PASS Business Analytics Virtual Group

PASS BUSINESS ANALYTICS VIRTUAL GROUP

Power BI Report Server: a Deep Dive

Luca Gualtieri, MCP
PBI Lab Inc.
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
pbilab.com

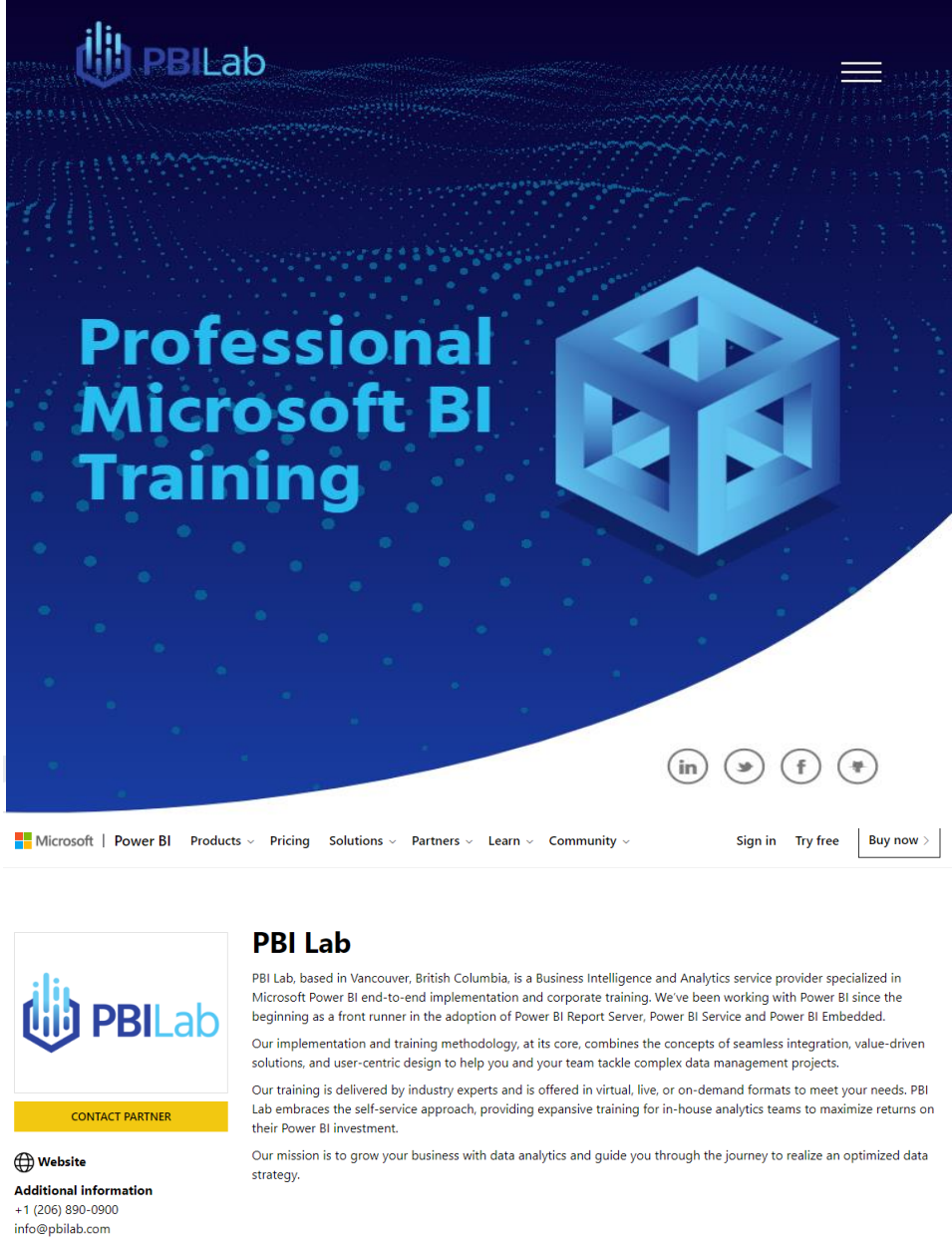
PBI Lab

BI and Analytics Consulting

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

pbilab.com

@pbilab



Session Objectives & Agenda

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 out example MSFT Forms

My Purpose

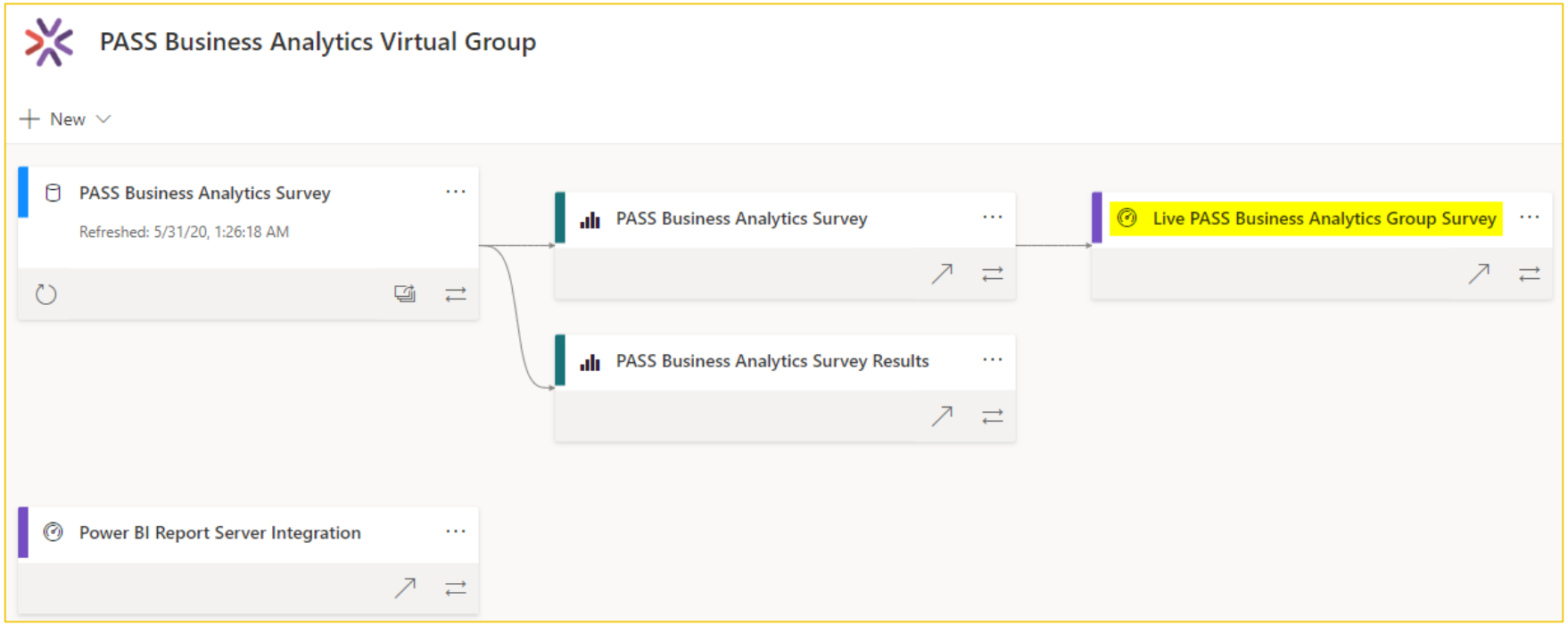
- Understand your level of expertise in Power BI Report Server
- Add a little bit of flexibility at the presentation flow
- Focus on the right topics

Real Purpose

A little bit of fun ☺

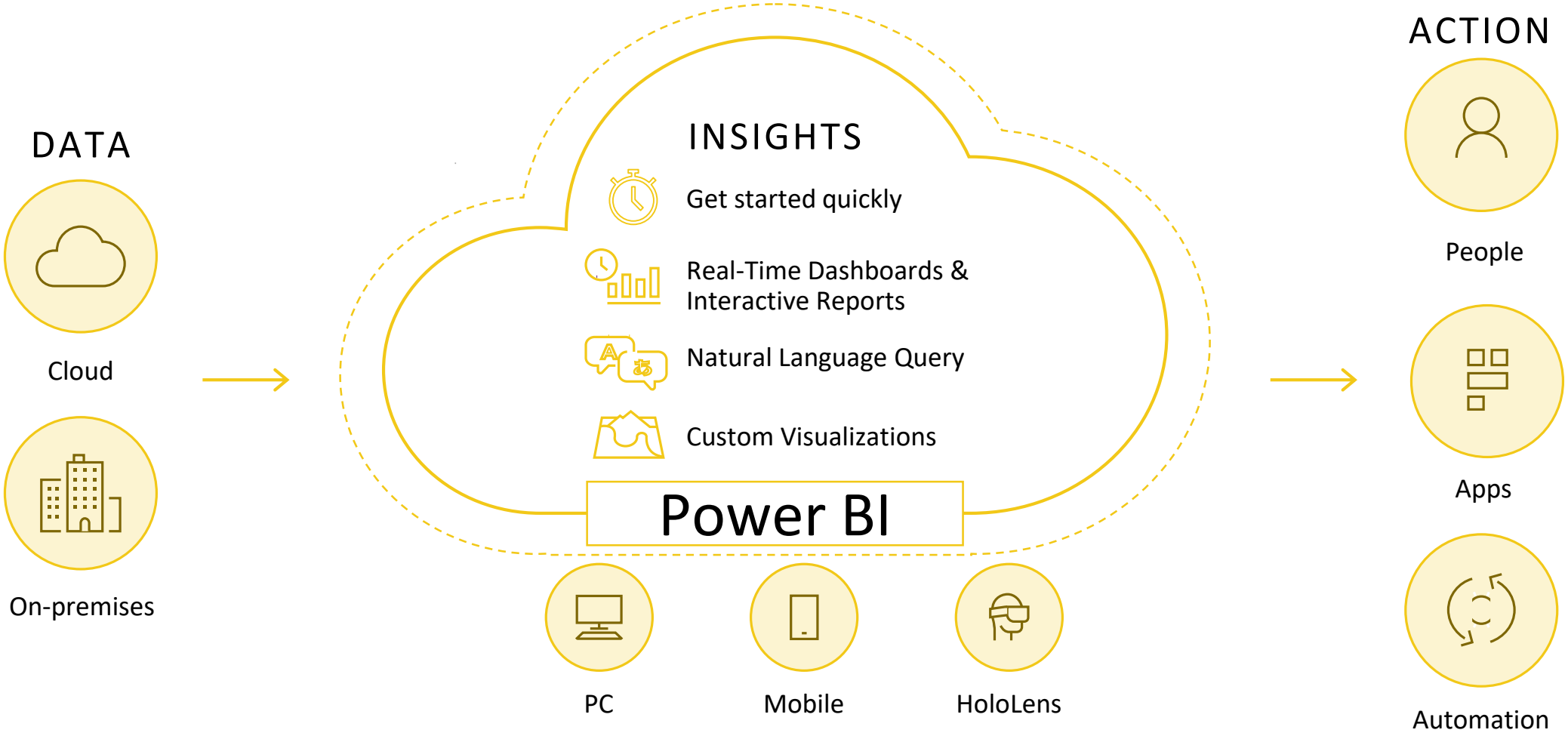
Live Survey with Power BI

PBI Lab Power BI Workspace – PASS Business Analytics Group

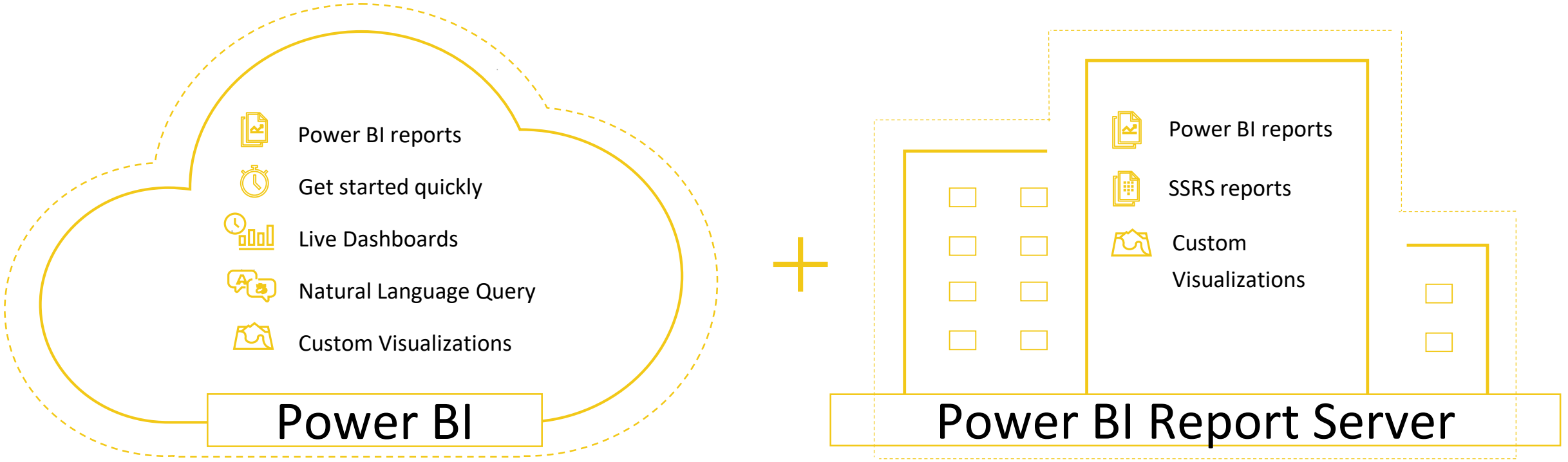


Power BI Report Server

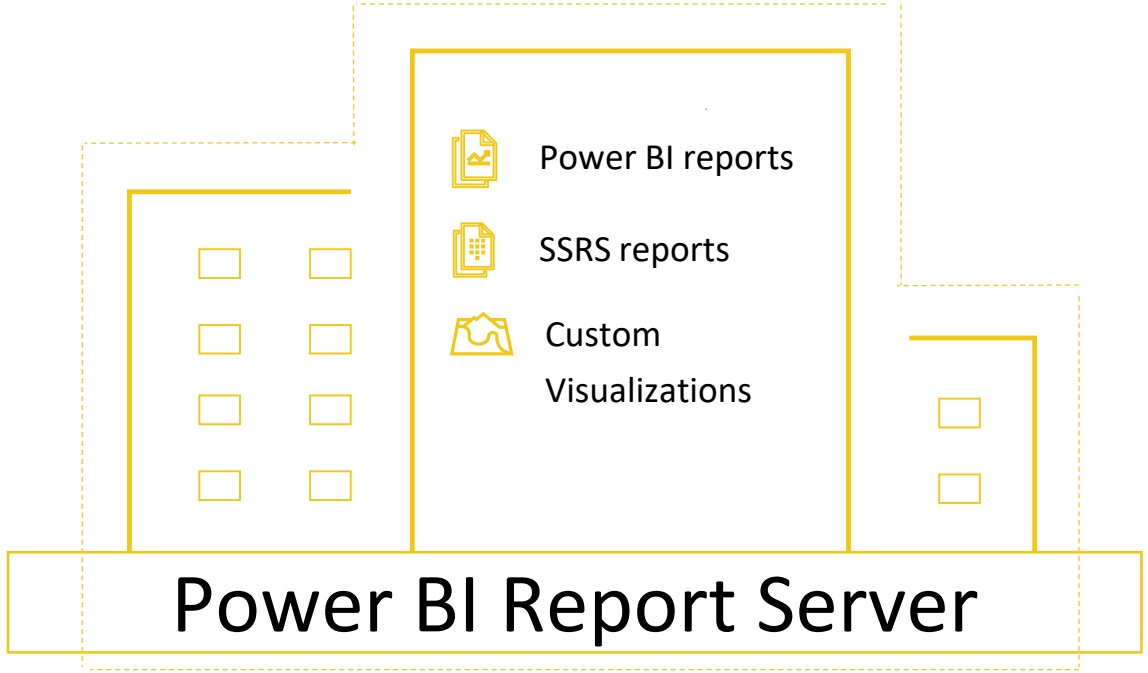
Introduction to Power BI



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 [1]	Power BI/SQL Server [2]	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

