



PBIRS for Dummies

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BI & Power BI Engineer @ **Lucient**

10 years in Microsoft “Data Realm”



Giving my little contribution to the community



Agenda

- Reports: Paginated vs Power BI
- Why PBIRS?
- What is PBIRS?
- Installation and Configuration
- PBIRS licensing
- PBI Service vs PBIRS
- Other IT stuff 😊
 - High Availability
 - Instances Management
- Demo: How does it work behind the scenes?
- Memory management
- Q&A

Partners

Dev>Marche



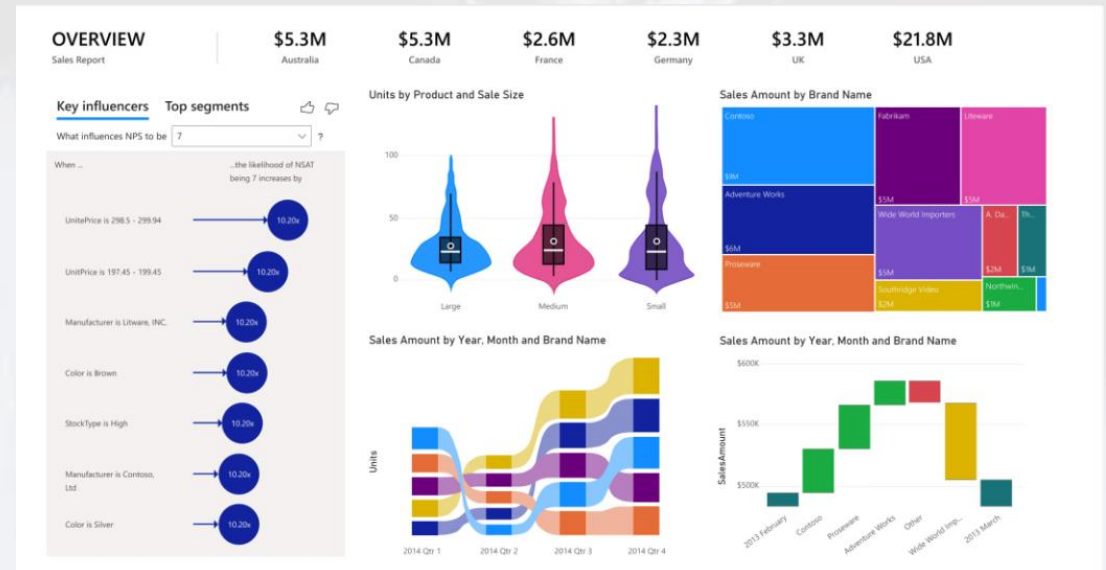
UNIVERSITÀ
POLITECNICA
DELLE MARCHE





Reports: Paginated vs Power BI

Reports: Paginated vs Power BI

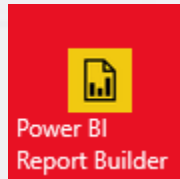


Reports: Paginated vs Power BI

RDL Format



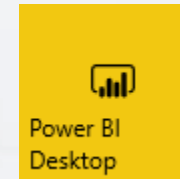
“Pixel Perfect” layout



PBIX Format



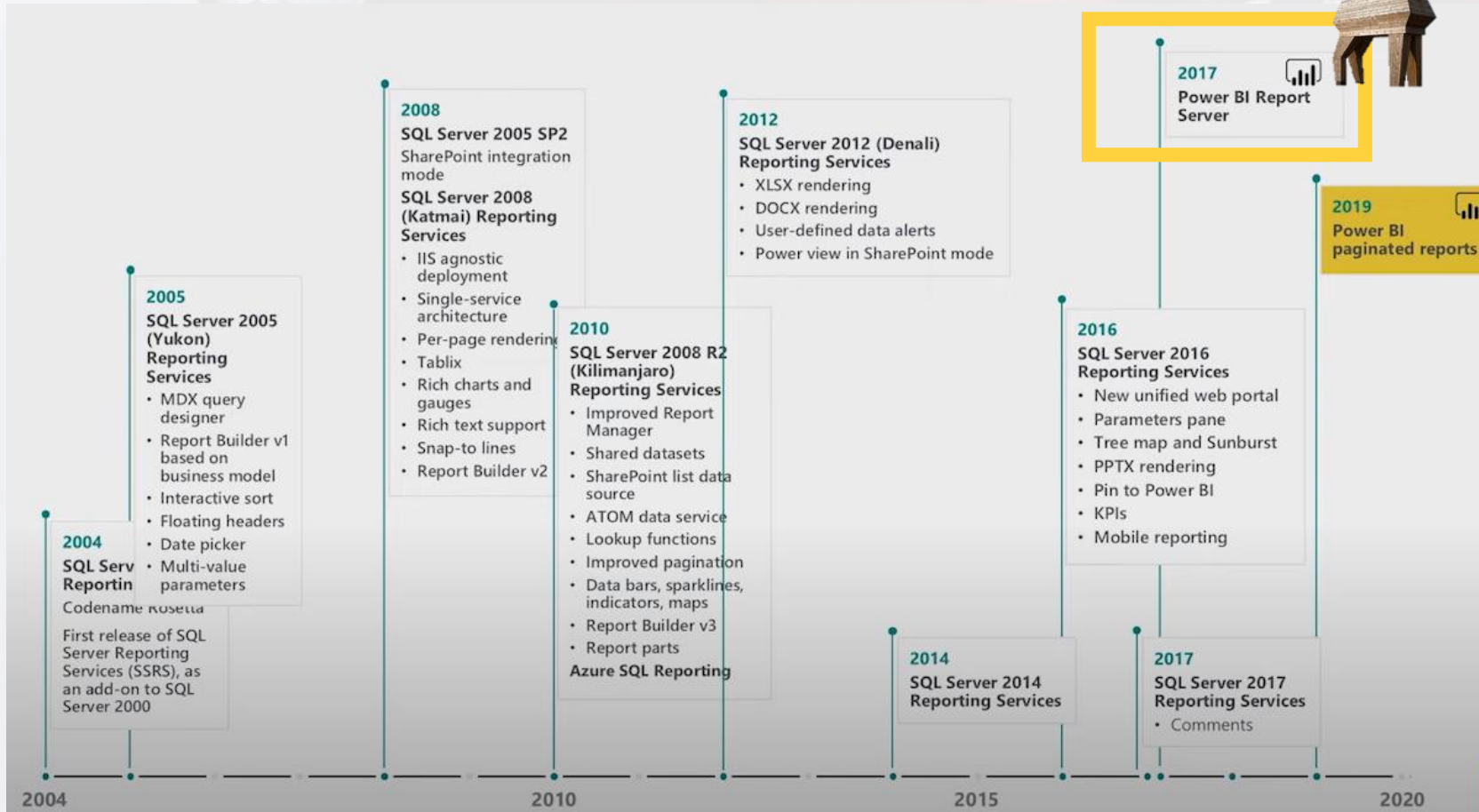
UX and interactive layout

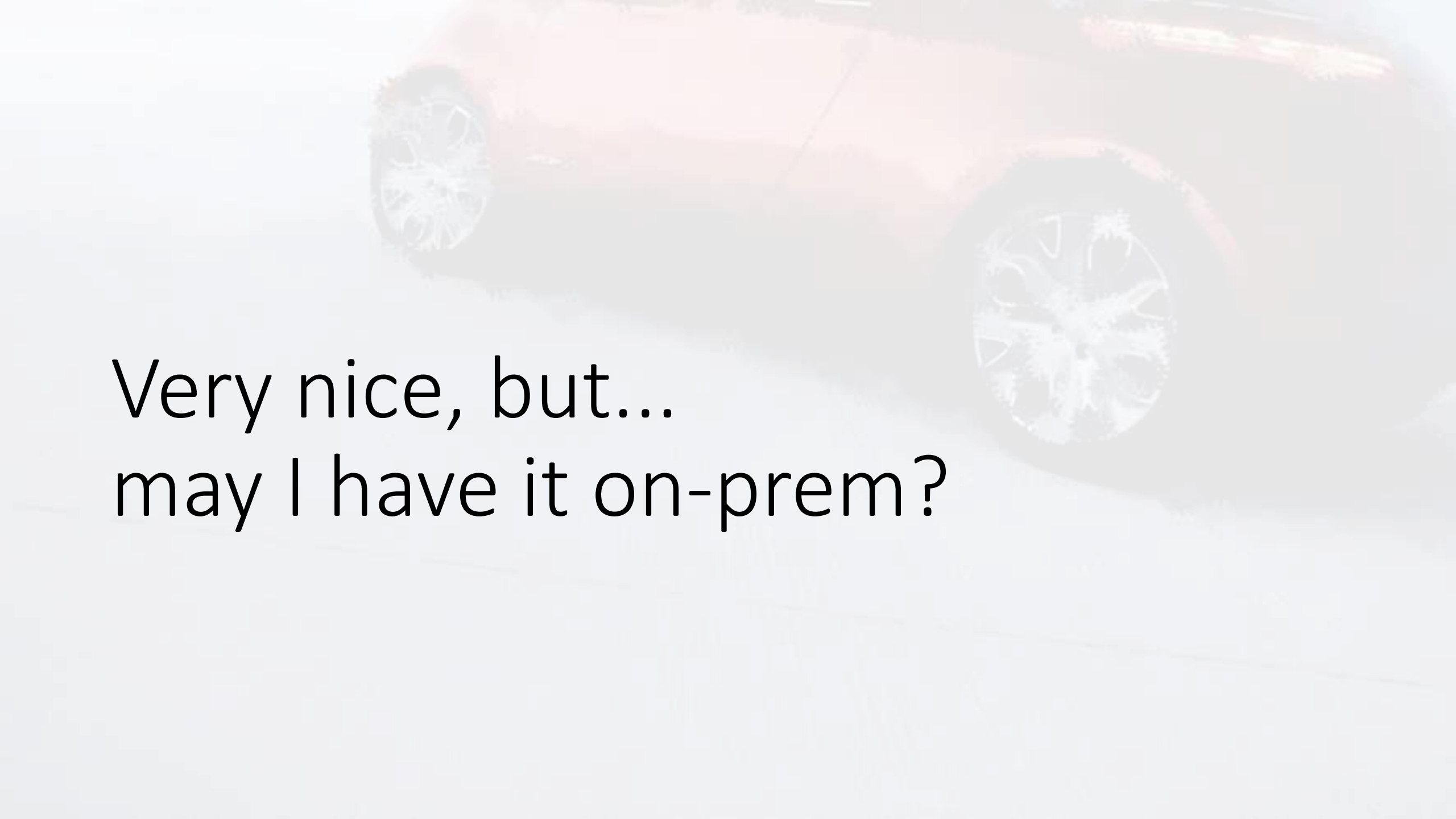




Why PBIRS?

