

# Hybrid Power BI

Wolfgang Strasser



# Power Platform World Tour

PowerBIUG PowerAppsUG FlowUG

Willkommen in Wien!  
Welcome to Vienna!



# Hi!

**Wolfgang Strasser**

@wstrasser

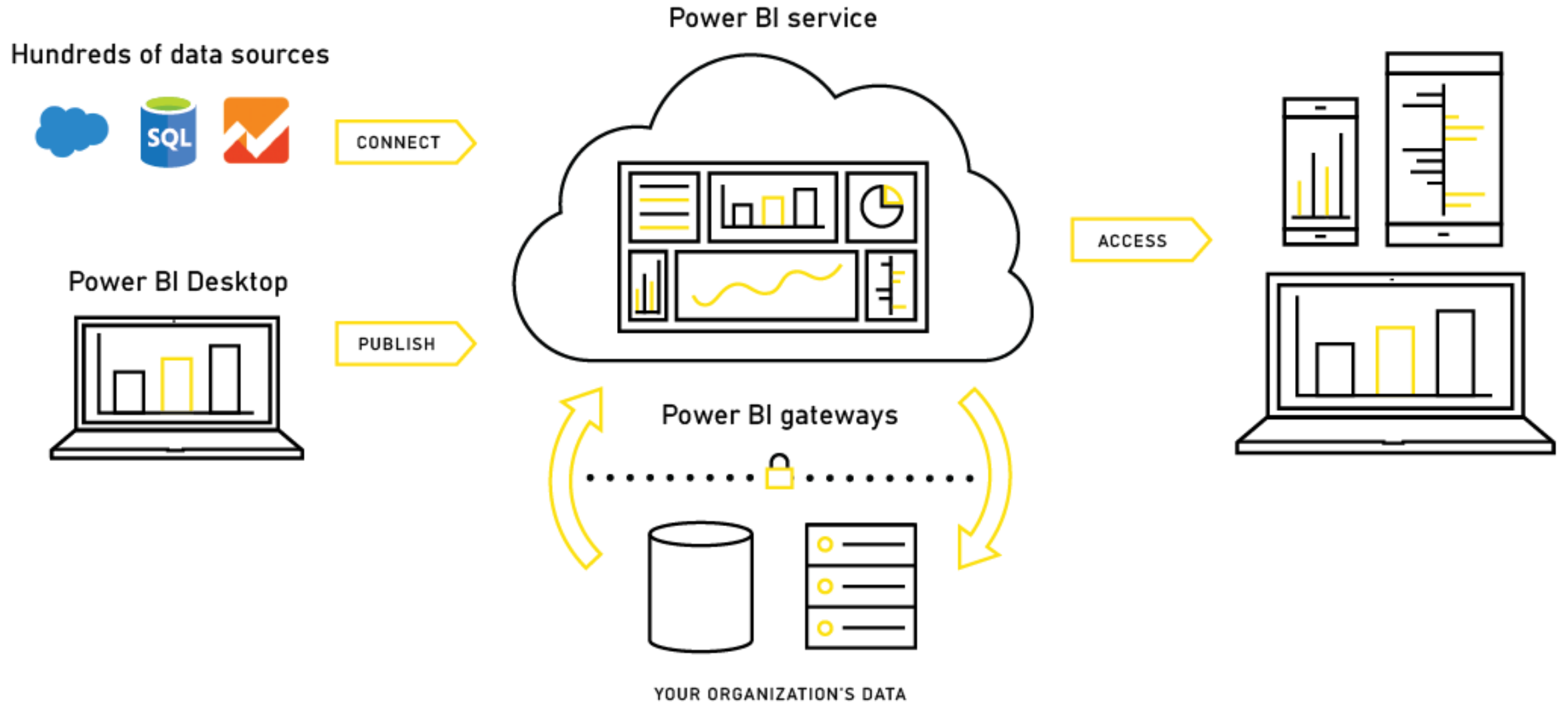
Wolfgang at powerofbi.at

Power BI Usergroup Austria





# Power BI Architecture



# Hybrid Power BI

Why?

**Existing** On-Premises **Infrastructure** (DWH)

**Not allowed** to move **data to the cloud**

**Afraid of moving** data to the cloud

Why not?

Take the **best approaches from both sides**  
&  
combine them!