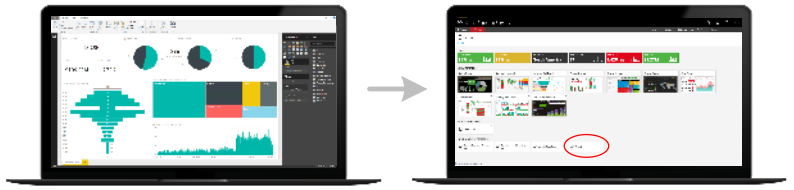
Power BI Report Server

Create

Create interactive reports in Power BI Desktop

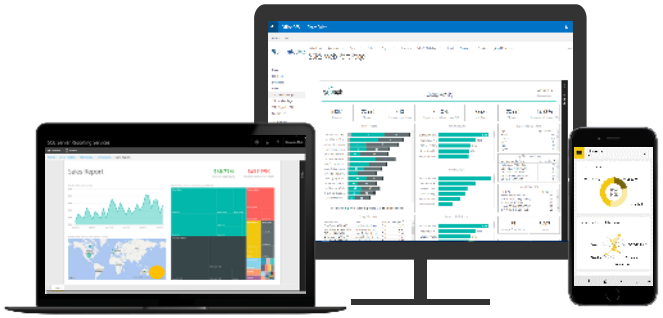
Publish

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

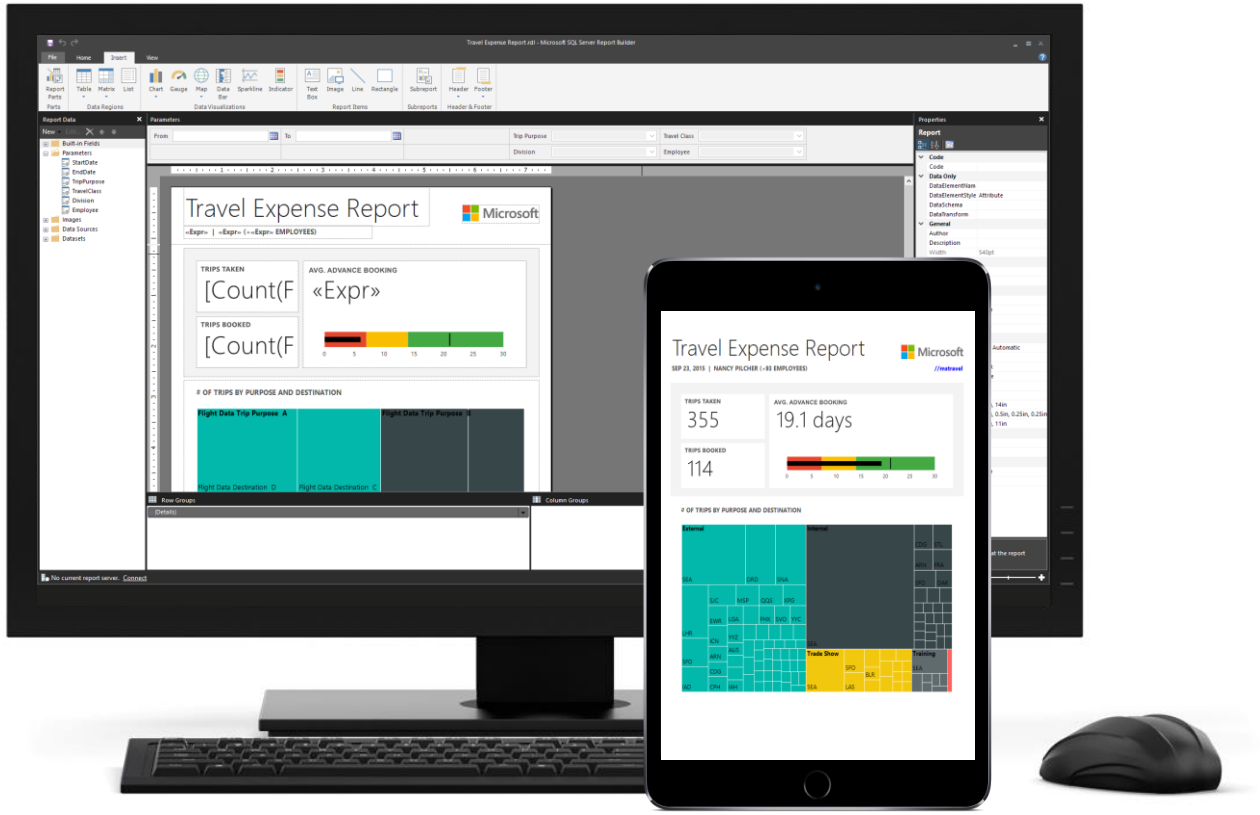
Connect to Analysis Services (Tabular or Multidimensional) and many other data sources

Variety of built-in and custom visuals

Direct deployment to Power BI Report Server

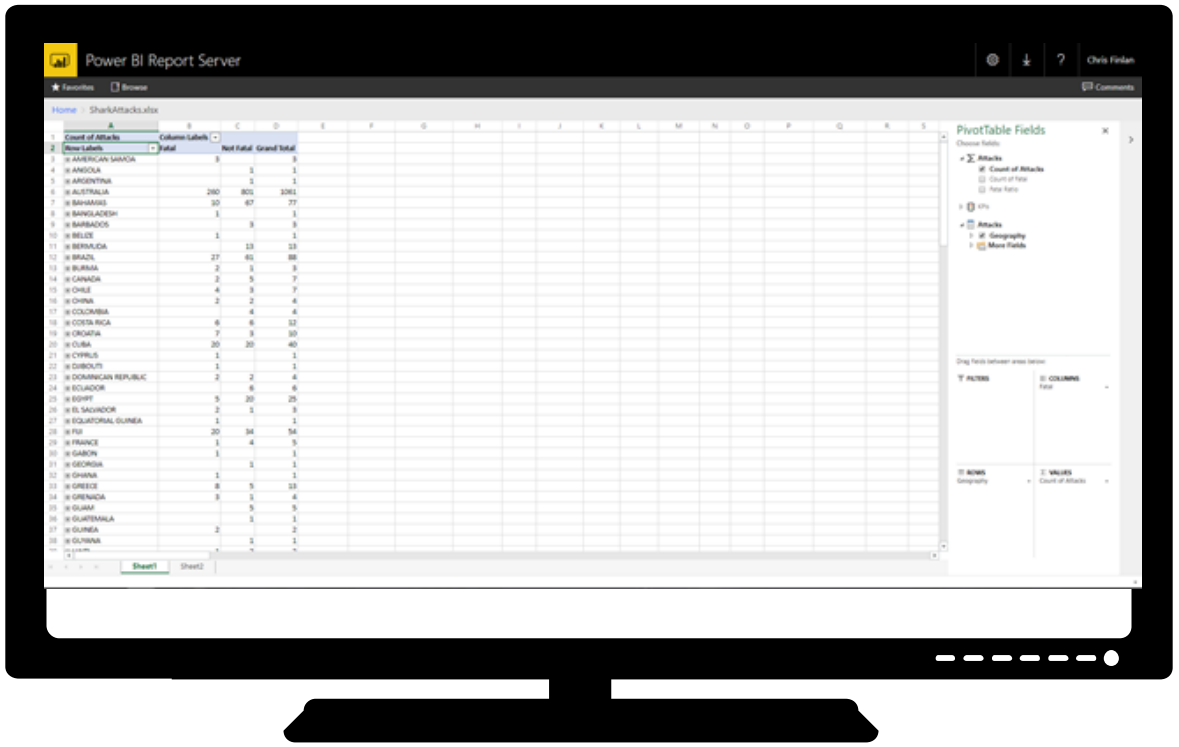
Create modern paginated reports

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

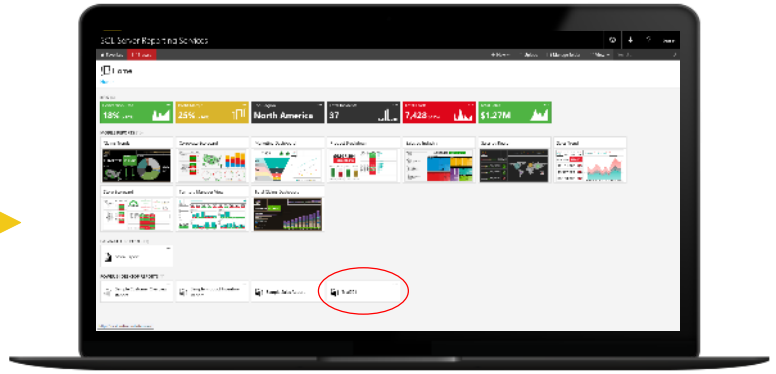


Publish paginated, Power BI, and Excel reports in a single location

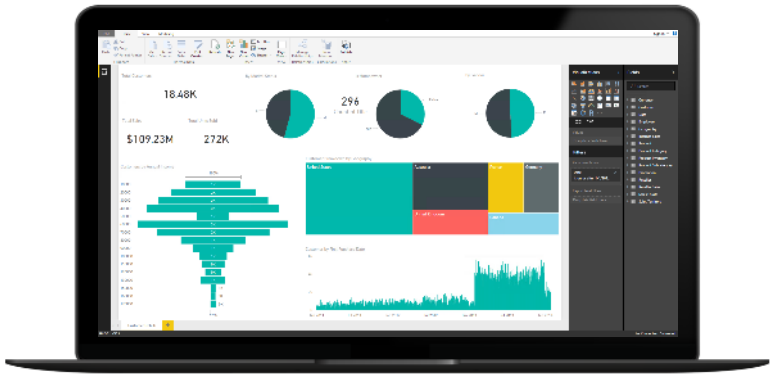
Use live connection to Analysis Services (Tabular)

Use a PowerPivot data model

Publish and manage reports



Power BI Report Server



Power BI Desktop

Publish to Power BI Report Server

Organize and manage access to reports

Re-open, edit, and save back

Consume reports in multiple ways

Mobile apps

Windows

Android

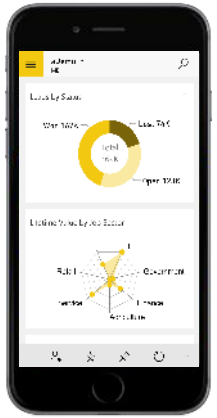
iOS

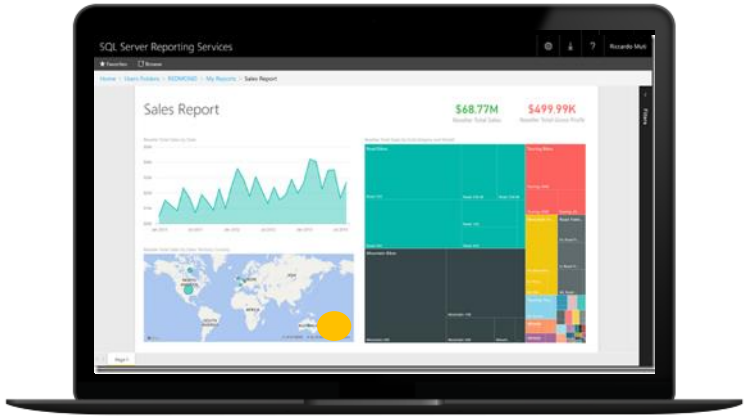
Web portal

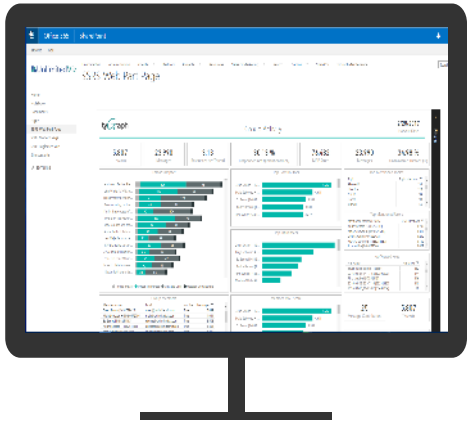
HTML5

Embedded In your apps

rs:Embed=true







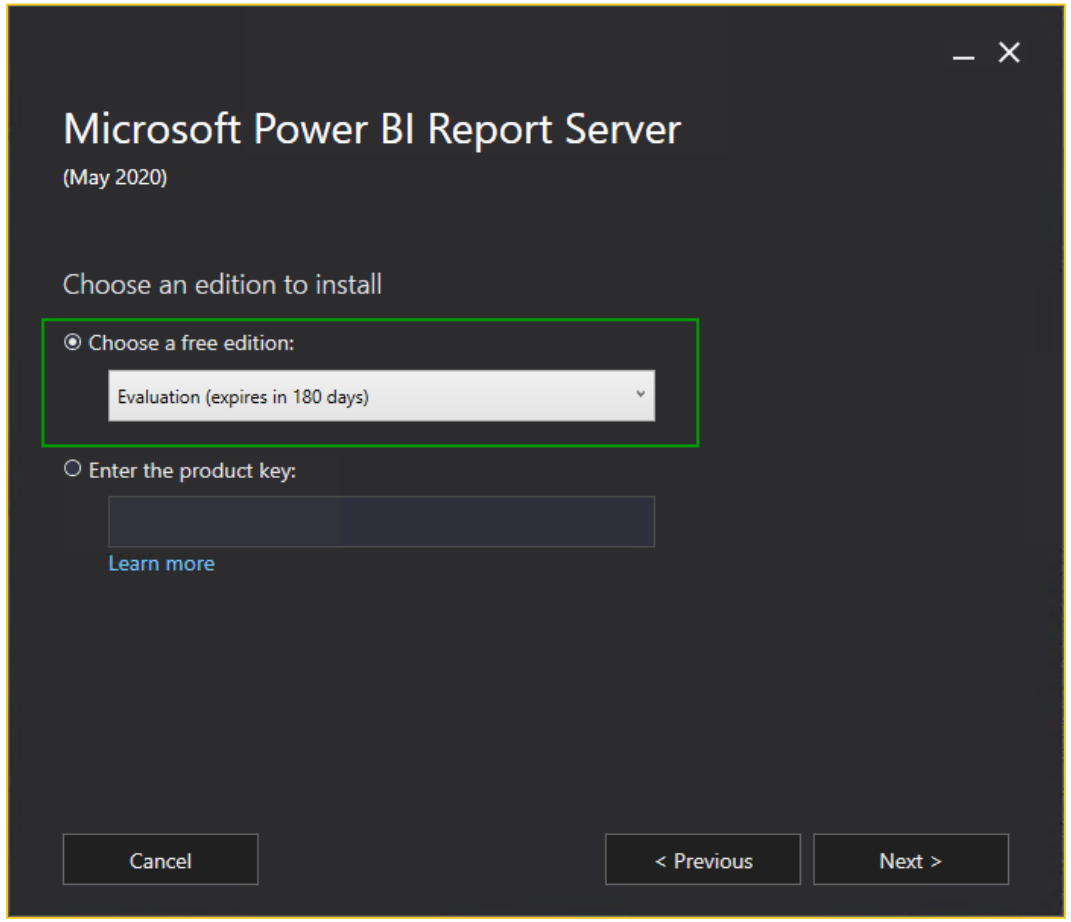
Two editions of Power BI Desktop

	Power BI Desktop	Power BI Desktop Optimized
Installation Path	https://powerbi.microsoft.com/en-us/desktop/	https://powerbi.microsoft.com/en-us/report-server/
Executable Name	PBIDesktop.msi (for 32-bit installation) or PBIDesktop_X64.msi (for 64-bit installation)	PBIDesktopRS.msi (for 32-bit installation) or PBIDesktopRS_X64.msi (for 64-bit installation)
Default Install Path	[Program Files]\Microsoft Power BI Desktop	[Program Files]\Microsoft Power BI Desktop RS
Release Cadence	Estimate of once per month	Estimate of once each 4 months
Preview Features	Available	Not available
Custom Visuals	Available	Available
Publish Location	Power BI Service (Azure hosted)	Power BI Report Server (on premises)

