

Loading Images from a Database into Qlik Sense and NPrinting



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SUMMARY

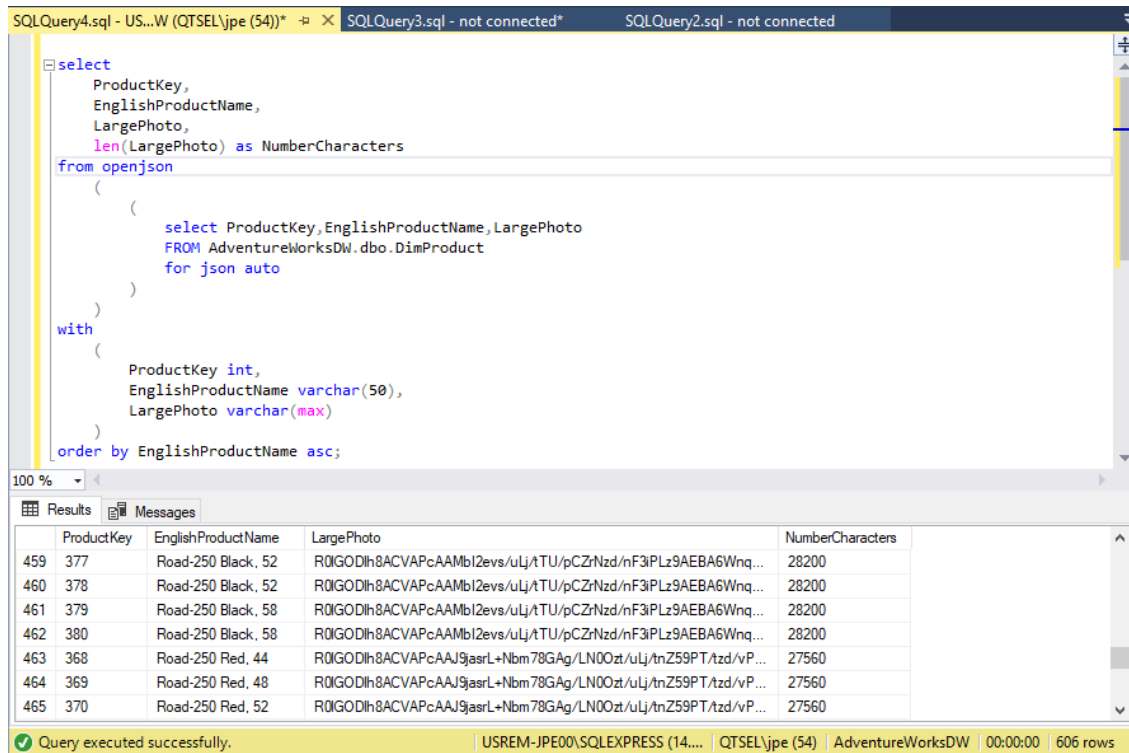
- Relational databases often store image files in BLOB format.
- You can load images from databases into a Qlik Sense app by converting the images into a Base64 encoded format using standard SQL techniques
- Qlik Sense can use expression based sourcing to dynamically render the images through the native Qlik Sense Map Object
- This is similar to the BUNDLE LOAD technique of loading images into QlikView Apps.
- The images can also be sourced by NPrinting for the purposes of publishing reports with photos and other images.
- The technique assumes you know the format of the images (PNG , JPG, GIF) that is stored as a BLOB in the database
- This paper provides an end to end example utilizing Microsoft SQL Server's AdventureWorks sample database which contains JPG images.

The SQL

VARBINARY(MAX) data types can be converted into BASE64 encoded format on the fly using standard SQL techniques.

