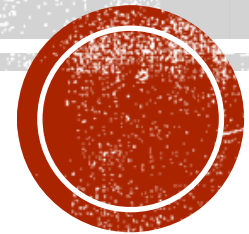


POWER BI DATAFLOWS AND ANALYTICS WITH MICROSOFT POWER BI

Jamey Johnston, M.S.

@STATCowboy





JAMEY JOHNSTON

Sr. Data Scientist



Project Coach Texas A&M Analytics

Education

Texas A&M - MS in Analytics

LSU - BS in Spatial Analysis

Photographer

<http://jamey.photos>

Blog

<http://STATCowboy.com>

Code

<https://github.com/STATCowboy>

Power BI Desktop

- Windows app to author self-service data driven analytic reports
- Install from Microsoft Store (monthly updates automagically!)

Power BI Service

- MS hosted service for publishing Power BI reports and dashboards
- <http://app.powerbi.com>

Power BI Mobile

- App for Windows, iOS (phones and tablets) & Android

On-premises Data Gateway

- Bridge to query & load data from on-premises data sources to Power BI Service

Power BI Report Server

- On-premises version of the PowerBI.com service (limited features than cloud version)

POWER BI OVERVIEW



M

- Used in Power Query for Data Wrangling
- <https://docs.microsoft.com/en-us/powerquery-m/power-query-m-reference>

DAX

- Used to create columns, measures, calculations in Power BI (in Excel, too!)
- <https://docs.microsoft.com/en-us/dax/data-analysis-expressions-dax-reference>

POWER BI LANGUAGES





Python

Supports Python
for data
wrangling and
visualizations



R

Supports R for
data wrangling
and
visualizations



Dataflows

Integrates Data
Lake and ETL
technology
directly into
Power BI

<https://www.jamesserra.com/archive/2018/08/power-bi-dataflows/>

POWER BI FEATURES





Power BI Desktop

It's Free!



Power BI Pro

Low price of \$9.99 month!
Publish to Power BI Service



Power BI Premium

Adds support for dedicated capacity and an enterprise pricing model and new features
Varies by dedicated capacity needs (i.e. Nodes)



<https://powerbi.microsoft.com/Official-Site/Pricing>

POWER BI LICENSING



POWER BI DESKTOP

Report, Data & Relationship View

Report, Data & Relationship View

Power Query

Publish to Service

Get Data

Melbourne

Average of Occupancy Rate and Average of Revenue (USD) by Reporting Month

Revenue (USD) MoM% by Year, Quarter and Month

Property ID: 16760

Property Type: All

Neighborhood: All

Property Location: St. Kilda

Visualizations: Add data fields here

Filters: Page level filters, Report level filters, Drillthrough

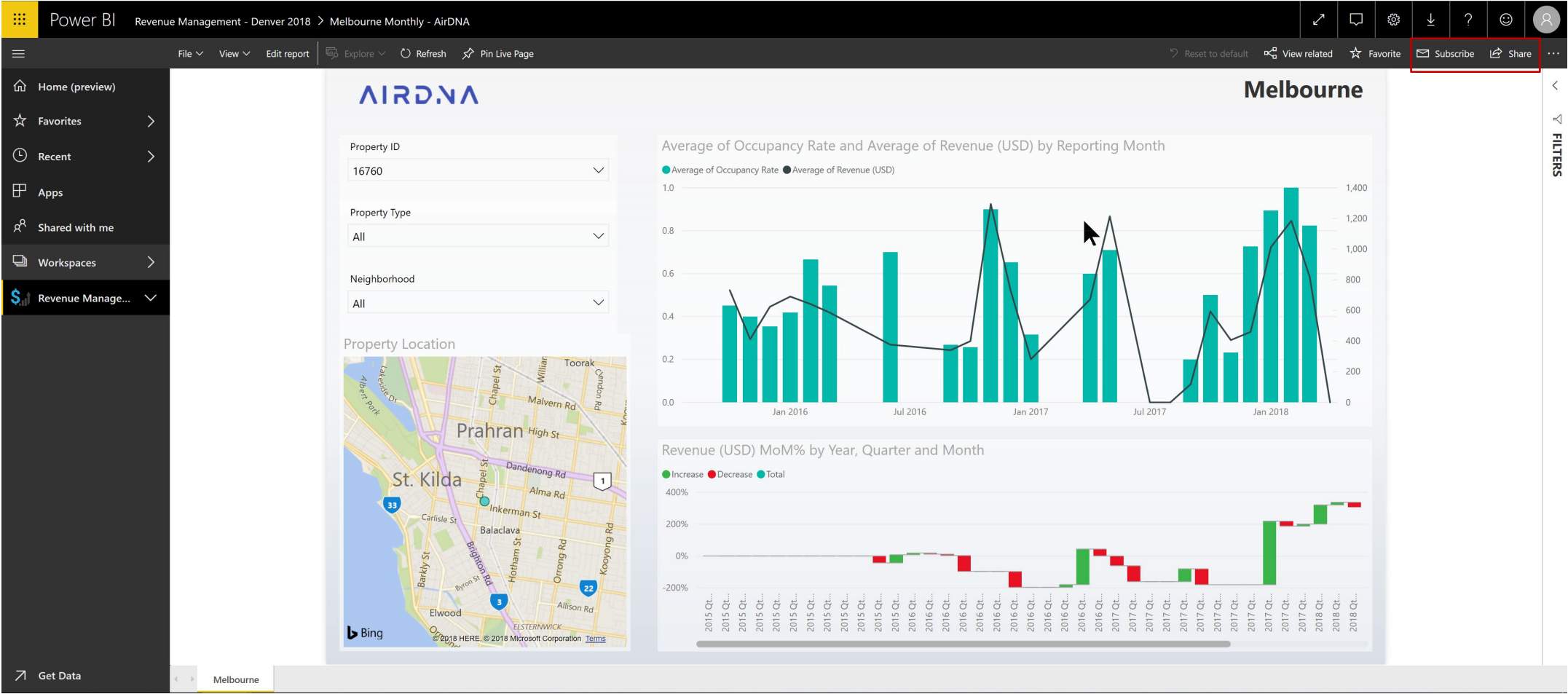
Fields: Blocked Days, City, Country, Currency Native, Host ID, Latitude, Listing Type, Longitude, Metropolitan ..., Neighborhood, Number of Re..., Occupancy Rate, Property ID, Property Type, Reporting Mo..., Reservation D..., Revenue (Nati..., Revenue (USD), Revenue (USD..., Scraped Durin..., State, Zip code, Property