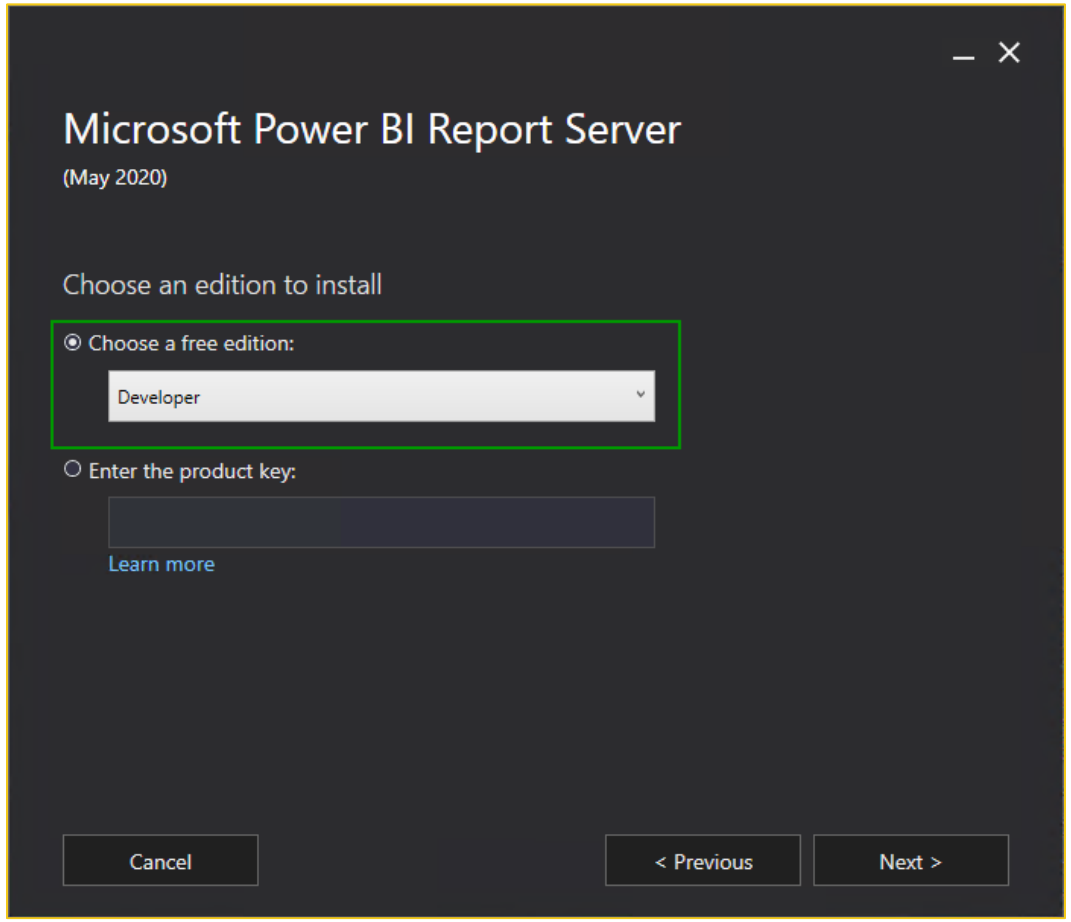
PBIRS for the BI User Demo

Edition & Licensing

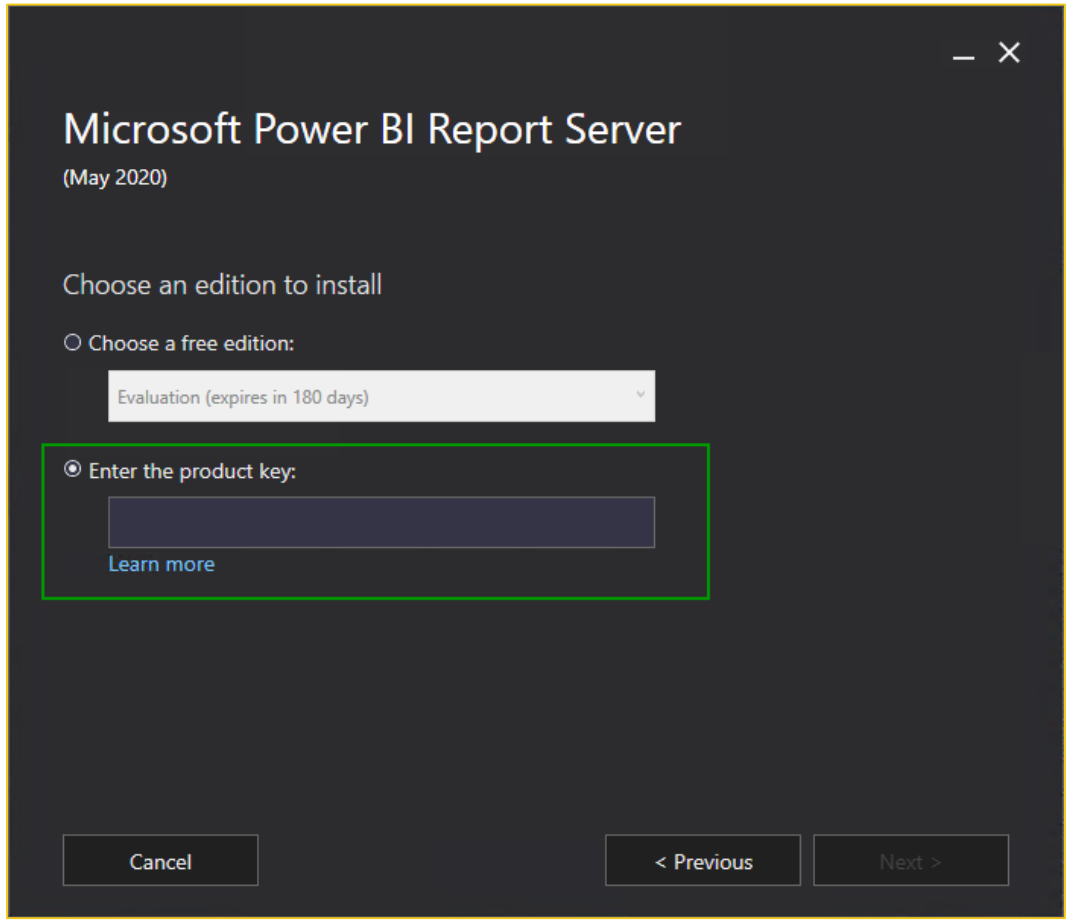
Editions


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 >

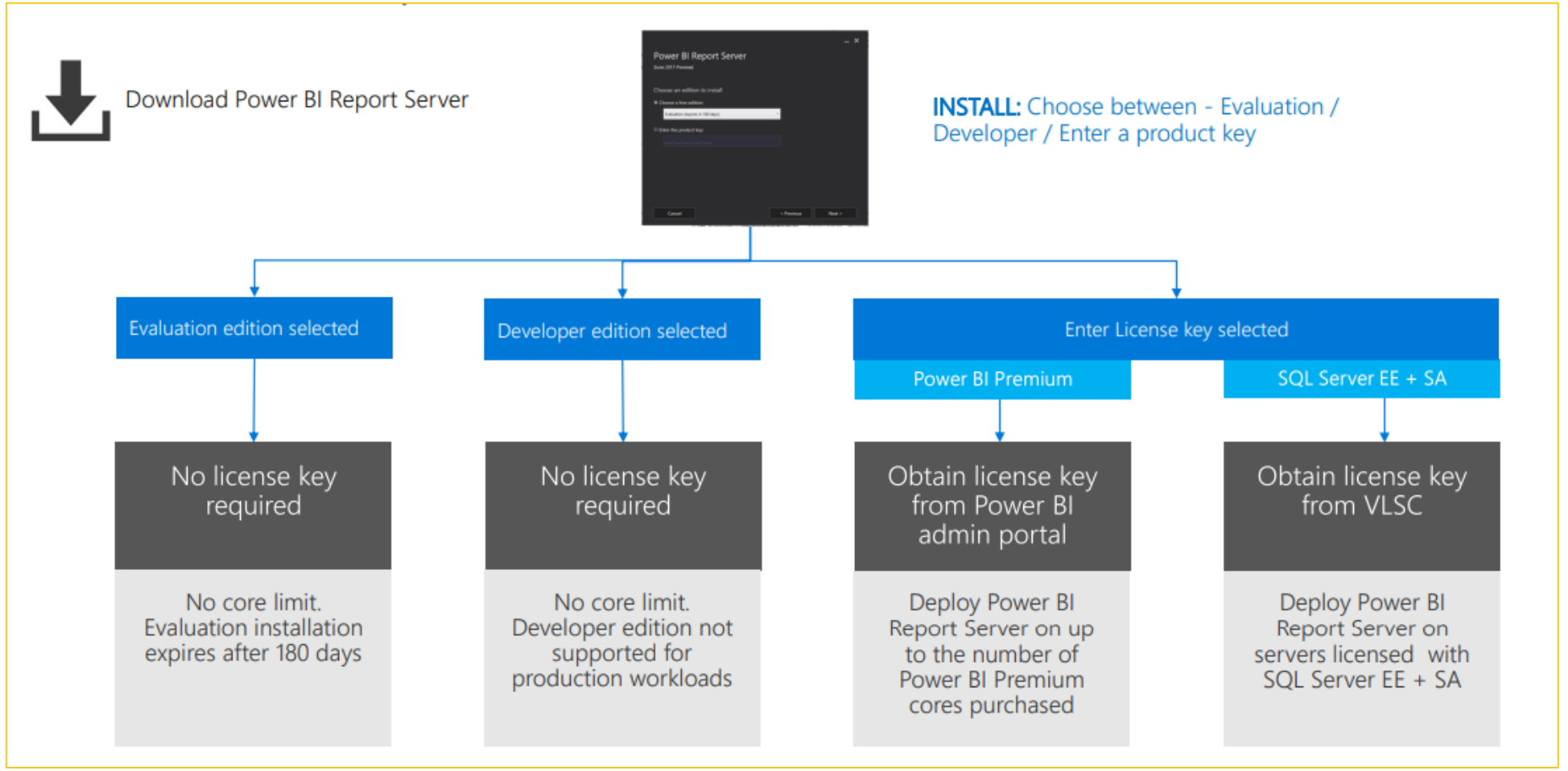
Editions


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


Download Power BI Report Server
Power BI Report Server
INSTALL: Choose between - Evaluation / Developer / Enter a product key
Evaluation edition selected
Developer edition selected
Enter License key selected
Power BI Premium
SQL Server EE + SA
No license key required
No license key required
Obtain license key from Power BI admin portal
Obtain license key from VLSC
No core limit. Evaluation installation expires after 180 days
No core limit. Developer edition not supported for production workloads
Deploy Power BI Report Server on up to the number of Power BI Premium cores purchased
Deploy Power BI Report Server on servers licensed with SQL Server EE + SA