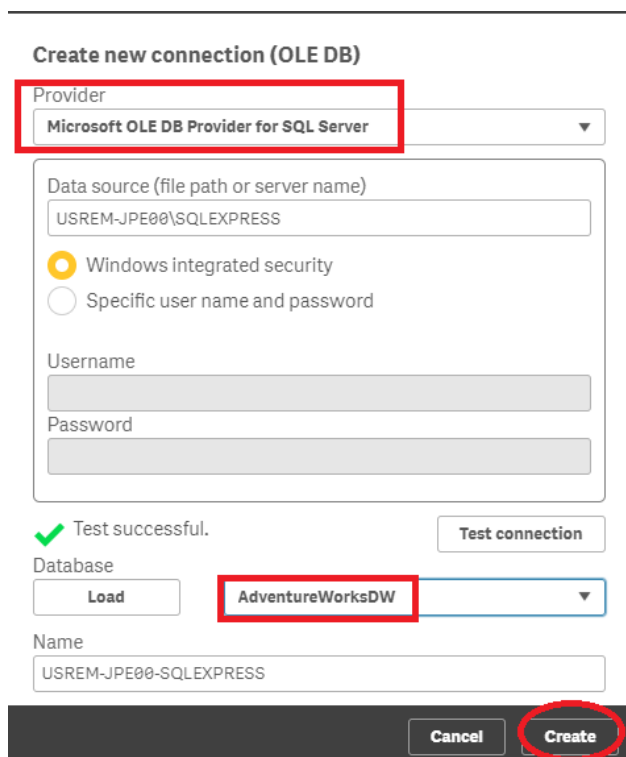
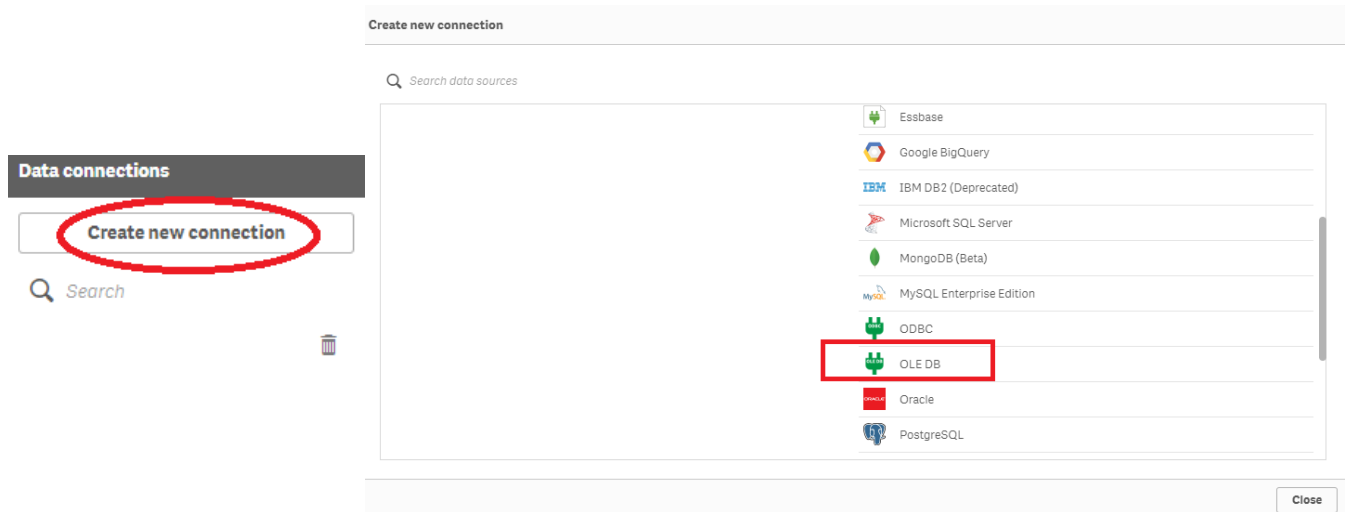
The following SQL will return all 606 rows of the BASE64 encoded forms of the individual product photos many characters in length.

```
select
    ProductKey,
    EnglishProductName,
    LargePhoto,
    len(LargePhoto) as NumberCharacters
from openjson
    (
        (
            select ProductKey,EnglishProductName, LargePhoto
            FROM AdventureWorksDW.dbo.DimProduct
            for json auto
        )
    )
with
    (
        ProductKey int,
        EnglishProductName varchar(50),
        LargePhoto varchar(max)
    )
order by EnglishProductName asc;
```



Connectivity from Qlik Sense

Since the character lengths are commonly beyond 4000 characters, use the OLE-DB data connection type in Qlik Sense as testing with the standard ODBC drivers from Microsoft as well as the shipped Microsoft SQL Server ODBC inside Qlik Sense would truncate the characters at 4000 resulting in an incomplete image.