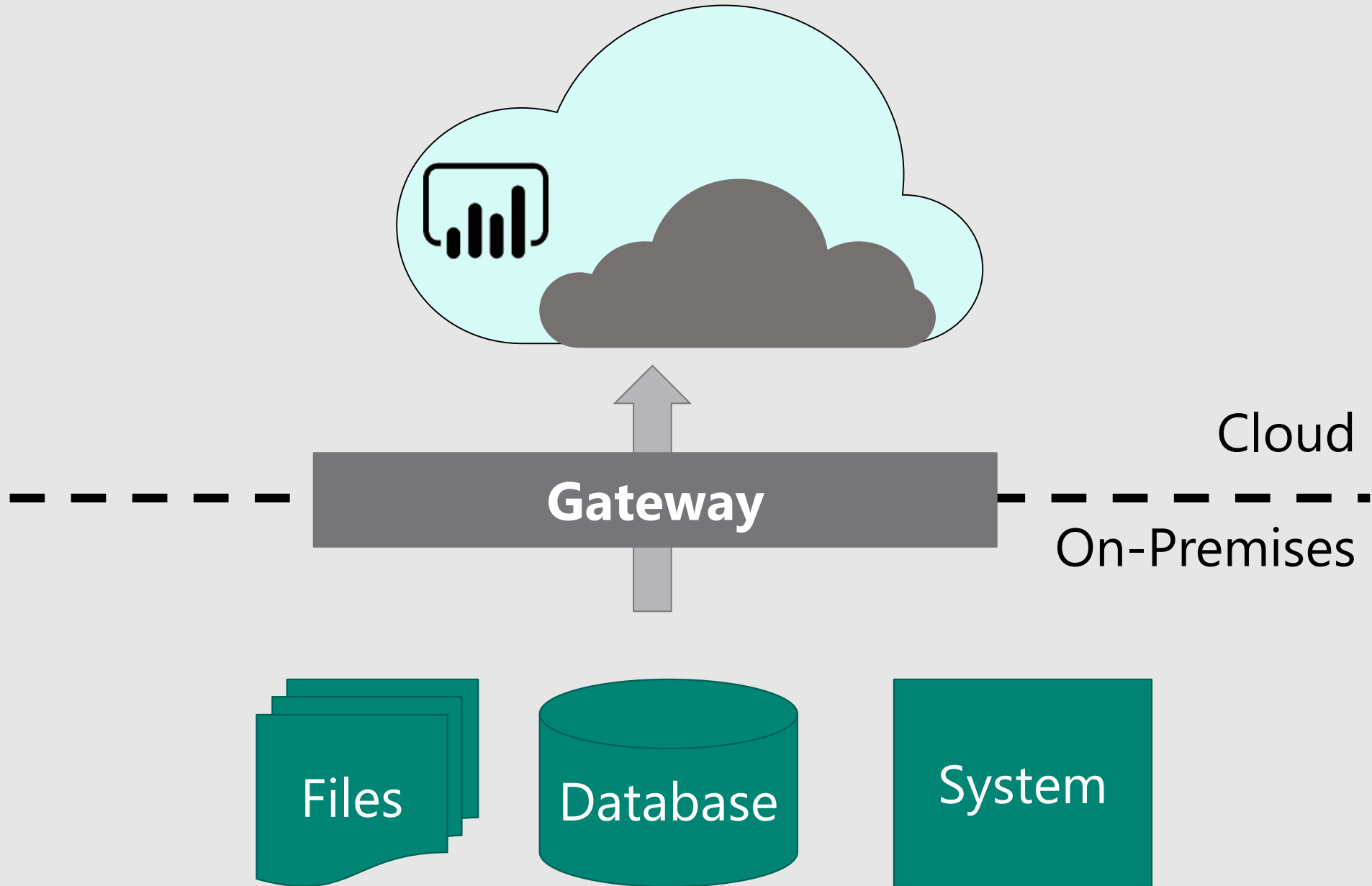
# Paths to Hybrid Power BI



**#1**

**Use On-Premises Datasources**

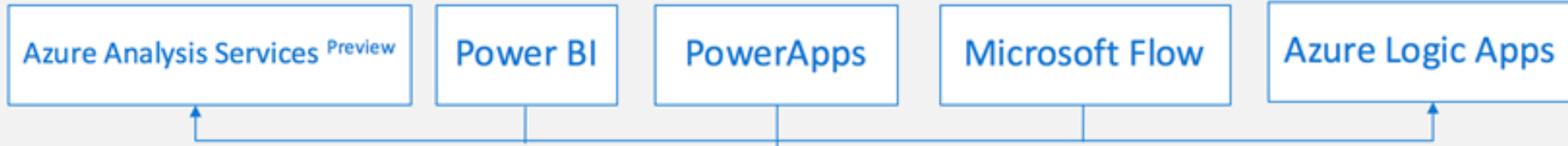
**On-Premises Data Gateway**



# On-premises data gateway

One gateway for multiple cloud services and experiences

Cloud services



Gateway Cloud Service

Data source connection credentials are encrypted



Azure Service Bus



Application Gateway

Data source connection credentials can only be decrypted by the gateway

On-premises data sources



SQL Server



SQL Server Analysis Services



Other data sources



Files, SharePoint

Hybrid Power BI - Power BI

+

← → ↺

https://app.powerbi.com/groups/66d11d44-edf5-45a6-9593-c347d3095508/dashboards/985a5921-7b2a-4395-b74e-6efdcfff48ec

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Power BI

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HybridPowerBI > Hybrid Power BI

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Add tile

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Comments

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Usage metrics

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View related

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Disable featured

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Unfavorite

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Subscribe

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Share

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Web view

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# Welcome to the "Hybrid Power BI" Dashboard!

Visit <http://workingondata.wordpress.com> for more info!  
Or tweet [@wstrasser](#) // mail: [wolfgang@powerofbi.at](mailto:wolfgang@powerofbi.at)

# Welcome to the "Hybrid Power BI" Dashboard!

Visit <http://workingondata.wordpress.com> for more info!  
Or tweet [@wstrasser](#) // mail: [wolfgang@powerofbi.at](mailto:wolfgang@powerofbi.at)

- Power BI Desktop
- Data Gateway
- Paginated Report Builder
- Power BI for Mobile
- Analyze in Excel updates



## On-premises data gateway installer



Choose the type of gateway you need.

---

- ☒ On-premises data gateway (recommended)
- Can be shared and reused by multiple users
  - Can be used by Power BI, PowerApps, Logic Apps, and Microsoft Flow
  - Supports schedule refresh and live query for Power BI

[Learn more](#)

- ☐ On-premises data gateway (personal mode)
- Can only be used by you
  - Can only be used in Power BI
  - Only schedule refresh is supported

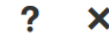
[Learn more](#)

Next

Cancel



## On-premises data gateway



Almost done.

---

Installation was successful!

Email address to use with this gateway:

wolfgang@powerofbi.at

Next, you need to sign in to register your gateway.

Sign in

Cancel





## On-premises data gateway



### Status

Service Settings

Diagnostics

Network

Connectors

### Your gateway is all set up.

Sign in for more information on your gateway.

