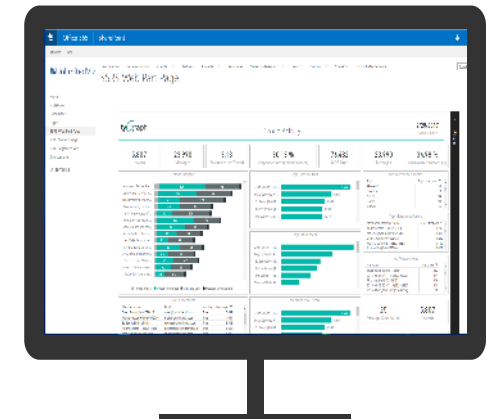
## Web portal

HTML5



## Embedded In your apps

rs:Embed=true



# Two editions of Power BI Desktop

## Power BI Desktop



## Power BI Desktop Optimized



Installation Path	<a href="https://powerbi.microsoft.com/en-us/desktop/">https://powerbi.microsoft.com/en-us/desktop/</a>
Executable Name	PBIDesktop.msi (for 32-bit installation) or PBIDesktop_X64.msi (for 64-bit installation)
Default Install Path	[Program Files]\Microsoft Power BI Desktop
Release Cadence	Estimate of once per month
Preview Features	Available
Custom Visuals	Available
Publish Location	Power BI Service (Azure hosted)

<a href="https://powerbi.microsoft.com/en-us/report-server/">https://powerbi.microsoft.com/en-us/report-server/</a>
PBIDesktopRS.msi (for 32-bit installation) or PBIDesktopRS_X64.msi (for 64-bit installation)
[Program Files]\Microsoft Power BI Desktop RS
Estimate of once each 4 months
Not available
Available
Power BI Report Server (on premises)

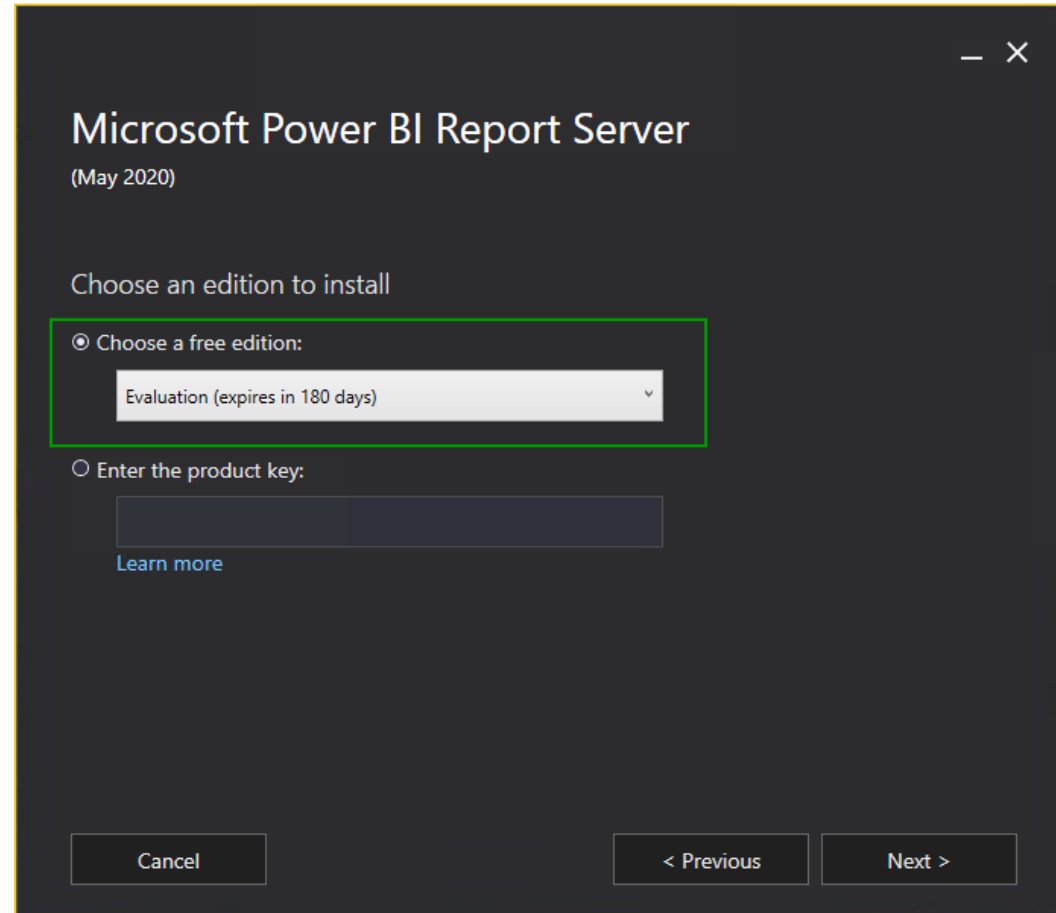




# PBIRS for the BI User Demo

# Edition & Licensing

# Editions



Microsoft Power BI Report Server  
(May 2020)

Choose an edition to install

☒ Choose a free edition:

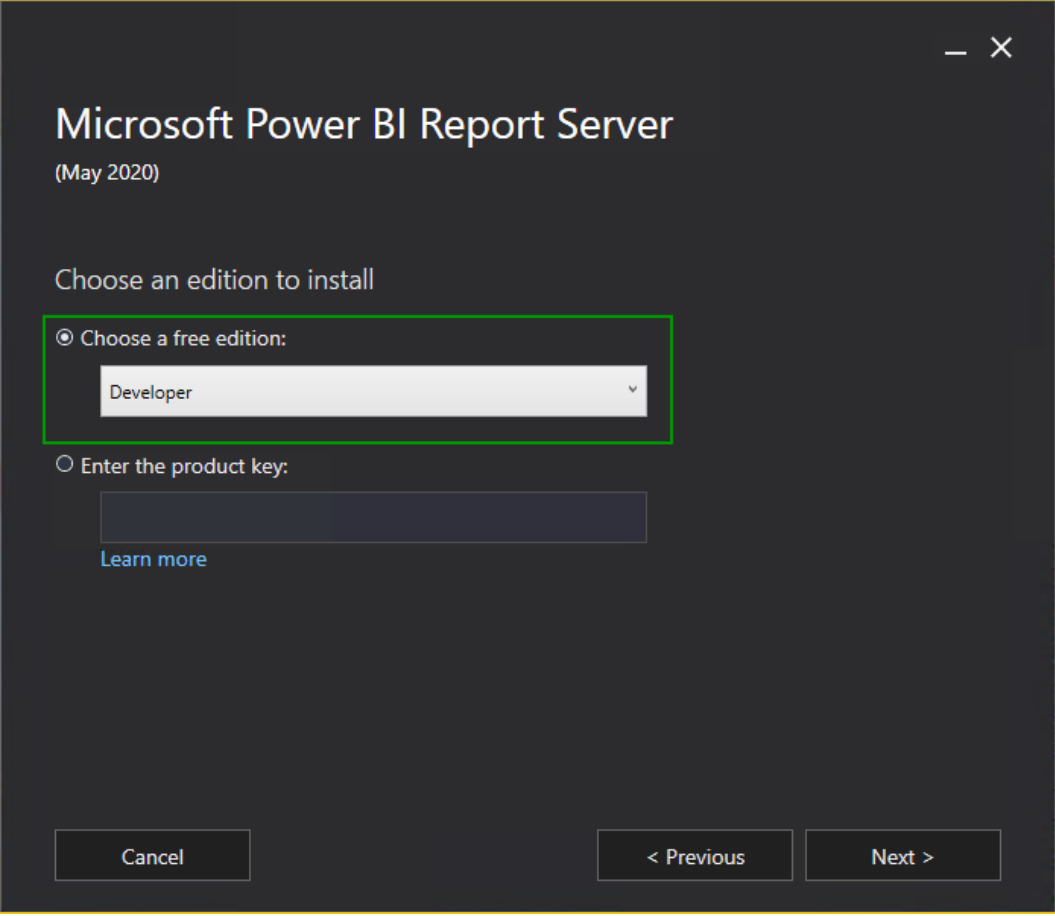
Evaluation (expires in 180 days) ▾

☐ Enter the product key:

[Learn more](#)

Cancel < Previous Next >

# Editions



Microsoft Power BI Report Server  
(May 2020)

Choose an edition to install

☒ Choose a free edition:

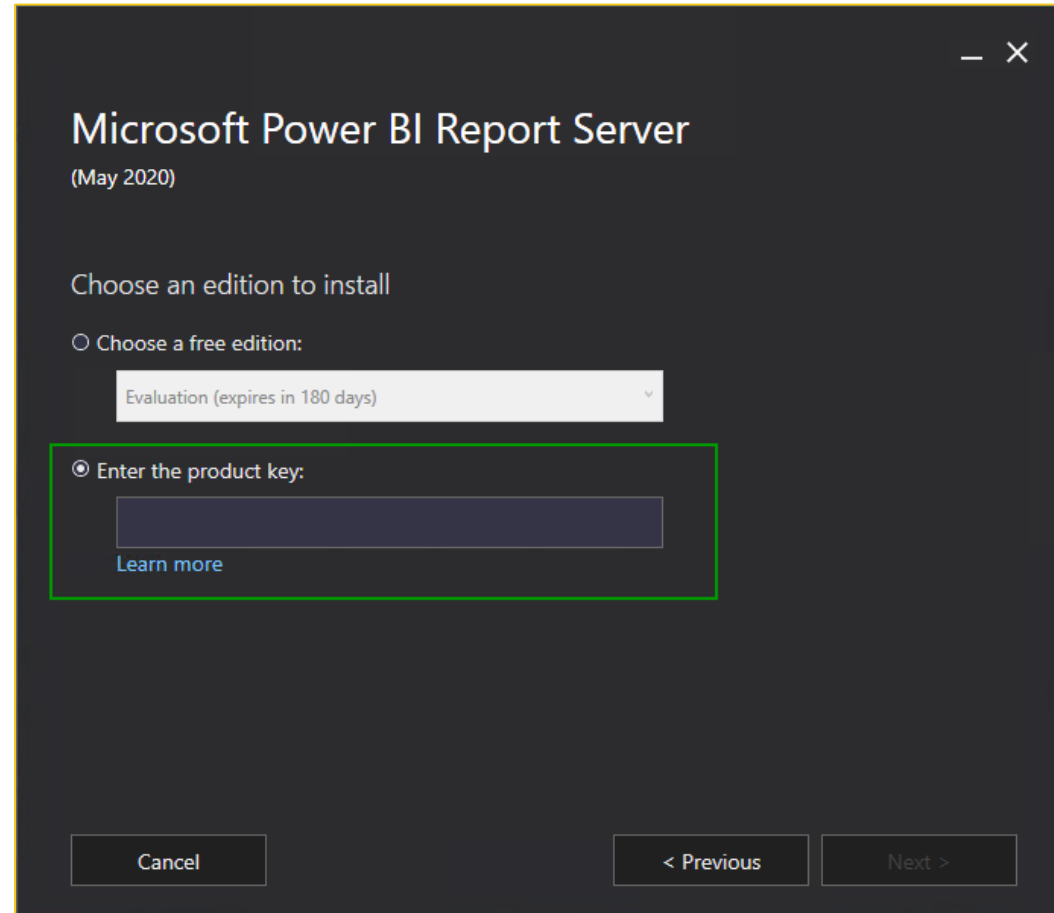
Developer

☐ Enter the product key:

[Learn more](#)

Cancel < Previous Next >

# Editions



Microsoft Power BI Report Server  
(May 2020)

Choose an edition to install

☐ Choose a free edition:

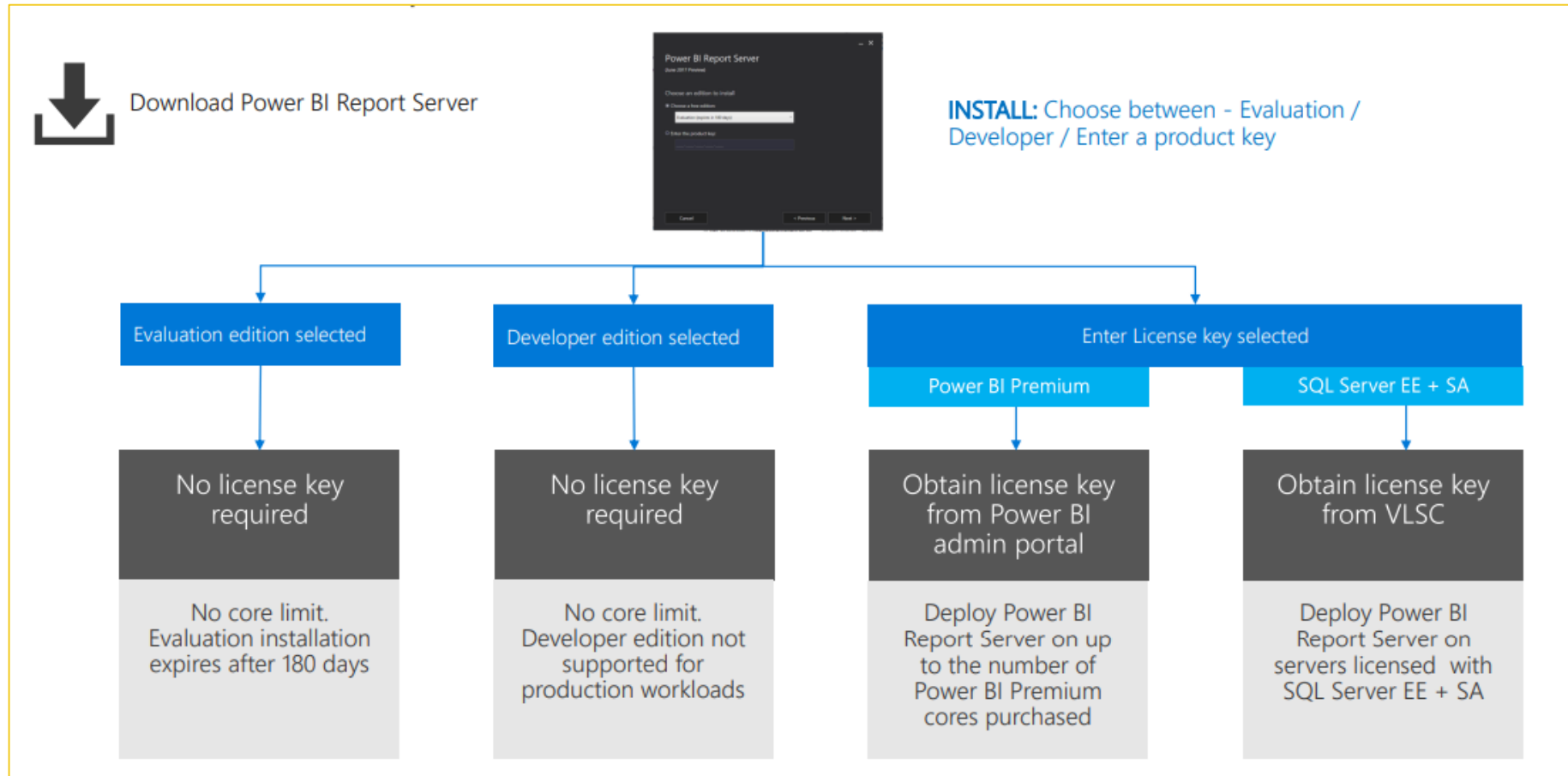
Evaluation (expires in 180 days)