The Load Script

Use the same SQL technique as shown above to formulate the data load in the Qlik Sense Load Editor with one addition. In order to render the images, you must prefix the Base64 encoded field (“LargePhoto” in this example) with the following string of characters:

```
'data:image/jpg;base64,'
```

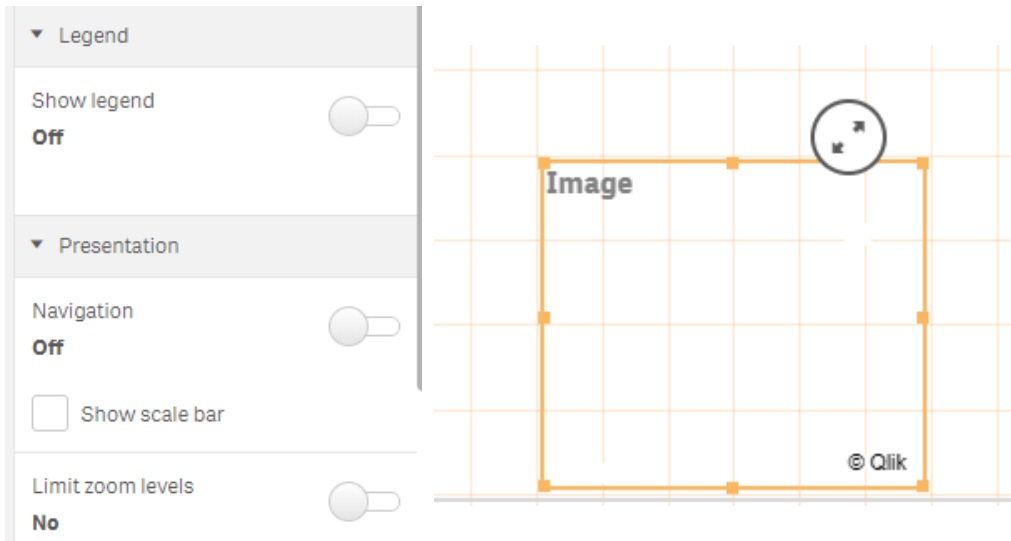
In the AdventureworksDW sample database from Microsoft , the images in the dimProduct table are stored as 'jpg' formats which must be hard coded into the prefix as follows:

```
LOAD
  ProductKey as ImageId,
  EnglishProductName as ImageTitle,
  //add base64 prefix for JPG file type
  'data:image/jpg;base64,' & LargePhoto as Image,
```