A bit of history



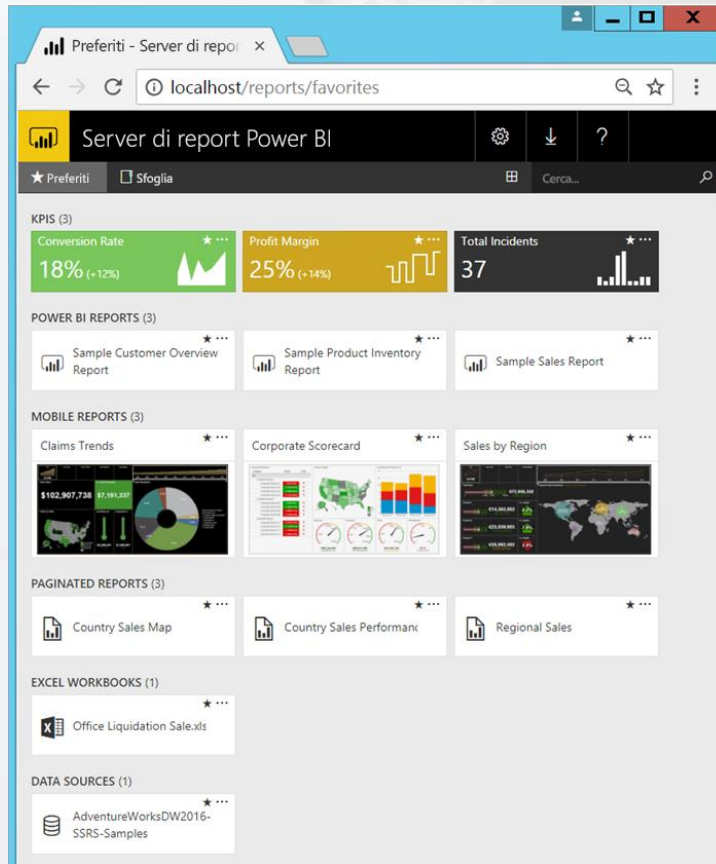
A blurred red sports car, possibly a Ferrari, is visible in the background. The car is positioned horizontally across the upper half of the frame, with its front on the left and rear on the right. The image is out of focus, showing the car's sleek lines and multi-spoke wheels. The background is a light, neutral color.

Very nice, but...
may I have it on-prem?



What is PBIRS?

What is PBIRS?



“

Power BI Report Server is an on-premises report server with a web portal in which you display and manage Power BI reports, paginated reports, mobile reports, and KPIs.

Your users can access those reports in different ways: viewing them in a web browser or mobile device, or as an email in their in-box.

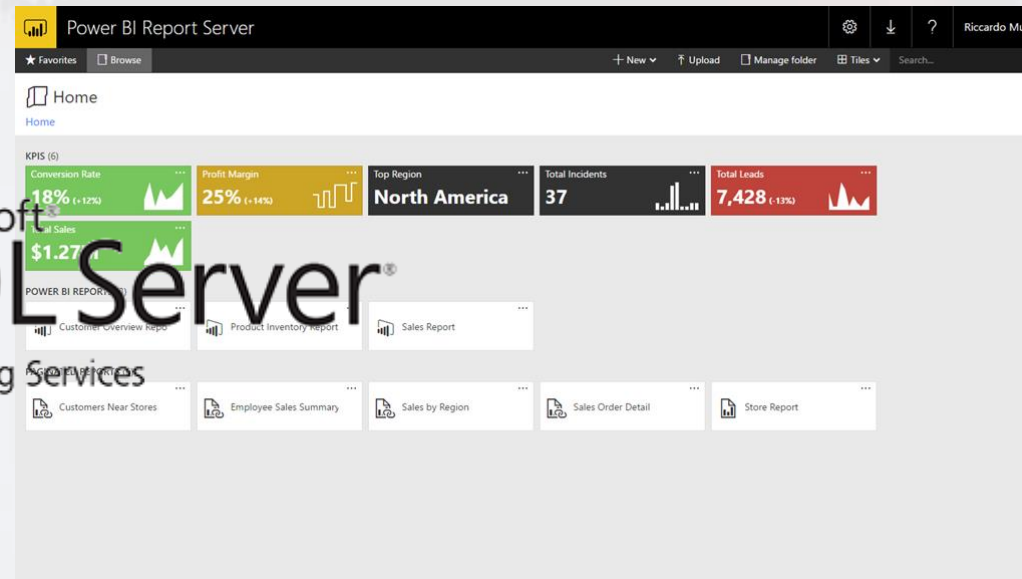
”

<https://docs.microsoft.com/it-it/power-bi/report-server/get-started>

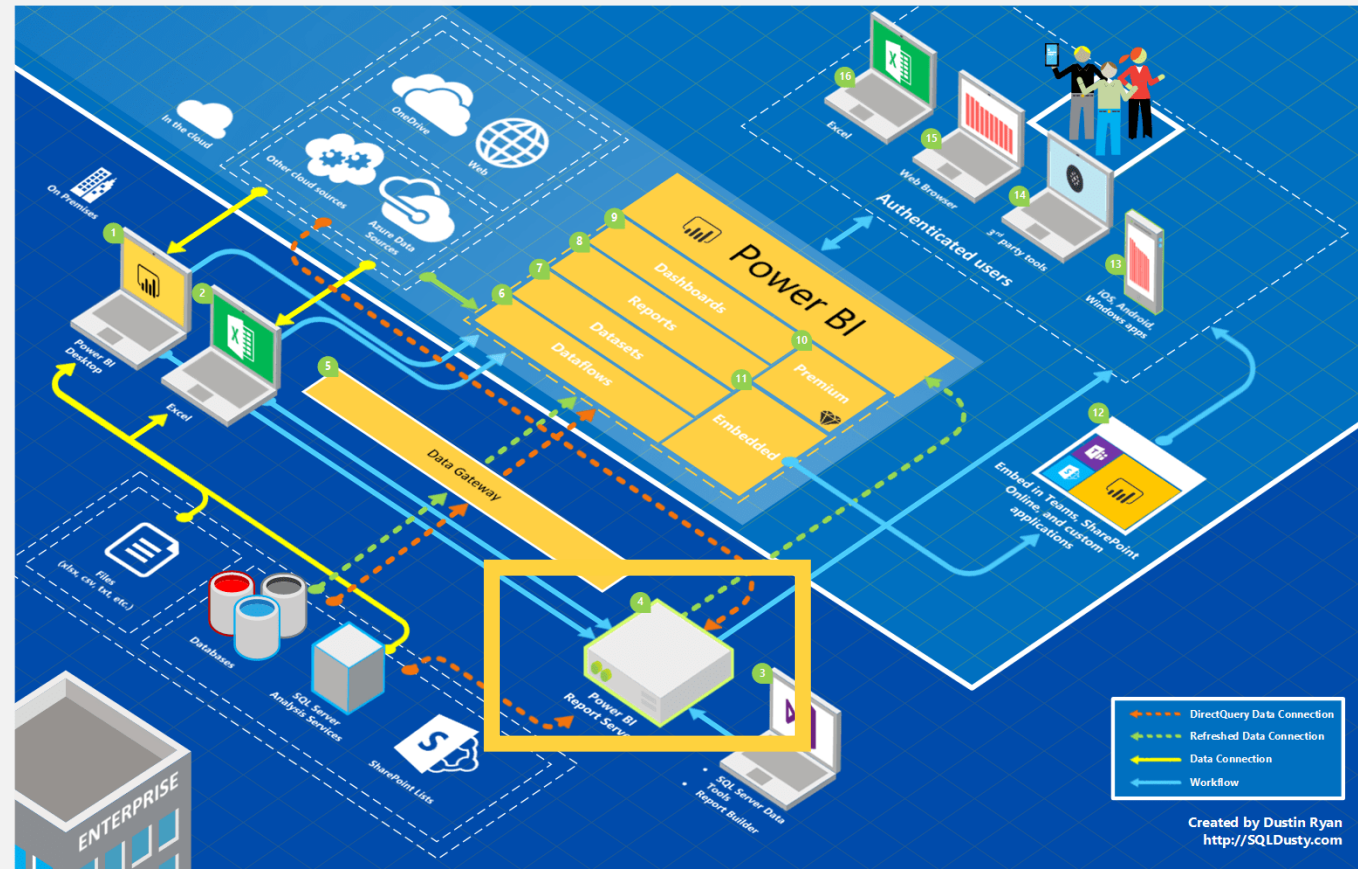
How did Microsoft make it?