☒ Enter the product key:

[Learn more](#)

Cancel < Previous Next >

# Licensing





# How to acquire Power BI Report Server

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Power BI Premium

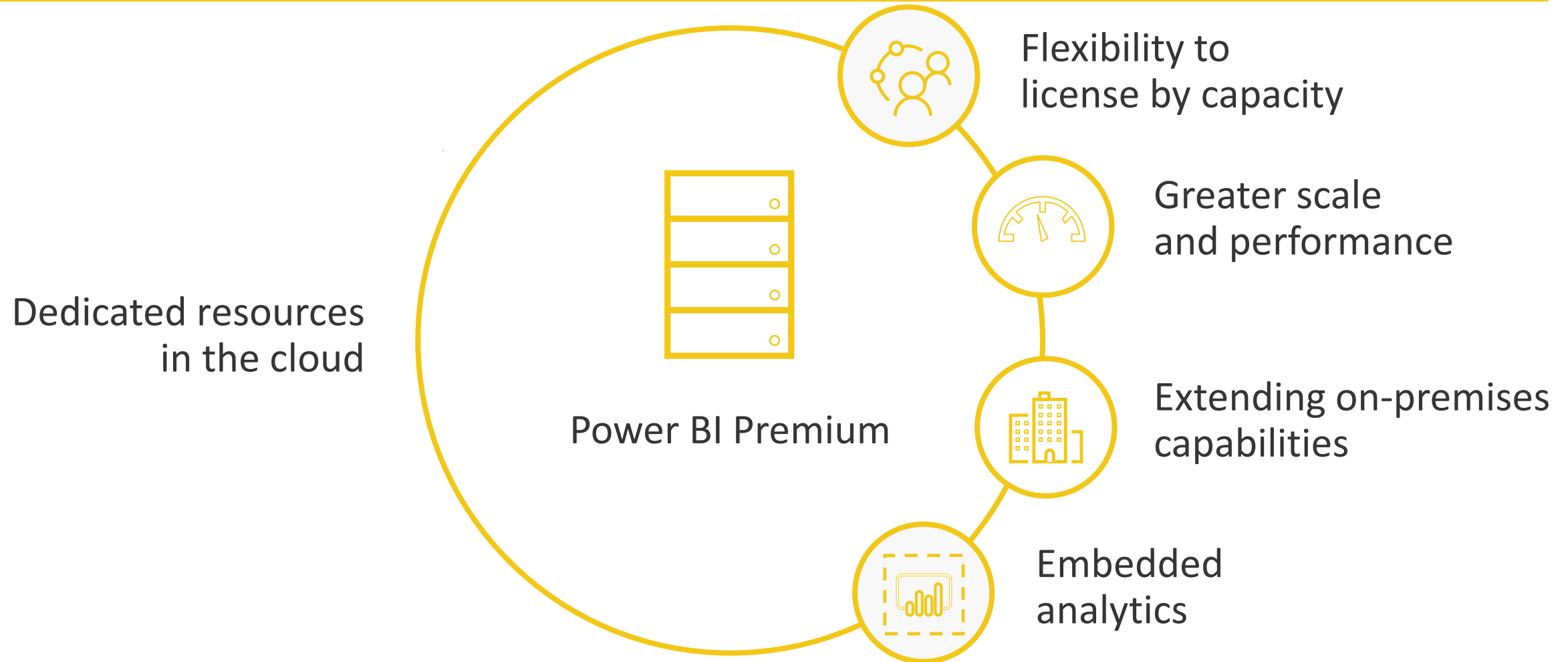


SQL Server Enterprise  
+ Software Assurance

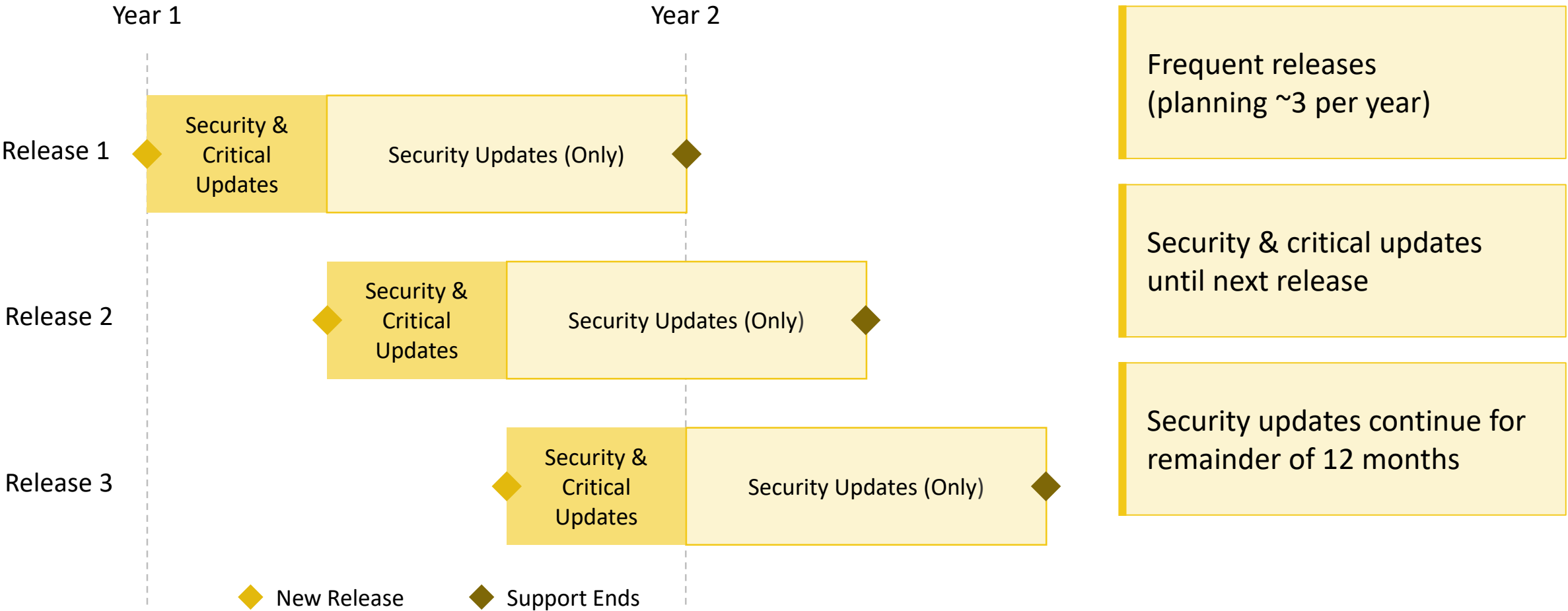


Power BI Pro license required to publish Power BI reports to Power BI Report Server

# Power BI Premium



# Modern Lifecycle Policy



# Modern Lifecycle Policy

## Microsoft Power BI Blog

BLOG > ANNOUNCEMENTS > FEATURES > POWER BI

### Power BI Report Server May 2020 Feature Summary



Rien Hu

May 28, 2020

[in Share](#) [Tweet](#) [Like](#)

We are excited to bring you a new version of Power BI Report Server this month! With this update, we're releasing a bevy of features across all aspects of Power BI: hierarchical slicer and decomposition tree visuals, query diagnostics, and more. Read on to get the full details of all the new additions!

[Download Power BI Report Server](#)

<https://powerbi.microsoft.com/en-us/blog/power-bi-report-server-may-2020-feature-summary/>



# Download & Installation

# Download

## Download the msi installers from MSFT

Power BI Report Server page: <https://powerbi.microsoft.com/en-us/report-server/>

Power BI Report Server May 2020: <https://www.microsoft.com/en-us/download/details.aspx?id=56722>

Microsoft Power BI Report Server - May 2020

*Important!* Selecting a language below will dynamically change the complete page content to that language.

Select Language:

Choose the download you want

<input type="checkbox"/> File Name	Size
<input type="checkbox"/> PowerBIReportServer.exe	329.0 MB
<input type="checkbox"/> PBIDesktopRS.msi	218.2 MB
<input type="checkbox"/> PBIDesktopRS_x64.msi	240.1 MB

There are multiple files available for download: Power BI Report server and Power BI Desktop Optimized for Report Server (32 bit and 64 bit)



# Install in minutes



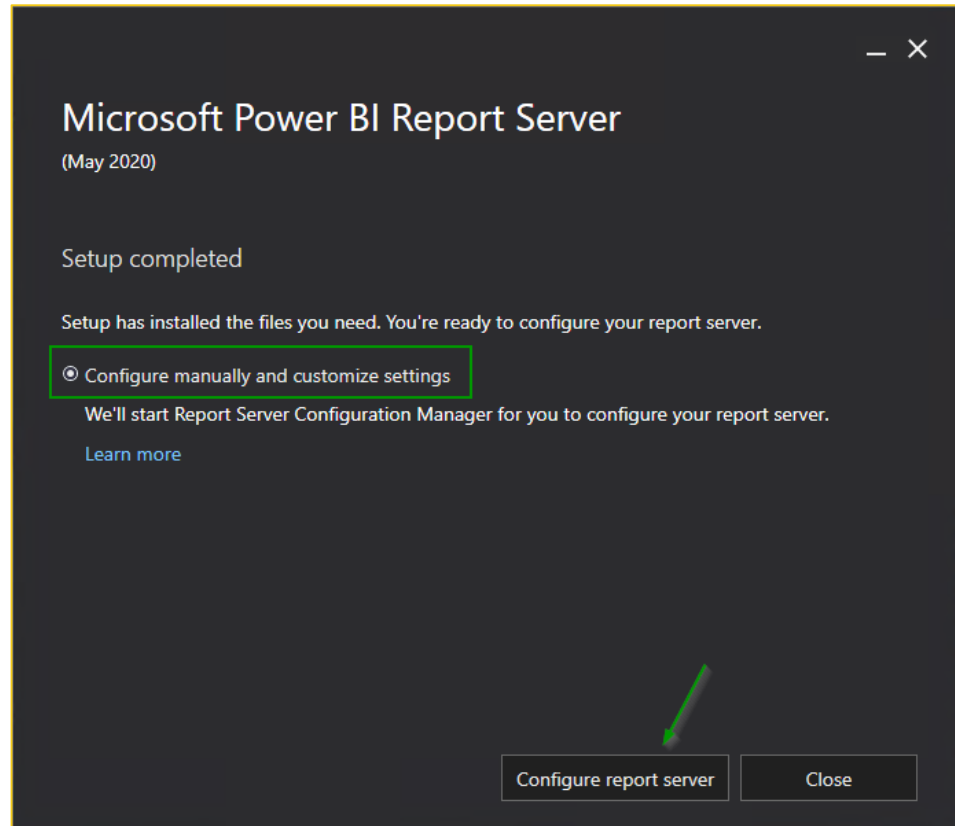
Lightweight download and installation

Zero impact on SQL Server

## Requirements

- Windows Server 2012+
- SQL Server Database Engine (2012+)
- SQL Server Analysis Services (2012+)