How to acquire Power BI Report Server

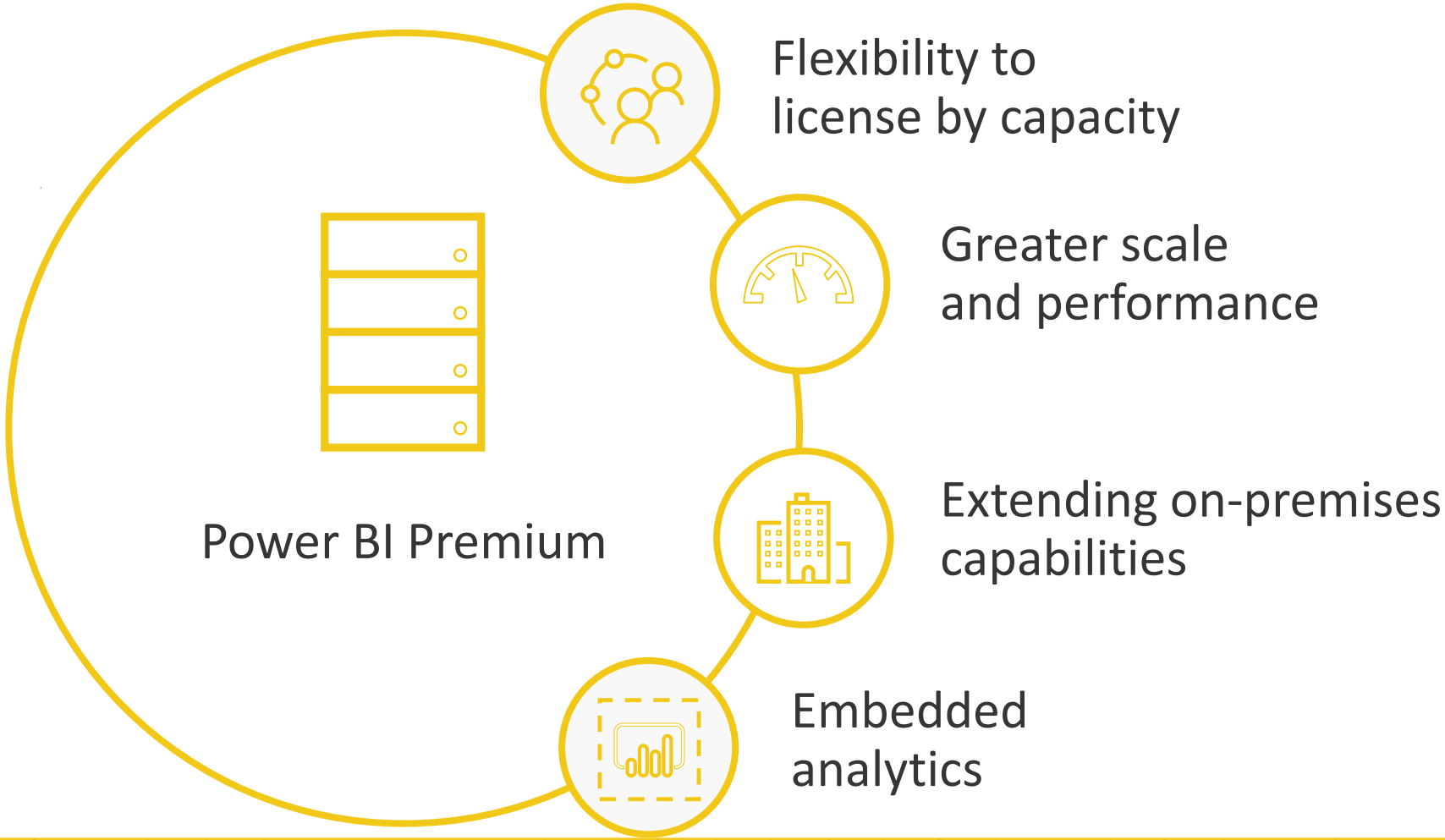
Power BI Premium

SQL Server Enterprise
+ Software Assurance

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

Power BI Premium

Dedicated resources
in the cloud



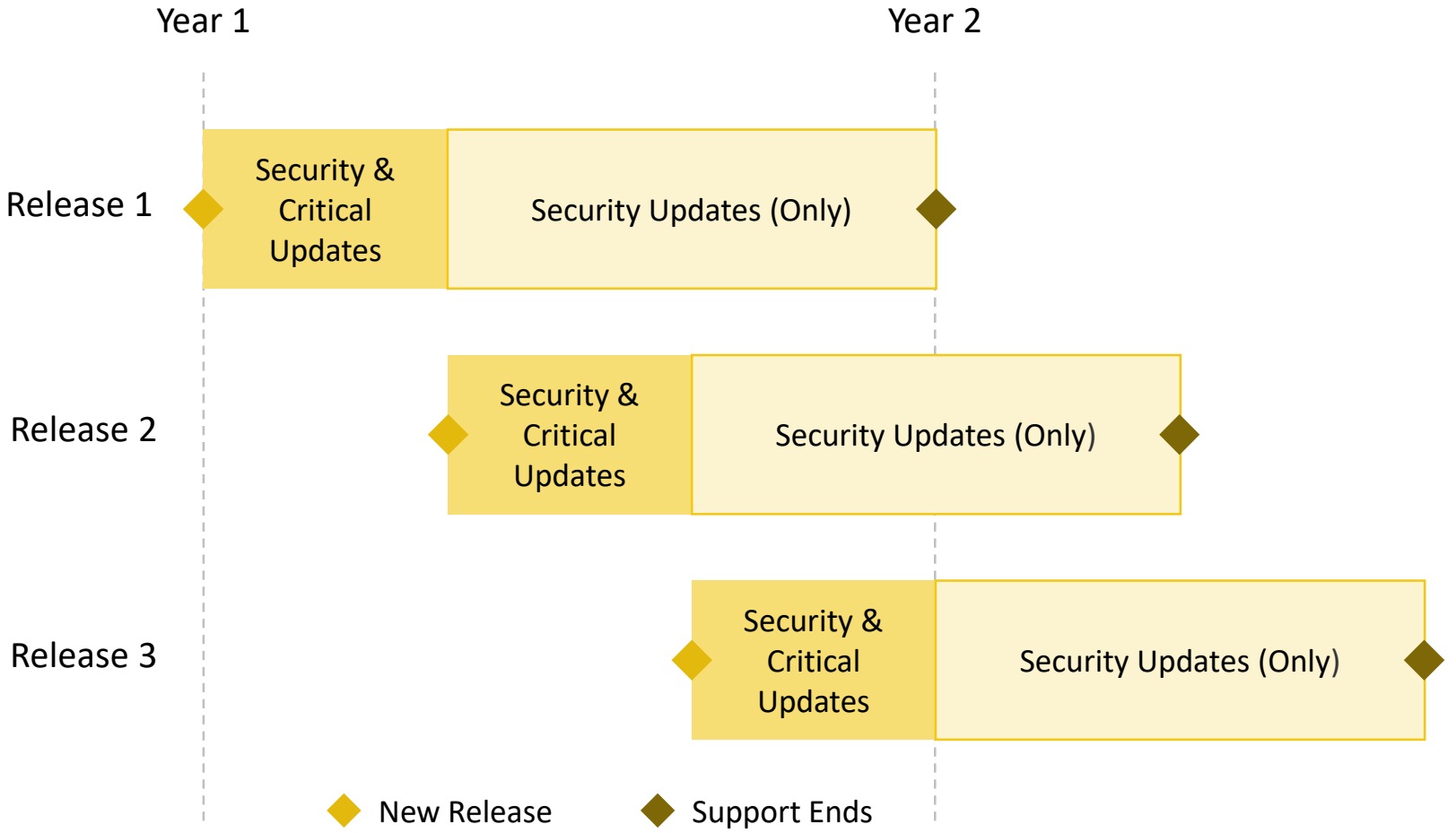
Flexibility to
license by capacity

Greater scale
and performance

Extending on-premises
capabilities

Embedded
analytics

Modern Lifecycle Policy

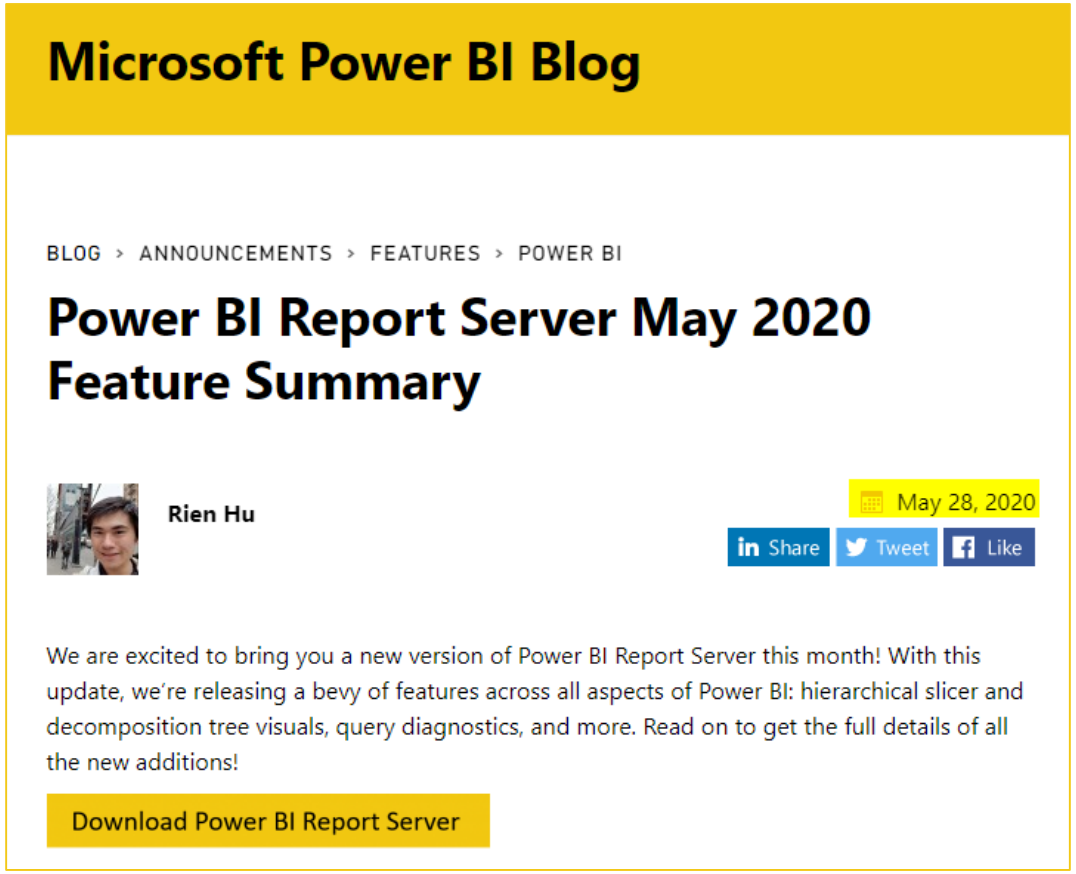


Frequent releases (planning ~3 per year)

Security & critical updates until next release

Security updates continue for remainder of 12 months

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

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

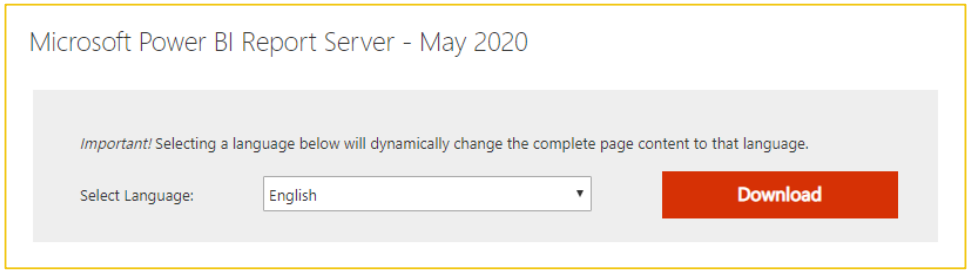
https://powerbi.microsoft.com/en-us/blog/power-bi-report-server-may-2020-feature-summary/

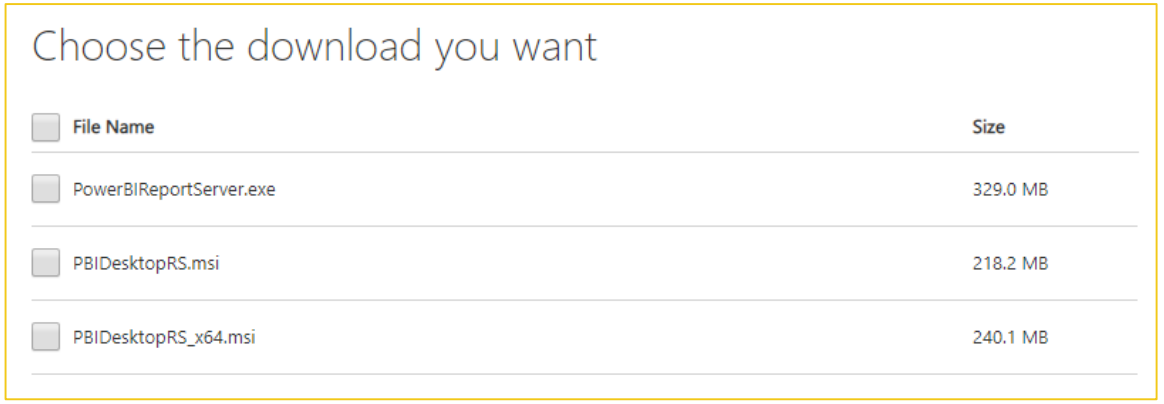
Download & Installation

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





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

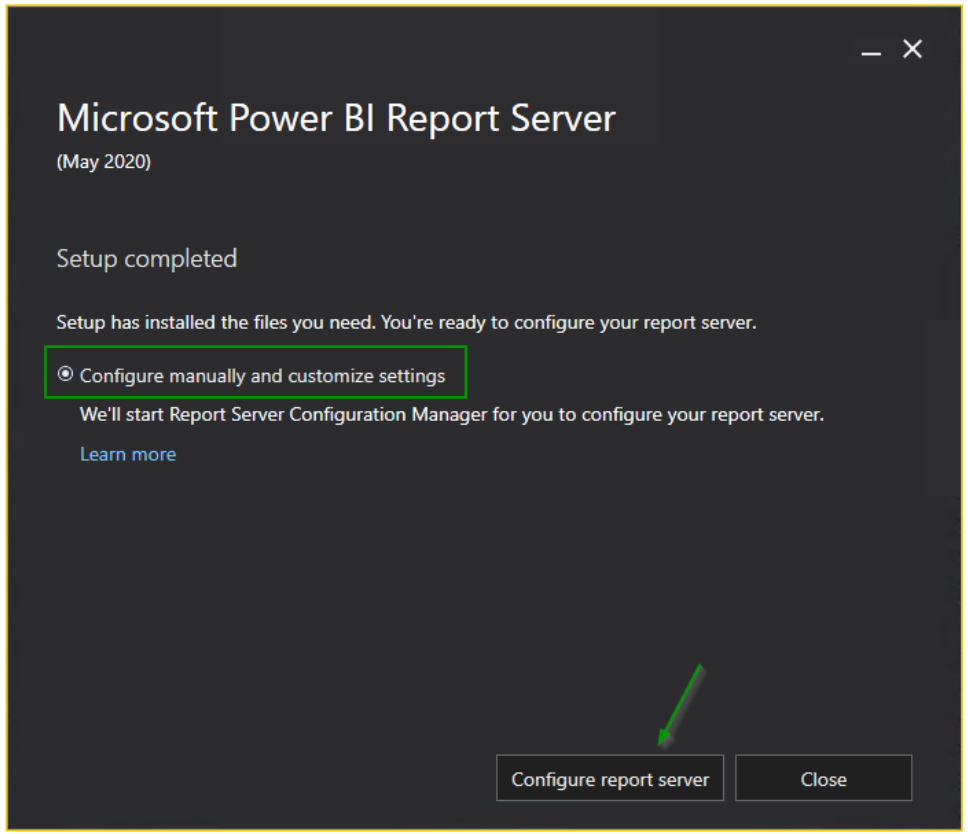
Lightweight download and installation

Zero impact on SQL Server

Requirements

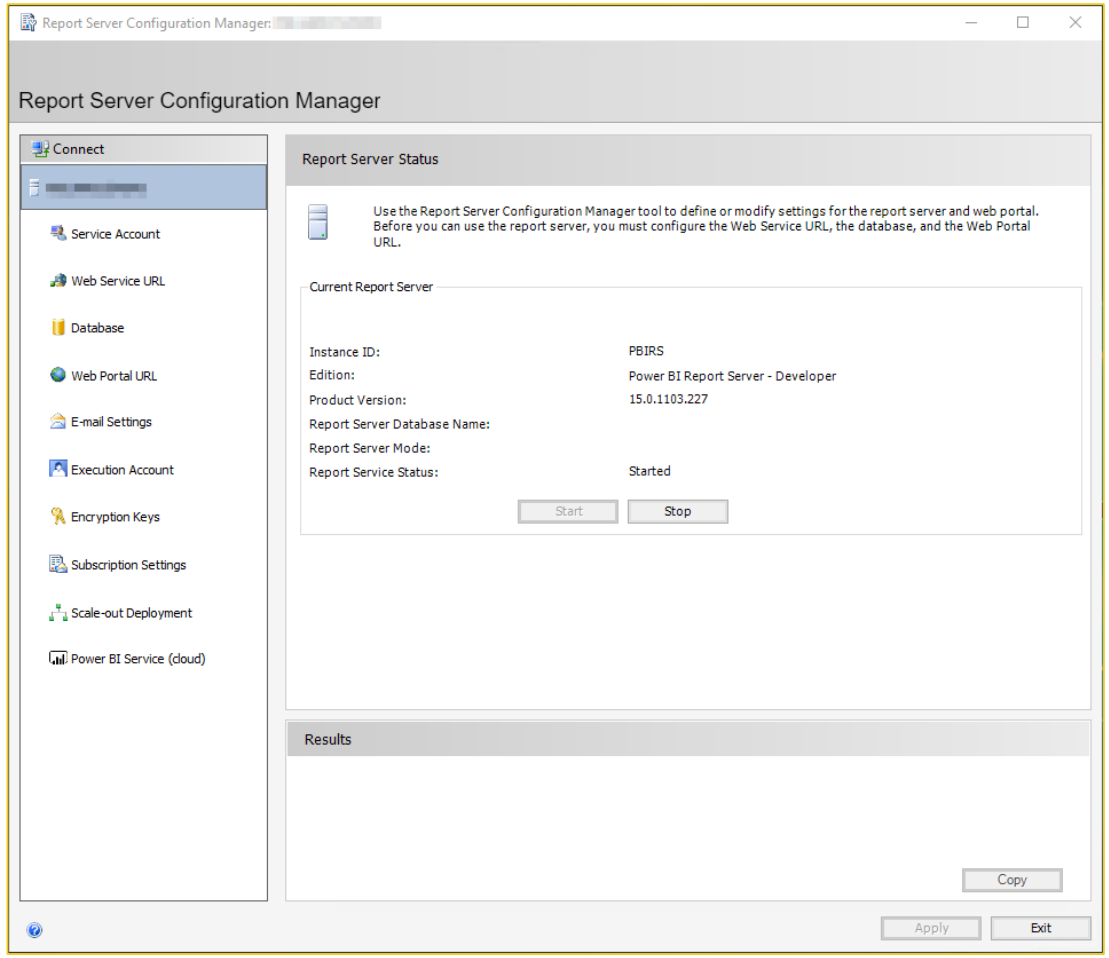
- Windows Server 2012+
- SQL Server Database Engine (2012+)
- SQL Server Analysis Services (2012+)

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



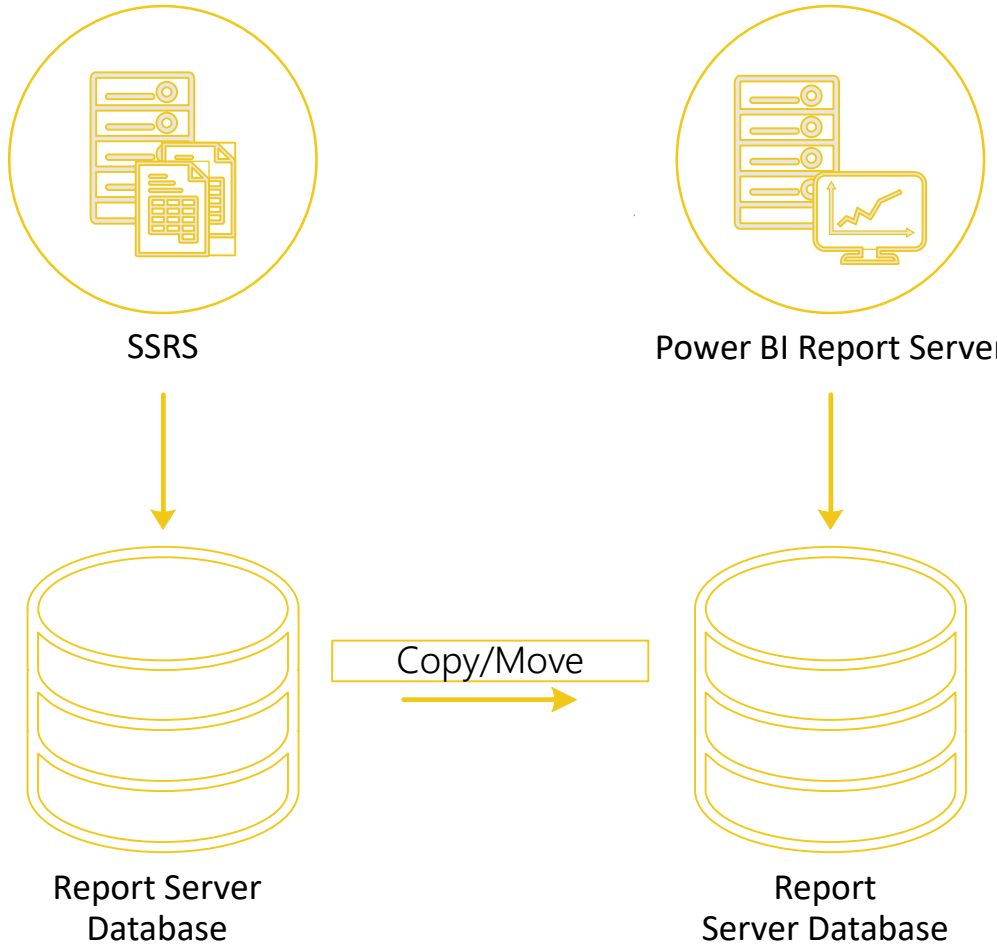
Configure immediately after the setup

Open Report Server Configuration Manager

Configuration like SSRS

Integration with Power BI

Migrate from SSRS (Native mode)