Gateway version number: 3000.5.185 (May 2019(Release 2))

A new version is available.

[Download](#)

- ☒ Help us improve the on-premises data gateway by sending usage information to Microsoft.

[Read the privacy statement online](#)

Sign in

Close

# DEMO: On-Premises Data Gateway

Installation, Configuration  
Sample Report

# Gateway Configuration Process

Installation

Tenant Mapping (Sign-In)

Permission Configuration

DataSource Configuration

Permission Configuration

DataSet Assignment

# Configuration

## Gateway Cluster Configuration

Administrators (*"Who is allowed to configure this gateway?"*)

Contact Details

## Data Source Configuration

Access Configuration

Users (*"Who is allowed to use this data source?"*)

For SSAS: Map Users

The screenshot shows the 'Data Source Settings' tab in the SQL Server Data Tools configuration console. The 'Data Source Name' field contains 'My new Gateway Data Source'. The 'Data Source Type' dropdown menu is open, showing a list of available data source types. The list includes: ActiveDirectory, Analysis Services, Azure Blob Storage, Azure Table Storage, Essbase, File, Folder, IBM DB2, IBM Informix Database, IBM Netezza, Impala, MySQL, ODBC, OData, OleDb, and Oracle.

Configuration Field	Value
Data Source Name	My new Gateway Data Source
Data Source Type	Select a data source type (dropdown menu)

- ActiveDirectory
- Analysis Services
- Azure Blob Storage
- Azure Table Storage
- Essbase
- File
- Folder
- IBM DB2
- IBM Informix Database
- IBM Netezza
- Impala
- MySQL
- ODBC
- OData
- OleDb
- Oracle



Choose your Access Type:

**Direct / Live connect  
Import**

# DEMO: On-Premises Data Gateway

Scheduled Refresh

# Architectures



[https://blogs.msdn.microsoft.com/microsoft\\_press/2016/06/16/free-ebook-introducing-microsoft-power-bi/](https://blogs.msdn.microsoft.com/microsoft_press/2016/06/16/free-ebook-introducing-microsoft-power-bi/)



## On-premises data gateway management via PowerShell (Public Preview)



**Arthi Ramasubramanian Iyer**  
Senior Program Manager

October 14, 2019



We are happy to announce the public preview of a new set of [PowerShell cmdlets](#) which will enable automation of gateway management tasks. Please review the [online documentation](#) for additional details.

These PowerShell scripts help manage

- On-premises data gateways
- Power BI Data sources

*Note: These cmdlets require [PowerShell core 6.2.2 or higher](#)*

# On-Premises Data Gateway: Administration

The screenshot displays two windows side-by-side. The left window is a Windows PowerShell terminal titled 'Administrator: Windows PowerShell'. It shows the execution of the `Login-OnPremisesDataGateway` cmdlet, followed by the `Set-OnPremisesDataGatewayUserAccount` cmdlet. The terminal prompts for 'Email Address:' and shows a cursor. The right window is a web browser showing the 'Power Platform admin center' at the URL `https://admin.powerplatform.microsoft.com/ext/DataGateways`. The browser interface includes a navigation sidebar with options like 'Environments', 'Analytics', 'Help + support', and 'Data integration'. The main content area is titled 'Data Gateways' and contains introductory text about the gateway's role as a bridge between on-premises data and Power Platform, with a link to 'Learn more in this overview'.

```
Administrator: Windows PowerShell
PS C:\Program Files\On-premises data gateway> Login-OnPremisesDataGateway

cmdlet Set-OnPremisesDataGatewayUserAccount at command pipeline position 1
Supply values for the following parameters:
EmailAddress: 
```

Power Platform admin center  
https://admin.powerplatform.microsoft.com/ext/DataGateways

Power Platform Admin center (preview)

Manage Gateway installers

### Data Gateways

The On-premises data gateway acts as a bridge, providing quick and secure data transfer between on-premises data and Power Platform. [Learn more in this overview.](#)

Gateway Cluster Name ↑

Contact info

# Power BI REST API

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

## Gateways - Get Gateways

Service: Power BI REST APIs

API Version: v1.0

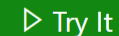
Returns a list of gateways for which the user is an admin.

**Required scope:** Dataset.ReadWrite.All or Dataset.Read.All

To set the permissions scope, see [Register an app](#).

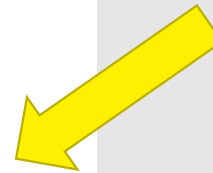
HTTP

 Copy

 Try It

GET <https://api.powerbi.com/v1.0/myorg/gateways>

<https://powerbi.microsoft.com/en-us/blog/power-bi-developer-community-april-may-update/#try-it>



# On-Premises Gateway – Administration 1/2

What if you...

.. need to **size the Gateway Server**?

Sizing Recommendations (by Kasper de Jonge)

<https://www.kasperonbi.com/enterprise-gateway-sizing-recommendations/>

.. need to **monitor** the Gateway?

<https://docs.microsoft.com/en-us/power-bi/service-gateway-onprem-tshoot#performance>

.. want to **automate** Gateway work?

<https://docs.microsoft.com/en-us/power-bi/service-gateway-high-availability-clusters#powershell-support-for-gateway-clusters>

.. need to **restart** the Gateway service?

<https://docs.microsoft.com/en-us/power-bi/service-gateway-onprem-tshoot#configuration>

.. need to **map usernames** for SSAS?

<https://docs.microsoft.com/en-us/power-bi/service-gateway-enterprise-manage-ssas#map-user-names>

# On-Premises Gateway – Administration 2/2

What if you...

.. need **logging** information?

<https://docs.microsoft.com/en-us/power-bi/service-gateway-onprem-tshoot#tools-for-troubleshooting>

.. **inspect the queries** sent via the gateway?