# Report Server Configuration Manager



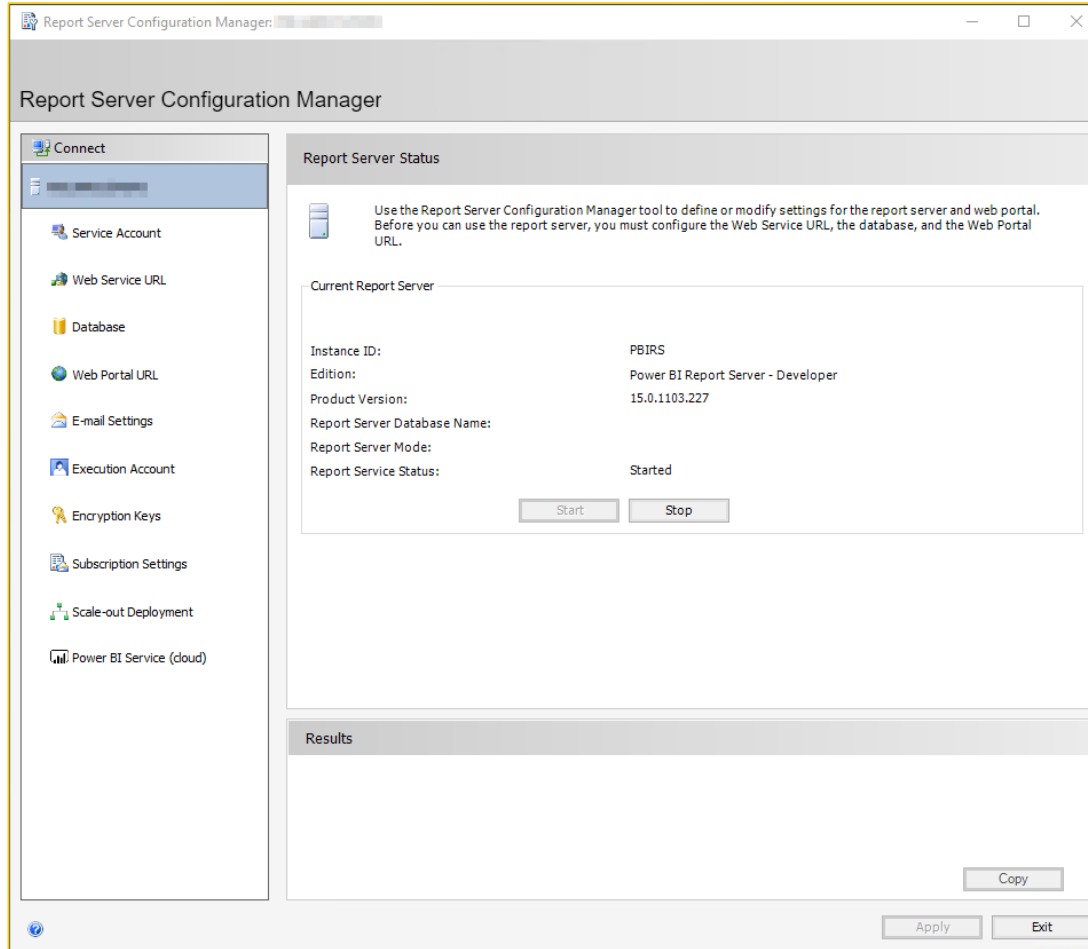
Configure immediately after the setup

Open Report Server Configuration Manager

Configuration like SSRS

Integration with Power BI

# Report Server Configuration Manager



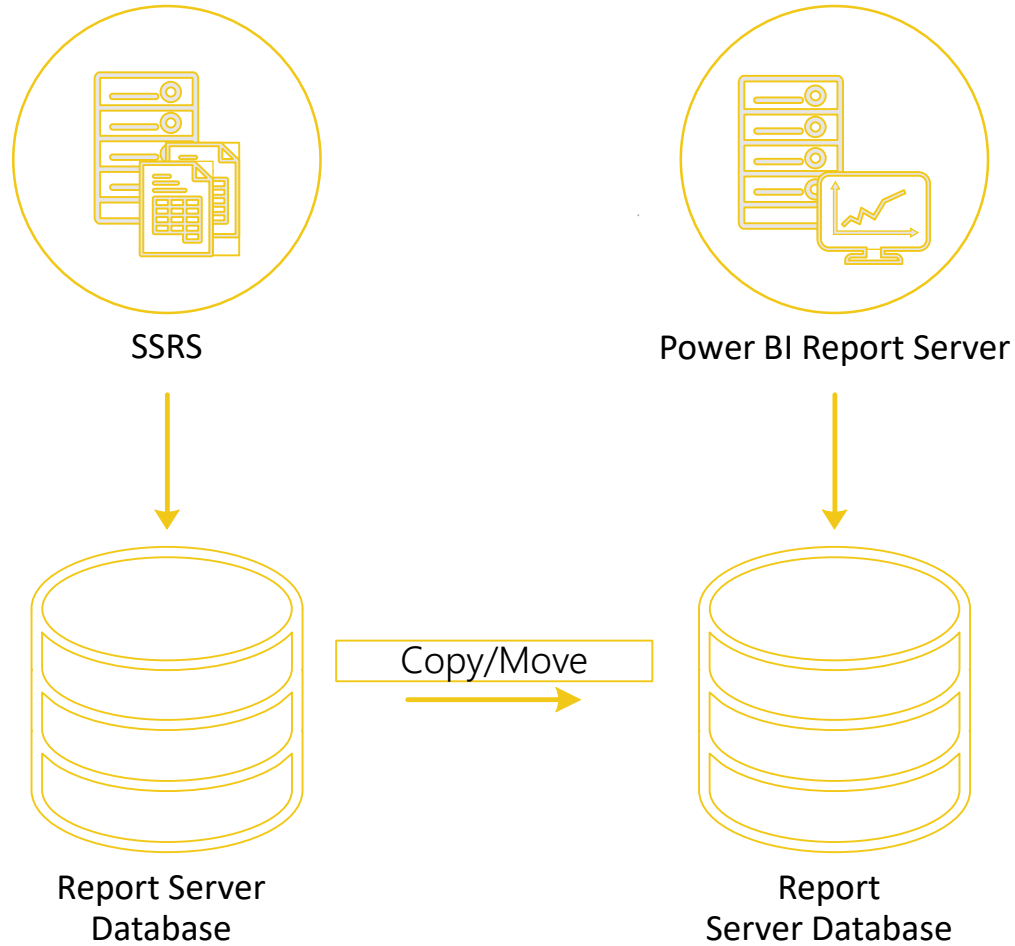
Configure immediately after the setup

Open Report Server Configuration Manager

Configuration like SSRS

Integration with Power BI

# Migrate from SSRS (Native mode)

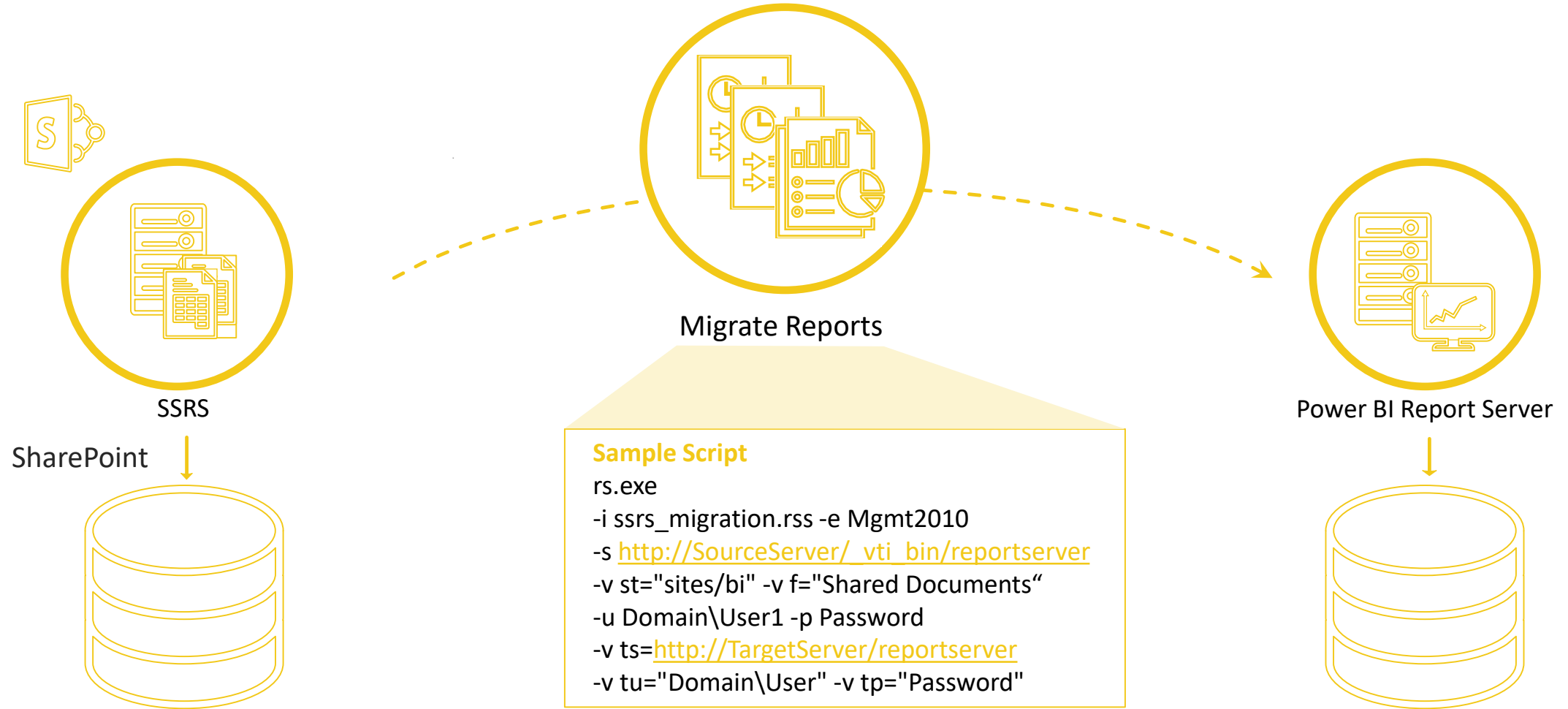


Back up report server database

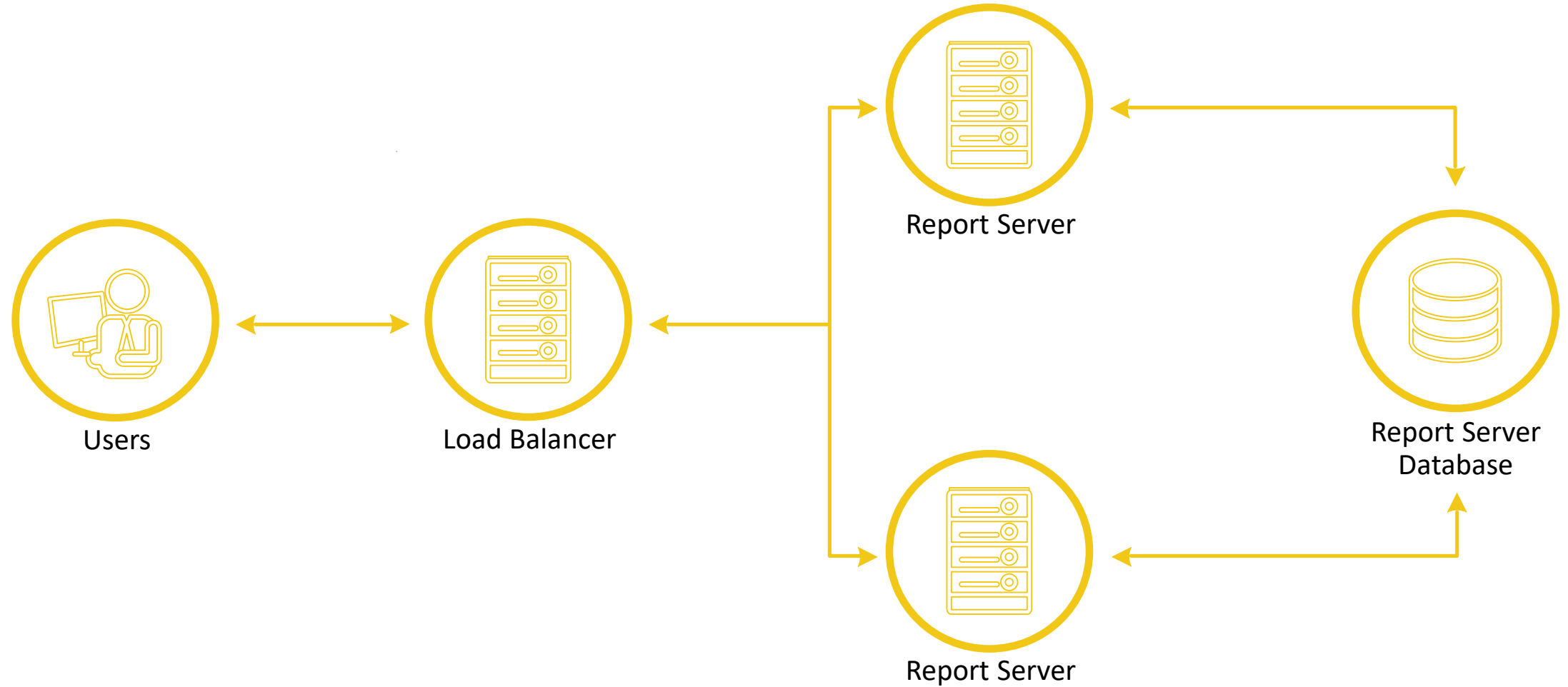
Install Power BI Report Server

Connect report server to database using Report Server Configuration Manager

# Migrate from SSRS (SharePoint-integrated mode)

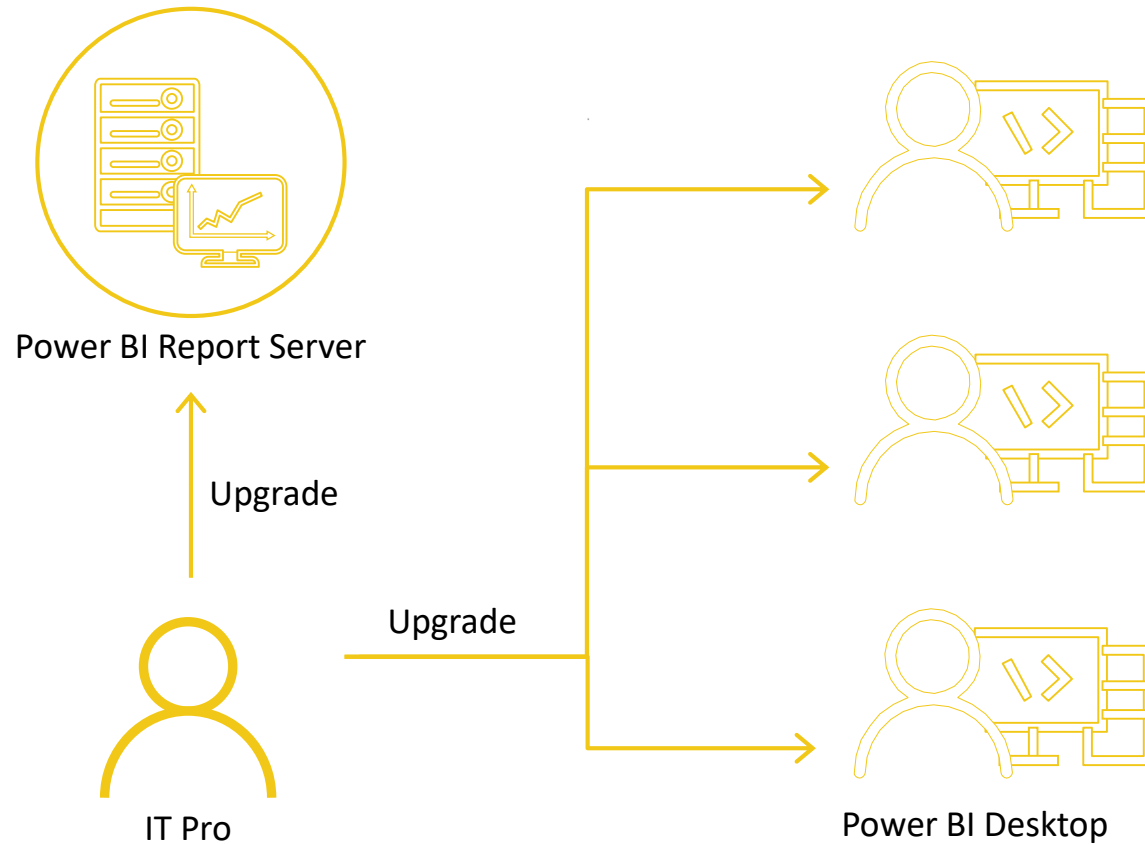


# Scale-out report servers





# Updating PBI Desktop + Report Server



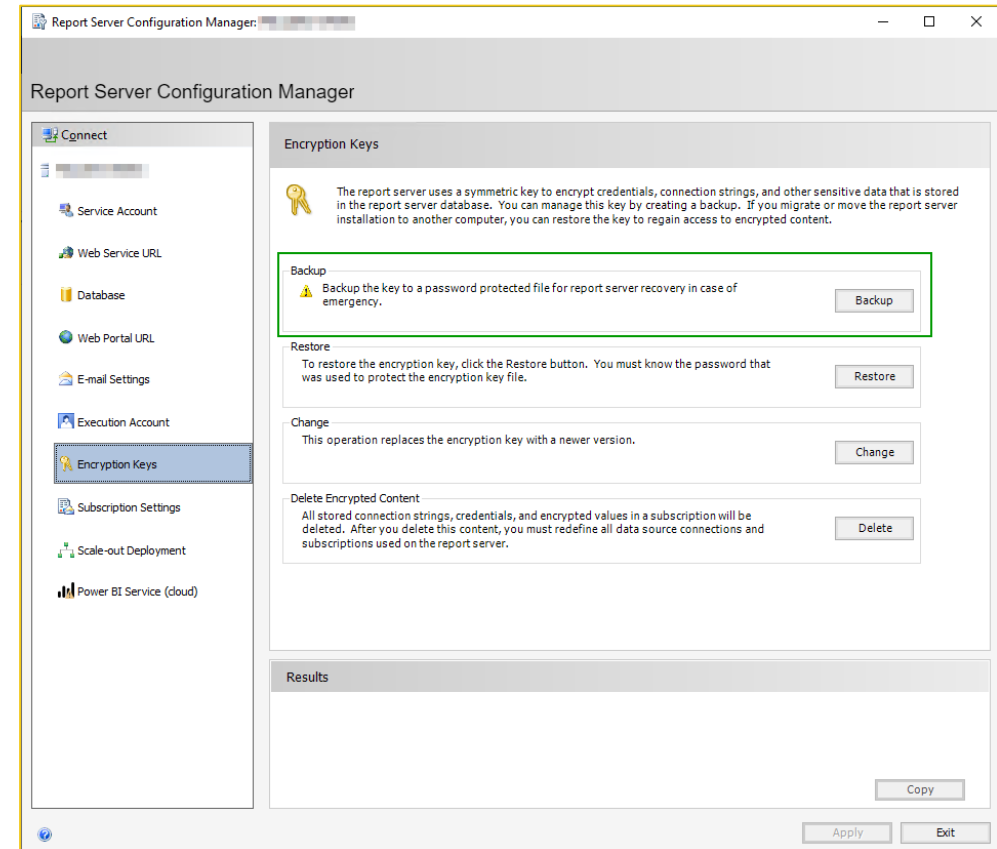
Power BI Report Server and Power BI Desktop release concurrently