Microsoft
SQL Server
Reporting Services

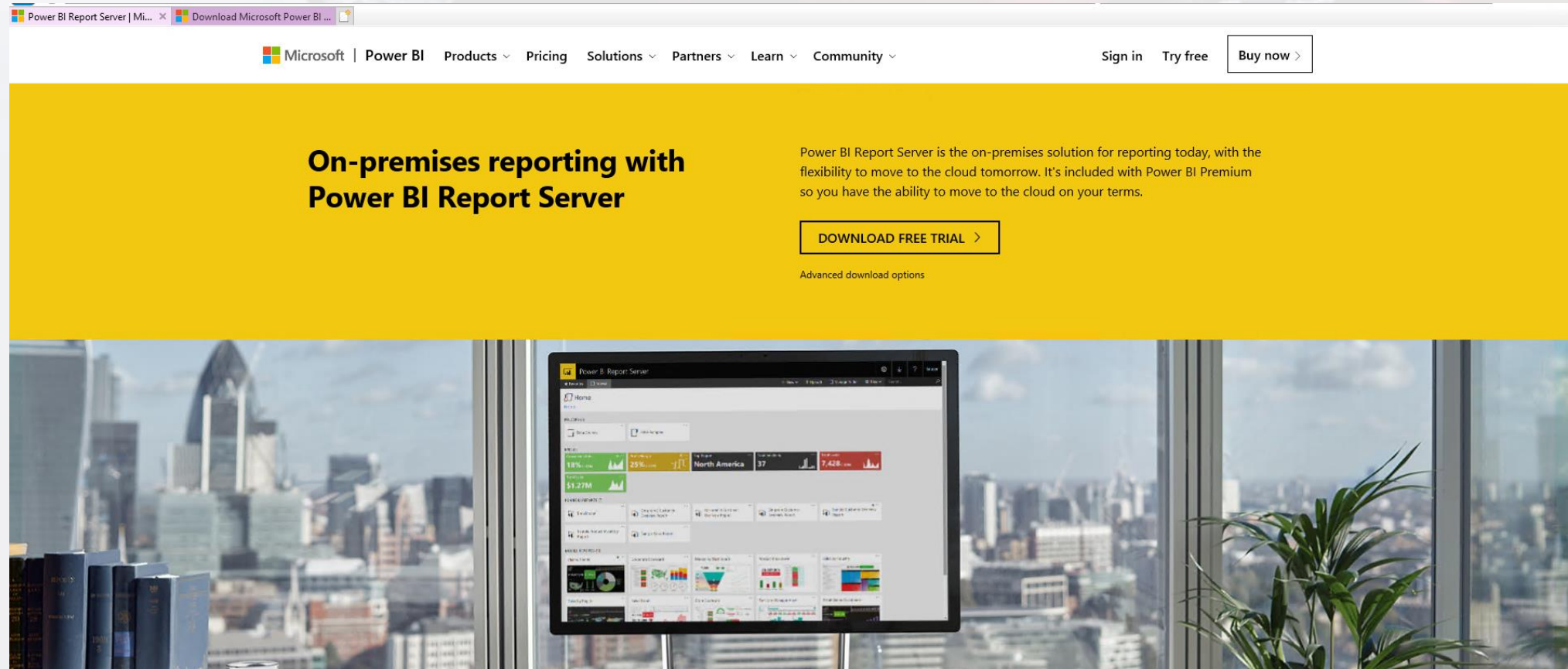


Where is my PBIRS?



<https://sqldusty.com/2019/02/15/power-bi-architecture-diagram-v4-is-now-available/>

Download



Power BI Report Server | Mi... x Download Microsoft Power BI ...

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On-premises reporting with Power BI Report Server

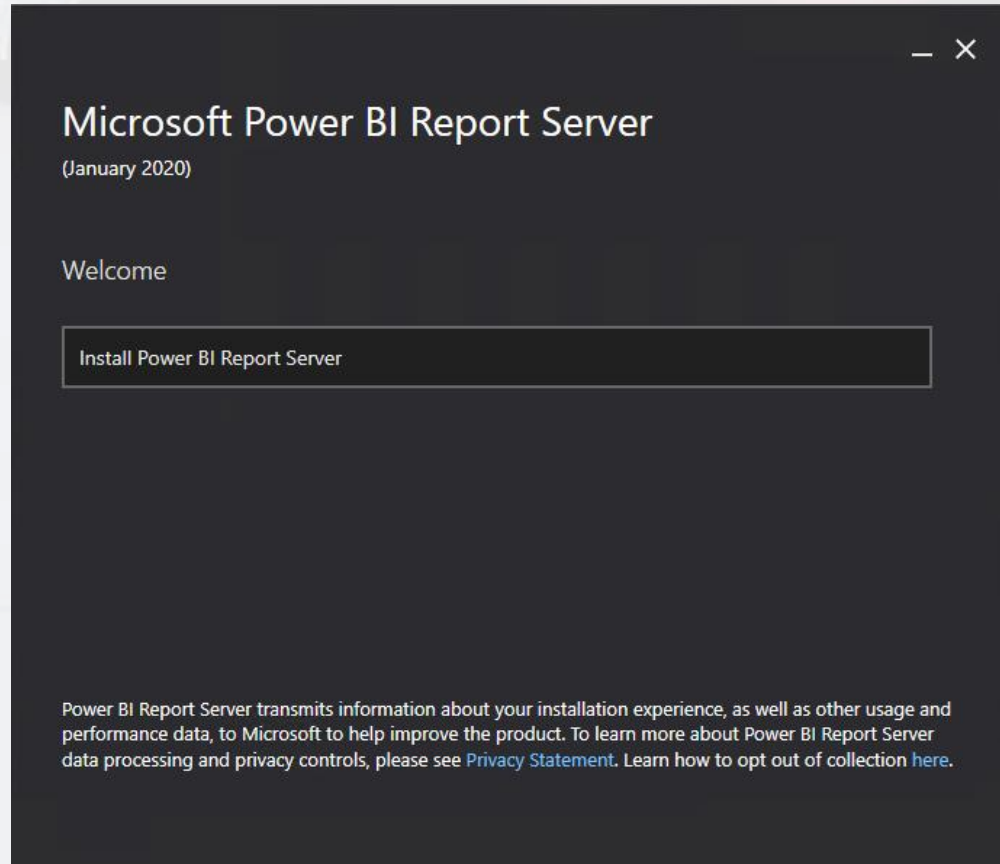
Power BI Report Server is the on-premises solution for reporting today, with the flexibility to move to the cloud tomorrow. It's included with Power BI Premium so you have the ability to move to the cloud on your terms.

[DOWNLOAD FREE TRIAL >](#)

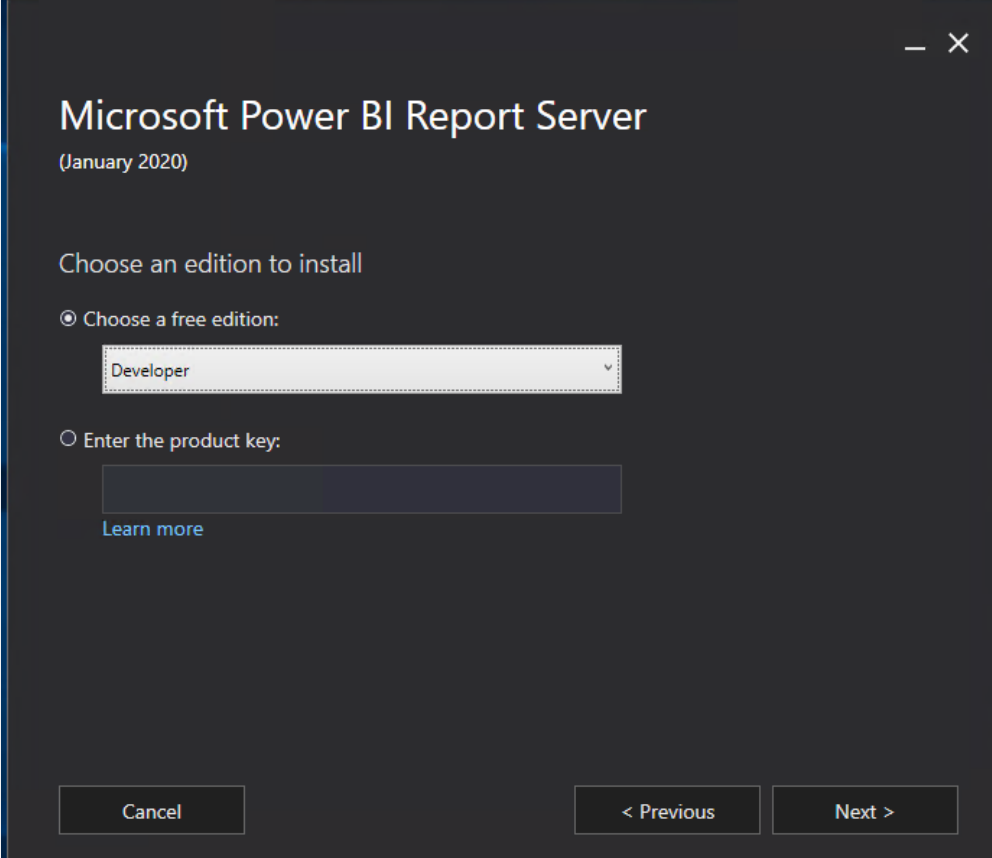
[Advanced download options](#)