<https://docs.microsoft.com/en-us/power-bi/service-gateway-onprem-tshoot#reviewing-slow-performing-queries>

.. are looking for the **Gateway FAQ** site?

<https://docs.microsoft.com/en-us/power-bi/service-gateway-onprem-faq>

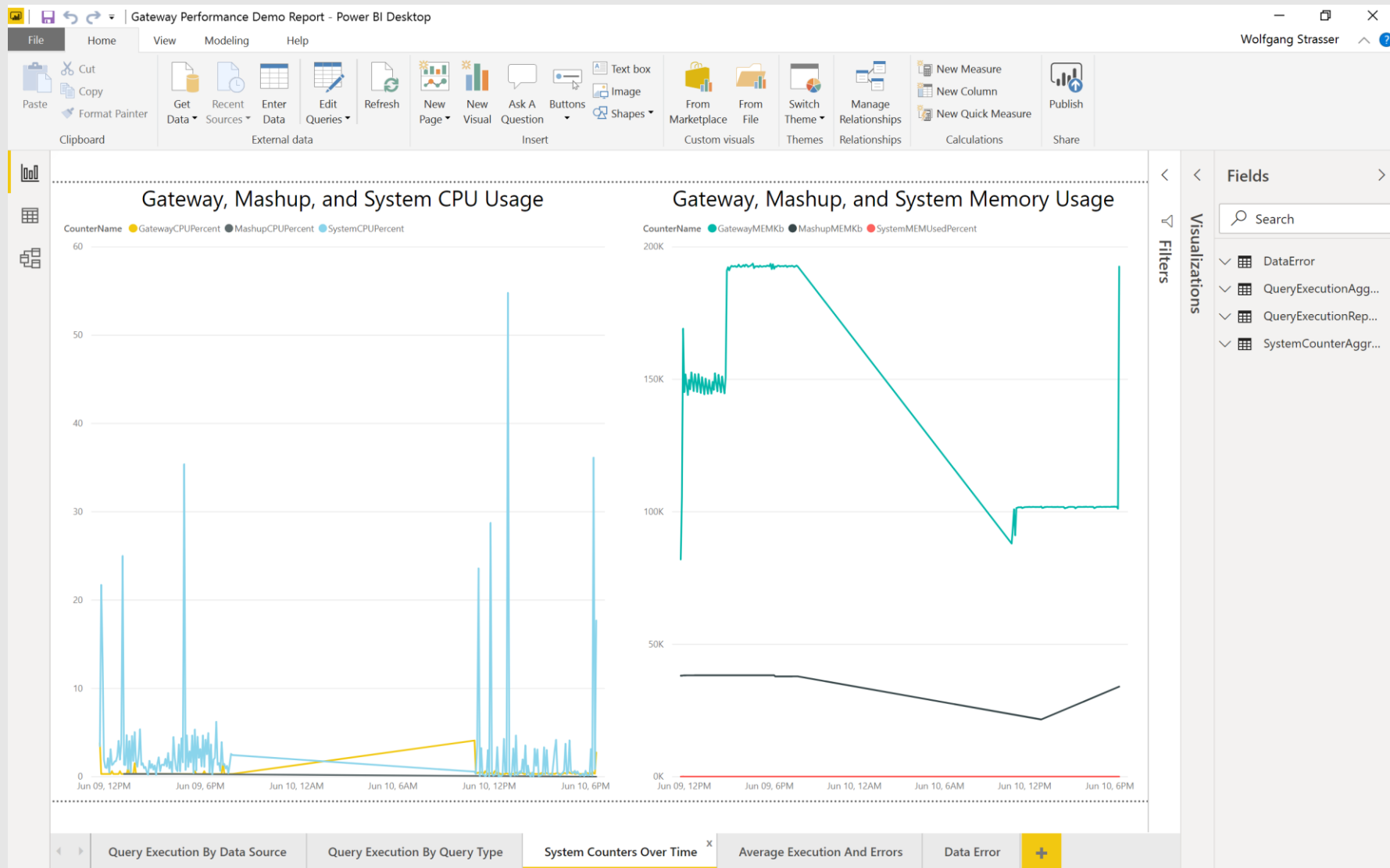
.. need a list of **supported data sources**?

<https://docs.microsoft.com/en-us/power-bi/service-gateway-onprem#list-of-available-data-source-types>

... want to **administer all gateways in your tenant**?

<https://admin.powerplatform.microsoft.com/>

# Performance Logging



<https://docs.microsoft.com/en-us/data-integration/gateway/service-gateway-performance>

**#2**

## **SQL Server Reporting Services & Power BI**

Report Server Configuration Manager: WOLFGANGPBIRS01\PBIRS

Report Server Configuration Manager

Connect

WOLFGANGPBIRS01\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)

Power BI Integration

Register this report server with the Power BI service in the cloud to enable "hybrid cloud" features across the two. When this report server is registered with the Power BI service, users can sign into their Power BI accounts and pin paginated report items to their Power BI dashboards. (Note: Publishing Power BI reports to this report server is not a hybrid cloud feature and does not require this registration.)

Power BI Registration

Report server is registered with Power BI.

PowerBIRegistration: Registered

Unregister with Power BI

Your registration is up to date.

UpdateRegistration

Power BI service (cloud) Registration Details

Tenant Name (ID):

powerofbiat  
4bafec85-89b3-447b-9ab3-cf16448906a0

Redirect URLs:

http://wolfgangpbirs01:80/reportserver/pages/LoginComplete.aspx

Results

✓ 17:10:45.7471 | Stopping report server "PowerBIReportServer" on WOLFGANGPBIRS01.