Need to coordinate deployment of updates

# Upgrade

## Preliminary Steps

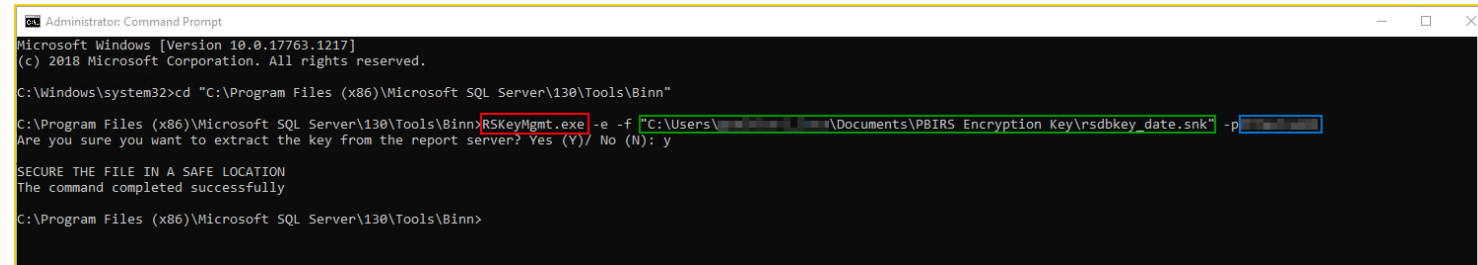
- Download the new version of Power BI Report Server
- Backup the encryption keys
  - Reporting service configuration manager
  - rskeymgmt (Native Mode)
- Backup the report server databases
- Backup the configuration files



# Upgrade

## Preliminary Steps

- Download the new version of Power BI Report Server
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- Backup the configuration files



```
Administrator: Command Prompt
Microsoft Windows [Version 10.0.17763.1217]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Windows\system32>cd "C:\Program Files (x86)\Microsoft SQL Server\130\Tools\Binn"

C:\Program Files (x86)\Microsoft SQL Server\130\Tools\Binn>RSKeyMgmt.exe -e -f "C:\Users\... \Documents\PBIRS Encryption Key\rsdbkey_date.snk" -p
Are you sure you want to extract the key from the report server? Yes (Y)/ No (N): y

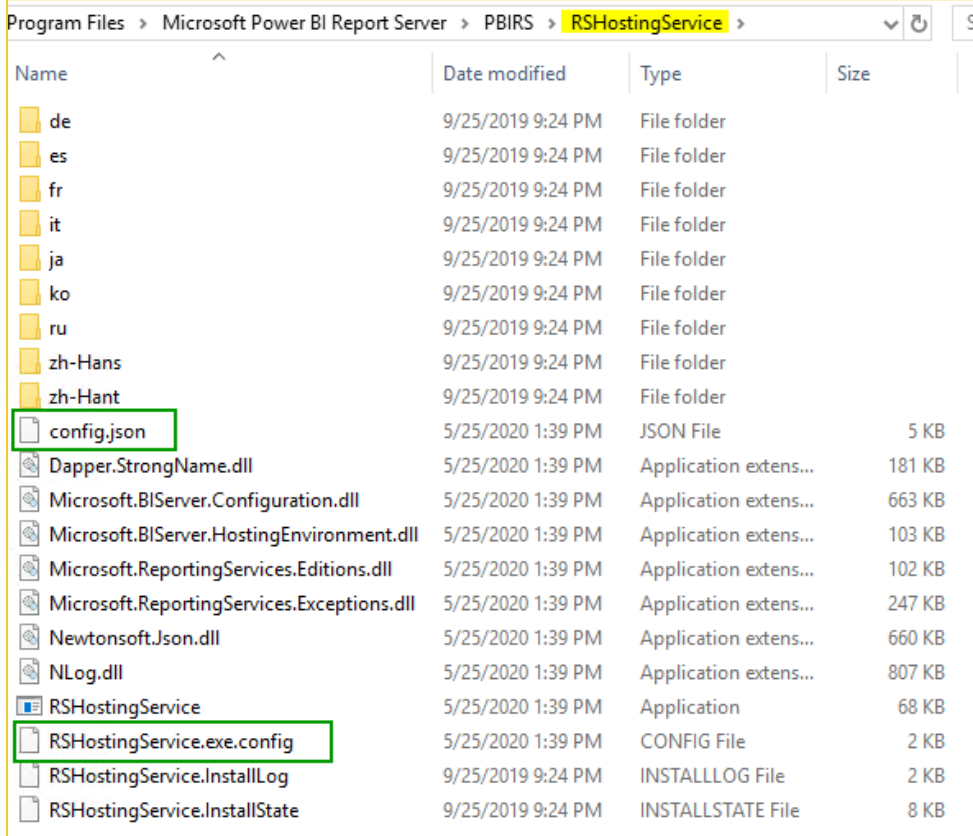
SECURE THE FILE IN A SAFE LOCATION
The command completed successfully

C:\Program Files (x86)\Microsoft SQL Server\130\Tools\Binn>
```

# Upgrade

## Preliminary Steps

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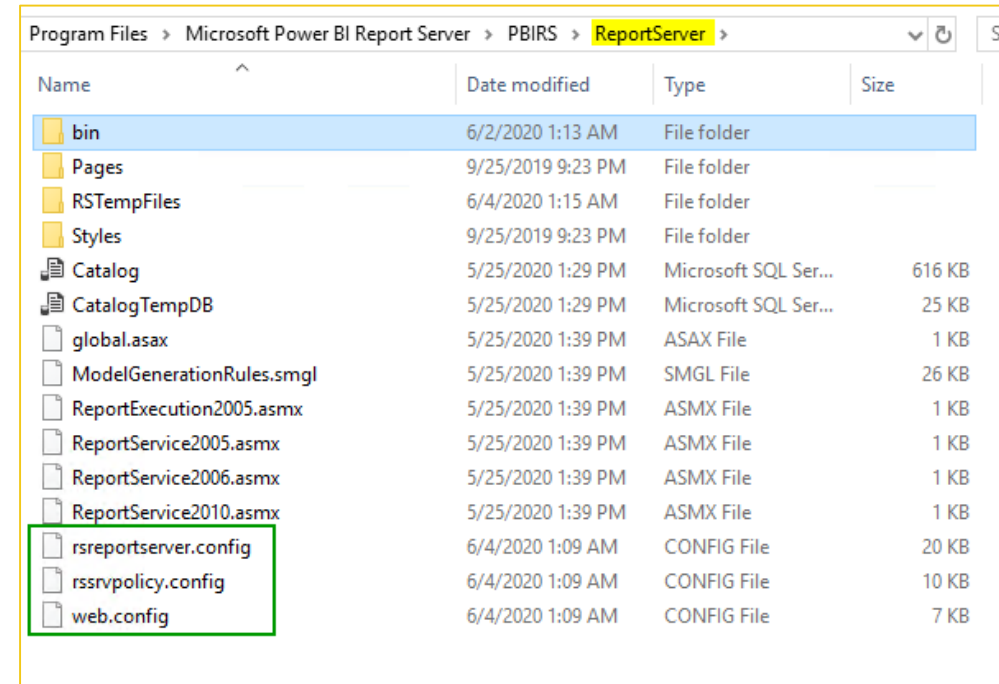


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es	9/25/2019 9:24 PM	File folder	
fr	9/25/2019 9:24 PM	File folder	
it	9/25/2019 9:24 PM	File folder	
ja	9/25/2019 9:24 PM	File folder	
ko	9/25/2019 9:24 PM	File folder	
ru	9/25/2019 9:24 PM	File folder	
zh-Hans	9/25/2019 9:24 PM	File folder	
zh-Hant	9/25/2019 9:24 PM	File folder	
config.json	5/25/2020 1:39 PM	JSON File	5 KB
Dapper.StrongName.dll	5/25/2020 1:39 PM	Application extens...	181 KB
Microsoft.BIServer.Configuration.dll	5/25/2020 1:39 PM	Application extens...	663 KB
Microsoft.BIServer.HostingEnvironment.dll	5/25/2020 1:39 PM	Application extens...	103 KB
Microsoft.ReportingServices.Editions.dll	5/25/2020 1:39 PM	Application extens...	102 KB
Microsoft.ReportingServices.Exceptions.dll	5/25/2020 1:39 PM	Application extens...	247 KB
Newtonsoft.Json.dll	5/25/2020 1:39 PM	Application extens...	660 KB
NLog.dll	5/25/2020 1:39 PM	Application extens...	807 KB
RSHostingService	5/25/2020 1:39 PM	Application	68 KB
RSHostingService.exe.config	5/25/2020 1:39 PM	CONFIG File	2 KB
RSHostingService.InstallLog	9/25/2019 9:24 PM	INSTALLLOG File	2 KB
RSHostingService.InstallState	9/25/2019 9:24 PM	INSTALLSTATE File	8 KB

# Upgrade

## Preliminary Steps

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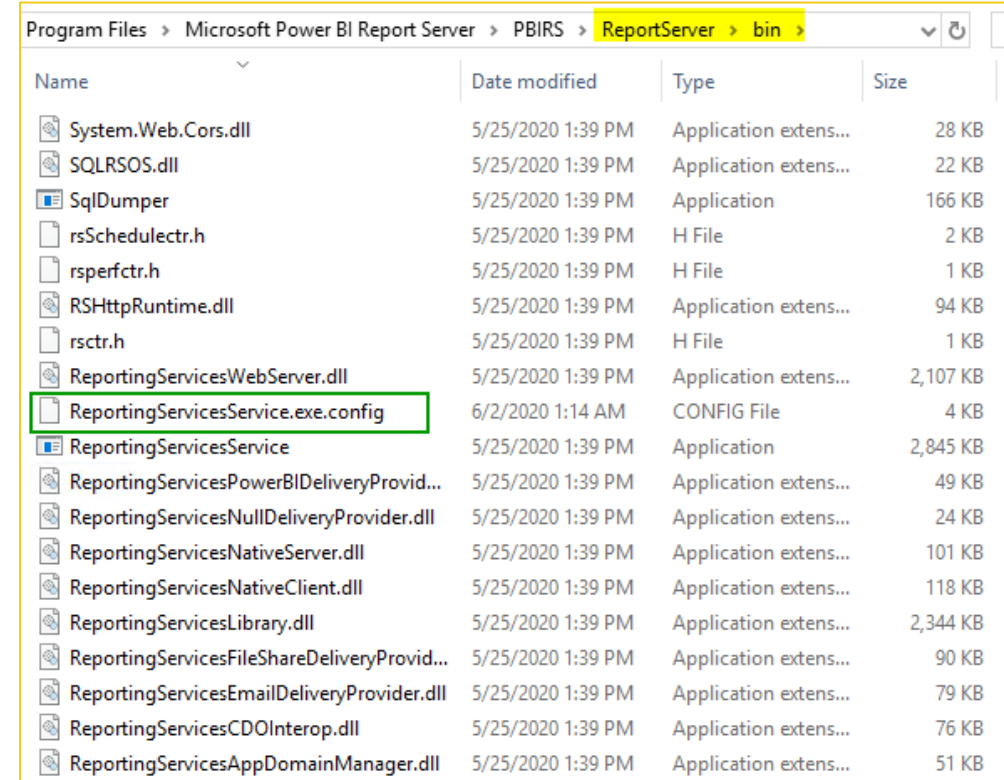


Program Files > Microsoft Power BI Report Server > PBIRS > ReportServer			
Name	Date modified	Type	Size
bin	6/2/2020 1:13 AM	File folder	
Pages	9/25/2019 9:23 PM	File folder	
RSTempFiles	6/4/2020 1:15 AM	File folder	
Styles	9/25/2019 9:23 PM	File folder	
Catalog	5/25/2020 1:29 PM	Microsoft SQL Ser...	616 KB
CatalogTempDB	5/25/2020 1:29 PM	Microsoft SQL Ser...	25 KB
global.asax	5/25/2020 1:39 PM	ASAX File	1 KB
ModelGenerationRules.smgl	5/25/2020 1:39 PM	SMGL File	26 KB
ReportExecution2005.asmx	5/25/2020 1:39 PM	ASMX File	1 KB
ReportService2005.asmx	5/25/2020 1:39 PM	ASMX File	1 KB
ReportService2006.asmx	5/25/2020 1:39 PM	ASMX File	1 KB
ReportService2010.asmx	5/25/2020 1:39 PM	ASMX File	1 KB
rsreportserver.config	6/4/2020 1:09 AM	CONFIG File	20 KB
rssrvpolicy.config	6/4/2020 1:09 AM	CONFIG File	10 KB
web.config	6/4/2020 1:09 AM	CONFIG File	7 KB

# Upgrade

## Preliminary Steps

- Download the new version of Power BI Report Server
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- Backup the report server databases
- Backup the configuration files



Program Files > Microsoft Power BI Report Server > PBIRS > ReportServer > bin

Name	Date modified	Type	Size
System.Web.Cors.dll	5/25/2020 1:39 PM	Application extens...	28 KB
SQLRSOS.dll	5/25/2020 1:39 PM	Application extens...	22 KB
SqlDumper	5/25/2020 1:39 PM	Application	166 KB
rsSchedulectr.h	5/25/2020 1:39 PM	H File	2 KB
rsperfctr.h	5/25/2020 1:39 PM	H File	1 KB
RSHttpRuntime.dll	5/25/2020 1:39 PM	Application extens...	94 KB
rsctr.h	5/25/2020 1:39 PM	H File	1 KB
ReportingServicesWebServer.dll	5/25/2020 1:39 PM	Application extens...	2,107 KB
ReportingServicesService.exe.config	6/2/2020 1:14 AM	CONFIG File	4 KB
ReportingServicesService	5/25/2020 1:39 PM	Application	2,845 KB
ReportingServicesPowerBIDeliveryProvid...	5/25/2020 1:39 PM	Application extens...	49 KB
ReportingServicesNullDeliveryProvider.dll	5/25/2020 1:39 PM	Application extens...	24 KB
ReportingServicesNativeServer.dll	5/25/2020 1:39 PM	Application extens...	101 KB
ReportingServicesNativeClient.dll	5/25/2020 1:39 PM	Application extens...	118 KB
ReportingServicesLibrary.dll	5/25/2020 1:39 PM	Application extens...	2,344 KB
ReportingServicesFileShareDeliveryProvid...	5/25/2020 1:39 PM	Application extens...	90 KB
ReportingServicesEmailDeliveryProvider.dll	5/25/2020 1:39 PM	Application extens...	79 KB
ReportingServicesCDOInterop.dll	5/25/2020 1:39 PM	Application extens...	76 KB
ReportingServicesAppDomainManager.dll	5/25/2020 1:39 PM	Application extens...	51 KB