The image shows a computer monitor displaying the Power BI Report Server interface. The interface includes a sidebar with navigation options like 'Home', 'Reports', and 'Dashboards'. The main area displays a dashboard with various charts and tables, including a table with columns for 'Region', 'Sales', and 'Profit'. The background of the image is a blurred city skyline with a potted plant in the foreground.

Installation Wizard



Installation Wizard



Microsoft Power BI Report Server
(January 2020)

Choose an edition to install

☒ Choose a free edition:

Developer

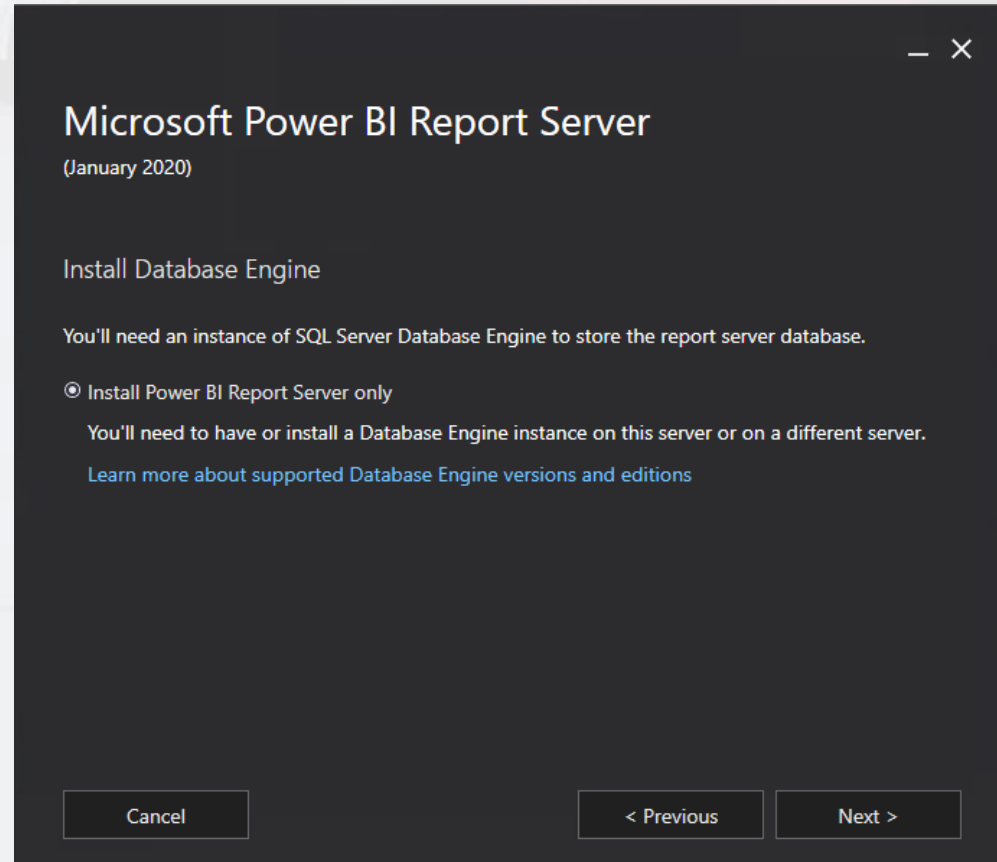
☐ Enter the product key:

[Learn more](#)

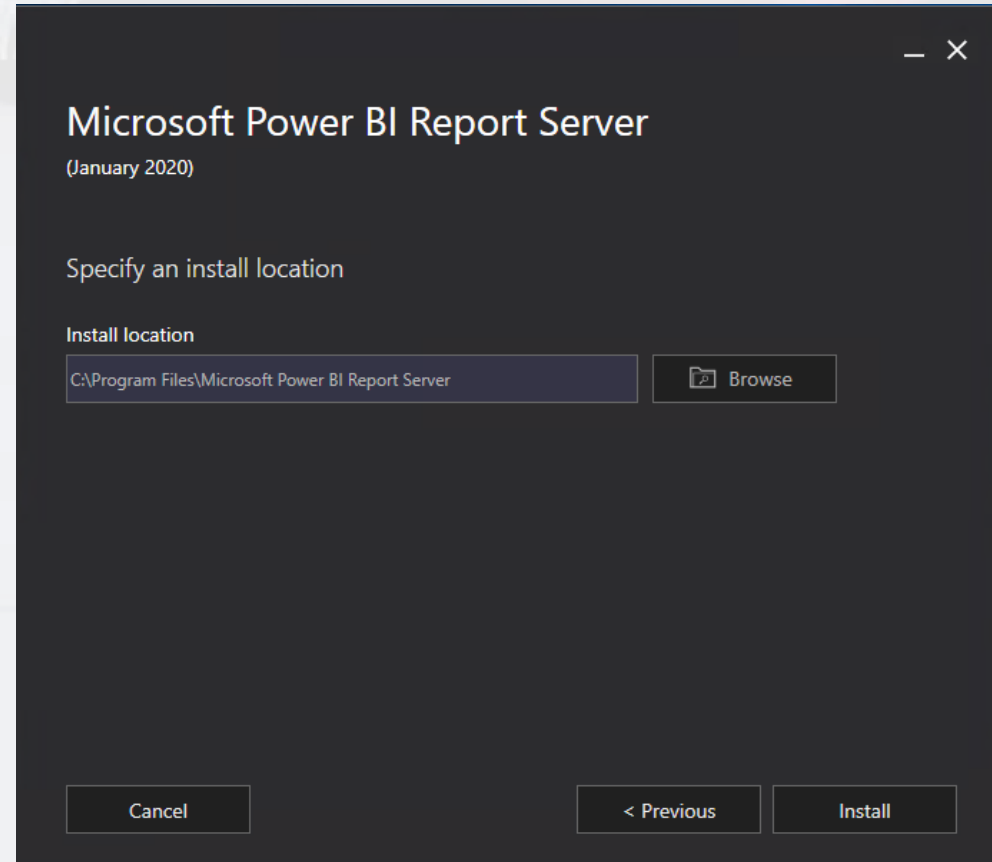
Cancel < Previous Next >

The image shows a dark-themed installation wizard window for Microsoft Power BI Report Server (January 2020). The window has a title bar with standard minimize, maximize, and close buttons. The main content area is titled 'Microsoft Power BI Report Server (January 2020)' and prompts the user to 'Choose an edition to install'. There are two radio button options: 'Choose a free edition:' (which is selected) and 'Enter the product key:'. Under the first option, there is a dropdown menu currently showing 'Developer'. Under the second option, there is an empty text input field and a blue 'Learn more' link. At the bottom of the window, there are three buttons: 'Cancel', '< Previous', and 'Next >'.