✓ 17:10:46.3877 | Starting report server "PowerBIReportServer" on WOLFGANGPBIRS01.

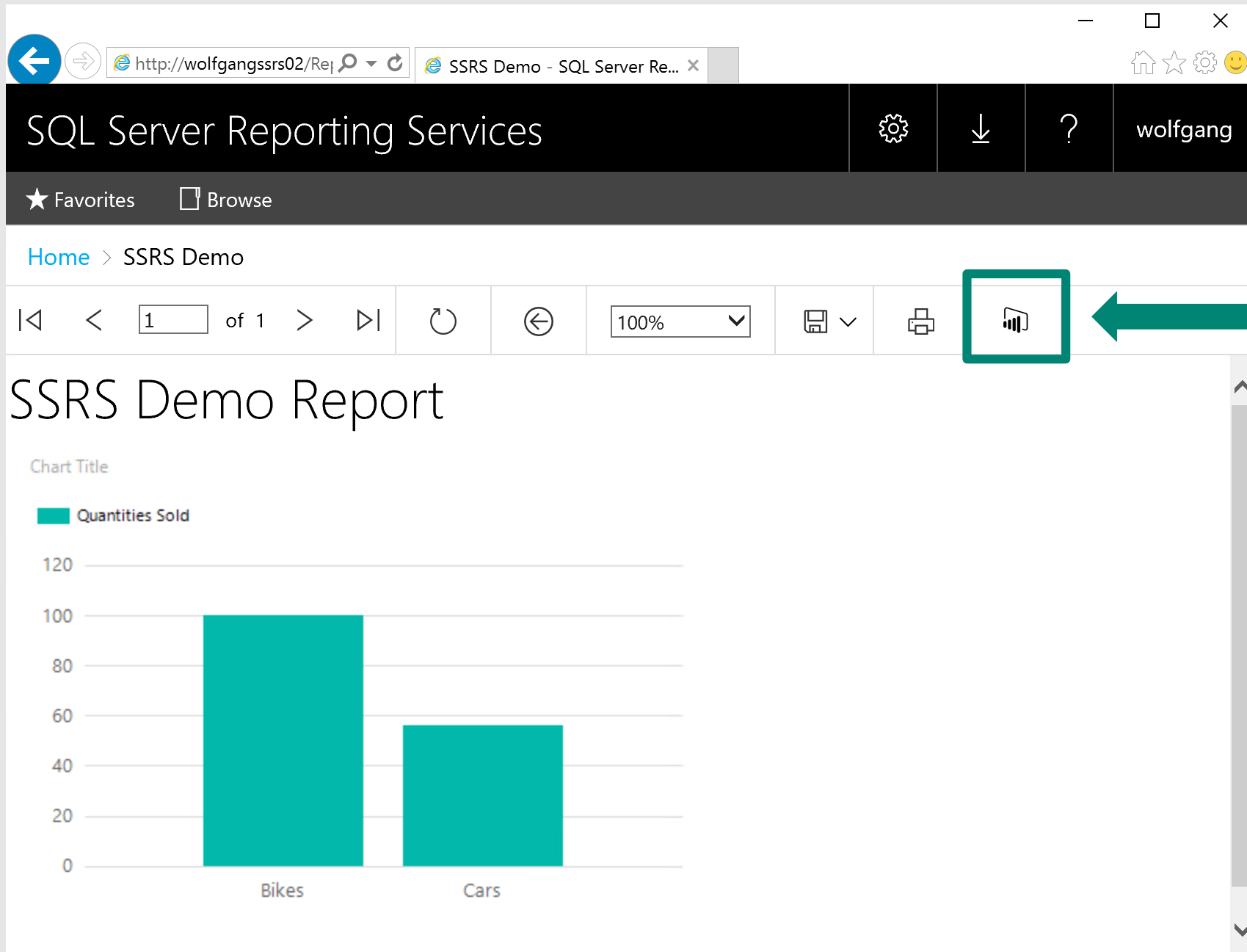
The task completed successfully.

Copy

Apply

Exit





SQL Server Reporting Services

⚙️

⬇️

?

wolfgang

★ Favorites

📁 Browse

Home > SSRS Demo

🖨️

Click a report item to pin it to a Power BI Dashboard

×

SSRS Demo Report

Chart Title

Quantities Sold

120

100

80

60

40

20

0

Bikes

Cars

←

→

http://wolfgangssrs02/Rej

SSRS Demo - SQL Server Re...

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SQL Server Reporting Services

⚙️

⬇️

?

wolfgang

★ Favorites

📁 Browse

Home > SSRS Demo

📊

Click a report item to pin it to a Power BI Dashboard

Chart Title

Quantities Sold

120

100

80

60

40

20

0

Pin to Power BI Dashboard

×

Select a dashboard to pin this report item as a tile.