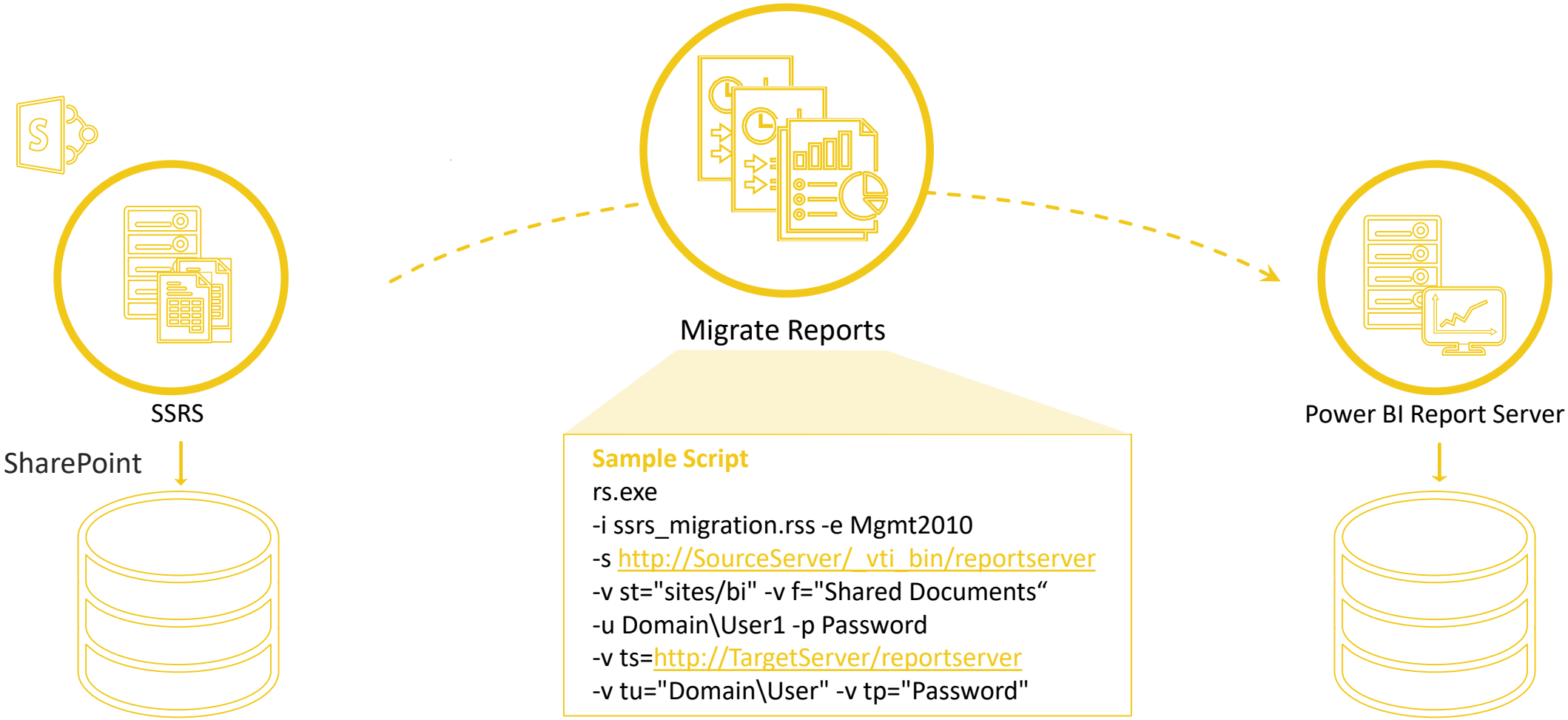


Back up report server database

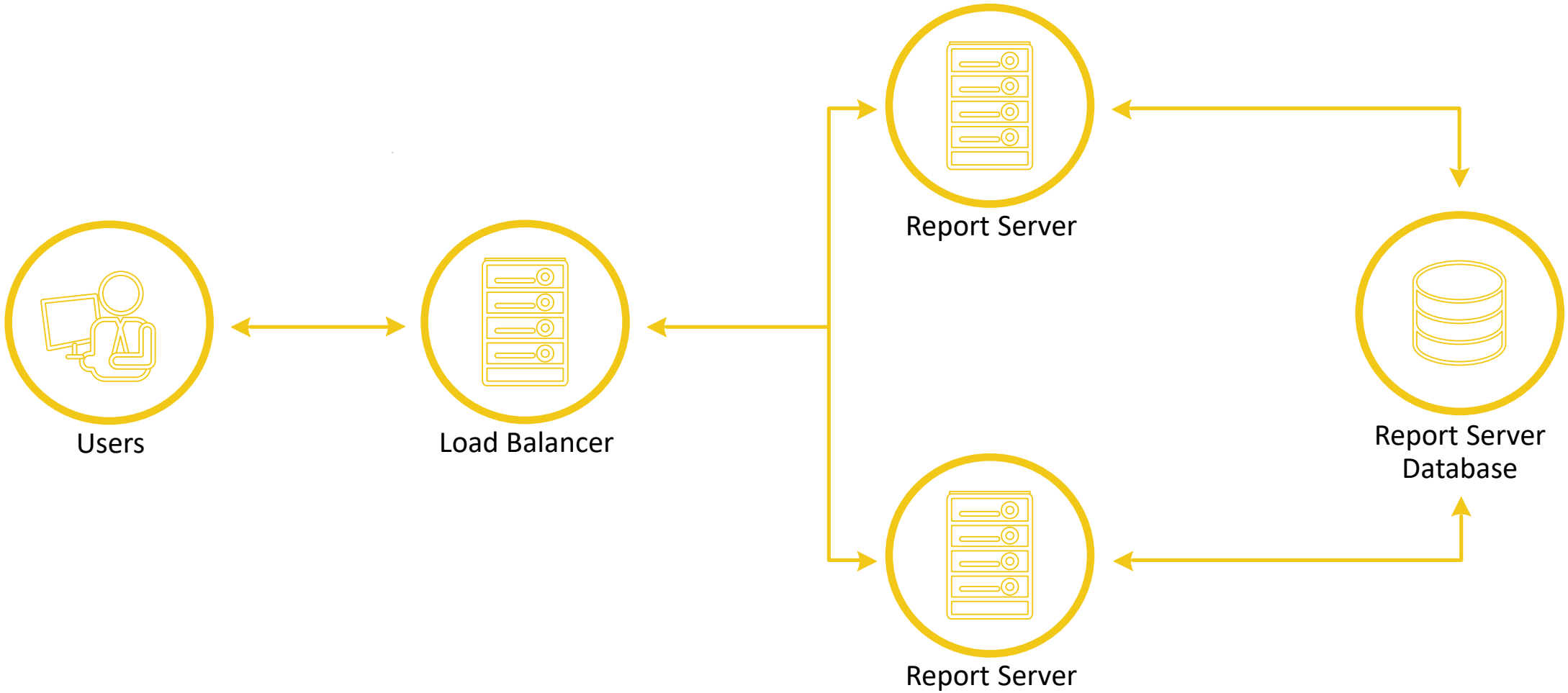
Install Power BI Report Server

Connect report server to database using Report Server Configuration Manager

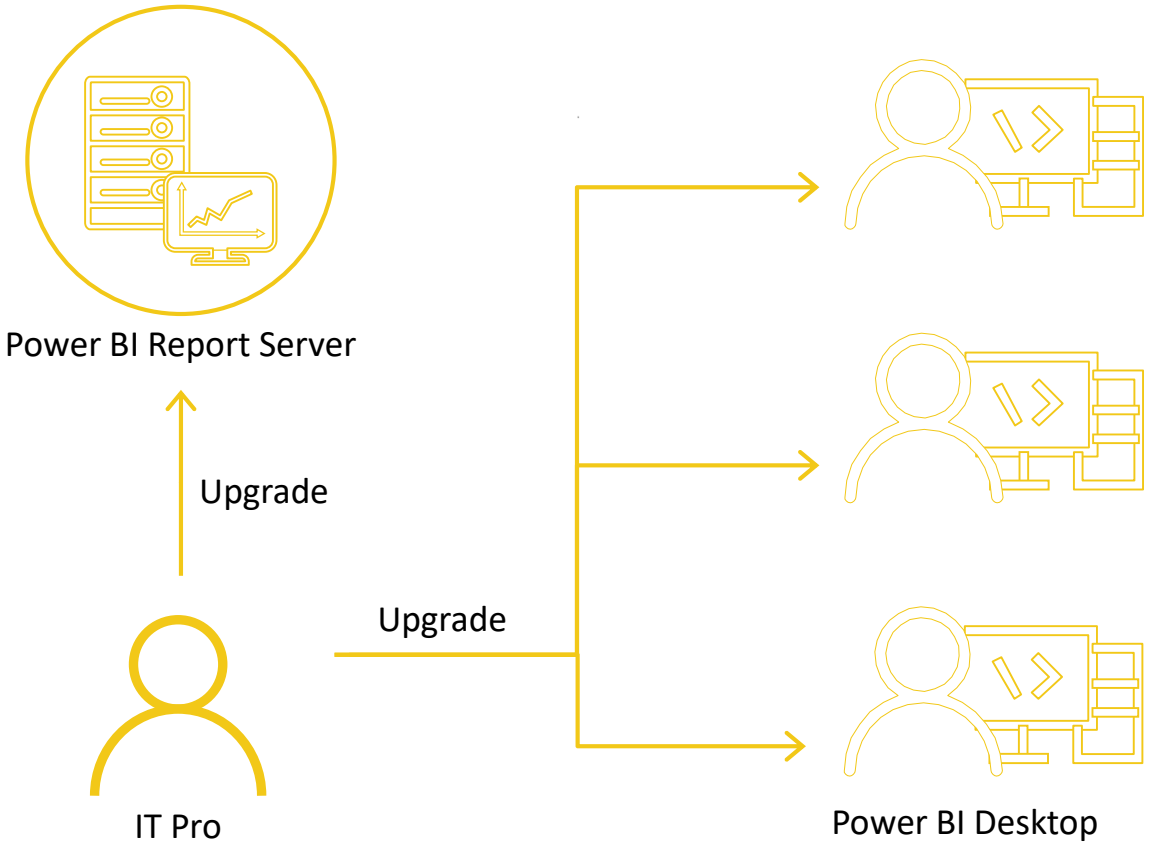
Migrate from SSRS (SharePoint-integrated mode)



Scale-out report servers



Updating PBI Desktop + Report Server



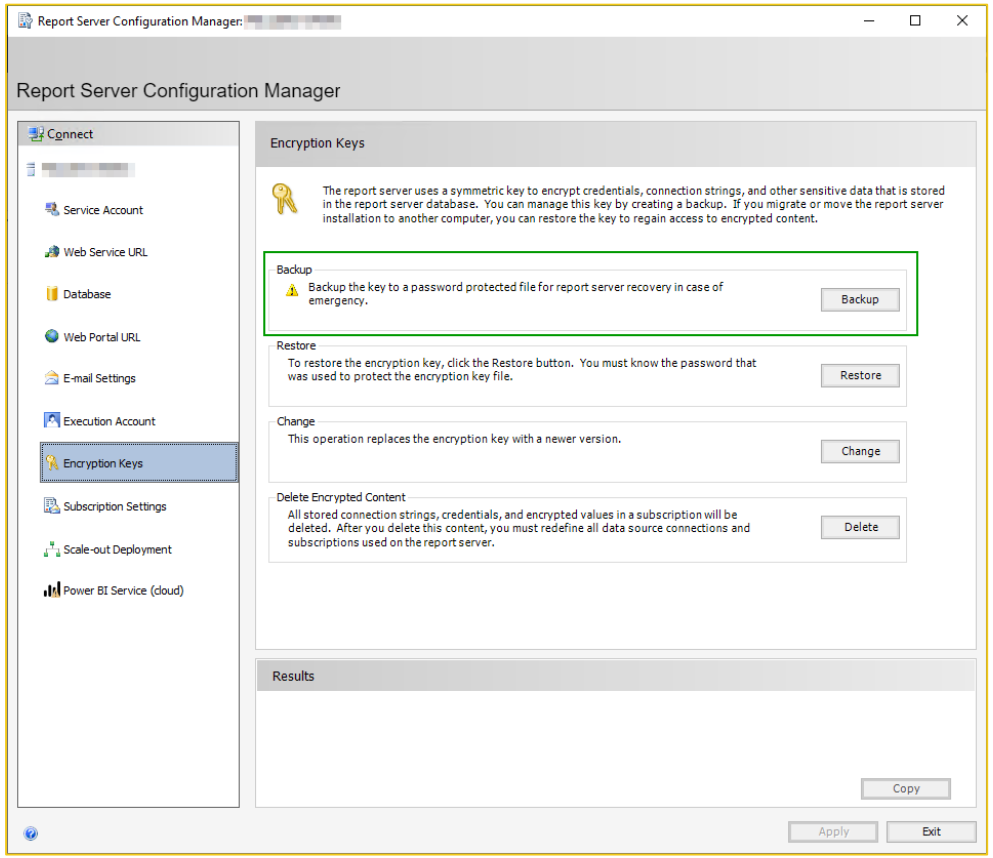
Power BI Report Server and Power BI Desktop release concurrently

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



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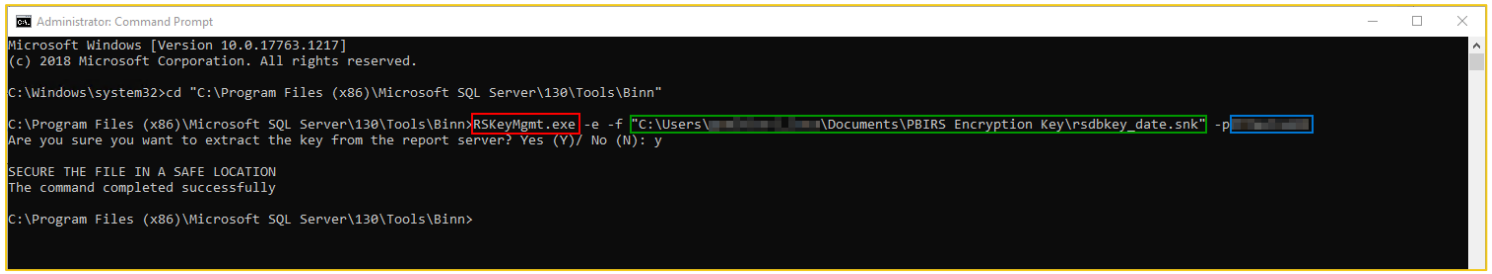

- Backup the report server databases

- Backup the configuration files

Upgrade

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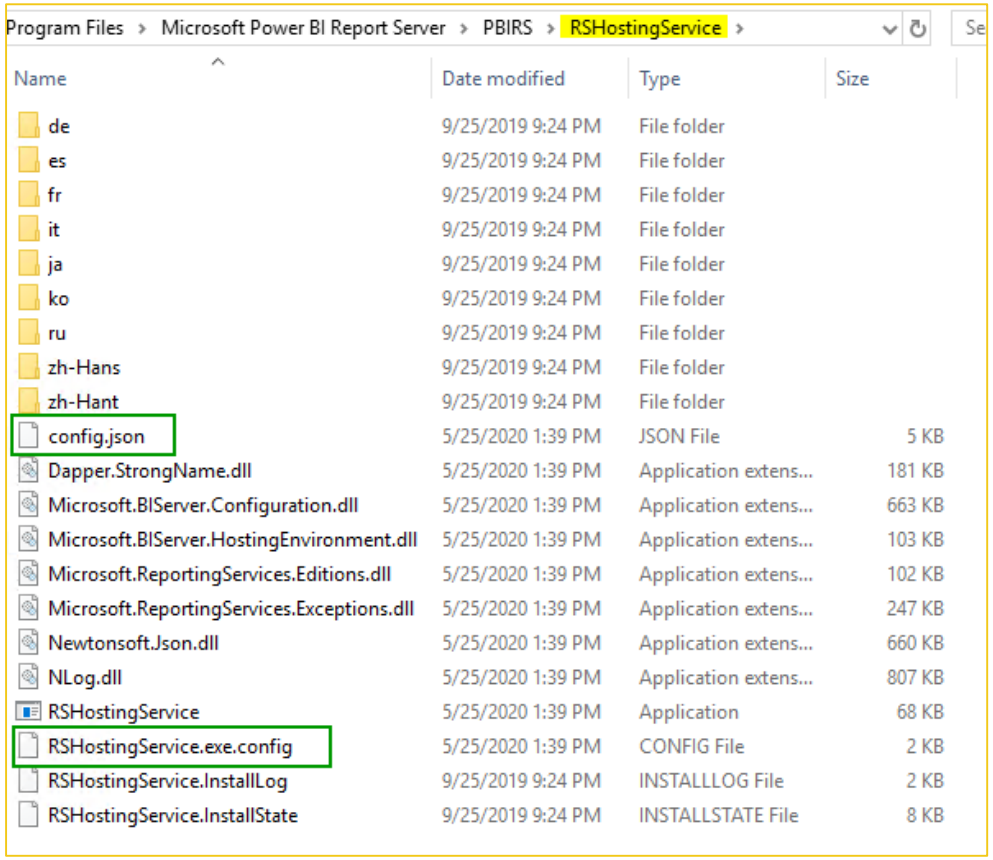