# Upgrade

## Preliminary Steps

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# Integr. with Power BI Demo

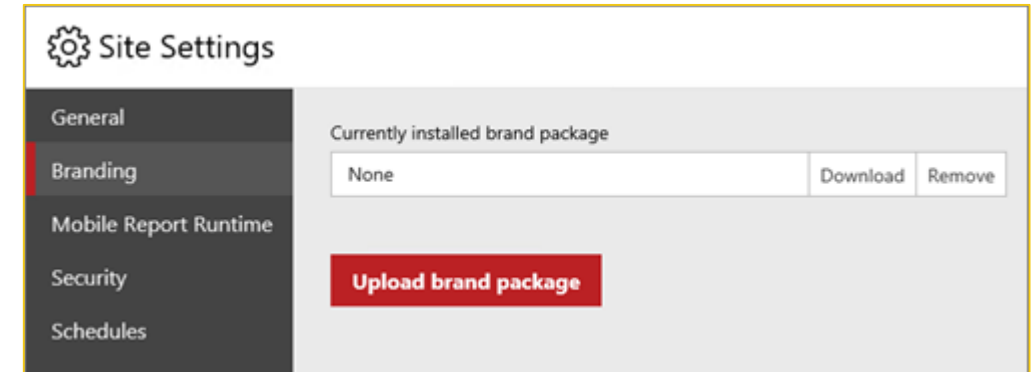
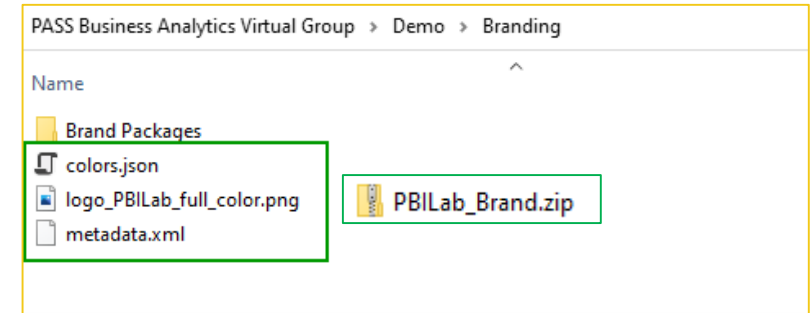
# Branding

# Report Server Branding

A brand package for Reporting Services consists of three items and is packaged as a zip file.

- colors.json
- metadata.xml
- logo.png (optional)

The files must have the names listed above. The zip file can be named however you like.



# Report Server Branding

---

## Metadata xml file

The `metadata.xml` file allows you to set the name of brand package that you see in Power BI Report Server.

It has a reference entry for both your `colors.json` file and `logo.png` file (if applicable).

Next, to use a logo in your brand package, make sure to update the `metadata.xml` file to include a reference to a file called "`PBILab_logo.png`" in the Contents section.

# Report Server Branding

## Metadata xml file

```
metadata.xml  colors.json
1  <?xml version="1.0" encoding="utf-8"?>
2  <SystemResourcePackage xmlns="http://schemas.microsoft.com/sqlserver/reporting/2016/01/systemresourcepackagemetadata"
3    type="UniversalBrand"
4    version="2.0.2"
5    name="PBI Lab Brand"
6  >
7    <Contents>
8      <Item key="colors" path="colors.json" />
9      <Item key="logo" path="logo_PBI Lab_full_color.png" />
10    </Contents>
11  </SystemResourcePackage>
12
```

# Report Server Branding

---

## Colors json file

Almost all the work you need to do for your brand package will happen in this file.

When the brand package is uploaded, the server extracts the appropriate name/value pairs from the colors.json file and merges them with a master LESS stylesheet, brand.less.

This LESS file is then processed, and the resulting CSS file is served to the client.

All colors in the stylesheet follow the six-digit hexadecimal representation of a color.

# Report Server Branding

## Colors json file

```
colors.json  X
Schema: <No Schema Selected>
1  {
2    "name": "PBI Lab brand",
3    "version": "1.0",
4    "interface": {
5      "primary": "#000f7b",
6      "primaryAlt": "#8ed6f6",
7      "primaryAlt2": "#000f7b",
8      "primaryAlt3": "#0065bd",
9      "primaryAlt4": "#0065bd",
10     "primaryContrast": "#0065bd",
11     "secondary": "#21A0D8",
12     "secondaryAlt": "#000f7b",
13     "secondaryAlt2": "#8ed6f6",
14     "secondaryAlt3": "#008cff",
15     "secondaryContrast": "#fff",
16     "neutralPrimary": "#fff",
17     "neutralPrimaryAlt": "#fff",
18     "neutralPrimaryAlt2": "#000f7b",
19     "neutralPrimaryAlt3": "#000f7b",
20     "neutralPrimaryContrast": "#000",
21     "neutralSecondary": "#fff",
22     "neutralSecondaryAlt": "#eaeaea",
23     "neutralSecondaryAlt2": "#008cff",
24     "neutralSecondaryAlt3": "#acacac",
25     "neutralSecondaryContrast": "#000",
26     "neutralTertiary": "#0065bd",
27     "neutralTertiaryAlt": "#c8c8c8",
28     "neutralTertiaryAlt2": "#eaeaea",
29     "neutralTertiaryAlt3": "#ccc",
30     "neutralTertiaryContrast": "#222",
```

Primary Section – button colors, hover colors

Secondary Section – title bar color, search bar, the left-hand menu (when present), and text color for those items

Neutral Primary – Home background, Reports Area background

Neutral Secondary – Text Box background, Folder Options background, Settings Menu

Neutral Tertiary – Site Settings backgrounds



# Branding Demo

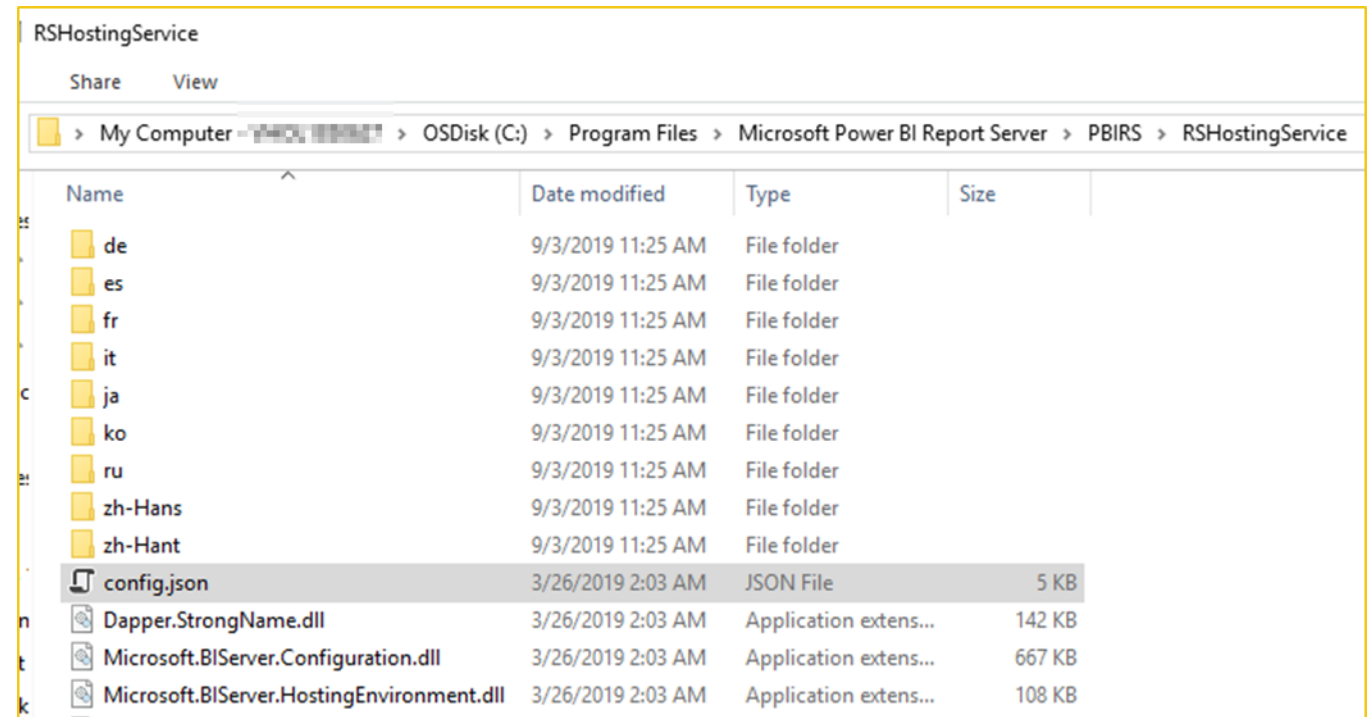


# Configuration with SSMS

# Config File

## Steps

- Locate the log file into **C:\Program Files\Microsoft Power BI Report Server\PBIRS\RSHostingService**
- Check the **config.json** file
- Optionally change the logging output path and the SSAS instance port



# Config File

## Steps

- Locate the log file into **C:\Program Files\Microsoft Power BI Report Server\PBIRS\RSHostingService**
- Check the **config.json** file
- Optionally change the logging output path and the SSAS instance port

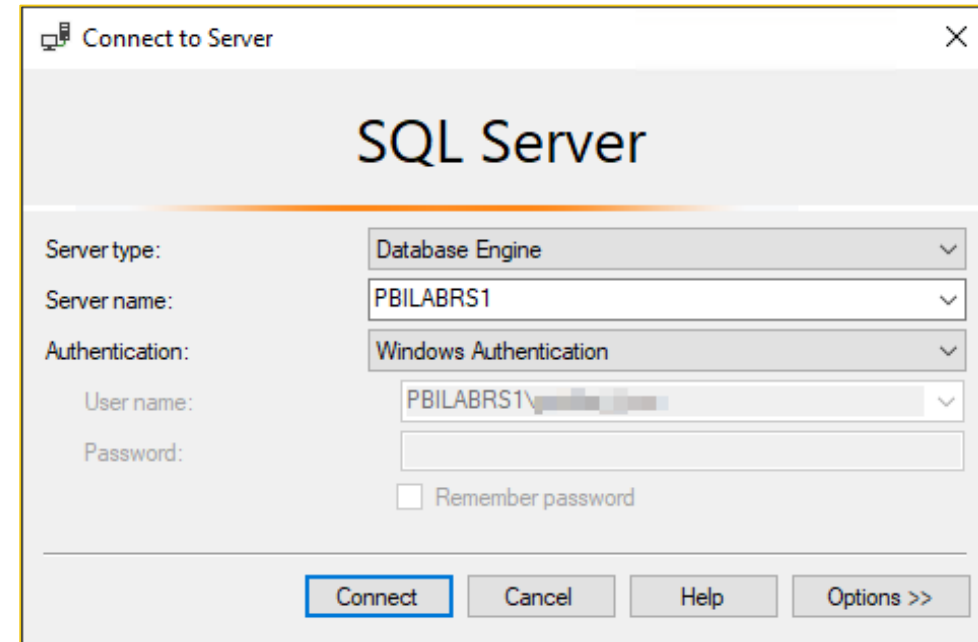


```
{
  "Config": {
    "ASPort": "5132",
    "BI_SERVER": "true",
    "managementUrl": "http://localhost:8083",
    "rsConfigFilePath": "..\\ReportServer\\rsreportserver.config",
    "SecureConnectionLevel": "0",
  },
  "ManagementProcess": {
    "name": "Management Service",
    "path": "Management\\RSManagement.exe",
    "parameters": "",
    "Config": {
      "Logger.path": "..\\LogFiles\\",
      "Dumper.path": "..\\LogFiles\\",
      "Dumper.flags": "SendToWatson, AllThreads, AllMemory",
      "Dumper.preventIfContains": "Microsoft.BIServer.HostingEnvironment",
      "listenerUrl": "http://+:8083/",
      "restartOnChangesTo": "Dumper.flags,Dumper.path,Dumper.prevent"
    }
  }
},
```

# Configuration table

## Steps

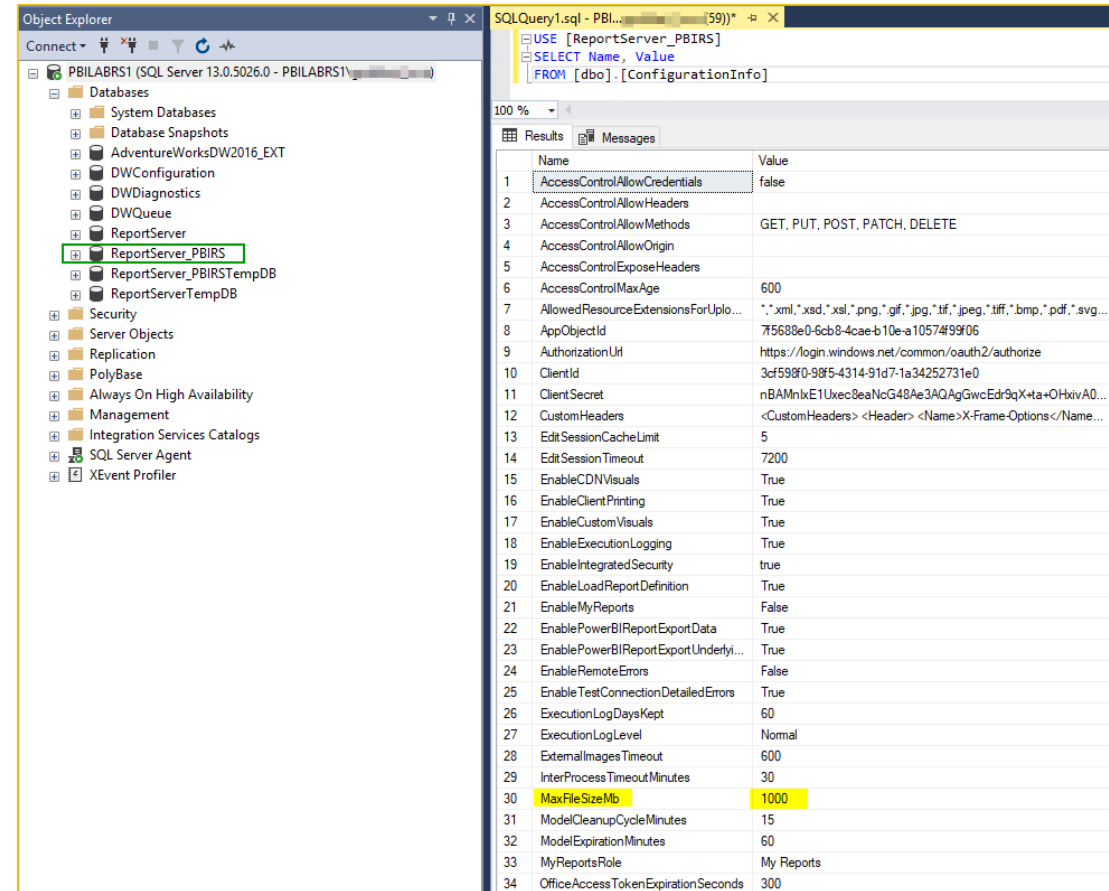
- Connect to PBIRS database using SSMS
- Use the ReportServer database
- Query the ConfigurationInfo table