Group

HybridPowerBI

⌵

Dashboard

Hybrid Power BI

⌵

Hourly

Daily

Weekly

Pin

Cancel

# SSRS Integration into PowerBI.com (Pinning)

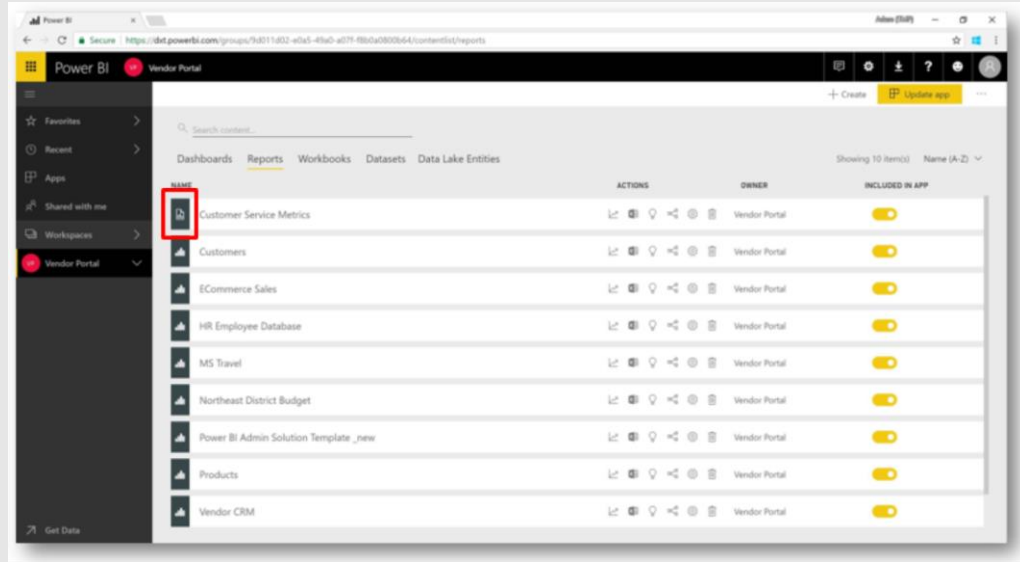
## **Question: “What are the required permissions to configure the Power BI Integration?”**

- Answer: “The user performing the Power BI integration needs to be a member of the Azure AD tenant, a Reporting Services system administrator and a system administrator for the ReportServer catalog database.”
- Source: <https://docs.microsoft.com/en-us/sql/reporting-services/install-windows/power-bi-report-server-integration-configuration-manager?view=sql-server-2017>

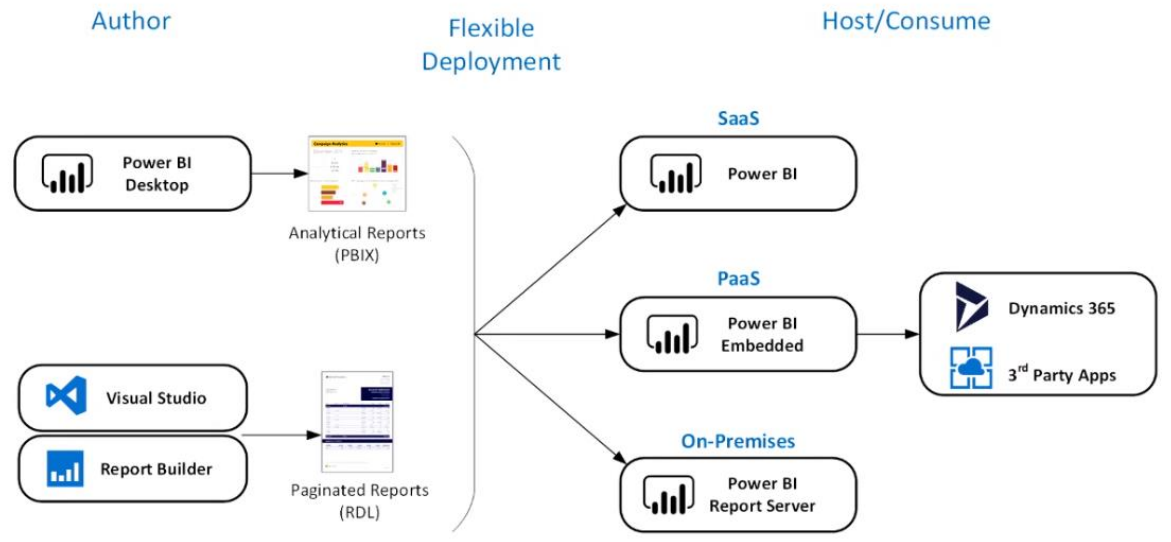
## **Question: Minimum SSRS Version (in order that pinning works)?**

- Answer: SQL Server 2016 and newer
- <https://docs.microsoft.com/en-us/sql/reporting-services/install-windows/power-bi-report-server-integration-configuration-manager>

# RDL Reports are coming to PowerBI.com



## Paginated reports: Medium term vision



<https://docs.microsoft.com/en-us/business-applications-release-notes/April18/power-bi/service/sql-server-reporting-services-ssrs-reports-power-bi-premium>

<https://www.microsoft.com/en-us/businessapplicationssummit/video/BAS2018-2118>

# Announcing Paginated Reports in Power BI general availability



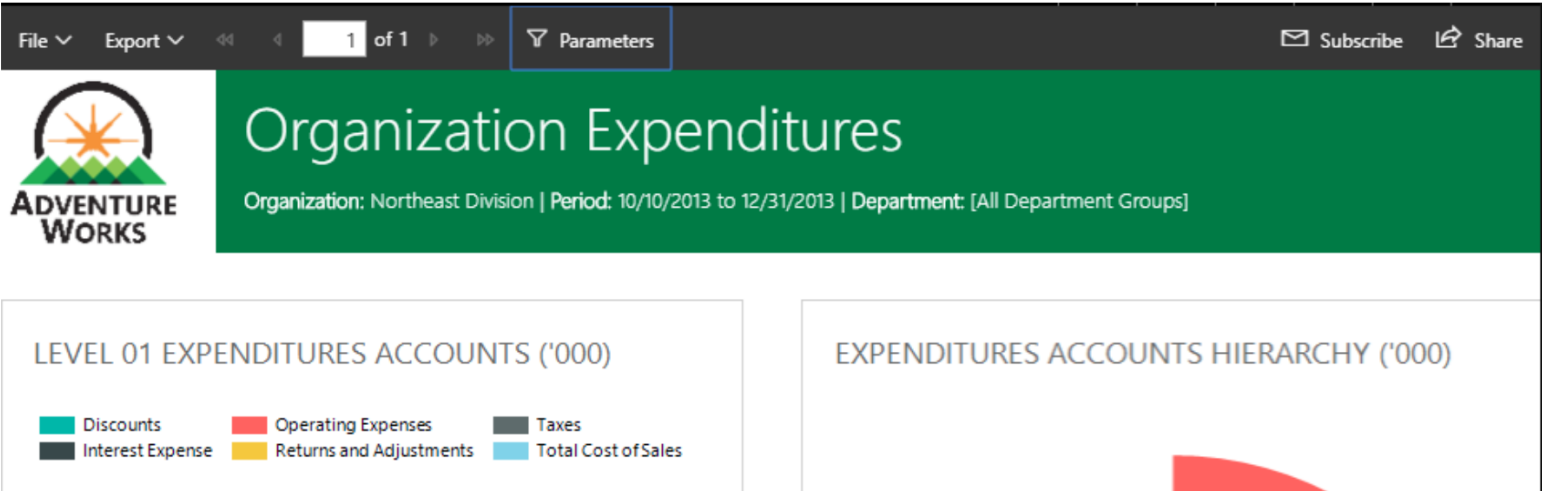
**Christopher Finlan**  
Senior Program Manager