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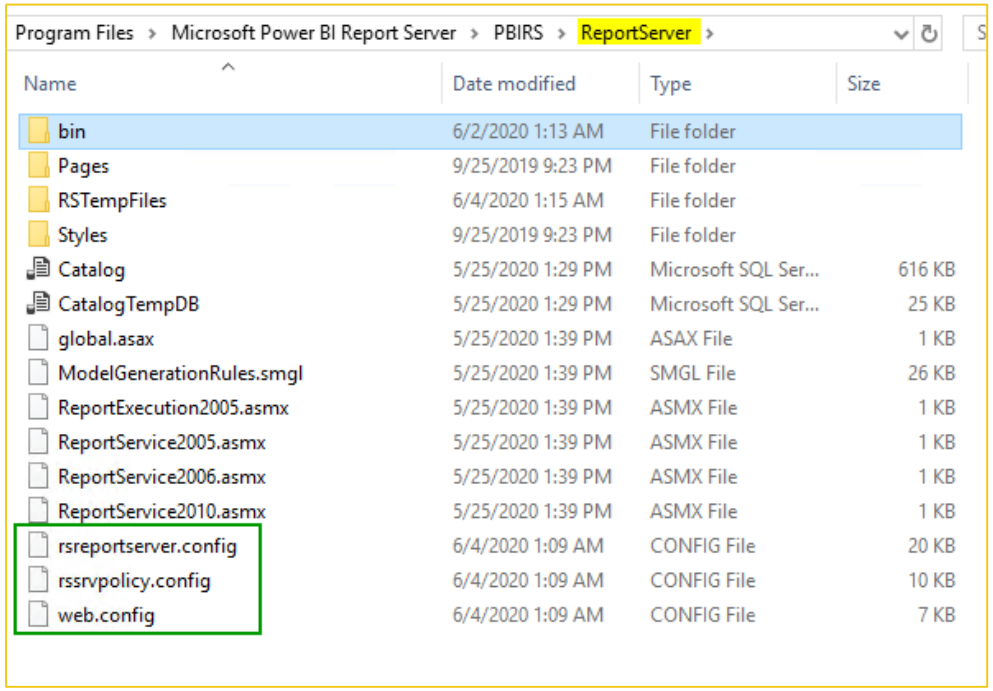

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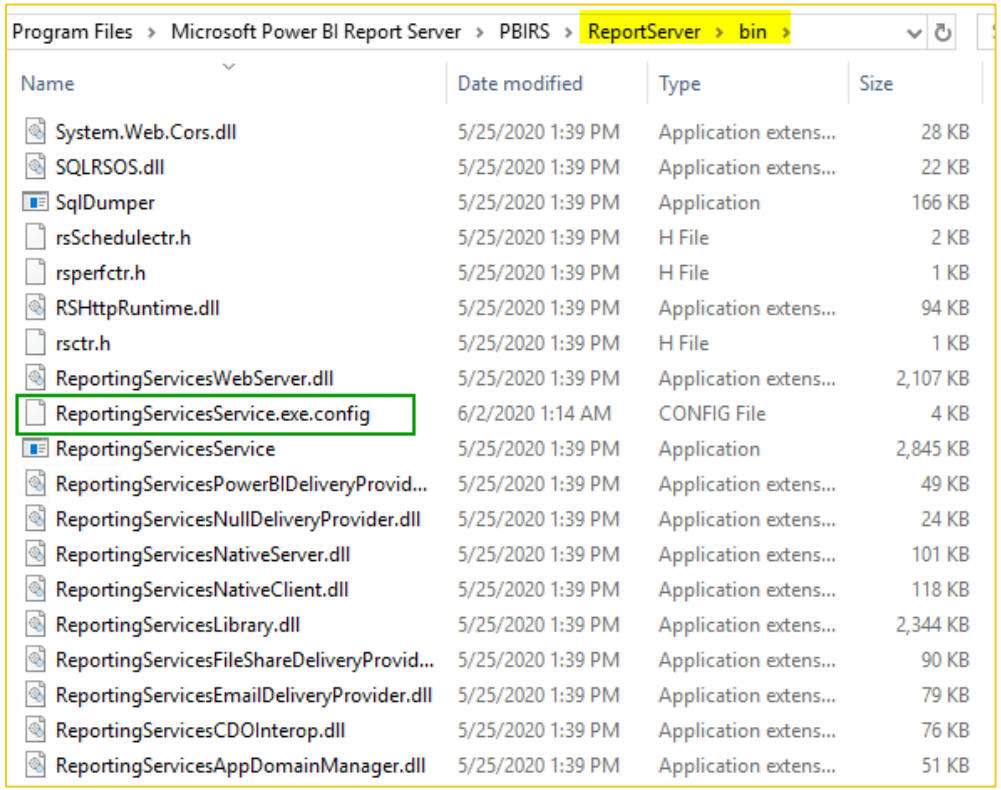

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Integr. with Power BI Demo

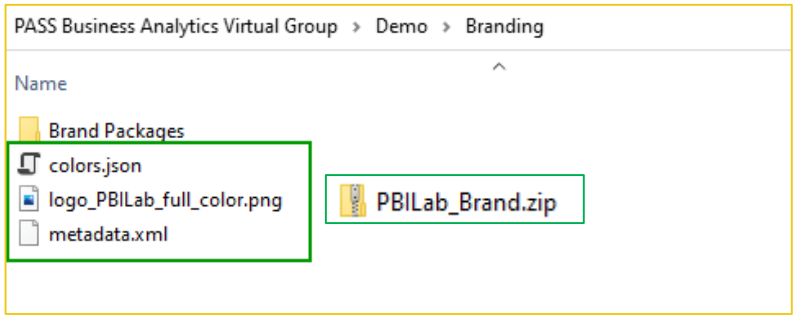
Branding

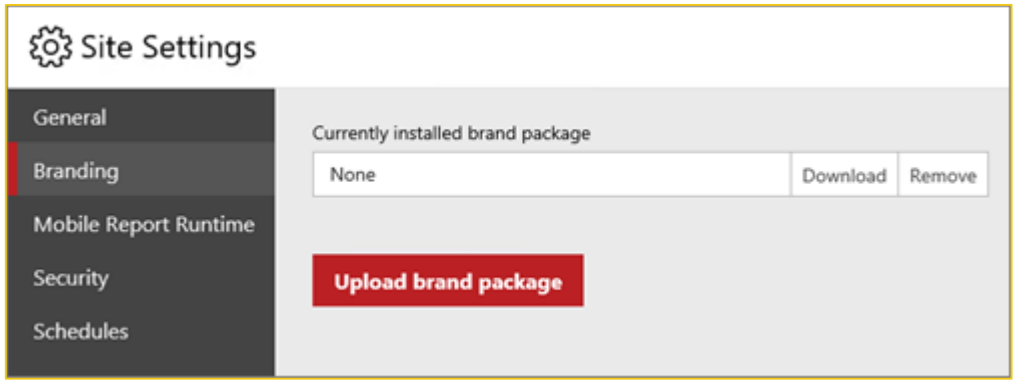
Report Server Branding

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_PBILab_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