Installation Wizard



Installation Wizard



Microsoft Power BI Report Server
(January 2020)

Specify an install location

Install location

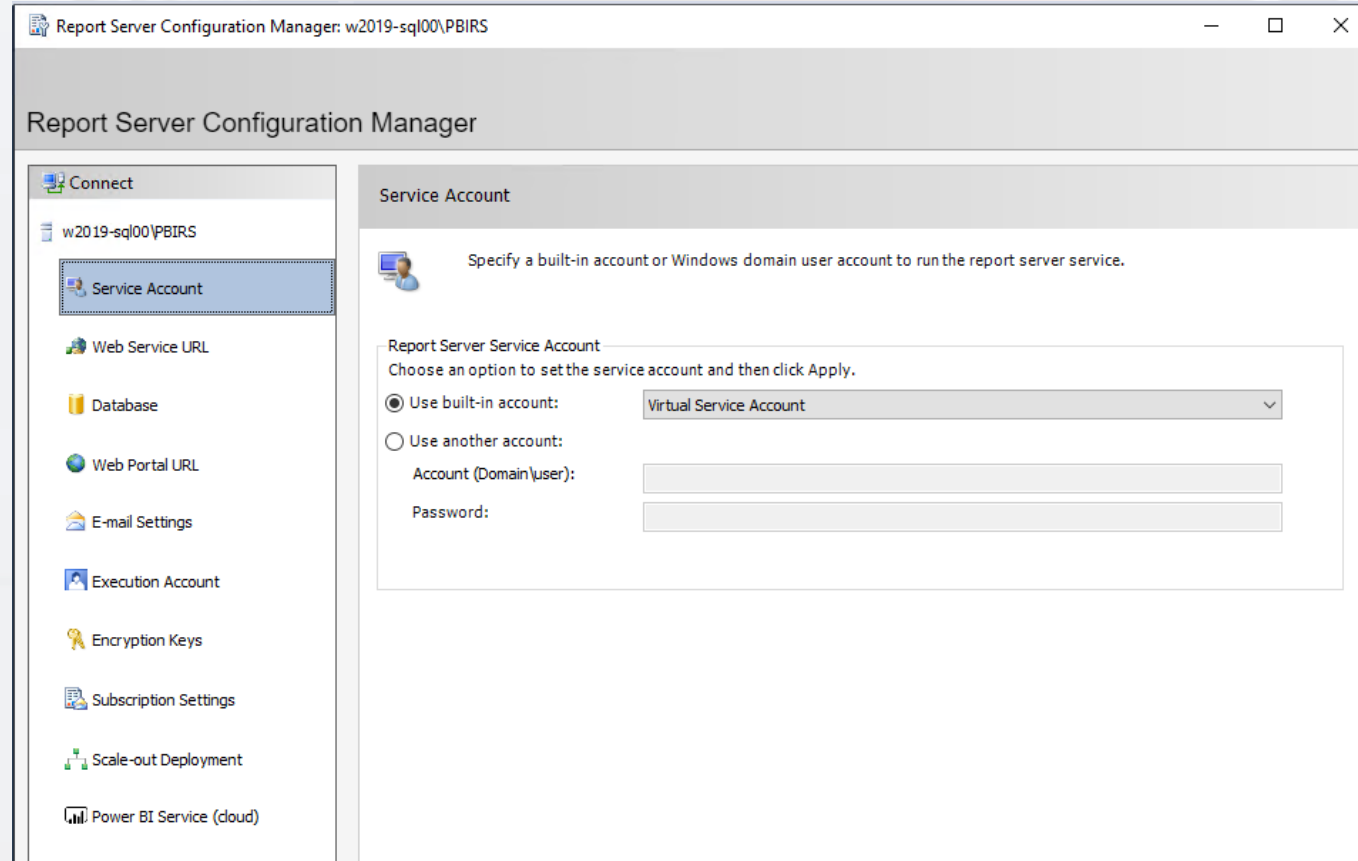
C:\Program Files\Microsoft Power BI Report Server

Browse

Cancel < Previous Install

The image shows a Windows-style installation wizard window for Microsoft Power BI Report Server. The window has a dark gray background with white text. At the top right are standard window control icons (minimize, maximize, close). The title bar area contains the product name and version. The main content area prompts the user to specify an install location, showing a text box with the default path and a 'Browse' button. At the bottom, there are three buttons: 'Cancel', '< Previous', and 'Install'.

Configuration – Service Account



The screenshot shows the 'Report Server Configuration Manager' window for 'w2019-sql00\PBIRS'. The left sidebar contains a list of configuration options: Connect, Service Account (selected), Web Service URL, Database, Web Portal URL, E-mail Settings, Execution Account, Encryption Keys, Subscription Settings, Scale-out Deployment, and Power BI Service (cloud). The main pane is titled 'Service Account' and contains the following text: 'Specify a built-in account or Windows domain user account to run the report server service.' Below this, there is a section titled 'Report Server Service Account' with the instruction 'Choose an option to set the service account and then click Apply.' There are two radio button options: 'Use built-in account:' (selected) and 'Use another account:'. The 'Use built-in account:' option has a dropdown menu currently showing 'Virtual Service Account'. The 'Use another account:' option has two text input fields labeled 'Account (Domain\user):' and 'Password:'.

Report Server Configuration Manager: w2019-sql00\PBIRS

Report Server Configuration Manager

Connect

- w2019-sql00\PBIRS
- Service Account**
- Web Service URL
- Database
- Web Portal URL
- E-mail Settings
- Execution Account
- Encryption Keys
- Subscription Settings
- Scale-out Deployment
- Power BI Service (cloud)

Service Account

Specify a built-in account or Windows domain user account to run the report server service.

Report Server Service Account

Choose an option to set the service account and then click Apply.

☒ Use built-in account: Virtual Service Account

☐ Use another account:

Account (Domain\user):

Password:

Configuration – WS Endpoint

The screenshot shows the 'Report Server Configuration Manager' window for 'w2019-sql00\PBIRS'. The left sidebar contains a 'Connect' section with the following options: 'w2019-sql00\PBIRS', 'Service Account', 'Web Service URL' (selected), 'Database', 'Web Portal URL', 'E-mail Settings', 'Execution Account', 'Encryption Keys', 'Subscription Settings', 'Scale-out Deployment', and 'Power BI Service (cloud)'. The main area is titled 'Web Service URL' and includes instructions: 'Configure a URL used to access the Report Server. Click Advanced to define multiple URLs for a single Report Server instance, or to specify additional parameters on the URL.' The configuration fields are: 'Report Server Web Service Virtual Directory' with 'Virtual Directory' set to 'ReportServer'; 'Report Server Web Service Site identification' with 'IP Address' set to 'All Assigned (Recommended)', 'TCP Port' set to '80', 'HTTPS Certificate' set to '(Not Selected)', and an empty 'HTTPS Port' field; and 'Report Server Web Service URLs' with 'URLs' set to 'http://w2019-sql00:80/ReportServer'. An 'Advanced...' button is located next to the HTTPS Port field. At the bottom, a 'Results' section shows three successful log entries: '20:18:01.7264 | Reserving url http://+:80', '20:18:02.2733 | Stopping report server "PowerBIReportServer" on w2019-sql00.', and '20:18:03.1795 | Starting report server "PowerBIReportServer" on w2019-sql00.', followed by the message 'The task completed successfully.' and a 'Copy' button. At the very bottom are 'Apply' and 'Exit' buttons.

Report Server Configuration Manager: w2019-sql00\PBIRS

Report Server Configuration Manager

Connect

- w2019-sql00\PBIRS
- Service Account
- Web Service URL**
- Database
- Web Portal URL
- E-mail Settings
- Execution Account
- Encryption Keys
- Subscription Settings
- Scale-out Deployment
- Power BI Service (cloud)

Web Service URL

Configure a URL used to access the Report Server. Click Advanced to define multiple URLs for a single Report Server instance, or to specify additional parameters on the URL.

Report Server Web Service Virtual Directory

Virtual Directory: ReportServer

Report Server Web Service Site identification

IP Address: All Assigned (Recommended)

TCP Port: 80

HTTPS Certificate: (Not Selected)

HTTPS Port:

Advanced...

Report Server Web Service URLs

URLs: <http://w2019-sql00:80/ReportServer>

Results

- 20:18:01.7264 | Reserving url http://+:80
- 20:18:02.2733 | Stopping report server "PowerBIReportServer" on w2019-sql00.
- 20:18:03.1795 | Starting report server "PowerBIReportServer" on w2019-sql00.

The task completed successfully.

Copy

Apply Exit

Configuration – Databases' server

The screenshot displays the 'Report Server Configuration Manager' window for the instance 'w2019-sql00\PBIRS'. The left-hand navigation pane lists various configuration options, with 'Database' currently selected. The main area is divided into two sections. The top section, 'Report Server Database', provides an overview and a 'Change Database' button. The bottom section, 'Report Server Database Configuration Wizard', is open to the 'Change Database' step, which prompts the user to choose between creating a new database or configuring an existing one. The 'Configure Existing Database' path is selected, leading to a form where the user must specify the 'Server Name' (w2019-sql00), 'Authentication Type' (Current User - Integrated Security), 'Username' (w2019-sql00\vik), and 'Password'. A 'Test Connection' button is provided to verify the credentials. At the bottom of the wizard, 'Previous', 'Next', and 'Cancel' buttons are visible.

Report Server Configuration Manager: w2019-sql00\PBIRS

Report Server Configuration Manager

Connect

- w2019-sql00\PBIRS
- Service Account
- Web Service URL
- Database**
- Web Portal URL
- E-mail Settings
- Execution Account
- Encryption Keys
- Subscription Settings
- Scale-out Deployment
- Power BI Service (cloud)

Report Server Database

The report server stores all report server content and application data in a database. Use this page to create or change the report server database or update database connection credentials.

Current Report Server Database

Click Change database to select a different database or create a new database.

SQL Server Name:
Database Name:
Report Server Mode:

Change Database

Report Server Database Configuration Wizard

Change Database

Choose whether to create or configure a report server database.