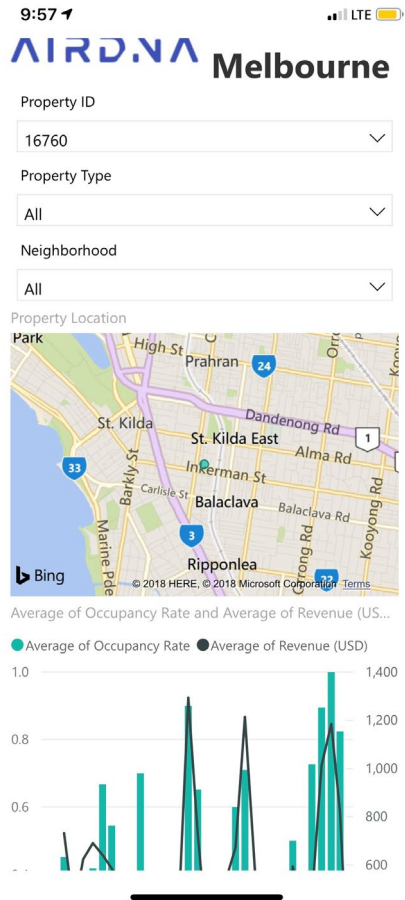




Close

POWER BI SERVICE

Share & Subscribe







9:56  

[Search](#)

Microsoft Power BI

Microsoft Corporation

 [OPEN](#) 

4.7 ★★★★★
5.43K Ratings

4+
Age

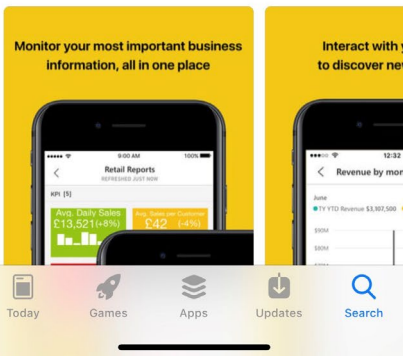
What's New

[Version History](#)

Version 17.1 6d ago

- When you receive a link in a report that has an active URL filter (query string) applied to it, the report will open pre-filtered. [more](#)

Preview



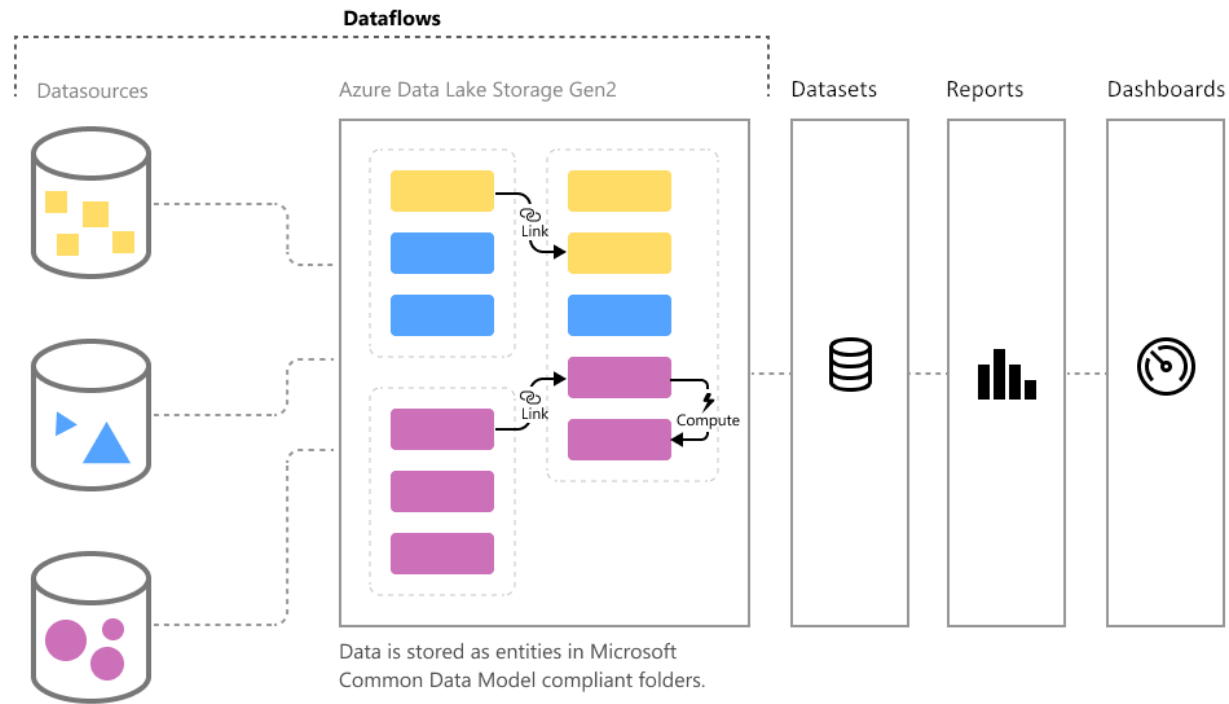
Monitor your most important business information, all in one place