# Configuration table

## Steps

- Connect to PBIRS database using SSMS
- Use the ReportServer database
- Query the ConfigurationInfo table



The screenshot displays the SQL Server Enterprise Manager (SSMS) interface. On the left, the Object Explorer shows the 'PBILABRS1' server instance. Under the 'Databases' folder, the 'ReportServer' database is expanded, and the 'ReportServer\_PBIRS' database is highlighted. The main pane shows a SQL query executed against the 'ReportServer\_PBIRS' database, selecting the 'Name' and 'Value' columns from the 'ConfigurationInfo' table. The query is as follows:

```
USE [ReportServer_PBIRS]
SELECT Name, Value
FROM [dbo].[ConfigurationInfo]
```

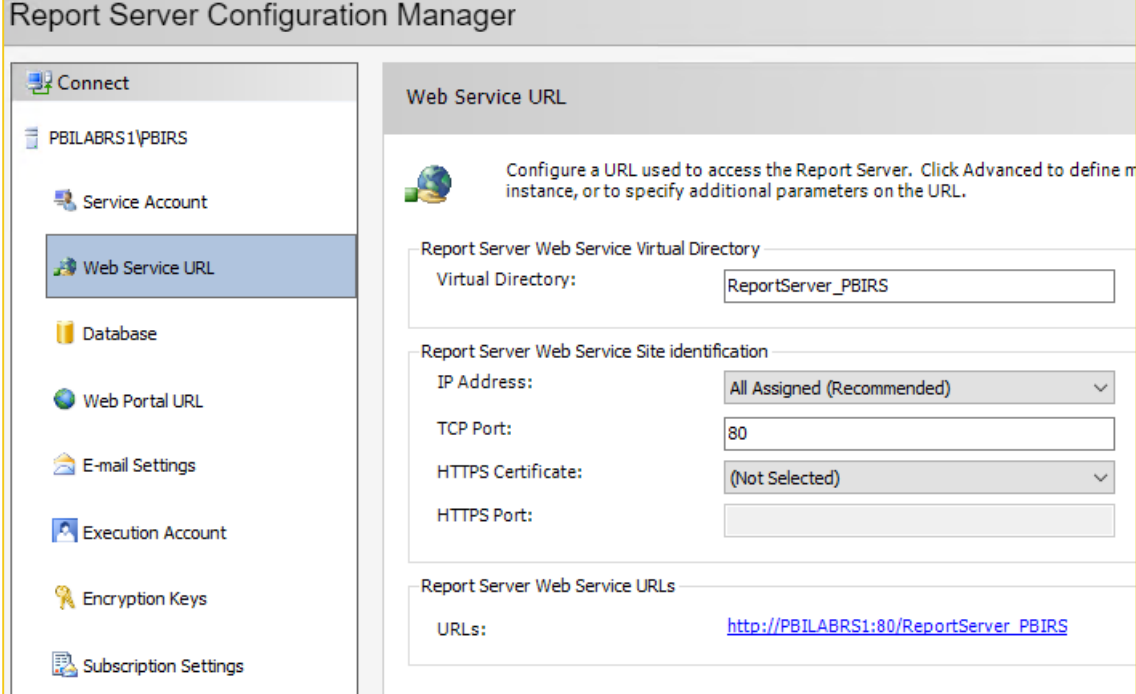
The query results are displayed in a table with 34 rows. The first row is 'AccessControlAllowCredentials' with a value of 'false'. The second row is 'AccessControlAllowHeaders' with a value of 'GET, PUT, POST, PATCH, DELETE'. The third row is 'AccessControlAllowMethods' with a value of 'GET, PUT, POST, PATCH, DELETE'. The fourth row is 'AccessControlAllowOrigin' with a value of 'https://login.windows.net/common/oauth2/authorize'. The fifth row is 'AccessControlExposeHeaders' with a value of '3cf598f0-98f5-4314-91d7-1a34252731e0'. The sixth row is 'AccessControlMaxAge' with a value of '600'. The seventh row is 'AllowedResourceExtensionsForUplo...' with a value of '\*.xml,\*.xsd,\*.xsl,\*.png,\*.gif,\*.jpg,\*.tif,\*.jpeg,\*.tiff,\*.bmp,\*.pdf,\*.svg...'. The eighth row is 'AppObjectId' with a value of '7f5688e0-6cb8-4cae-b10e-a10574f99f06'. The ninth row is 'AuthorizationUrl' with a value of 'https://login.windows.net/common/oauth2/authorize'. The tenth row is 'ClientId' with a value of '3cf598f0-98f5-4314-91d7-1a34252731e0'. The eleventh row is 'ClientSecret' with a value of 'nBAMnkE1Uxec8eaNcG48Ae3AQAgGwcEdr9qXta+OHivA0...'. The twelfth row is 'CustomHeaders' with a value of '<CustomHeaders> <Header> <Name>X-Frame-Options</Name>'. The thirteenth row is 'EditSessionCacheLimit' with a value of '5'. The fourteenth row is 'EditSessionTimeout' with a value of '7200'. The fifteenth row is 'EnableCDNVisuals' with a value of 'True'. The sixteenth row is 'EnableClientPrinting' with a value of 'True'. The seventeenth row is 'EnableCustomVisuals' with a value of 'True'. The eighteenth row is 'EnableExecutionLogging' with a value of 'True'. The nineteenth row is 'EnableIntegratedSecurity' with a value of 'true'. The twentieth row is 'EnableLoadReportDefinition' with a value of 'True'. The twenty-first row is 'EnableMyReports' with a value of 'False'. The twenty-second row is 'EnablePowerBIReportExportData' with a value of 'True'. The twenty-third row is 'EnablePowerBIReportExportUnderly...' with a value of 'True'. The twenty-fourth row is 'EnableRemoteErrors' with a value of 'False'. The twenty-fifth row is 'EnableTestConnectionDetailedErrors' with a value of 'True'. The twenty-sixth row is 'ExecutionLogDaysKept' with a value of '60'. The twenty-seventh row is 'ExecutionLogLevel' with a value of 'Normal'. The twenty-eighth row is 'ExternalImagesTimeout' with a value of '600'. The twenty-ninth row is 'InterProcessTimeoutMinutes' with a value of '30'. The thirtieth row is 'MaxFileSizeMb' with a value of '1000'. The thirty-first row is 'ModelCleanupCycleMinutes' with a value of '15'. The thirty-second row is 'ModelExpirationMinutes' with a value of '60'. The thirty-third row is 'MyReportsRole' with a value of 'My Reports'. The thirty-fourth row is 'OfficeAccess TokenExpirationSeconds' with a value of '300'.

Name	Value
AccessControlAllowCredentials	false
AccessControlAllowHeaders	GET, PUT, POST, PATCH, DELETE
AccessControlAllowMethods	GET, PUT, POST, PATCH, DELETE
AccessControlAllowOrigin	https://login.windows.net/common/oauth2/authorize
AccessControlExposeHeaders	3cf598f0-98f5-4314-91d7-1a34252731e0
AccessControlMaxAge	600
AllowedResourceExtensionsForUplo...	*.xml,*.xsd,*.xsl,*.png,*.gif,*.jpg,*.tif,*.jpeg,*.tiff,*.bmp,*.pdf,*.svg...
AppObjectId	7f5688e0-6cb8-4cae-b10e-a10574f99f06
AuthorizationUrl	https://login.windows.net/common/oauth2/authorize
ClientId	3cf598f0-98f5-4314-91d7-1a34252731e0
ClientSecret	nBAMnkE1Uxec8eaNcG48Ae3AQAgGwcEdr9qXta+OHivA0...
CustomHeaders	<CustomHeaders> <Header> <Name>X-Frame-Options</Name>
EditSessionCacheLimit	5
EditSessionTimeout	7200
EnableCDNVisuals	True
EnableClientPrinting	True
EnableCustomVisuals	True
EnableExecutionLogging	True
EnableIntegratedSecurity	true
EnableLoadReportDefinition	True
EnableMyReports	False
EnablePowerBIReportExportData	True
EnablePowerBIReportExportUnderly...	True
EnableRemoteErrors	False
EnableTestConnectionDetailedErrors	True
ExecutionLogDaysKept	60
ExecutionLogLevel	Normal
ExternalImagesTimeout	600
InterProcessTimeoutMinutes	30
MaxFileSizeMb	1000
ModelCleanupCycleMinutes	15
ModelExpirationMinutes	60
MyReportsRole	My Reports
OfficeAccess TokenExpirationSeconds	300

# Connect with SSMS

## Steps

- Get the Report Server Web Service URLs
- Open SSMS
- Open a new connection to Reporting Services and connect to the Report Server Web Service URLs



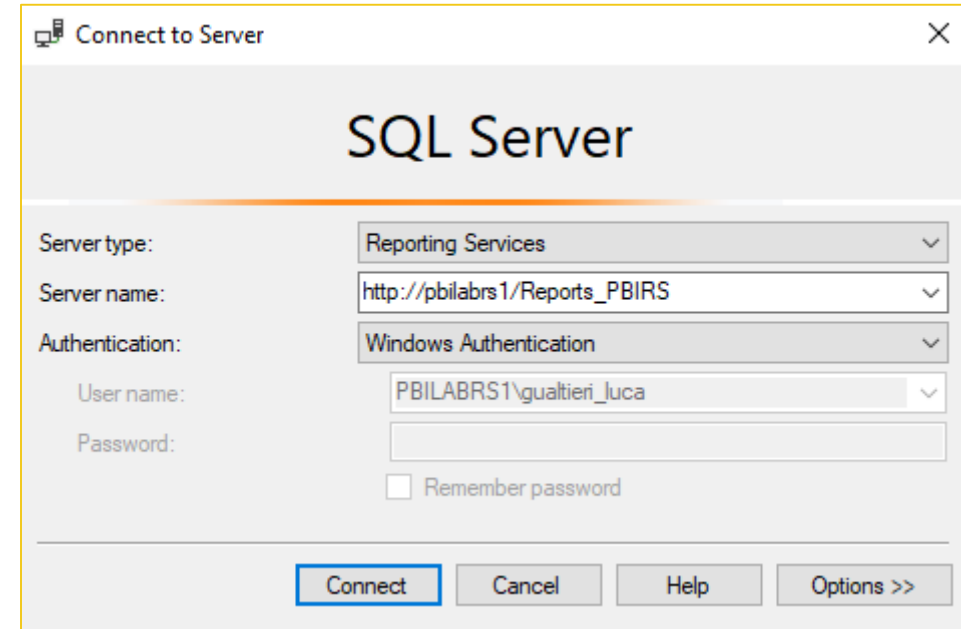
The screenshot shows the 'Report Server Configuration Manager' window. On the left, a tree view under 'Connect' shows 'PBILABRS1\PBIRS' expanded, with 'Web Service URL' selected. The main pane is titled 'Web Service URL' and contains the following configuration fields:

- Report Server Web Service Virtual Directory:** Virtual Directory:
- Report Server Web Service Site identification:**
  - IP Address:
  - TCP Port:
  - HTTPS Certificate:
  - HTTPS Port:
- Report Server Web Service URLs:** URLs: [http://PBILABRS1:80/ReportServer\\_PBIRS](http://PBILABRS1:80/ReportServer_PBIRS)

# Connect with SSMS

## Steps

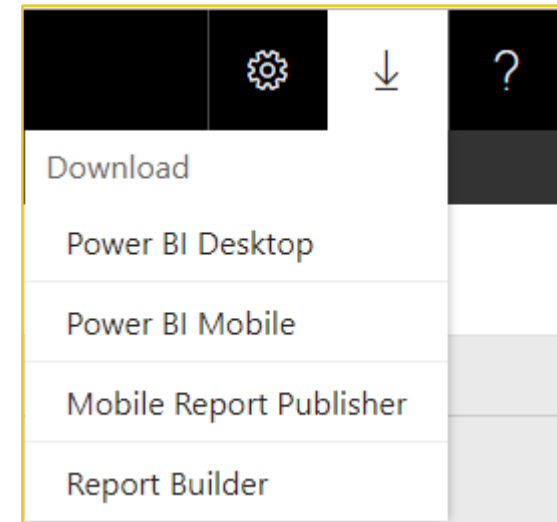
- Get the Report Server Web Service URLs
- Open SSMS
- Open a new connection to Reporting Services and connect to the Report Server Web Service URLs



# Configuration Example

## Disable download button in PBIRS web portal

- Connect to Reporting Services using SSMS
- Right click on the server name and then open the Properties section
- From the Properties menu, click on the Advanced section and locate the property called **ShowDownloadMenu**
- Change the property to false and click OK
- **SERVICE RESTART IS NOT REQUIRED**