Schema: <No Schema Selected>

```
{
  "name":"PBI Lab brand",
  "version":"1.0",
  "interface":{
    "primary":"#000f7b",
    "primaryAlt":"#8ed6f6",
    "primaryAlt2":"#000f7b",
    "primaryAlt3":"#0065bd",
    "primaryAlt4":"#0065bd",
    "primaryContrast":"#0065bd",
    "secondary":"#21A0D8",
    "secondaryAlt":"#000f7b",
    "secondaryAlt2":"#8ed6f6",
    "secondaryAlt3":"#008cff",
    "secondaryContrast":"#fff",
    "neutralPrimary":"#fff",
    "neutralPrimaryAlt":"#fff",
    "neutralPrimaryAlt2":"#000f7b",
    "neutralPrimaryAlt3":"#000f7b",
    "neutralPrimaryContrast":"#000",
    "neutralSecondary":"#fff",
    "neutralSecondaryAlt":"#eaeaea",
    "neutralSecondaryAlt2":"#008cff",
    "neutralSecondaryAlt3":"#acacac",
    "neutralSecondaryContrast":"#000",
    "neutralTertiary":"#0065bd",
    "neutralTertiaryAlt":"#c8c8c8",
    "neutralTertiaryAlt2":"#eaeaea",
    "neutralTertiaryAlt3":"#ccc",
    "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

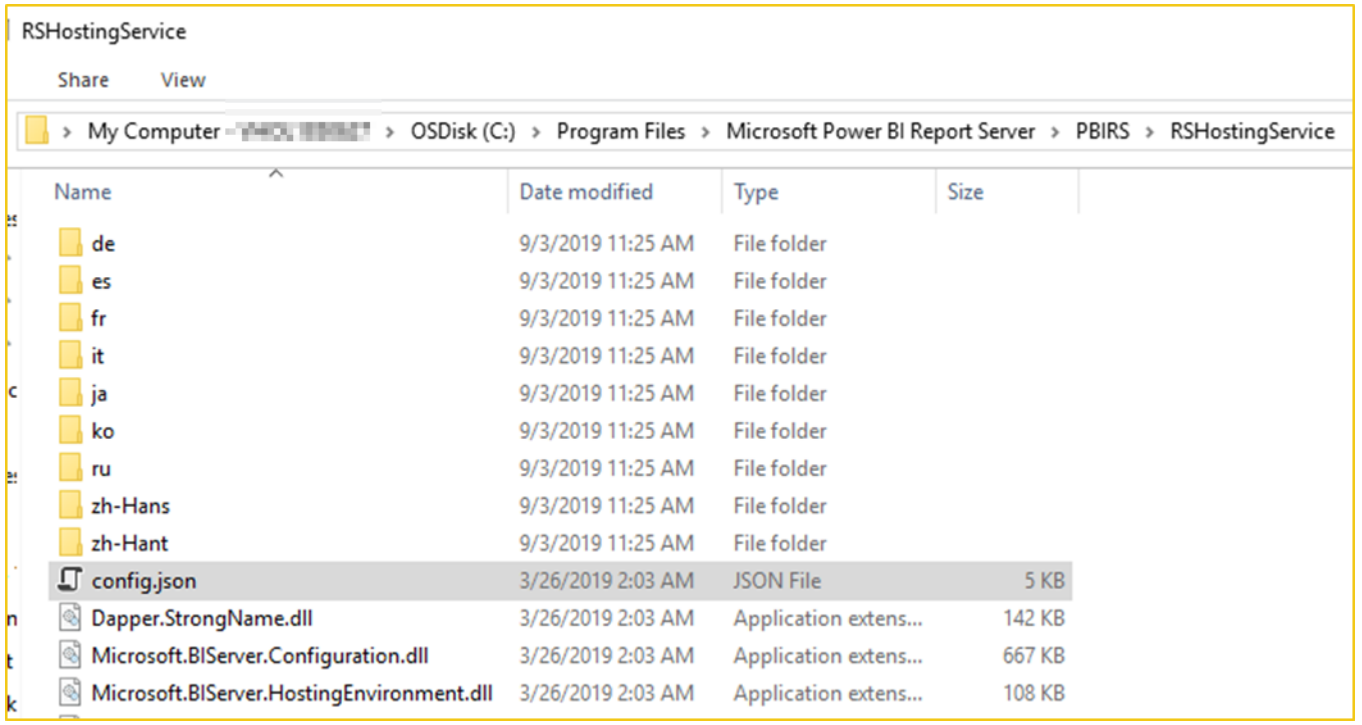
Branding Demo

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



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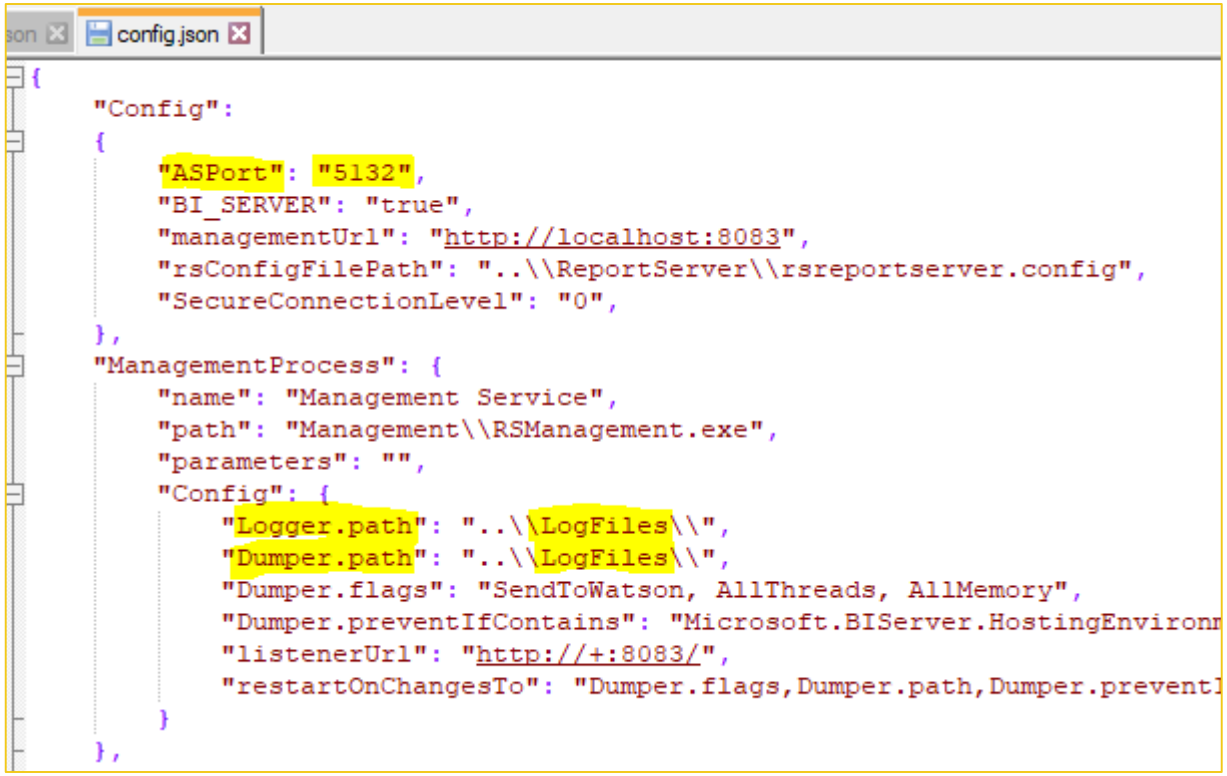
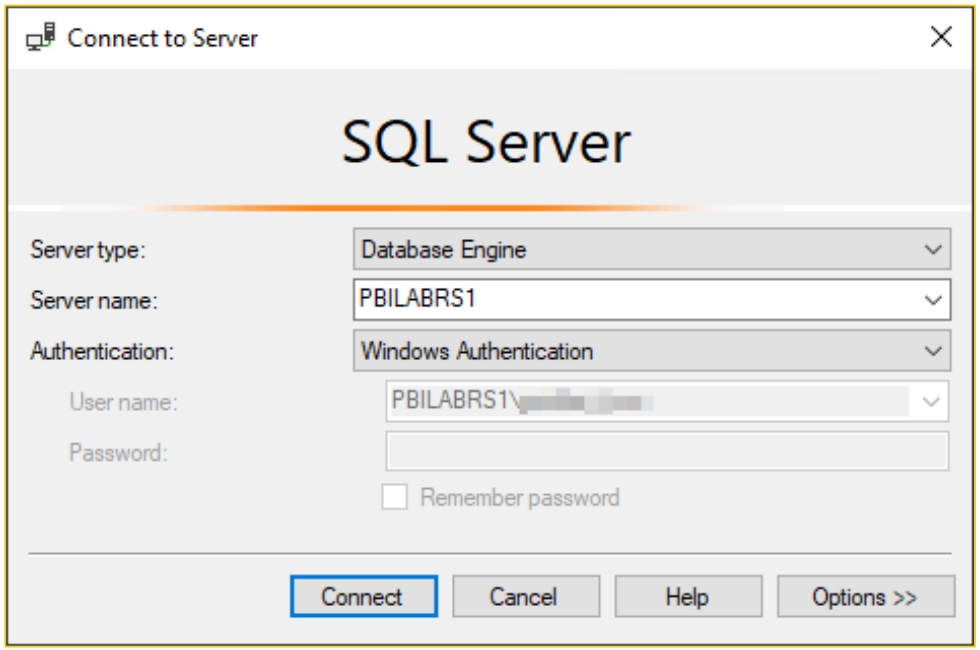


Configuration table

Steps

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



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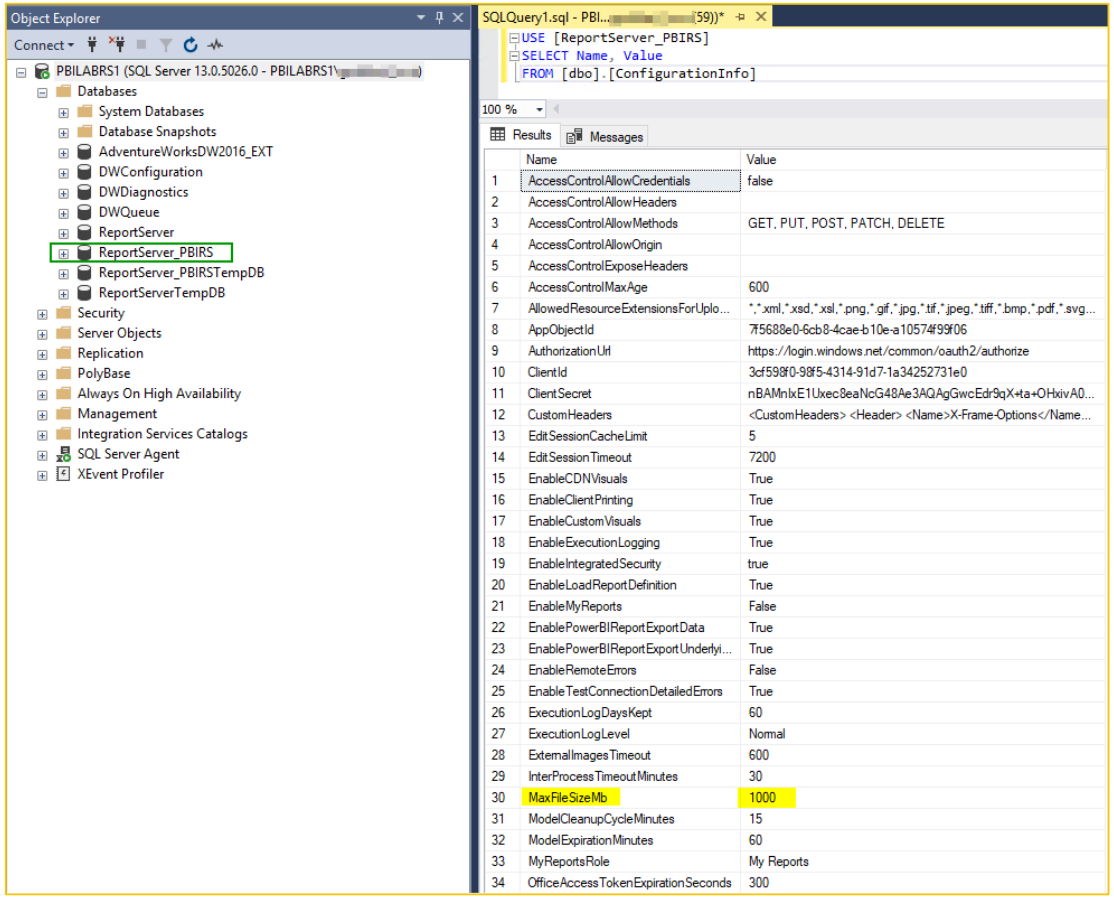
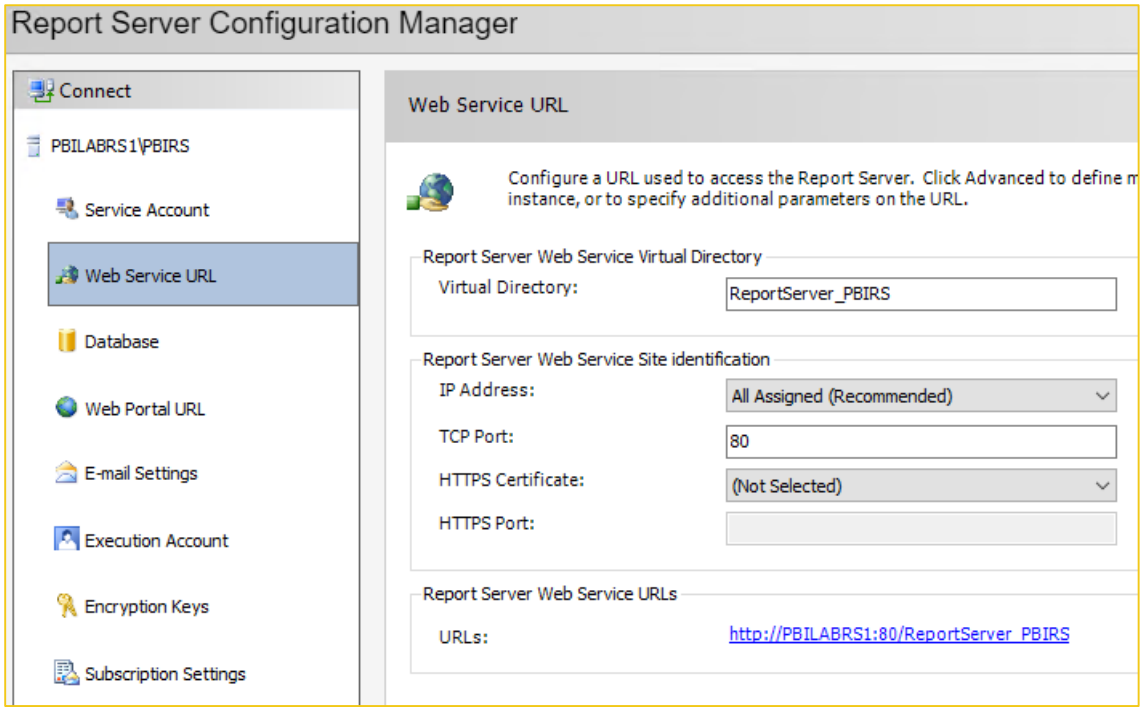


Connect with SSMS

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



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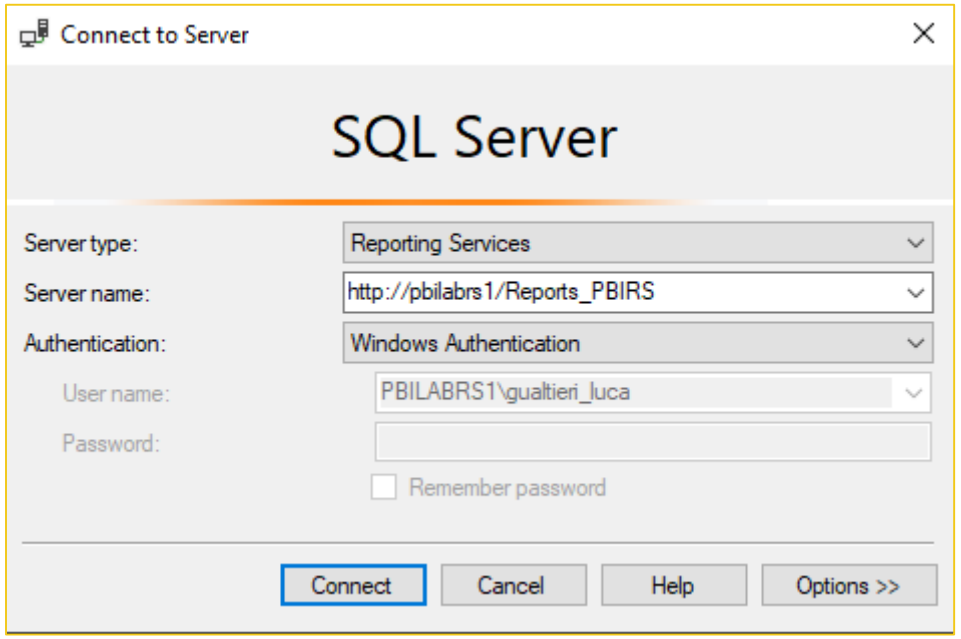
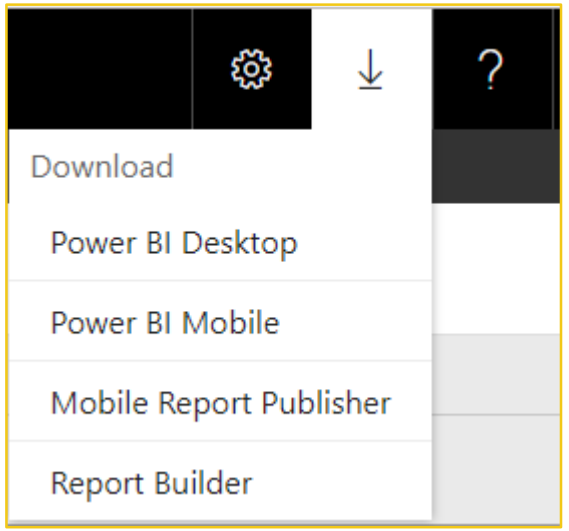


Configuration Example

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**



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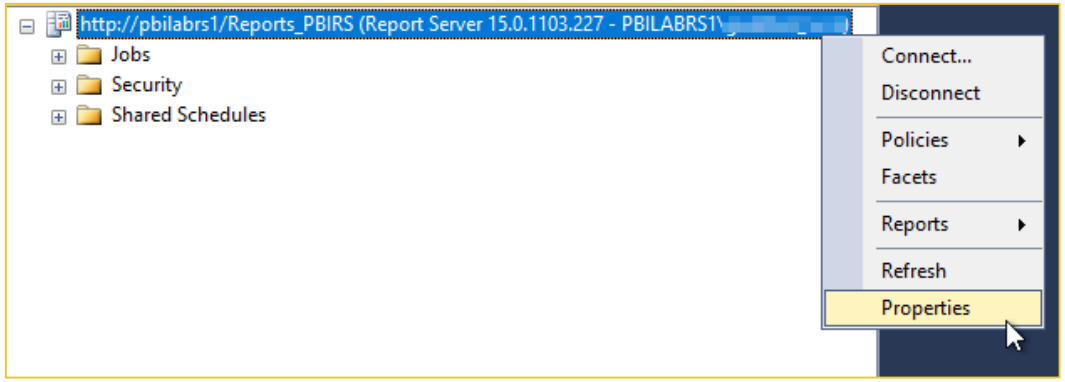