Interact with your data to discover new insights

Today Games Apps Updates Search

POWER BI MOBILE





POWER BI DATAFLOWS



<https://docs.microsoft.com/en-us/power-bi/service-dataflows-overview>

<https://powerbi.microsoft.com/pt-pt/blog/introducing-power-bi-data-prep-with-dataflows/>

Add entities to start creating your dataflow

Define new entities
Choose a data source to define the entities for your dataflow. You can map your data to standard Common Data Model entities, or define custom entities instead.
[Learn more](#)
Add new entities

Link entities from other dataflows
Linking to entities from other dataflows reduces duplication and helps maintain consistency across your organization.
[Learn more](#)
Add linked entities

Power BI Power BI dataflow demo (1) > New dataflow (unsaved)

Choose data source

All categories File Database Power BI Azure Online services Other

Access File Excel File JSON File

Text/CSV File XML File IBM DB2 database Database

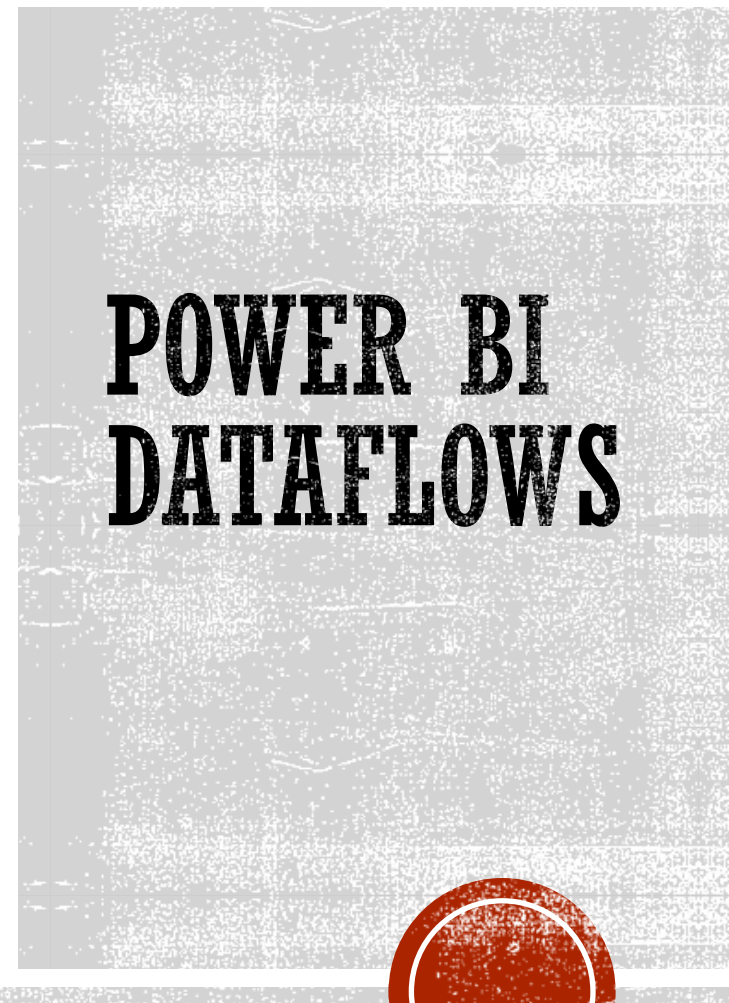
Oracle database Database Microsoft SQL database Database Azure SQL Data Warehouse Azure

Power BI dataflows Power BI Azure Blobs Azure Azure Tables Azure Common Data Service for Apps Online services

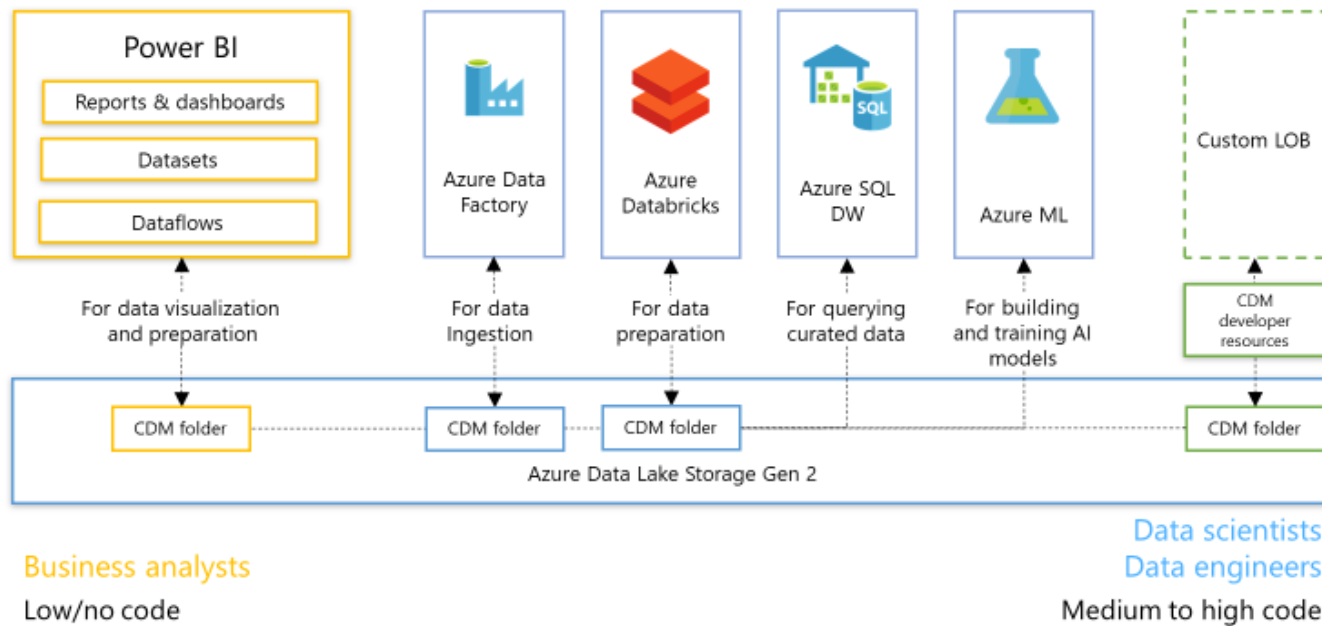
Microsoft Exchange Online Online services Salesforce objects Salesforce reports

SharePoint Online list

Visualizations: Map of North America, Bar chart showing 'Overall rank by state', Bar chart showing 'Cost of living, Overall rank and Weather by State'.