# Configuration Example

## Disable download button in PBIRS web portal

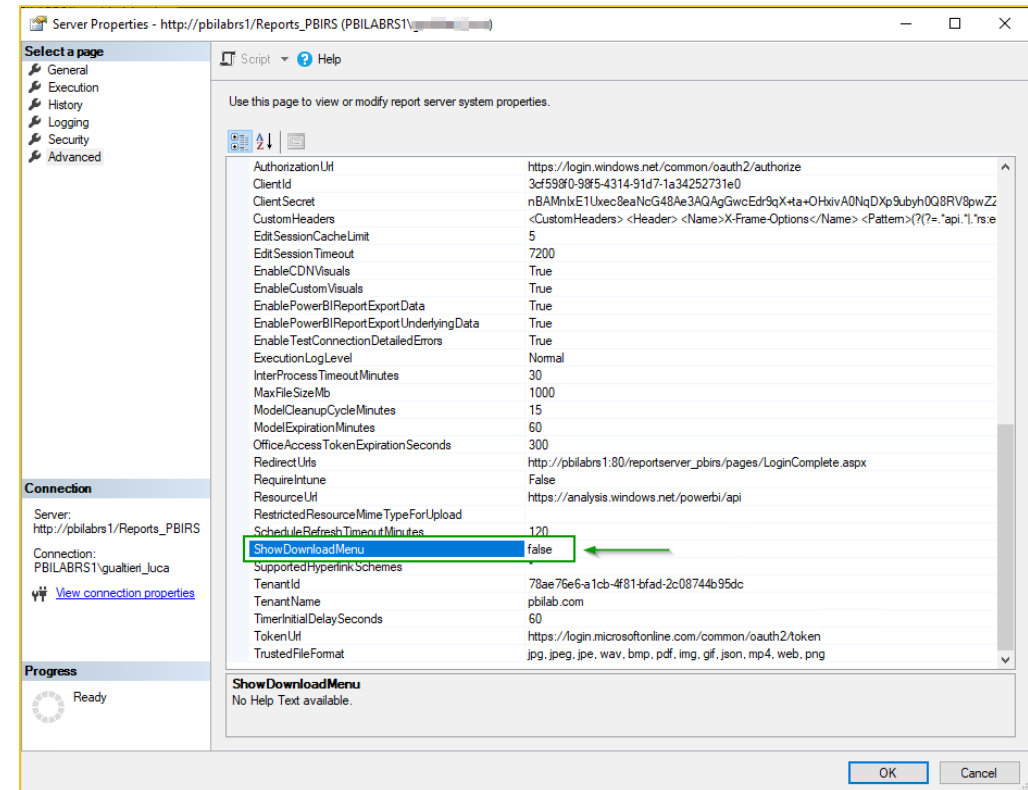
- Connect to Reporting Services using SSMS
- Right click on the server name and then open the Properties section
- From the Properties menu, click on the Advanced section and locate the property called **ShowDownloadMenu**
- Change the property to false and click OK
- **SERVICE RESTART IS NOT REQUIRED**



# Configuration Example

## Disable download button in PBIRS web portal

- Connect to Reporting Services using SSMS
- Right click on the server name and then open the Properties section
- From the Properties menu, click on the Advanced section and locate the property called **ShowDownloadMenu**
- Change the property to false and click OK
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# Configuration Example

## Allow specific resource extensions for upload in PBIRS web portal

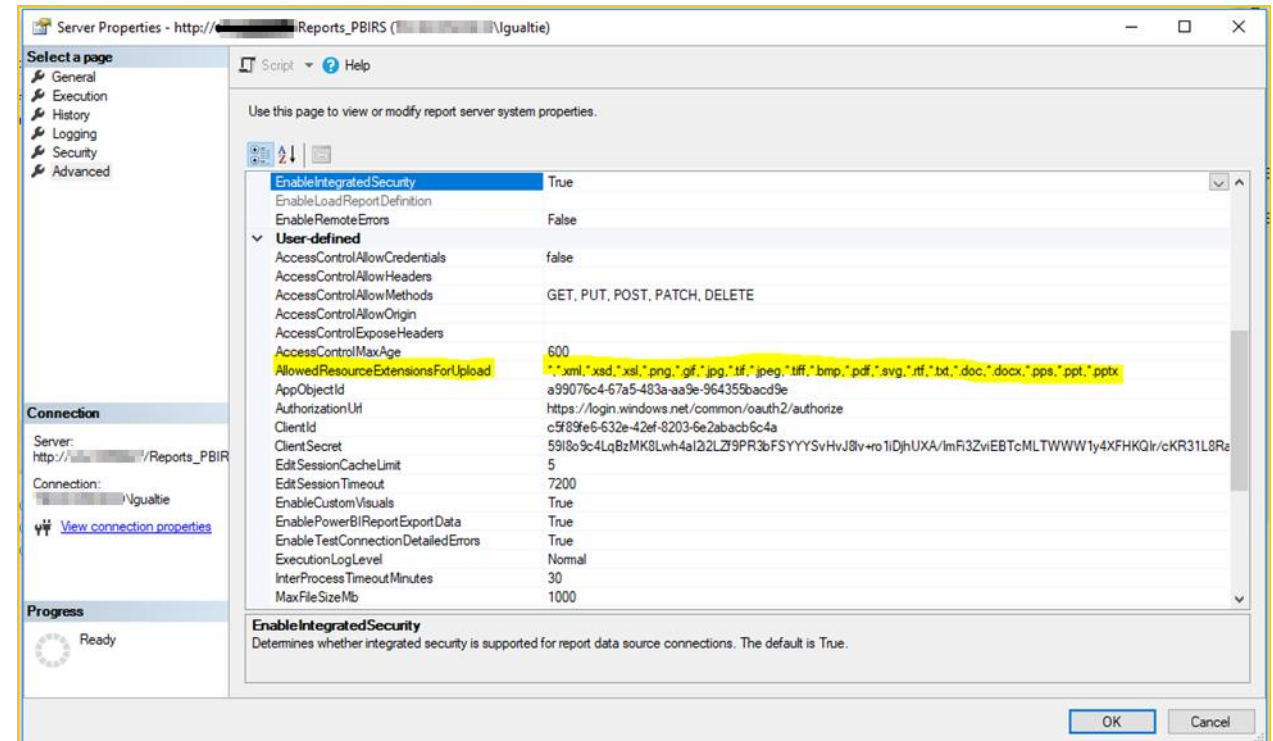
- Connect to Reporting Services using SSMS
- Right click on the server name and then open the Properties section
- From the Properties menu, click on the Advanced section and locate the property called **AllowedResourceExtensionsForUpload**
- Change the property with the list of extensions you want and click ok
- **SERVICE RESTART IS NOT REQUIRED**



# Configuration Example

## Allow specific resource extensions for upload in PBIRS web portal

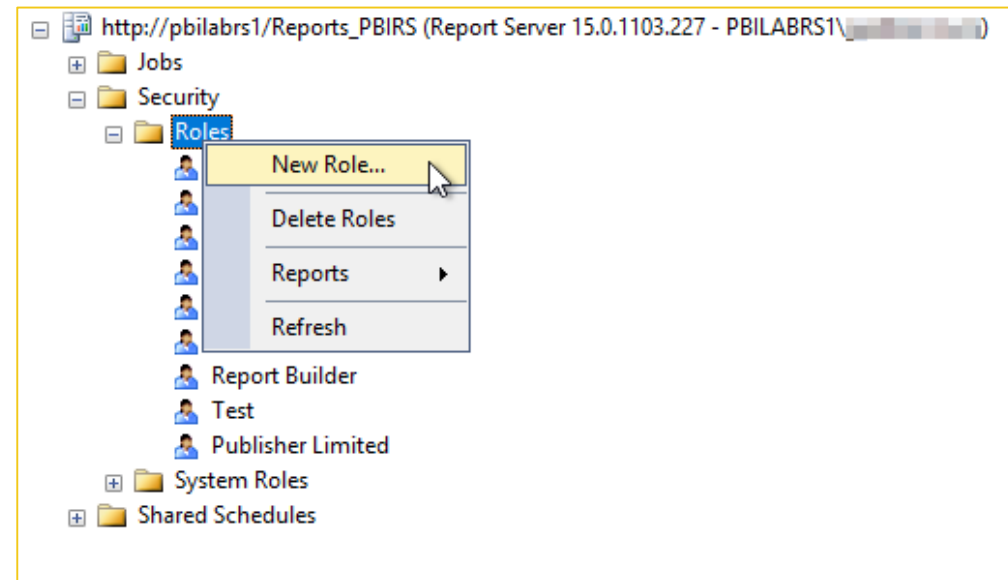
- Connect to Reporting Services using SSMS
- Right click on the server name and then open the Properties section
- From the Properties menu, click on the Advanced section and locate the property called **AllowedResourceExtensionsForUpload**
- Change the property with the list of extensions you want and click ok
- **SERVICE RESTART IS NOT REQUIRED**



# Configuration Example

## Customized Roles

- Connect to Reporting Services using SSMS
- Expand Roles to explore the existing Roles
- Right click on Roles and create a new one
- Configure the properties and click OK
- **SERVICE RESTART IS NOT REQUIRED**



# Configuration Example

## Customized Roles

- Connect to Reporting Services using SSMS
- Expand Roles to explore the existing Roles
- Right click on Roles and create a new one
- Configure the properties and click OK
- **SERVICE RESTART IS NOT REQUIRED**

**New User Role**

Select a page  
General

Name:

Description:

Select the tasks that members of this role can perform:

Task	Description
<input type="checkbox"/> Set security for individual items	View and modify security settings for reports, folders, resources, and shared data sources.
<input type="checkbox"/> Create linked reports	Create linked reports and publish them to a report server folder.
<input type="checkbox"/> View reports	View reports and linked reports in the folder hierarchy; view report history snapshots and reports.
<input type="checkbox"/> Manage reports	Create and delete reports; and modify report properties.
<input type="checkbox"/> View resources	View resources in the folder hierarchy; and view resource properties.
<input type="checkbox"/> Manage resources	Create, modify and delete resources, and modify resource properties.
<input type="checkbox"/> View folders	View folder items in the folder hierarchy; and view folder properties.
<input type="checkbox"/> Manage folders	Create, view, and delete folders; and view and modify folder properties.
<input type="checkbox"/> Manage report history	Create, view, and delete report history snapshots; and modify report history properties.
<input type="checkbox"/> Manage individual subscriptions	Each user can create, view, modify and delete subscriptions that he or she owns.
<input type="checkbox"/> Manage all subscriptions	View, modify, and delete any subscription regardless of who owns the subscription.
<input type="checkbox"/> View data sources	View shared data source items in the folder hierarchy; and view data source properties.
<input type="checkbox"/> Manage data sources	Create and delete shared data source items; and modify data source properties.
<input type="checkbox"/> View models	View models in the folder hierarchy, use models as data sources for a report, and run queries.
<input type="checkbox"/> Manage models	Create, view, and delete models; and view and modify model properties.
<input type="checkbox"/> Consume reports	Reads report definitions
<input type="checkbox"/> Comment on reports	Create, view, edit, and delete comments on reports.
<input type="checkbox"/> Manage comments	Delete other users' comments on reports.

**Connection**

Server: http://pbilabrs1/Reports\_PBIRS

Connection: PBILABRS1\

[View connection properties](#)

**Progress**

Ready

OK Cancel

# Configur. with SSMS Demo



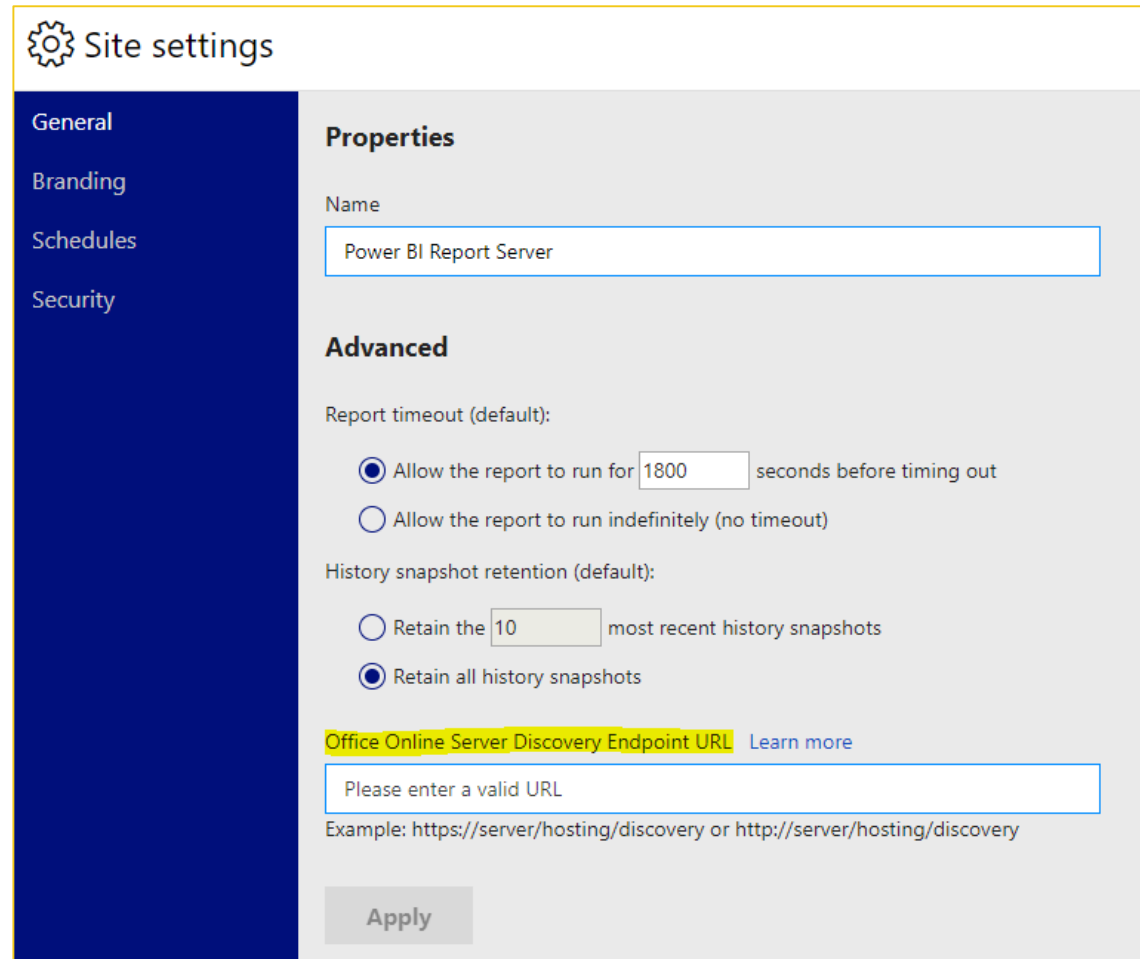
# Office Online Server



# Host Excel Workbooks

## Steps

- Installation Prerequisites
- Install Office Online Server on separate machine
- Integrate with Power BI Report Server
- Add machine account as Admin to SSAS
- Install PowerPivot Instance



The screenshot shows the 'Site settings' interface for a Power BI Report Server. On the left is a dark blue sidebar with navigation links: 'General' (selected), 'Branding', 'Schedules', and 'Security'. The main content area is light gray and divided into two sections: 'Properties' and 'Advanced'. In the 'Properties' section, the 'Name' field contains 'Power BI Report Server'. The 'Advanced' section includes 'Report timeout (default)' with two radio button options: 'Allow the report to run for 1800 seconds before timing out' (selected) and 'Allow the report to run indefinitely (no timeout)'. Below this is 'History snapshot retention (default)' with two radio button options: 'Retain the 10 most recent history snapshots' and 'Retain all history snapshots' (selected). At the bottom of the 'Advanced' section is the 'Office Online Server Discovery Endpoint URL' field, which contains the placeholder text 'Please enter a valid URL'. Below this field is an example URL: 'Example: https://server/hosting/discovery or http://server/hosting/discovery'. An 'Apply' button is located at the bottom right of the settings panel.