Action	
Database Server	Choose a local or remote instance of a SQL Server Database Engine and specify credentials that have permission to connect to that server.
Database	
Credentials	
Summary	
Progress and Finish	

Connect to the Database Server:

Server Name: w2019-sql00

Authentication Type: Current User - Integrated Security

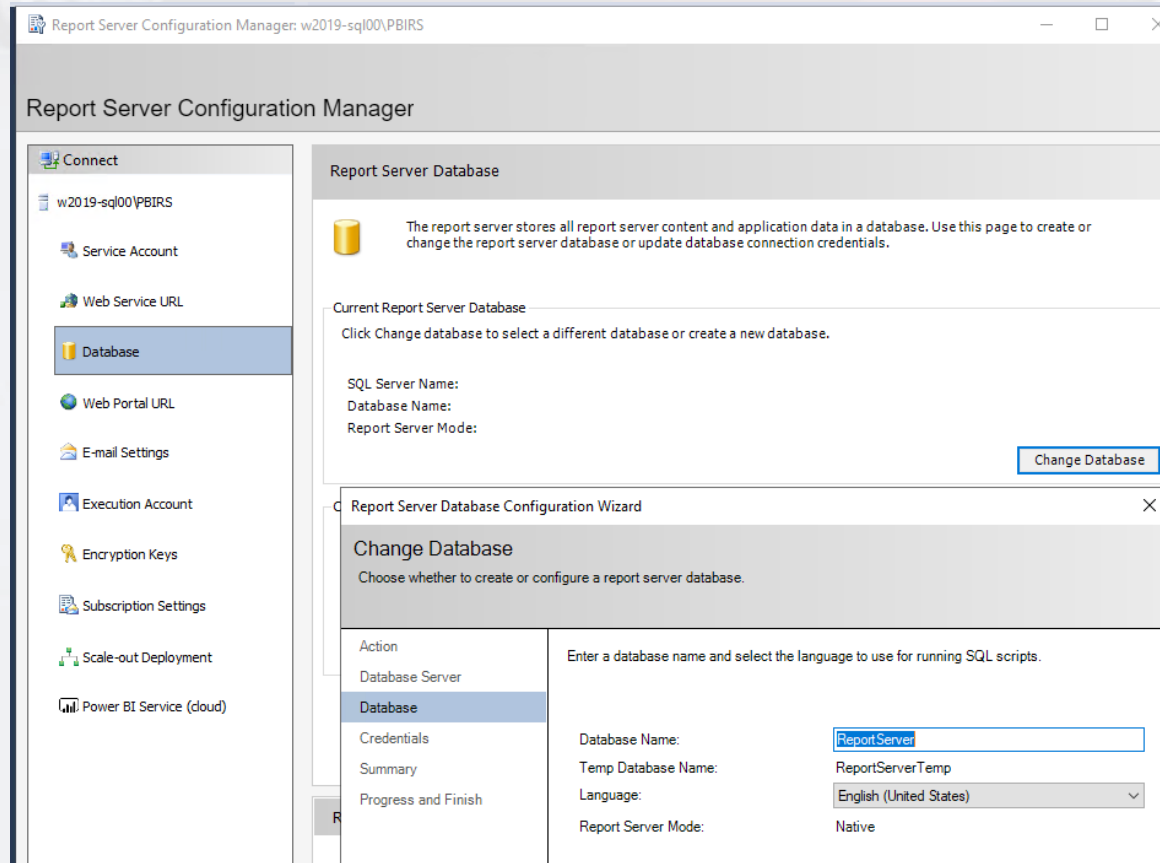
Username: w2019-sql00\vik

Password:

Test Connection

Previous Next Cancel

Configuration – Databases' names



Configuration – Databases' login user

The screenshot displays the 'Report Server Configuration Manager' window for the instance 'w2019-sql00\PBIRS'. The left-hand navigation pane lists various configuration options, with 'Database' currently selected. The main pane shows the 'Report Server Database' section, which includes a description of the report server database and a 'Current Report Server Database' section with fields for 'SQL Server Name', 'Database Name', and 'Report Server Mode'. A 'Change Database' button is visible in this section.

Report Server Configuration Manager: w2019-sql00\PBIRS

Report Server Configuration Manager

Connect

- w2019-sql00\PBIRS
- Service Account
- Web Service URL
- Database**
- Web Portal URL
- E-mail Settings
- Execution Account
- Encryption Keys
- Subscription Settings
- Scale-out Deployment
- Power BI Service (cloud)

Report Server Database

The report server stores all report server content and application data in a database. Use this page to create or change the report server database or update database connection credentials.

Current Report Server Database

Click Change database to select a different database or create a new database.

SQL Server Name:
Database Name:
Report Server Mode:

Change Database

Report Server Database Configuration Wizard

Change Database

Choose whether to create or configure a report server database.

Action	
Database Server	
Database	
Credentials	
Summary	
Progress and Finish	

Specify the credentials of an existing account that the report server will use to connect to the report server database. Permission to access the report server database will be automatically granted to the account you specify.

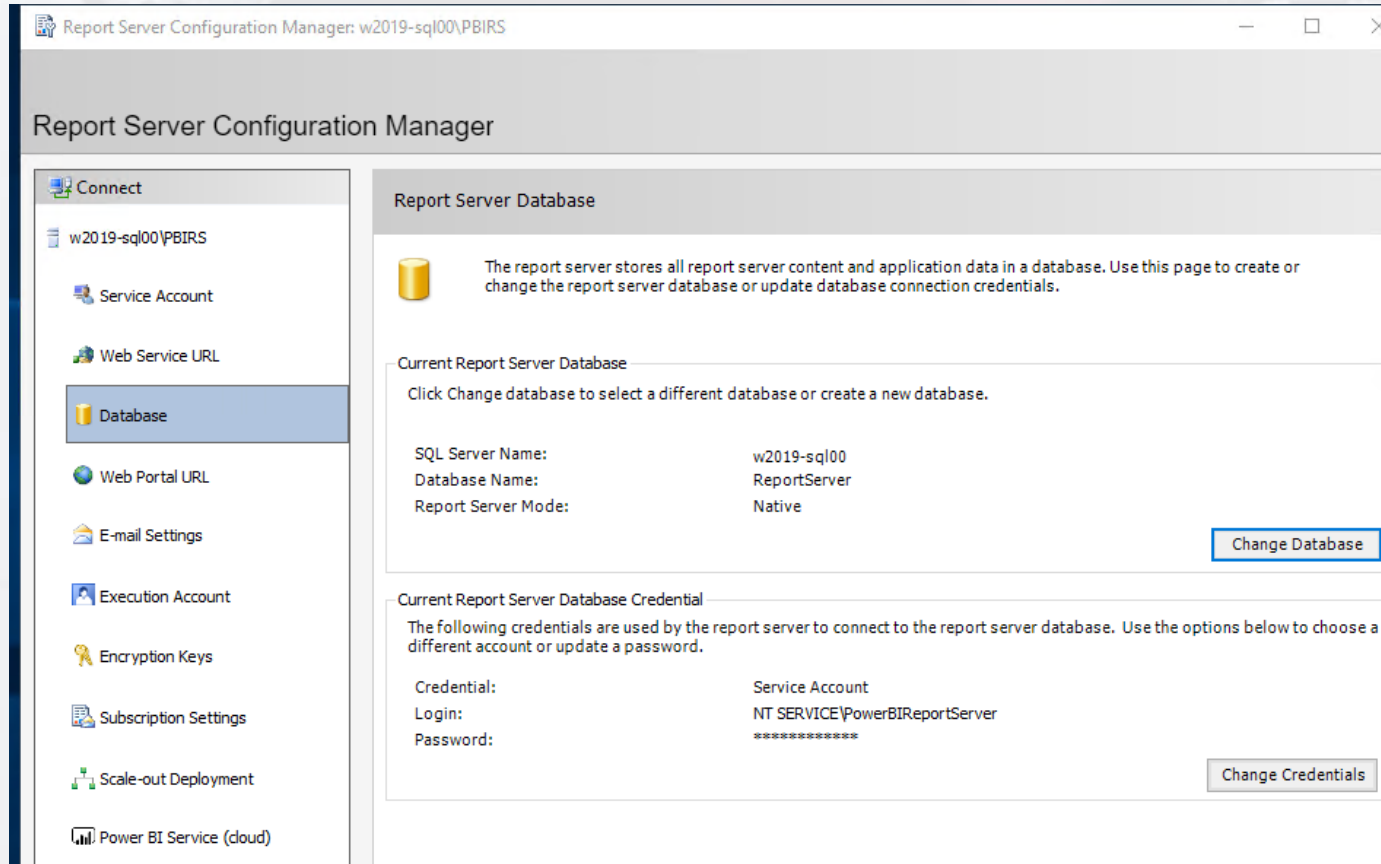
Credentials:

Authentication Type: Service Credentials

User name: Service Credentials

Password:

Configuration – Databases end



Report Server Configuration Manager: w2019-sql00\PBIRS

Report Server Configuration Manager

- Connect
 - w2019-sql00\PBIRS
 - Service Account
 - Web Service URL
 - Database**
 - Web Portal URL
 - E-mail Settings
 - Execution Account
 - Encryption Keys
 - Subscription Settings
 - Scale-out Deployment
 - Power BI Service (cloud)

Report Server Database

The report server stores all report server content and application data in a database. Use this page to create or change the report server database or update database connection credentials.