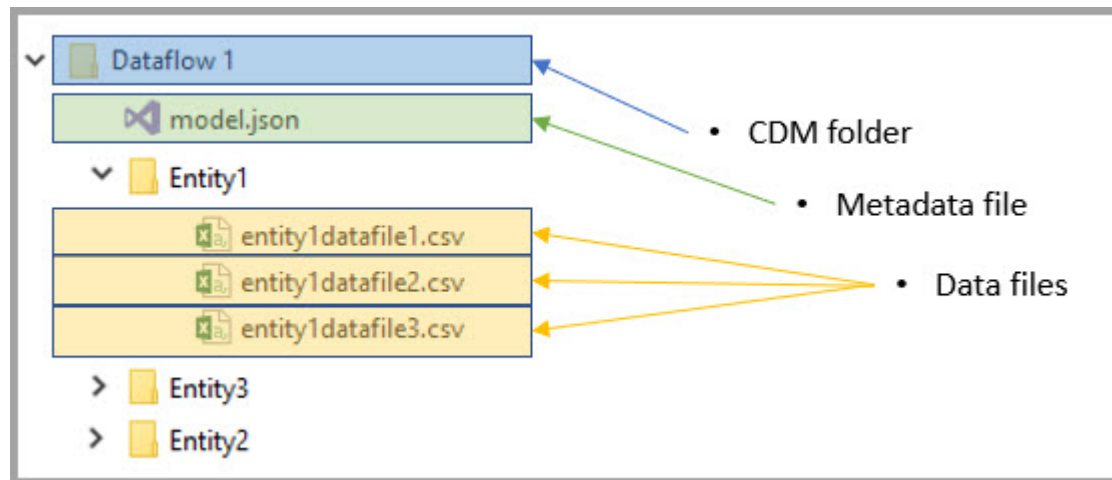
<https://docs.microsoft.com/en-us/power-bi/service-dataflows-create-use>



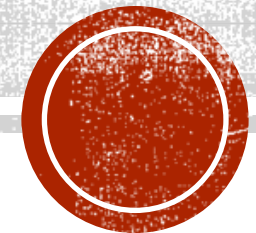
POWER BI DATAFLOWS & ADLS INTEGRATION



<https://docs.microsoft.com/en-us/azure/storage/blobs/data-lake-storage-introduction>



POWER BI DATAFLOWS CDM FOLDER



Admin portal

- Usage metrics
- Users
- Audit logs
- Tenant settings
- Capacity settings
- Embed Codes
- Organization visuals
- Dataflow settings (preview)

Dataflow storage (preview)

Connect to Azure Data Lake Storage Gen 2

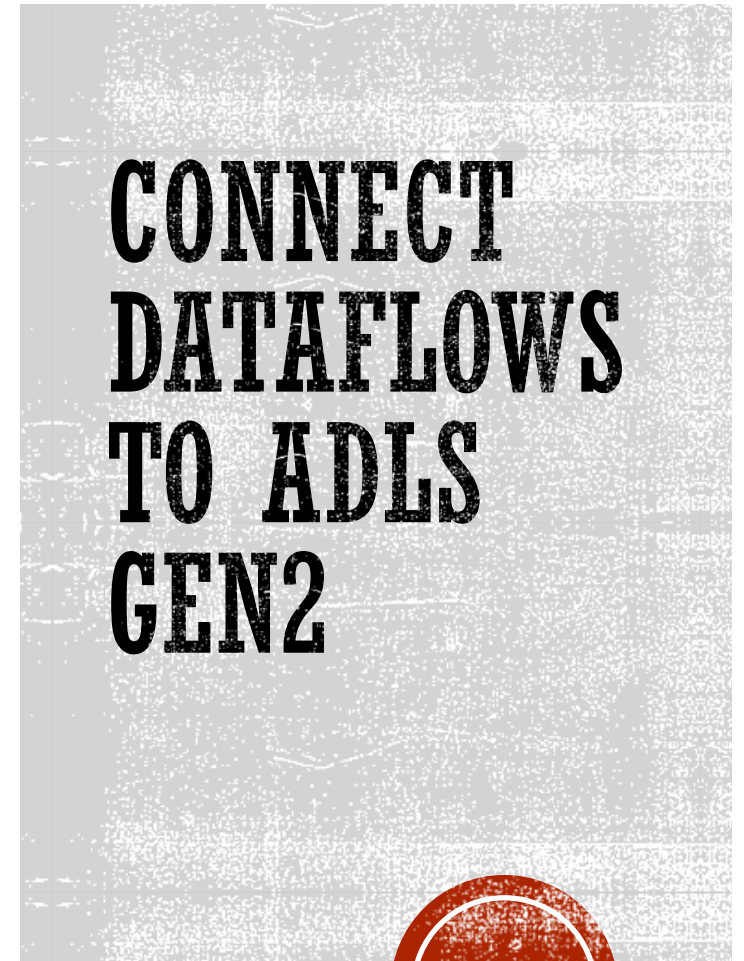
Enter your Azure Data Lake Storage details. [Learn more](#)

Subscription ID

Resource group name

Storage account name

[Cancel](#) [Continue](#)



<https://docs.microsoft.com/en-us/power-bi/service-dataflows-connect-azure-data-lake-storage-gen2>

Create an app workspace

Advanced ^

Dedicated capacity ⓘ

☒ On

Choose an available dedicated capacity for this workspace

P2 capacity - Central US ▼

[Learn more about Premium capacity.](#)

Dataflow storage (preview) ⓘ

☒ On

All new dataflows and dataflow data in this workspace will be stored in your organization's Azure Data Lake Storage Gen2 account.