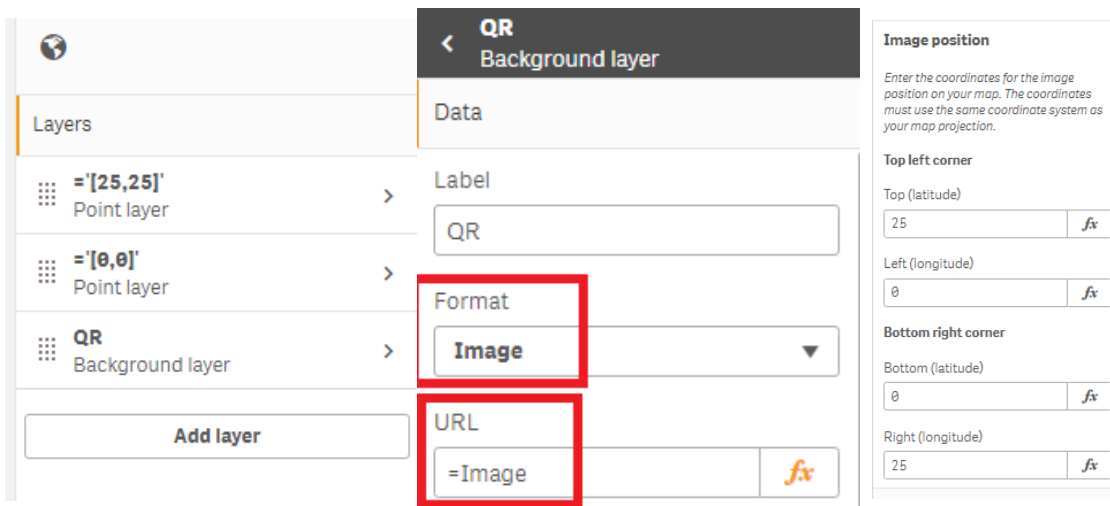
Here is the full load script sample in text form, followed by a screenshot. It is not necessary to include the length of the field, this is done for educational purposes.

```
LIB CONNECT TO 'USREM-JPE00-SQLExpress (qtset_jpe)';
LOAD
  ProductKey as ImageId,
  EnglishProductName as ImageTitle,
  //add base64 prefix for JPG file type
  'data:image/jpg;base64,' & LargePhoto as Image,
  len(LargePhoto) as Base64CharacterCount,
  // Many of the products have a generic 'no image available' photo, classify these products separately
  if(len(LargePhoto)=2232,'No Image available','Image available') as ImageAvailableFLAG;
select
  ProductKey,
  EnglishProductName,
  LargePhoto
from openjson(
  (
    select ProductKey,EnglishProductName,LargePhoto
    FROM AdventureWorksDW.dbo.DimProduct
    for json auto
  )
)
with(
  ProductKey int,
  EnglishProductName varchar(50),
  LargePhoto varchar(max)
);
exit script;
```


Turn off the other settings so the object appears blank



Next add 3 layers to the map object. It's the 3rd layer that will be used to render the data field in the associative model as a background image in the Map object. The image position in this layer is set as follows, for this example:



The other point layers are set as follows. Turn off the points by setting the colors to 'white'

=[25,25]
Point layer

Data

Dimensions
Point

= '[25,25]'

Field
=[25,25] *fx*

Label
[25,25] *fx*

=[25,25]
Point layer

Data

Location

Latitude and longitude fields

Location field
[25,25] *fx*

Select a field with location names or geometry data.

Scope for locations
Auto

=[25,25]
Point layer

Data

Location

Size & Shape

Colors

Colors

Custom

Single color

Color

Opacity

Outline color

Opacity

Sorting

Options

=[0,0]
Point layer

Data

Dimensions
Point

= '[0,0]'

Field
=[0,0] *fx*

Label
[0,0] *fx*

Completing the Sample

Now add some filter panes so you can browse and render the images one at a time.

The screenshot shows a Qlik Sense dashboard titled "Render Base64 as Image". On the left, there is a navigation pane with categories: Fields, Master items, Charts, Custom objects, and App navigation links. The main area contains three filter panes and a rendered image.

ImageAvailableFLAG	ImageTitle
Image available	Adjustable Race
No Image available	All-Purpose Bike Stand
	AWC Logo Cap
	BB Ball Bearing
	Bearing Ball
	Bike Wash - Dissolver
	Blade
	Cable Lock
	Chain
	Chain Stays
	Chainring
	Chainring Bolts
	Chainring Nut
	Classic Vest, L
	Classic Vest, M
	Classic Vest, S
	Cone-Shaped Race
	Crown Race