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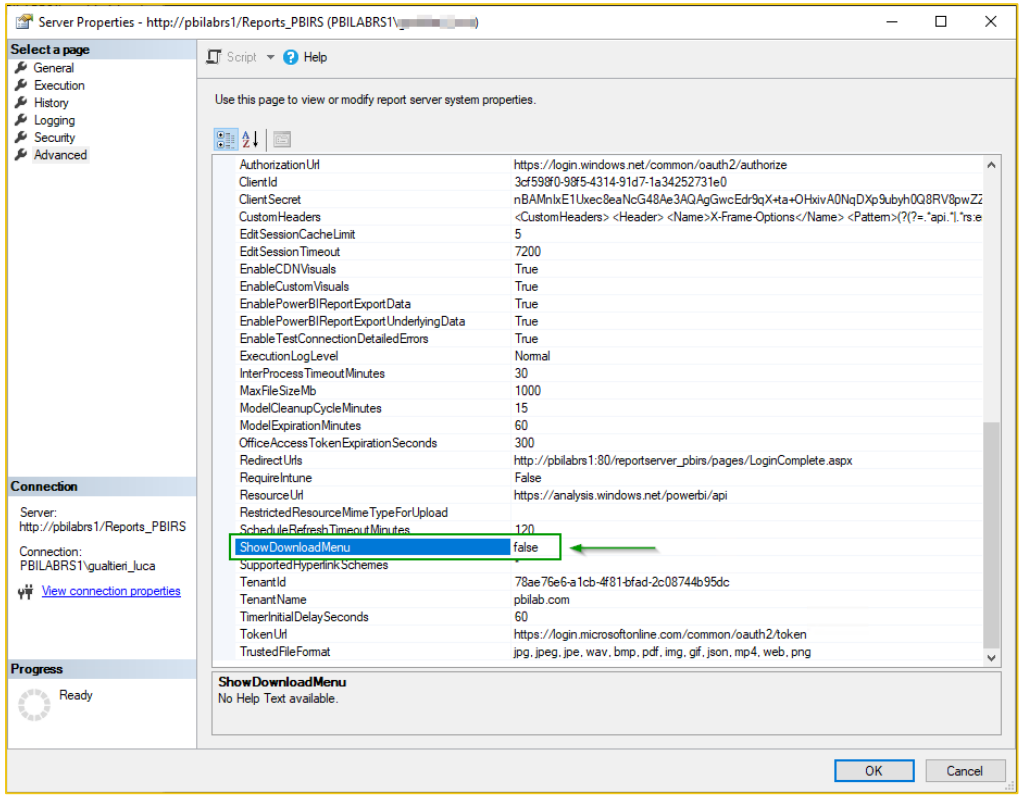
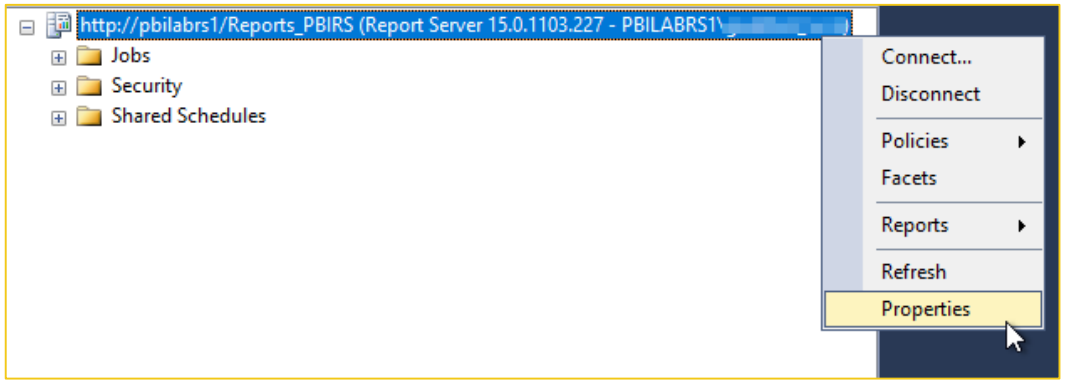


Configuration Example

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**



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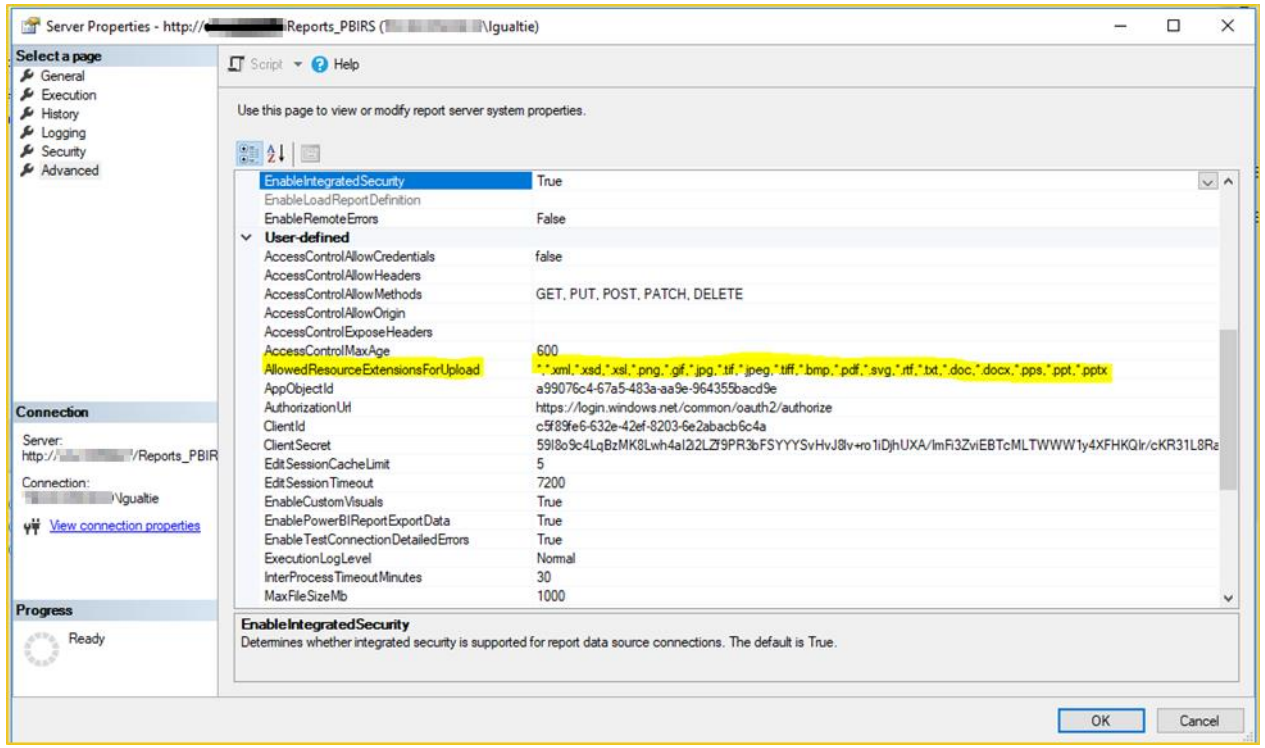
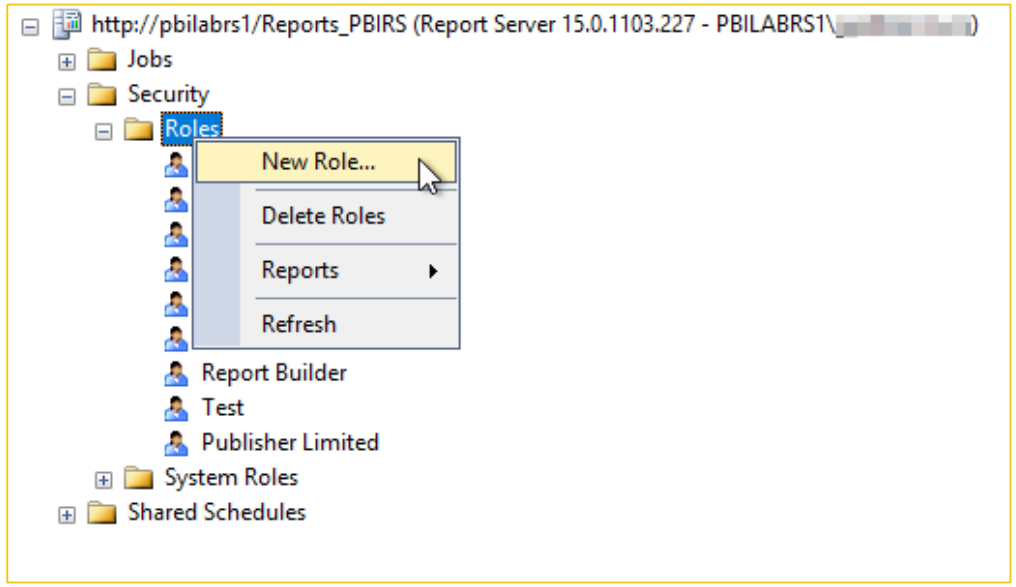


Configuration Example

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**



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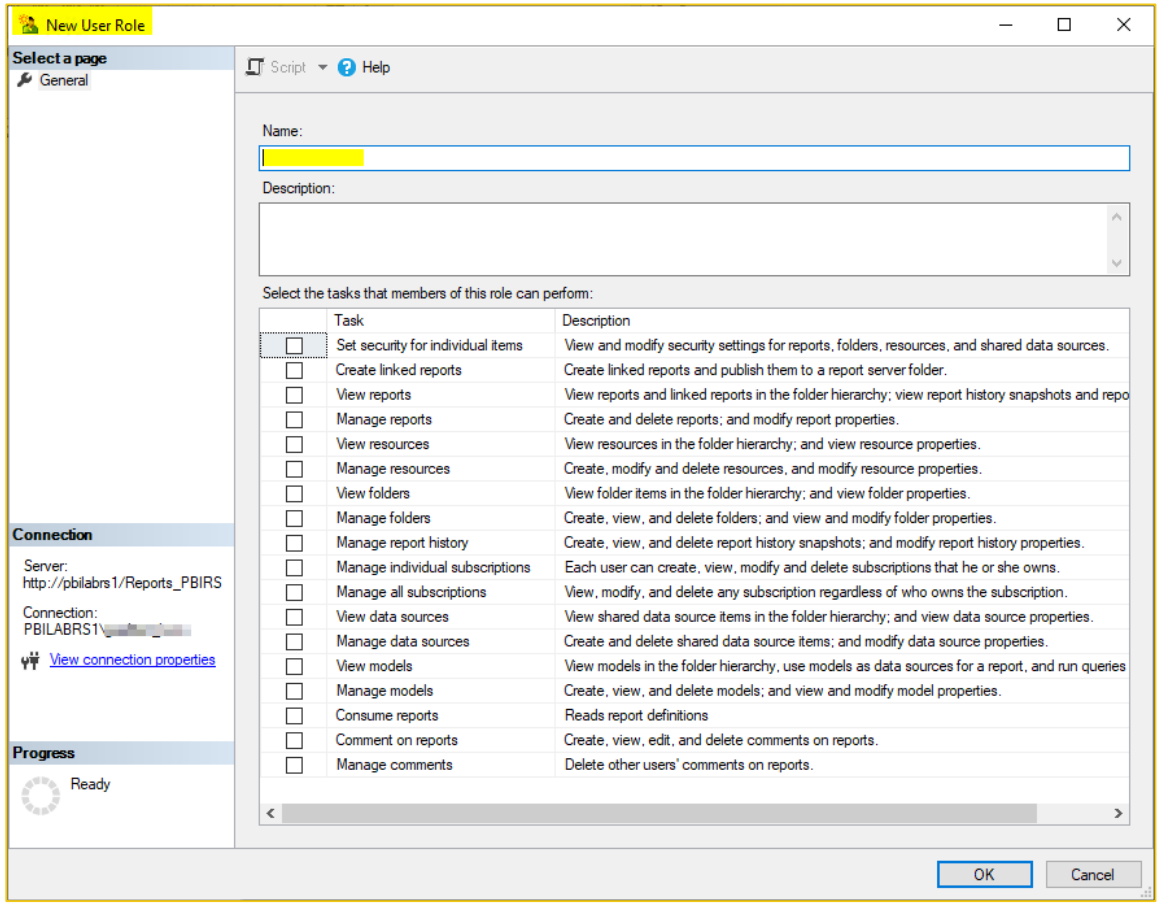


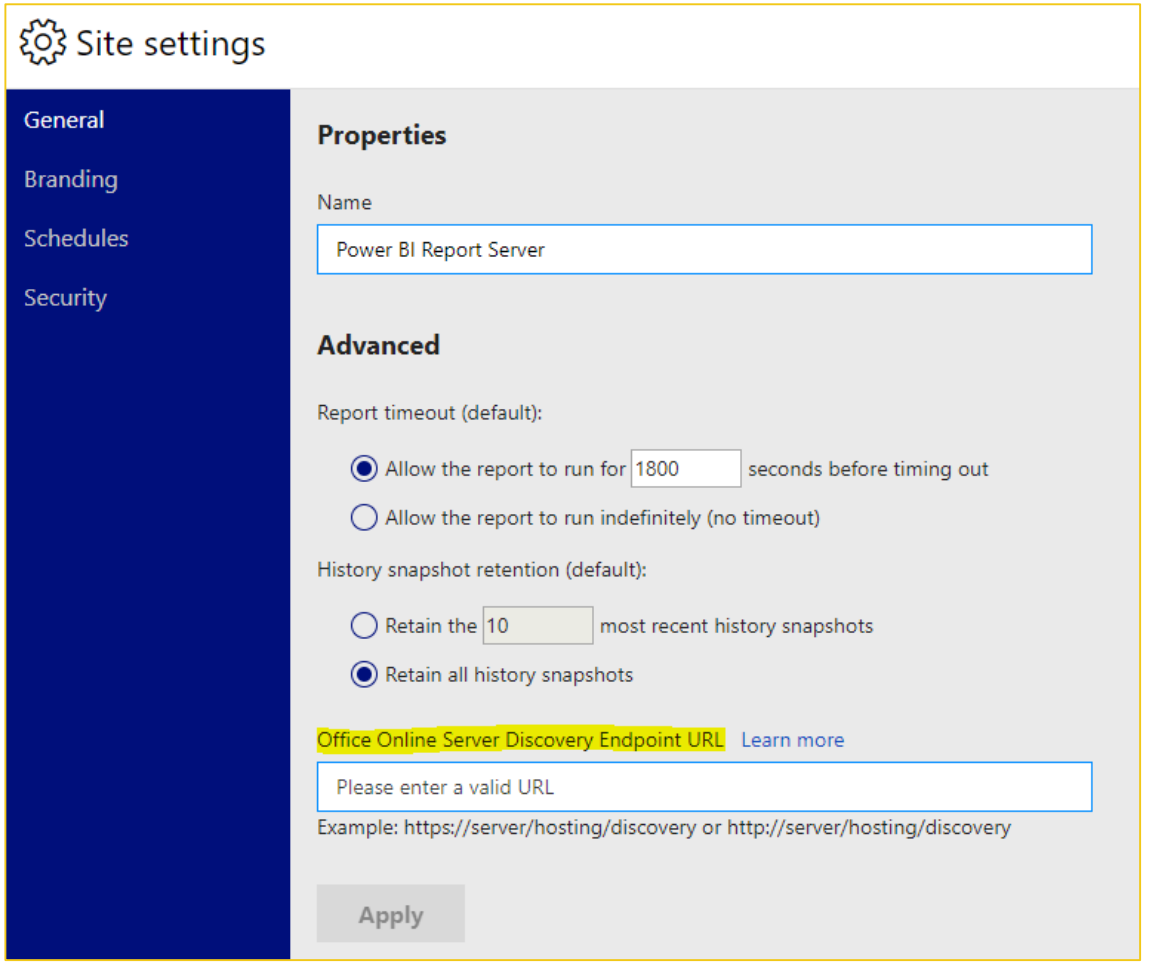
Configur. with SSMS Demo

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



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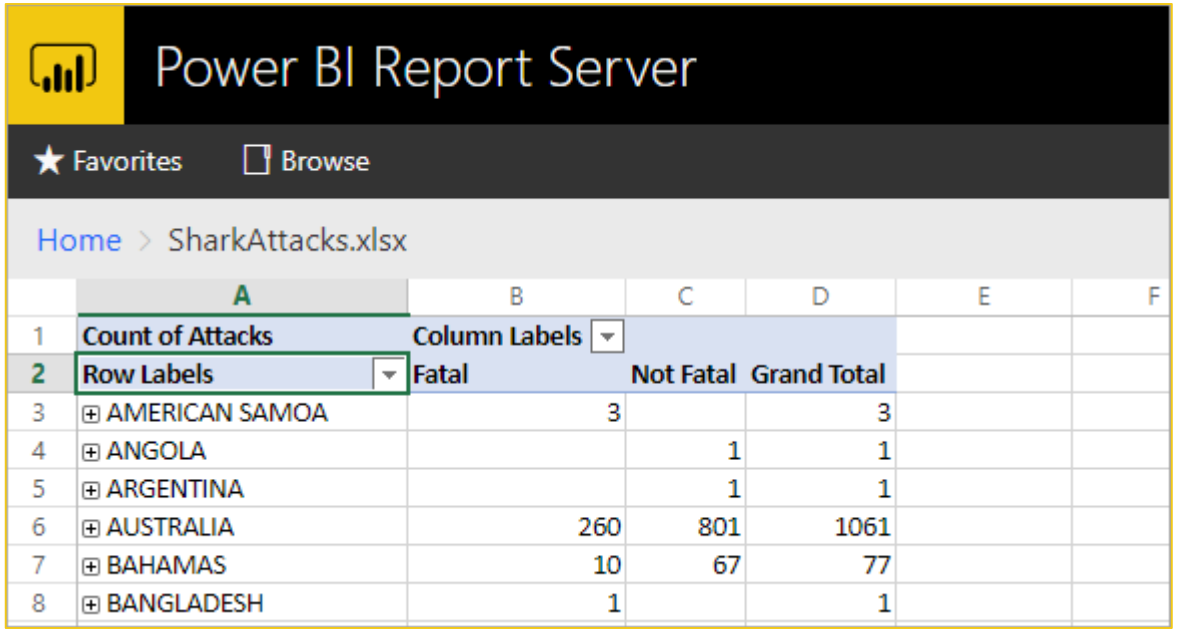


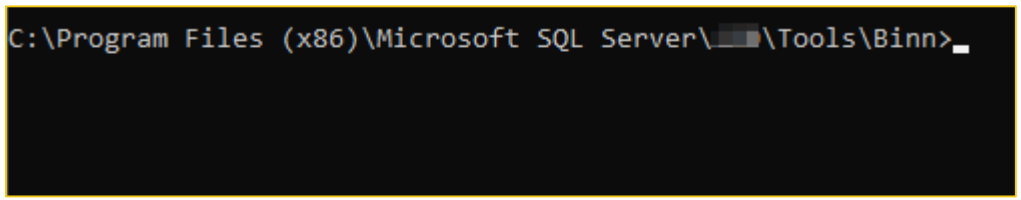
	A	B	C	D	E	F
1	Count of Attacks	Column Labels				
2	Row Labels	Fatal	Not Fatal	Grand Total		
3	AMERICAN SAMOA	3		3		
4	ANGOLA		1	1		
5	ARGENTINA		1	1		
6	AUSTRALIA	260	801	1061		
7	BAHAMAS	10	67	77		
8	BANGLADESH	1		1		

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**



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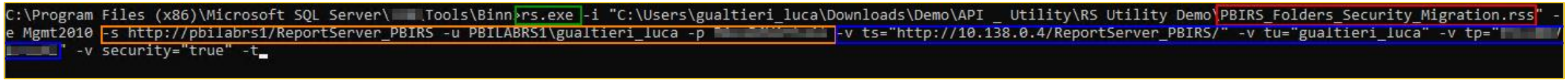


REST API

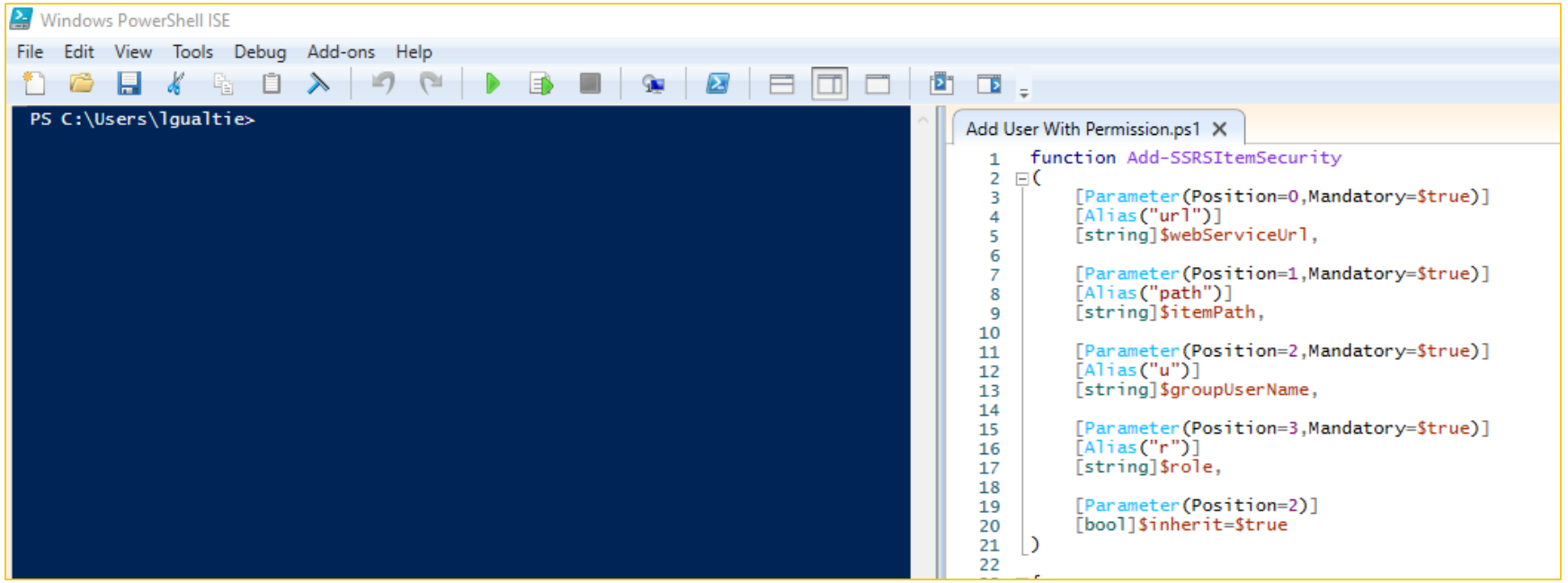
API programmatic access to PBIRS

- 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/

PowerShell

Reporting Services PowerShell Tools

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



API & Utilities Demo

Credits & Resources

Credits

- 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

- 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

- 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

- 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/

- Troubleshot 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

pbilab.com

@pbilab

info@pbilab.com

luca.gualtieri@pbilab.com


Q&A