- Linked entities will only be supported between workspaces in the same storage account.
- Dataflow permission management may be affected. [Learn more](#)

Save

Cancel

CONFIGURE WORKSPACE FOR POWER BI DATAFLOWS



<https://docs.microsoft.com/en-us/power-bi/service-dataflows-configure-workspace-storage-settings>

Invoke function

Search

- Azure Machine Learning Models [15]
- CognitiveServices [4]
 - CognitiveServices.TagImages
 - CognitiveServices.ExtractKeyPhrases
 - CognitiveServices.DetectLanguage
 - CognitiveServices.ScoreSentiment

CognitiveServices.ScoreSentiment

This function returns a numeric score between 0 and 1. Scores close to 1 indicate positive sentiment, while scores close to 0 indicate negative sentiment. A score of 0.5 indicates the lack of sentiment (e.g. a factoid statement). You can provide a language ISO code as optional parameter.

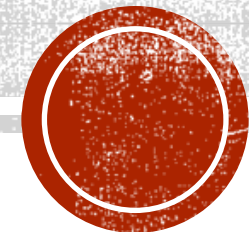
text *
reviews_text

Show

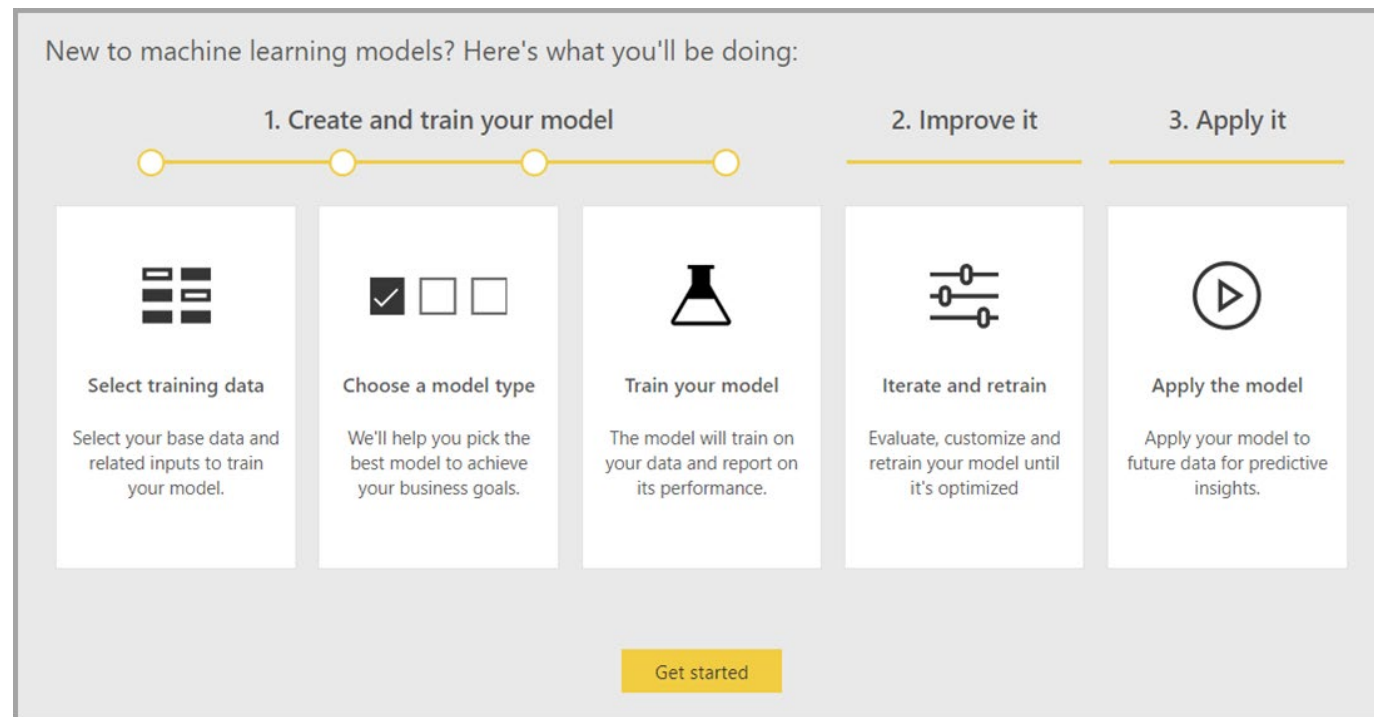
languageISOCode
en

Invoke Cancel

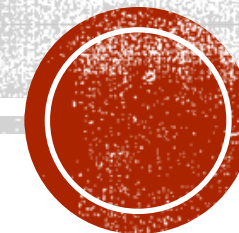
COGNITIVE SERVICES IN POWER BI DATAFLOWS