June 9, 2019

in Share

Tweet

Like



Today: Premium only

If you want it in PRO:

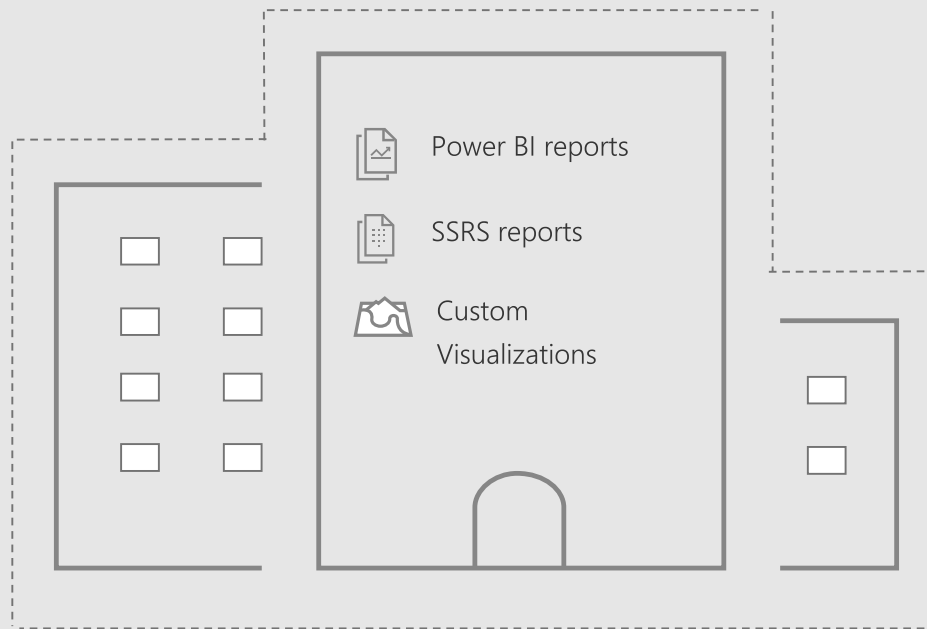
<https://ideas.powerbi.com/forums/265200-power-bi-ideas/suggestions/35959420-paginated-reports-please-make-it-available-in-pr>