Current Report Server Database

Click Change database to select a different database or create a new database.

SQL Server Name:	w2019-sql00
Database Name:	ReportServer
Report Server Mode:	Native

[Change Database](#)

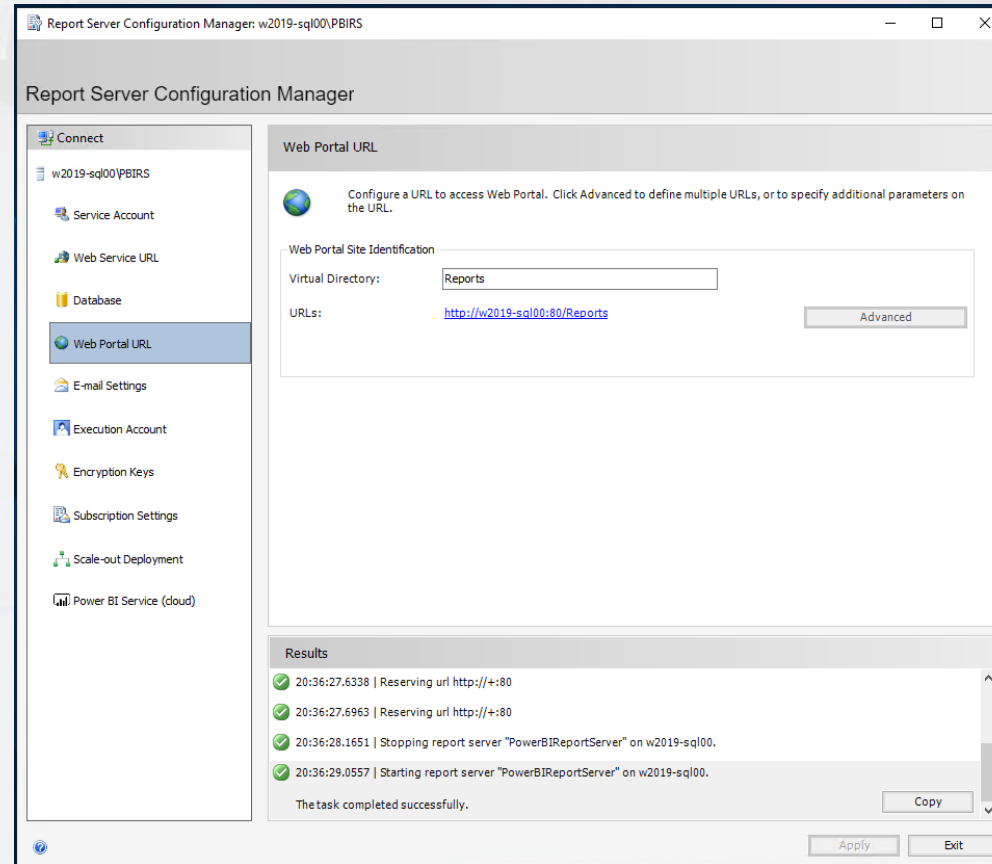
Current Report Server Database Credential

The following credentials are used by the report server to connect to the report server database. Use the options below to choose a different account or update a password.

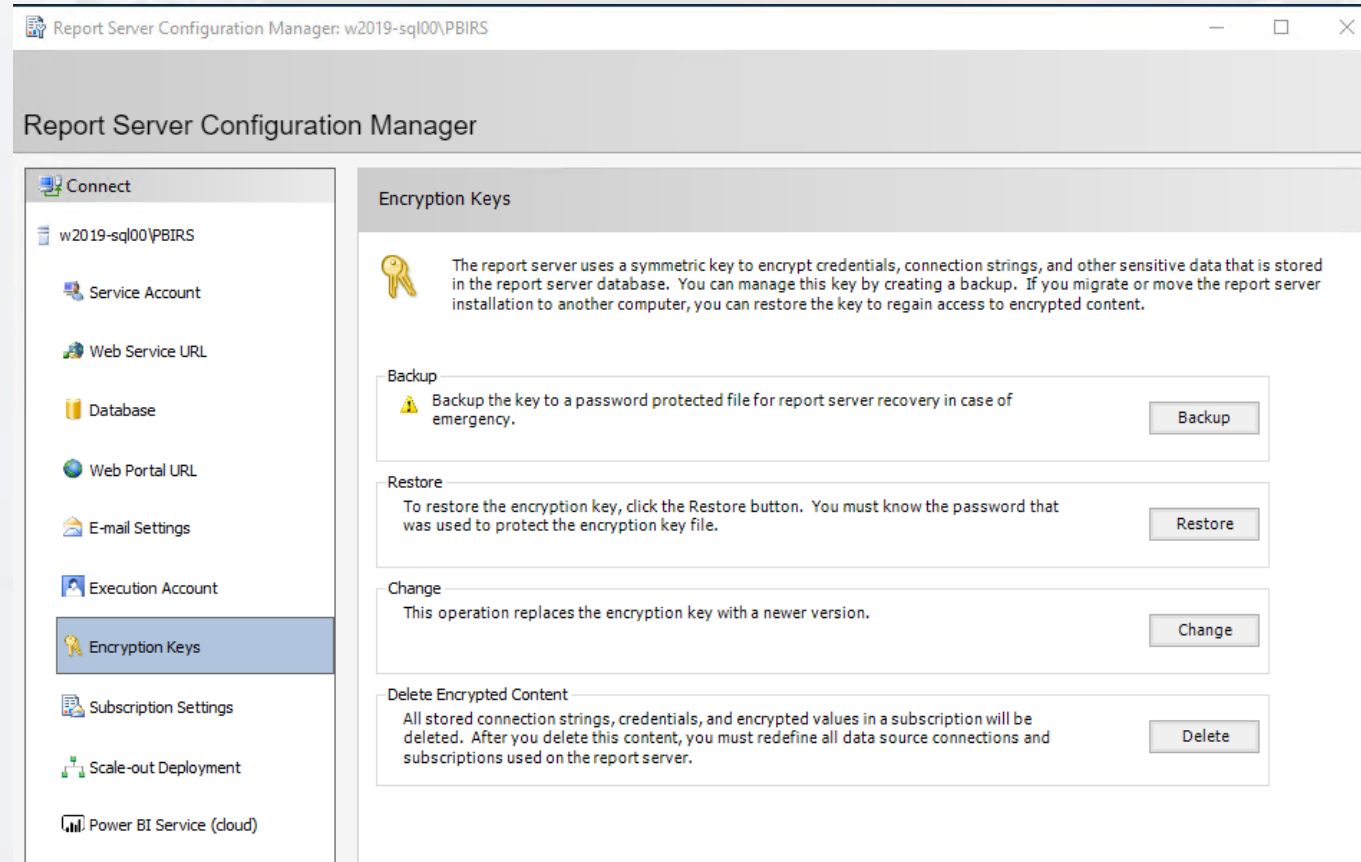
Credential:	Service Account
Login:	NT SERVICE\PowerBIReportServer
Password:	*****

[Change Credentials](#)

Configuration – Web Portal URL



Configuration – Encryption Keys





Ok, let's see what we got



PBIRS Licensing

2 Options

SQL Server Enterprise Edition

+

Software Assurance

Power BI Premium

+

P* SKUs



PBI Service vs PBIRS

PBI Service vs PBI Report Server

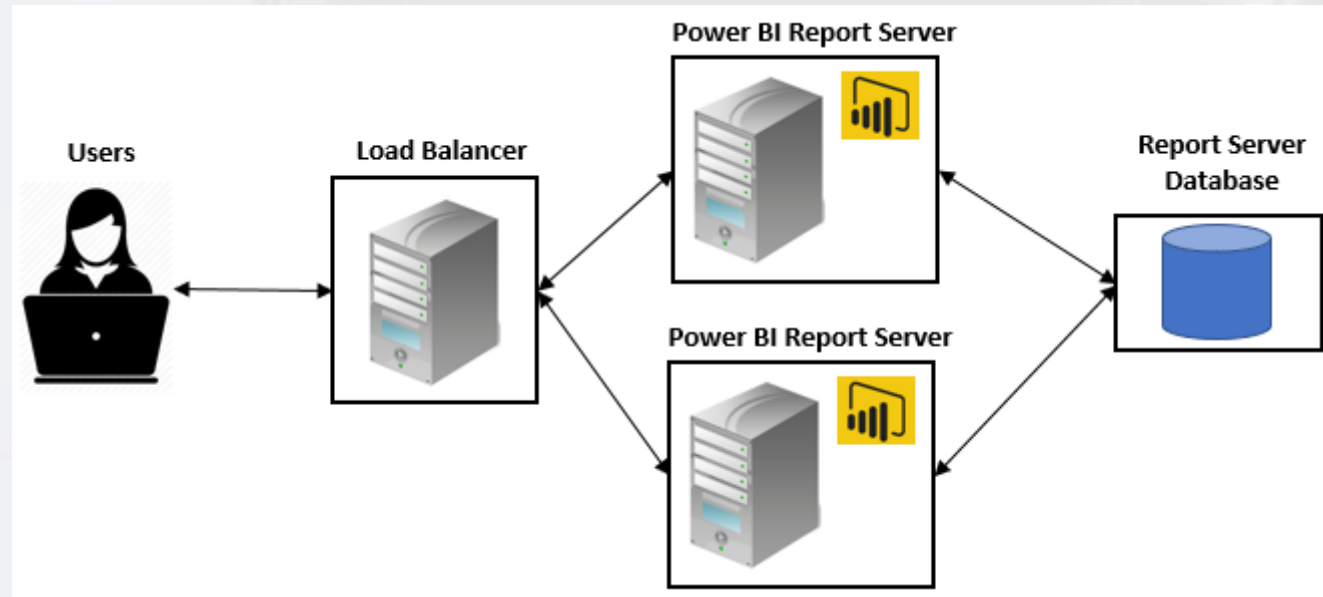
	PBI Service	PBI Report Server

<https://docs.microsoft.com/it-it/power-bi/report-server/compare-report-server-service>