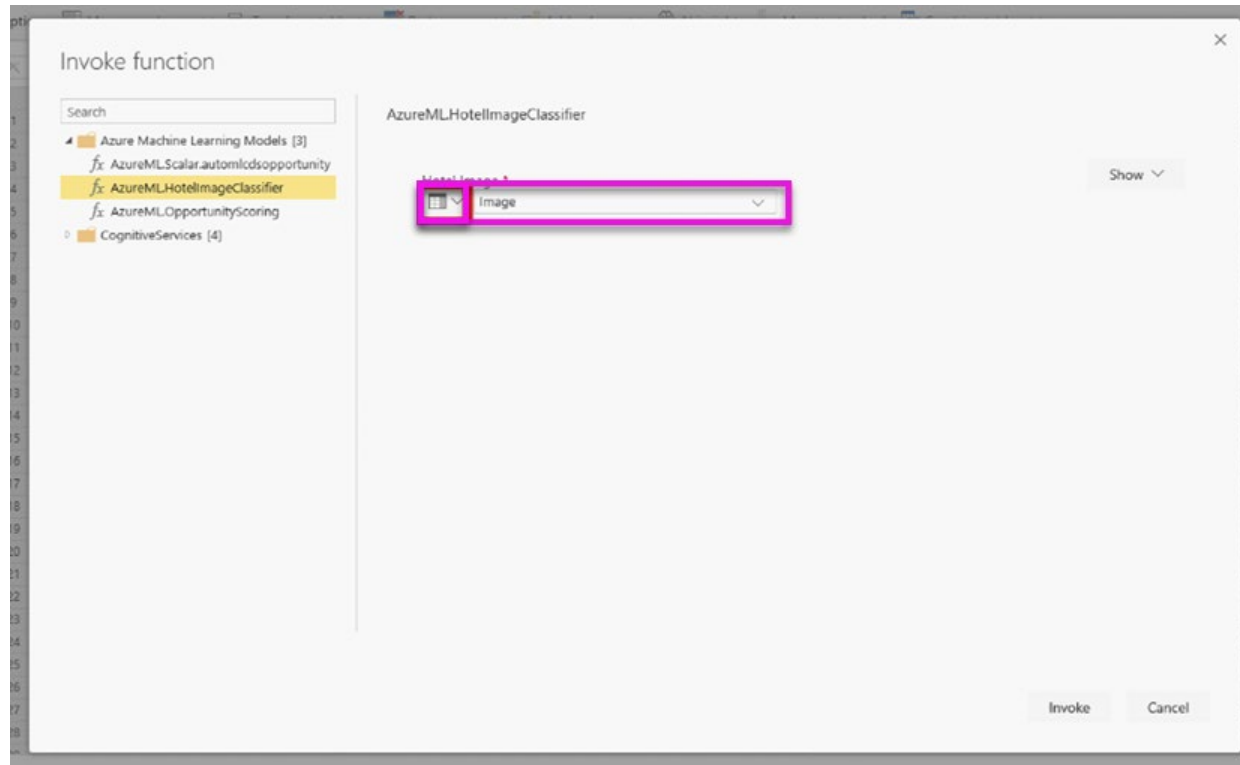
<https://docs.microsoft.com/en-us/power-bi/service-cognitive-services>



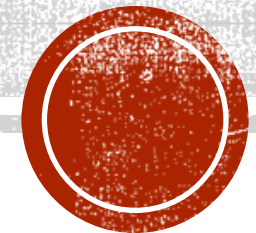
AUTOMATED ML IN POWER BI DATAFLOWS



<https://docs.microsoft.com/en-us/power-bi/service-machine-learning-automated>



AZURE ML IN POWER BI DATAFLOWS



<https://docs.microsoft.com/en-us/power-bi/service-machine-learning-integration>

EXPLORER

Search for resources

Collapse All

Refresh All

Quick Access

(Local and Attached)

Storage Accounts

Internal Consumption (cawa@microsoft.com)

Storage Accounts

cawablobgrs (Blob Storage)

Blob Containers

doc-article

febbuid

Tables

cawabloblrs (Blob Storage)

cawablobgrs (Blob Storage)

cawagrs

cawalrs

cawapremils (Premium Storage)

cawarags

cawaragsren

cawazrs

Actions

Properties

URL

Type

Public Read Access

Lease State

Lease Status

Last Modified

https://cawablobgrs.blob.core.windk

Blob Container

Off

available

unlocked

Thu, 15 Dec 2016 23:29:56 GMT

doc-article

Upload

Download

Open

New Folder

Copy URL

Select All

Copy

Paste

Rename

Delete

Make Snapshot

Manage Snapshot

Refresh

doc-article

Search by prefix (case-sensitive)

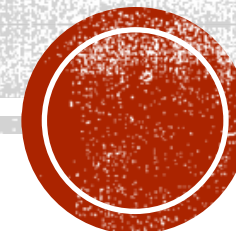
Name	Last Modified	Blob Type	Content Type	Size	Lease State
.acrolinx-config.edn	Fri, 16 Dec 2016 00:35:51 GMT	Block Blob	application/octet-stream	1.9 KB	
.gitignore	Fri, 16 Dec 2016 00:35:51 GMT	Block Blob	application/octet-stream	179 B	
.openpublishing_build.ps1	Fri, 16 Dec 2016 00:35:51 GMT	Block Blob	application/octet-stream	746 B	
.openpublishing_publish.config.json	Fri, 16 Dec 2016 00:35:51 GMT	Block Blob	application/json	1.4 KB	
03f1ddeb3897e2ad2d93b895d7203481ee1b8b	Fri, 16 Dec 2016 00:35:52 GMT	Block Blob	application/octet-stream	172 B	
10931e126d51ac3d9c0c45adcc0378029e1c14	Fri, 16 Dec 2016 00:35:52 GMT	Block Blob	application/octet-stream	4.5 KB	
195556e4fb5fbeat0db9f8acfc200266c192a	Fri, 16 Dec 2016 00:35:52 GMT	Block Blob	application/octet-stream	9.7 KB	
258bcbf32e74e38809f25a0839d9212038e6dc0	Fri, 16 Dec 2016 00:35:52 GMT	Block Blob	application/octet-stream	9.7 KB	
38ceef7d9aeaca0eef54443f3a5dsbd06c22a1	Fri, 16 Dec 2016 00:35:52 GMT	Block Blob	application/octet-stream	168 B	
880920c37ea5f093249bf2edbf2f885e53ef89	Fri, 16 Dec 2016 00:35:52 GMT	Block Blob	application/octet-stream	4.5 KB	
9085b9f64d55eb05ce142d439a5f4b004f197	Fri, 16 Dec 2016 00:35:52 GMT	Block Blob	application/octet-stream	4.5 KB	
9ab9d313088c280c5df276334de568ab44620e	Fri, 16 Dec 2016 00:35:52 GMT	Block Blob	application/octet-stream	492 B	
a3817c9b765e8b05b7be8bd7ecfba658a3374f	Fri, 16 Dec 2016 00:35:52 GMT	Block Blob	application/octet-stream	9.7 KB	
aadds-overview-synced-tenant.png	Fri, 16 Dec 2016 00:40:18 GMT	Block Blob	image/png	158.0 KB	
aadds-overview-synced-tenant.png	Fri, 16 Dec 2016 00:40:22 GMT	Block Blob	image/png	158.0 KB	
aadds-overview.png	Fri, 16 Dec 2016 00:40:22 GMT	Block Blob	image/png	116.2 KB	
aadds-overview.png	Fri, 16 Dec 2016 00:40:19 GMT	Block Blob	image/png	116.2 KB	
aceaaa1d5730bb66f30fee1fe05717dca782ac	Fri, 16 Dec 2016 00:35:52 GMT	Block Blob	application/octet-stream	165 B	
active-directory-aadconnect-azure-adfs.md	Fri, 16 Dec 2016 00:35:57 GMT	Block Blob	text/x-markdown	25.1 KB	
active-directory-aadconnect-design-concepts.md	Fri, 16 Dec 2016 00:35:57 GMT	Block Blob	text/x-markdown	8.5 KB	
active-directory-aadconnect-dirsync-deprecated.md	Fri, 16 Dec 2016 00:35:57 GMT	Block Blob	text/x-markdown	4.9 KB	
active-directory-aadconnect-faq.md	Fri, 16 Dec 2016 00:35:57 GMT	Block Blob	text/x-markdown	5.2 KB	
active-directory-aadconnect-feature-automatic-upgrade.md	Fri, 16 Dec 2016 00:35:57 GMT	Block Blob	text/x-markdown	7.3 KB	