Site settings

General  
Branding  
Schedules  
Security

**Properties**

Name  
Power BI Report Server

**Advanced**

Report timeout (default):

☒ Allow the report to run for 1800 seconds before timing out  
☐ Allow the report to run indefinitely (no timeout)

History snapshot retention (default):

☐ Retain the 10 most recent history snapshots  
☒ Retain all history snapshots

Office Online Server Discovery Endpoint URL [Learn more](#)

Please enter a valid URL

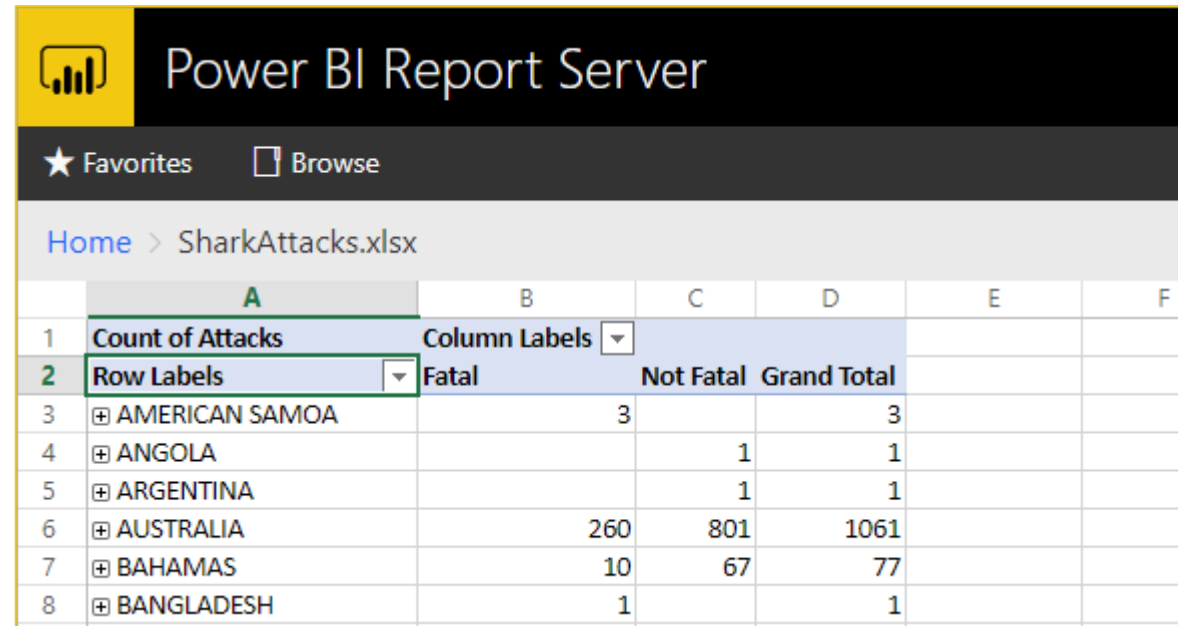
Example: https://server/hosting/discovery or http://server/hosting/discovery

Apply

# Host Excel Workbooks

## Steps

- Installation Prerequisites
- Install Office Online Server on separate machine
- Integrate with Power BI Report Server
- Add machine account as Admin to SSAS
- Install PowerPivot Instance



The screenshot shows the Power BI Report Server web interface. The title bar says "Power BI Report Server". Below it are "Favorites" and "Browse" buttons. The breadcrumb path is "Home > SharkAttacks.xlsx". The main content area displays a PivotTable with the following data:

	A	B	C	D	E	F
1	Count of Attacks	Column Labels				
2	Row Labels	Fatal	Not Fatal	Grand Total		
3	⊕ AMERICAN SAMOA	3		3		
4	⊕ ANGOLA		1	1		
5	⊕ ARGENTINA		1	1		
6	⊕ AUSTRALIA	260	801	1061		
7	⊕ BAHAMAS	10	67	77		
8	⊕ BANGLADESH	1		1		

# API & Utilities

# RS.exe utility

## PBRIS tasks automation

- The rs.exe utility processes script that you provide in an input file. This utility to automate report server deployment and administration tasks
- RS.exe is located at `\Program Files\Microsoft SQL Server\XXX\Tools\Binn`. You can run the utility from any folder on your file system
- To run the tool, you must have permission to connect to the report server instance you are running the script against. You can run scripts to make changes to the local computer or a remote computer
- The script is a RSS (Reporting Services script) file in SSRS
- The following example migrates content from the native mode **Sourceserver** to the native mode **Targetserver**

```
C:\Program Files (x86)\Microsoft SQL Server\...Tools\Binn>
```

# RS.exe utility

## PBRIS tasks automation

- The rs.exe utility processes script that you provide in an input file. This utility to automate report server deployment and administration tasks
- RS.exe is located at `\Program Files\Microsoft SQL Server\XXX\Tools\Binn`. You can run the utility from any folder on your file system
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- The script is a RSS (Reporting Services script) file in SSRS
- The following example migrates content from the native mode **Sourceserver** to the native mode **Targetserver**

```
C:\Program Files (x86)\Microsoft SQL Server\Tools\Binn>rs.exe -i "C:\Users\gualtieri_luca\Downloads\Demo\API _ Utility\RS Utility Demo\PBIRS_Folders_Security_Migration.rss" -  
e Mgmt2010 -s http://pbilabrs1/ReportServer_PBIRS -u PBILABRS1\gualtieri_luca -p [REDACTED] -v ts="http://10.138.0.4/ReportServer_PBIRS/" -v tu="gualtieri_luca" -v tp="[REDACTED]"  
[REDACTED] -v security="true" -t_
```

# REST API

## API programmatic access to PBIRS

- Power BI Report Server support Representational State Transfer (REST) APIs. The REST APIs are service endpoints that support a set of HTTP operations (methods), which provide create, retrieve, update, or delete access for resources within a report server.
- The REST API provides programmatic access to the objects in a Power BI Report Server catalog.
- [http://<<reportservername>>/Reports\\_PBIRS/api/v2.0/](http://<<reportservername>>/Reports_PBIRS/api/v2.0/)

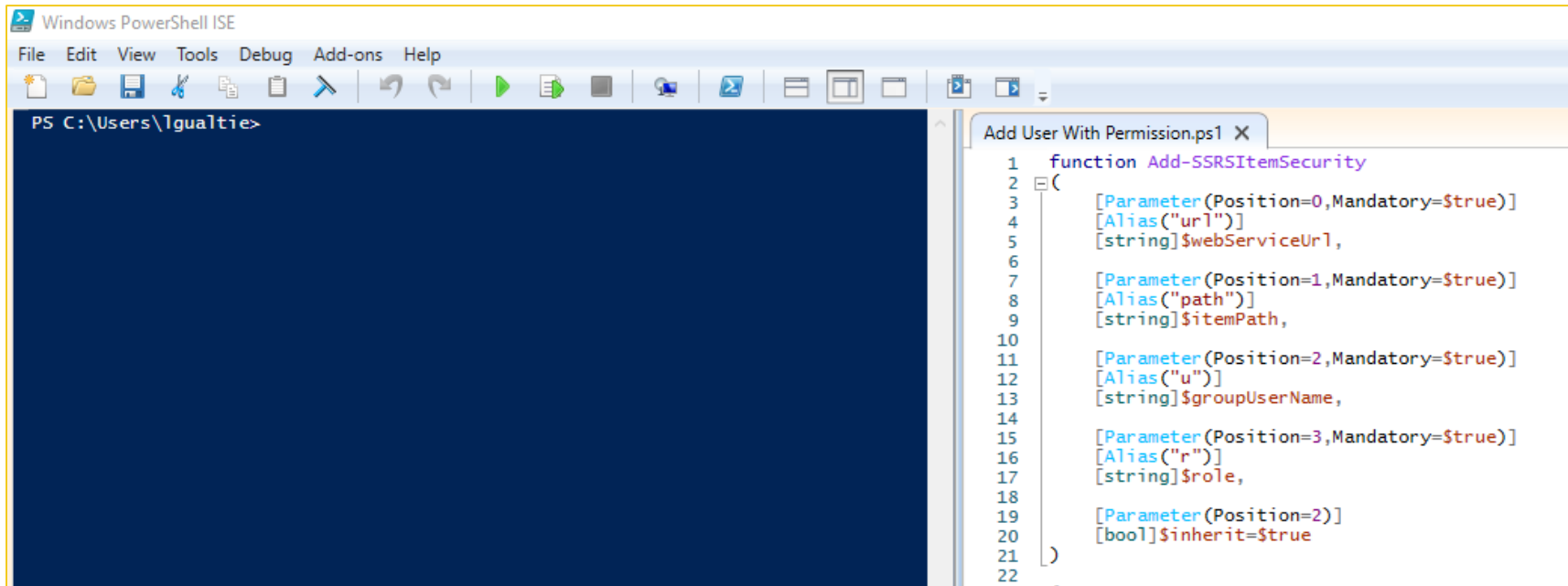


```
{
  "@odata.context": "http://pbilabrs1/Reports_PBIRS/api/v2.0/$metadata", "value": [
    {
      "name": "AlertSubscriptions", "kind": "EntitySet", "url": "AlertSubscriptions"
    }, {
      "name": "CacheRefreshPlans", "kind": "EntitySet", "url": "CacheRefreshPlans"
    }, {
      "name": "CacheRefreshPlanHistory", "kind": "EntitySet", "url": "CacheRefreshPlanHistory"
    }, {
      "name": "CatalogItems", "kind": "EntitySet", "url": "CatalogItems"
    }, {
      "name": "Comments", "kind": "EntitySet", "url": "Comments"
    }, {
      "name": "DataSets", "kind": "EntitySet", "url": "DataSets"
    }, {
      "name": "DataSetData", "kind": "EntitySet", "url": "DataSetData"
    }, {
      "name": "DataSources", "kind": "EntitySet", "url": "DataSources"
    }, {
      "name": "ExcelWorkbooks", "kind": "EntitySet", "url": "ExcelWorkbooks"
    }, {
      "name": "Extensions", "kind": "EntitySet", "url": "Extensions"
    }, {
      "name": "FavoriteItems", "kind": "EntitySet", "url": "FavoriteItems"
    }, {
      "name": "Folders", "kind": "EntitySet", "url": "Folders"
    }, {
      "name": "Kpis", "kind": "EntitySet", "url": "Kpis"
    }, {
      "name": "LinkedReports", "kind": "EntitySet", "url": "LinkedReports"
    }, {
      "name": "MobileReports", "kind": "EntitySet", "url": "MobileReports"
    }, {
      "name": "Notifications", "kind": "EntitySet", "url": "Notifications"
    }, {
      "name": "PowerBIReports", "kind": "EntitySet", "url": "PowerBIReports"
    }, {
      "name": "Reports", "kind": "EntitySet", "url": "Reports"
    }, {
      "name": "ParameterDefinitions", "kind": "EntitySet", "url": "ParameterDefinitions"
    }, {
      "name": "Resources", "kind": "EntitySet", "url": "Resources"
    }, {
      "name": "Schedules", "kind": "EntitySet", "url": "Schedules"
    }, {
      "name": "Subscriptions", "kind": "EntitySet", "url": "Subscriptions"
    }, {
      "name": "SystemResources", "kind": "EntitySet", "url": "SystemResources"
    }, {
      "name": "SystemResourceItems", "kind": "EntitySet", "url": "SystemResourceItems"
    }, {
      "name": "UserSettings", "kind": "EntitySet", "url": "UserSettings"
    }
  ]
}
```

# PowerShell

## Reporting Services PowerShell Tools

Reporting Services supports a wide range of development and management scenarios including PowerShell for both Native and SharePoint mode.



The screenshot displays the Windows PowerShell ISE interface. The left pane shows the command prompt with the prompt 'PS C:\Users\lgualtie>'. The right pane shows a script titled 'Add User With Permission.ps1' with the following content:

```
1 function Add-SSRSItemSecurity
2 {
3     [Parameter(Position=0,Mandatory=$true)]
4     [Alias("url")]
5     [string]$WebServiceUrl,
6
7     [Parameter(Position=1,Mandatory=$true)]
8     [Alias("path")]
9     [string]$itemPath,
10
11     [Parameter(Position=2,Mandatory=$true)]
12     [Alias("u")]
13     [string]$groupUserName,
14
15     [Parameter(Position=3,Mandatory=$true)]
16     [Alias("r")]
17     [string]$role,
18
19     [Parameter(Position=2)]
20     [bool]$inherit=$true
21 }
22
```

# API & Utilities Demo



# Credits & Resources

# Credits

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- [Peter Myers](#) – Power BI For Developer [meetup](#) at PBIUG Vancouver
- [Devin Knight](#) – Power BI Streaming Datasets with MS Flow [video](#)
- [Teck Resources](#) – MSDN subscription, PBIRS experience
- [PBI Lab](#) – Power BI subscription, PBI Service experience

# Resources

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- Power BI Report Server

<https://powerbi.microsoft.com/en-us/report-server/>

<https://www.microsoft.com/en-us/download/details.aspx?id=56722>

- RS.exe Utility

<https://docs.microsoft.com/en-us/sql/reporting-services/tools/rs-exe-utility-ssrs?view=sql-server-2017>

- Form, Automate (Flow) and Power BI

<https://flow.microsoft.com/en-us/blog/forms-and-flow-and-powerbi/>

- PBIRS Role Definitions

<https://docs.microsoft.com/en-us/sql/reporting-services/security/role-definitions-create-delete-or-modify?view=sql-server-2017>

# Resources

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- Upgrade Power BI Report Server

<https://docs.microsoft.com/en-us/power-bi/report-server/upgrade>

- Power BI Report Server System Requirements

<https://docs.microsoft.com/en-us/power-bi/report-server/system-requirements>

- Host Excel Workbook

<https://docs.microsoft.com/en-us/power-bi/report-server/excel-oos>

- PBIRS data-sources

<https://docs.microsoft.com/en-us/power-bi/report-server/data-sources>

- Reporting Services Server Properties (Advanced Page)

<https://docs.microsoft.com/en-us/sql/reporting-services/tools/server-properties-advanced-page-reporting-services?view=sql-server-2017>

# Resources

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- Branding Power BI Report Server

<https://docs.microsoft.com/en-us/sql/reporting-services/branding-the-web-portal?view=sql-server-2017>

<https://blogs.msdn.microsoft.com/sqlrsteamblog/2016/03/20/how-to-create-a-custom-brand-package-for-reporting-services-with-sql-server-2016/>

- Troubleshoot Scheduled Refresh in PBIRS

<https://docs.microsoft.com/en-us/power-bi/report-server/scheduled-refresh-troubleshoot>

- Integrate with Active Directory Federation Services (ADFS)

<https://docs.microsoft.com/en-us/power-bi/consumer/mobile/mobile-oauth-ssrs>

- API

<https://github.com/microsoft/ReportingServicesTools>

<https://docs.microsoft.com/en-us/power-bi/report-server/rest-api>

<https://app.swaggerhub.com/apis/microsoft-rs/PBIRS/2.0>



# Connect with PBI Lab



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# Q&A