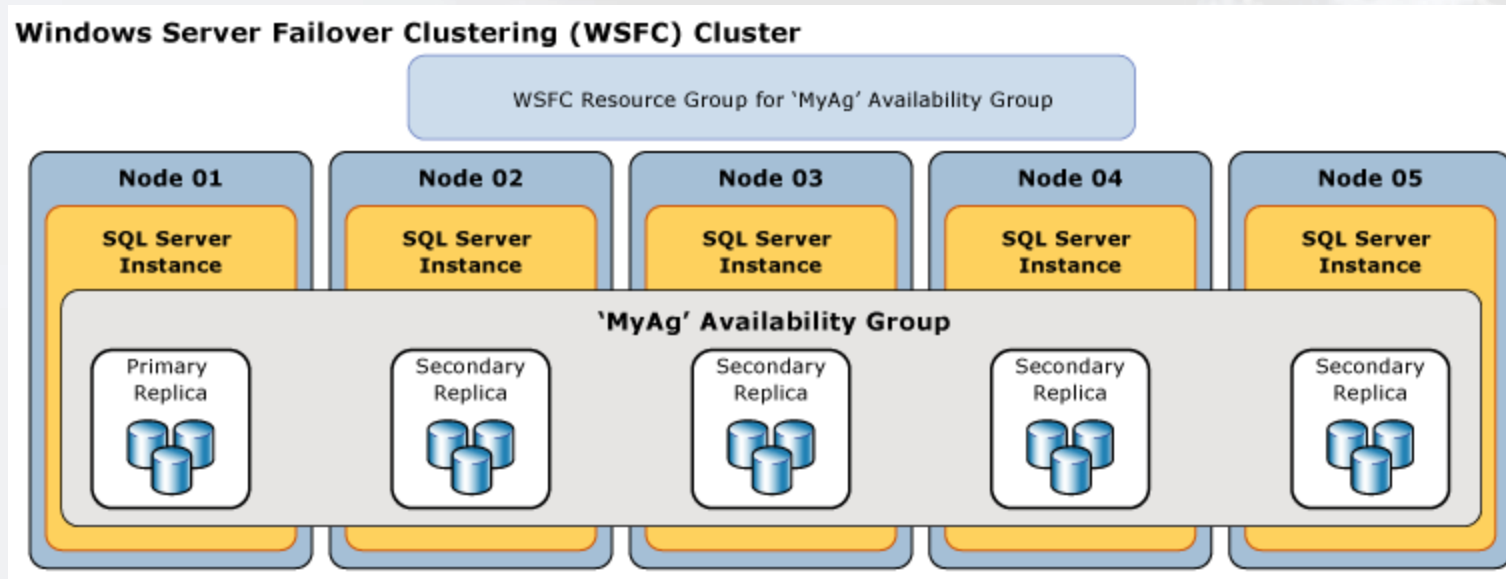


Other IT stuff ☺

HA awareness

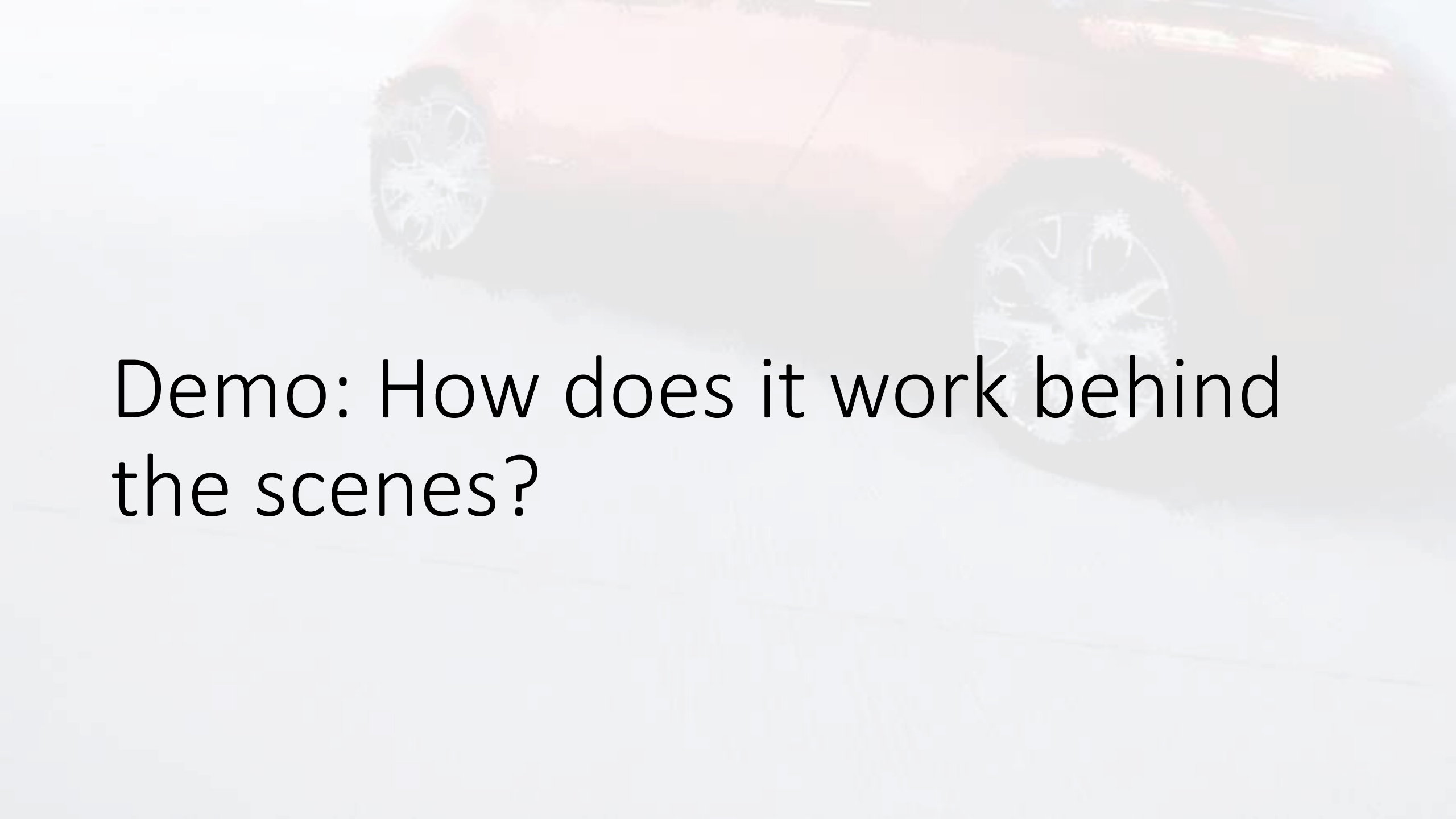


And the databases?



Instances

- No more multiple instances ☹️
- Do not put SSRS and PBIRS on the same machine



Demo: How does it work behind
the scenes?



Memory Management

PBIRS interacts with memory

- Web portal
- Report Server service (users)
- Background scheduling application (scheduled processing, subscription and db maintenance)

PBIRS Memory Pressure

- Low: everything is ok
- Medium: ok, but let's give more room to users' requests
- High: Houston... we have problem...



WorkingSetMaximum

- By default, the amount of available memory on the computer
- Expressed in KB
- When reached no further requests until the memory falls below
- If existing connection continue to consume could happen swap and recycle

WorkingSetMinimum

- Minimum memory assigned to RS
- By default 60% WorkingSetMaximum
- Expressed in KB

MemorySafetyMargin

- Percentage of **WorkingSetMaximum** at which **High Pressure** starts
- By default 90
- Integer value

MemoryThreshold

- Percentage of **WorkingSetMaximum** at which **Medium Pressure starts**
- By default 80
- Integer value

RSReportServer.config

```
<MemorySafetyMargin>80</MemorySafetyMargin>  
<MemoryThreshold>90</MemoryThreshold>  
<WorkingSetMaximum>4000000</WorkingSetMaximum>  
<WorkingSetMinimum>2400000</WorkingSetMinimum>
```

Useful Links

Docs: <http://tiny.cc/pbirsdoc>

Capacity Planning: <http://tiny.cc/pbirs>

Behind the enemy lines: <http://tiny.cc/pbrsas>



Any Questions?



Thanks!

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