Showing 1 to 100 of 1,000 cached items

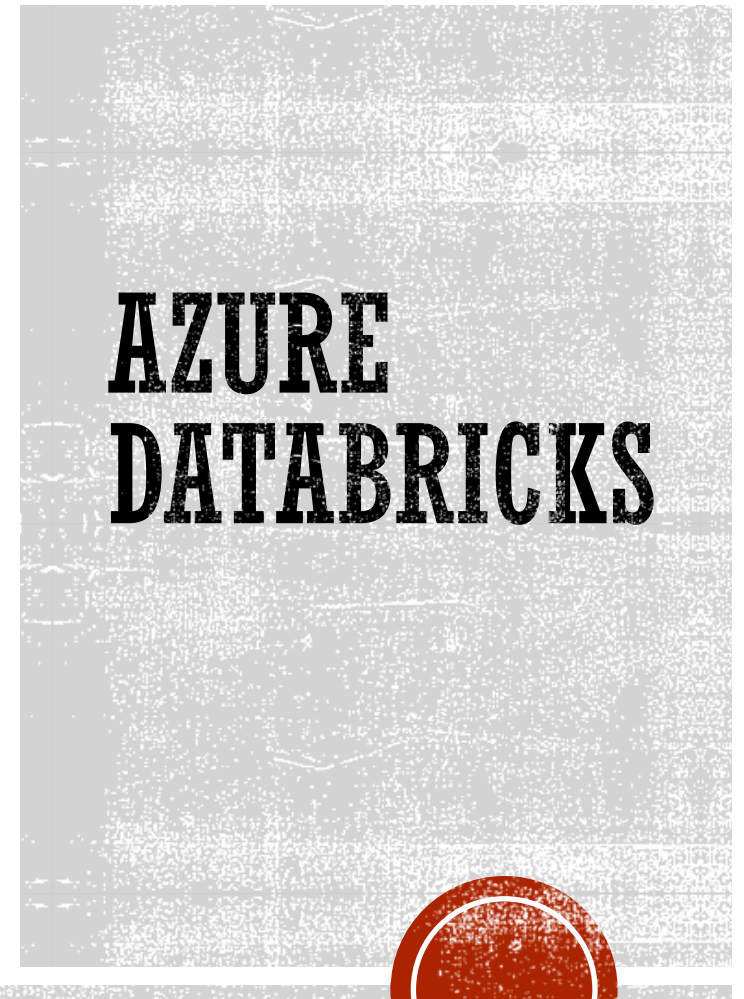
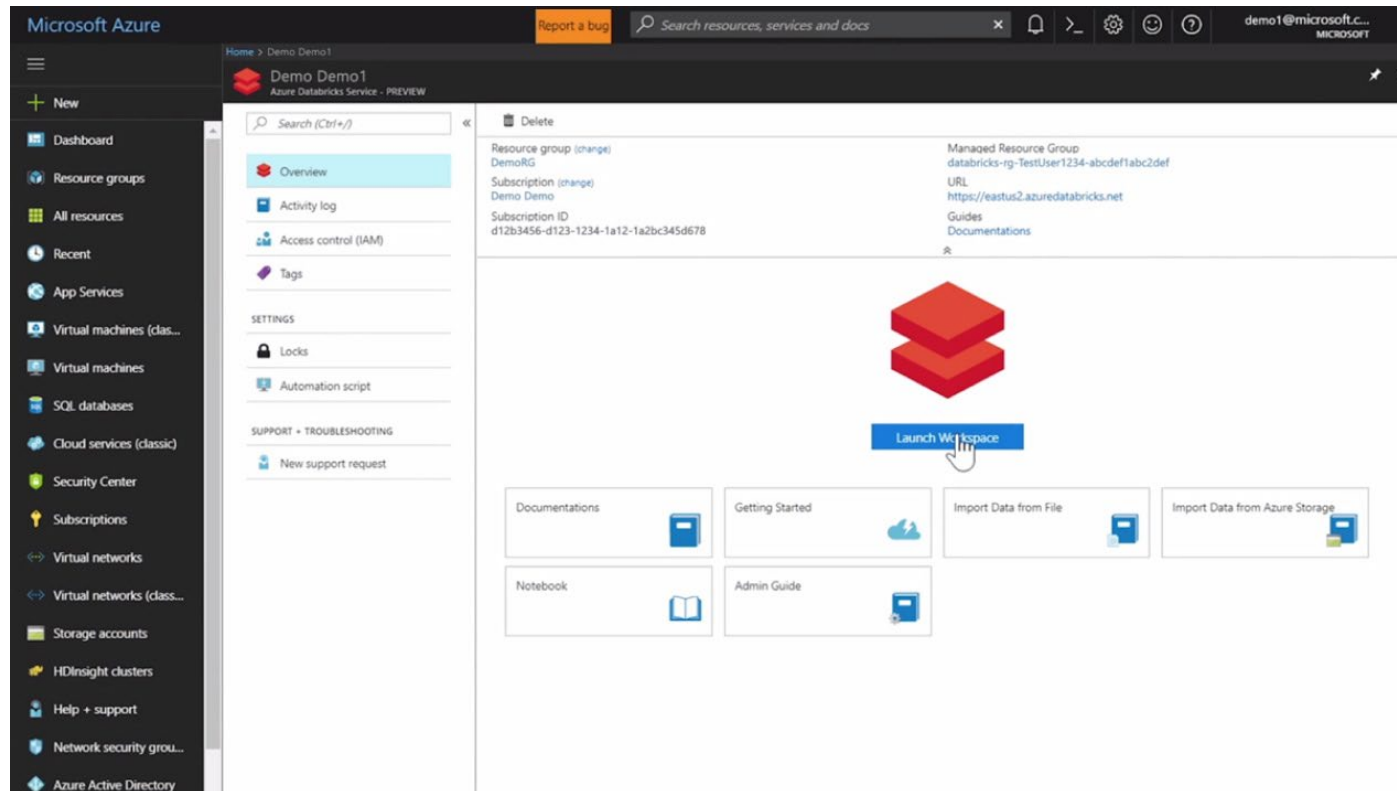
1 2 3 4 5 ... 10 > Load more