**#3**

**Bring Power BI (Reports) On-Premises**



# Power BI Report Server



Keep Power BI reports on-premises



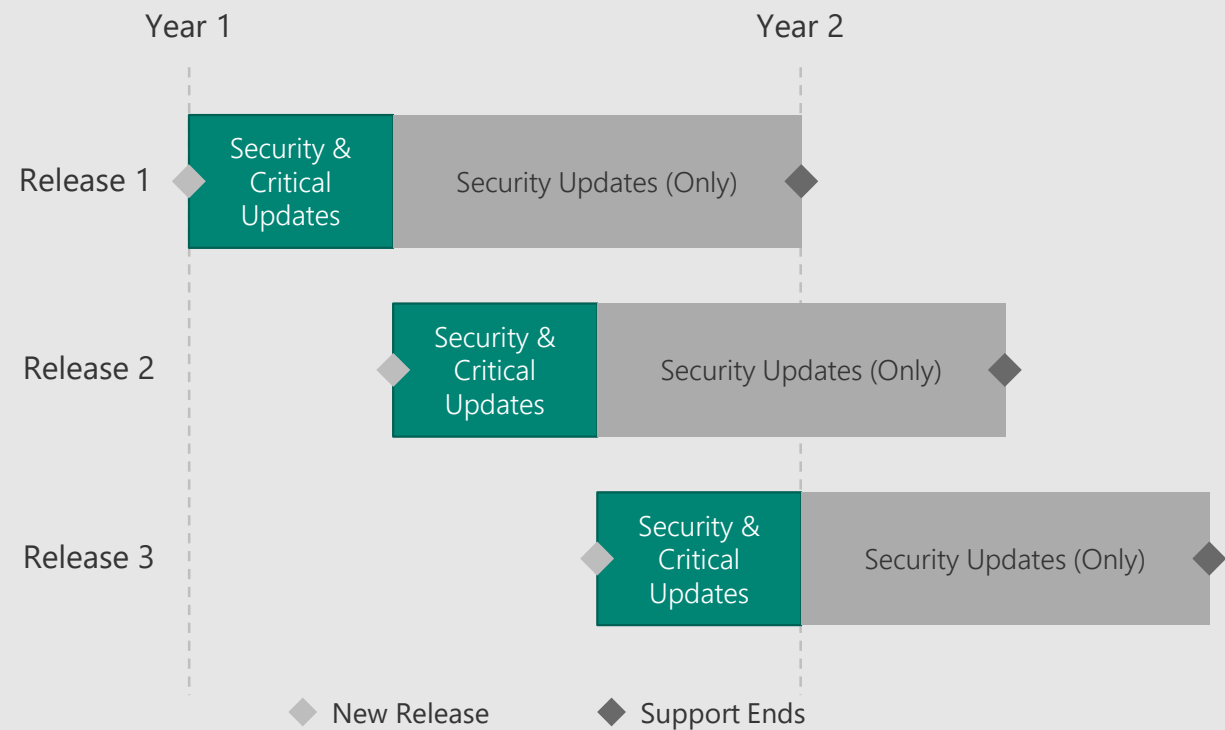
Includes all SSRS functionality



Move to the cloud on your terms

**PBIRS = SSRS + Power BI Reports**

# Modern Lifecycle Policy



Frequent releases  
(planning ~3/4 per year)

Security & critical updates  
until next release

Security updates continue  
for remainder of 12 months

# DEMO: Power BI Report Server

What is it?

Report Development

**#4**

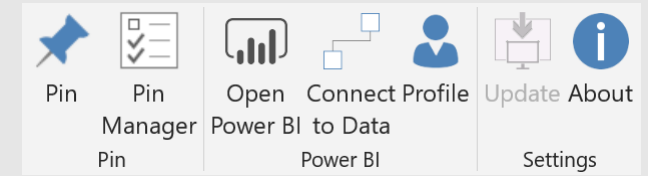
## **Excel and Power BI**

# DEMO: Excel and Power BI

Analyze in Excel

Power BI Publisher for Excel

# Power BI Publisher for Excel



## Pin Excel items to Power BI dashboards

Table ranges

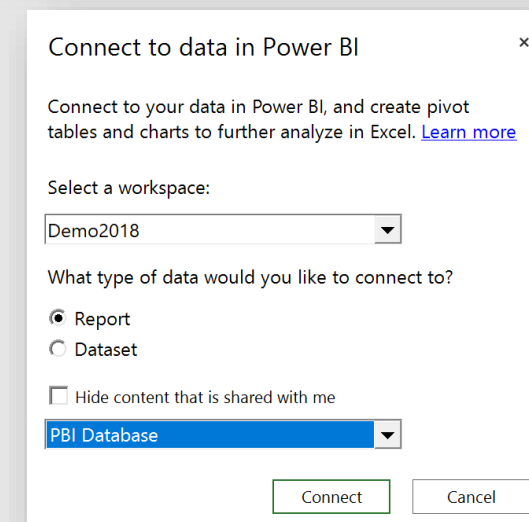
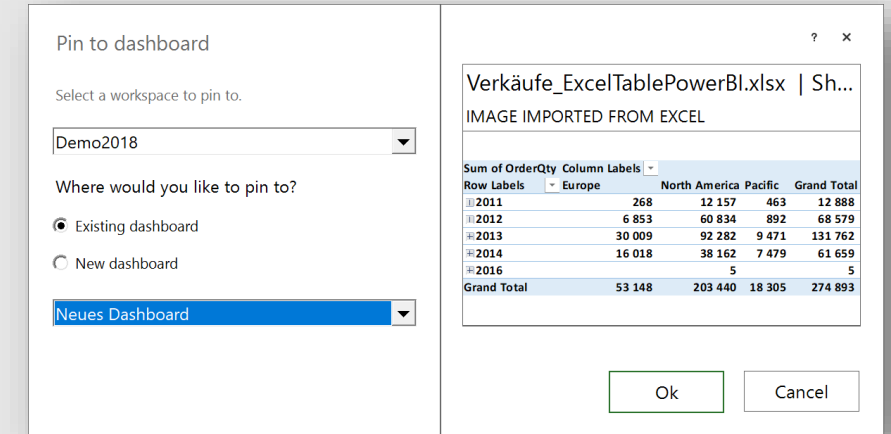
Charts

## Connect to Power BI data in Excel

PBI Reports

PBI Datasets

-> Pivot analysis



# Costs and Licensing

# PowerBI.com – On-Premises Sources

## Per-user license type comparison

Here is a list of features supported by per-user license type.

	Free	Pro
Connect to 70+ data sources	✓	✓
Publish to Web	✓	✓
Export to PowerPoint, Excel, CSV	✓	✓
Enterprise distribution		
Apps	✗	✓
Email subscriptions	✗	✓
Embed APIs and controls	✗	✓
Collaboration		
Peer-to-peer sharing	✗	✓
App workspaces	✗	✓
Analyze in Excel, analyze in Power BI Desktop	✗	✓



# 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

# **SSRS // RDL in Power BI Premium // Excel and Power BI**

## **SSRS (Pin to Power BI)**

Either SSRS (SQL 2016+) OR Power BI Report Server

## **RDL in Power BI**

Power BI Premium (Don't forget about [ideas.powerbi.com](https://ideas.powerbi.com))

## **Excel**

Power BI Publisher for Excel -> Free

Analyze in Excel -> Power BI PRO

Pin to Power BI

# Hybrid Power BI

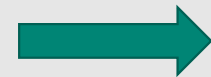
# Hybrid Power BI – Choose your way(s)

On-Premises to Power BI



On-Premises **Data Gateway**

Power BI to On-Premises



Power BI **Report Server**

Connect On-Premises with Power BI



SSRS & Excel **Integration**

# Wolfgang Strasser



Working @  **UBIDO**  
AN ACP GROUP COMPANY

Reach me at

✉ [wolfgang@powerofbi.at](mailto:wolfgang@powerofbi.at)

🐦 @wstrasser

Read more at

📡 <https://workingondata.wordpress.com>