Activities

AZURE STORAGE EXPLORER

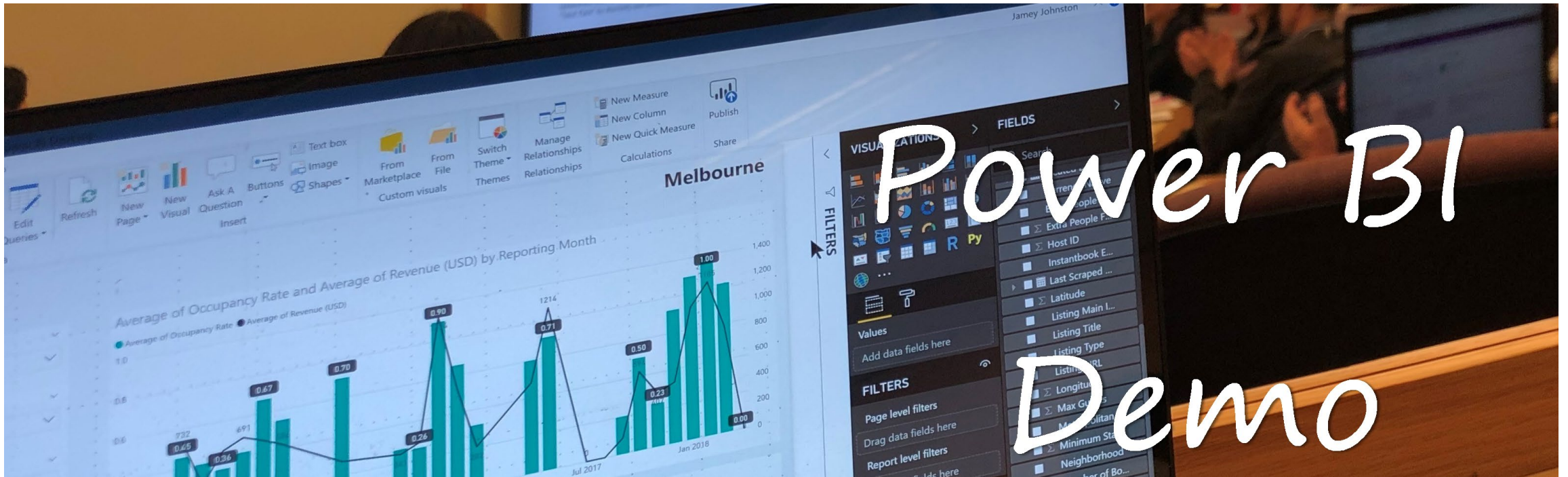


<https://azure.microsoft.com/en-us/features/storage-explorer/>



<https://azure.microsoft.com/en-us/services/databricks/>

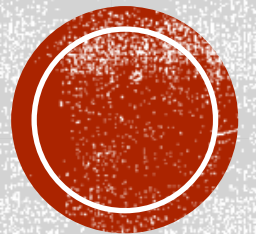
<https://docs.databricks.com/spark/latest/data-sources/azure/azure-datalake-gen2.html>



Power BI
Demo

DEMO

<https://pbiaitutorials.blob.core.windows.net/textanalytics/FabrikamComments.csv>



Power BI Docs & Blog

- <https://powerbi.microsoft.com/en-us/blog/>
- <https://docs.microsoft.com/en-us/power-bi/>

Guy in a Cube YouTube Channel

- <https://guyinacube.com/>
- <https://www.youtube.com/channel/UCFplvaKzpfvoGai0vE5VJ0w>

Power BI YouTube Channel

- <https://www.youtube.com/user/mspowerbi>

RADACAD

- <http://radacad.com/>

SQL BI

- <https://www.sqlbi.com/>

RESOURCES



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