Base64CharacterCount
2232
7196
7992
8292
9284
12184
12268
12536

Image as Base64 + Prefix
data:image/jpg;base64,R0lGODlh8ACWAPcAAANMAAP78q6GiodoAAOvr7KmXl/a3qfVipri1t5WWbioq...
data:image/jpg;base64,R0lGODlh7gCVAPcAALi8ae7u7tCc3JbJmSRFyMknVwQTMymQelQ3ZwMsb...
data:image/jpg;base64,R0lGODlh8ACBAPcAAAM8AAOzr65mGIodWHTTjydAAA12JjP318pSRiKeZmf7...
data:image/jpg;base64,R0lGODlh8ACVAPcAAAAAACAIAAAIACAaAAAgACAgIAAwEBBAACAgAEA...
data:image/jpg;base64,R0lGODlh8ACVAPcAAAAAAGAAAgIAAgICBAAABAIABAICBAQA8gAABAQCB...
data:image/jpg;base64,R0lGODlh8ACVAPcAAAAAIAAAACAAIACAAAAGIAAgACAgICAgMDAwP8AA...
data:image/jpg;base64,R0lGODlh8ACVAPcAAAMABggHGRR8IGRyaJSAZMIIMR8tOSkpOTkOFT8gLyk...
data:image/jpg;base64,R0lGODlh8ACVAPcAAERFSrK+Ntk8Ovs/TPDTP7uLjhX6Nzd/vLz88XI26S...

The rendered image shows a red bicycle wheel with a freewheel mechanism. A small "Qlik" logo is visible in the bottom right corner of the image.

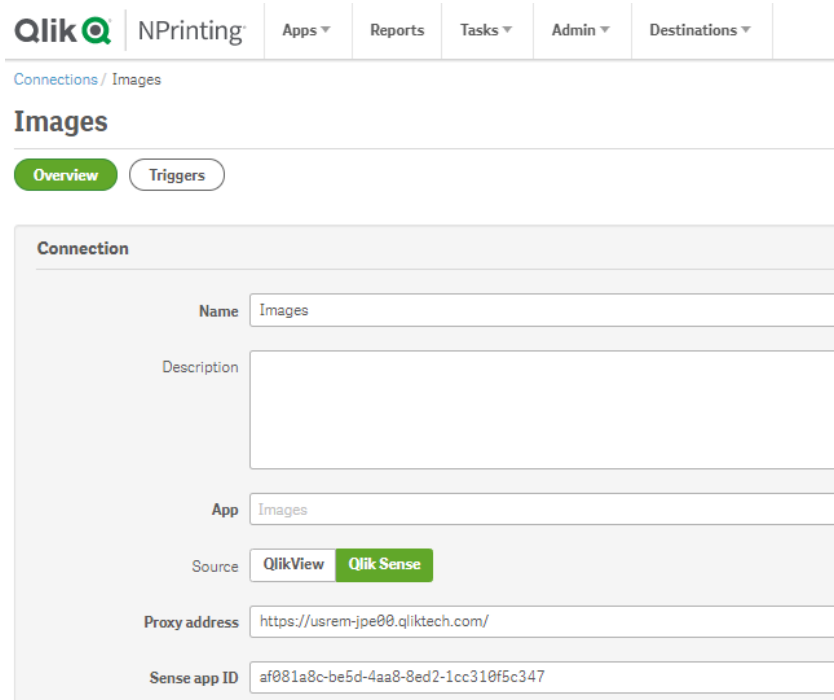
This screenshot provides a closer look at the Qlik Sense interface. The top navigation bar shows the current view is "Image available" and "Freewheel". The main area displays the "Render Base64 as Image" dashboard with the following filter panes:

- ImageAvailableFLAG**: Filtered to "Image available".
- ImageTitle**: Filtered to "Freewheel".
- Base64CharacterCount**: Filtered to "24764".

The rendered image is a red bicycle wheel with a freewheel mechanism. The "Qlik" logo is visible in the bottom right corner of the image.

Extend with NPrinting reports

First create a connection to the Sense App in NPrinting



Qlik NPrinting | Apps ▾ | Reports | Tasks ▾ | Admin ▾ | Destinations ▾

Connections / Images

Images

Overview Triggers

Connection

Name: Images

Description:

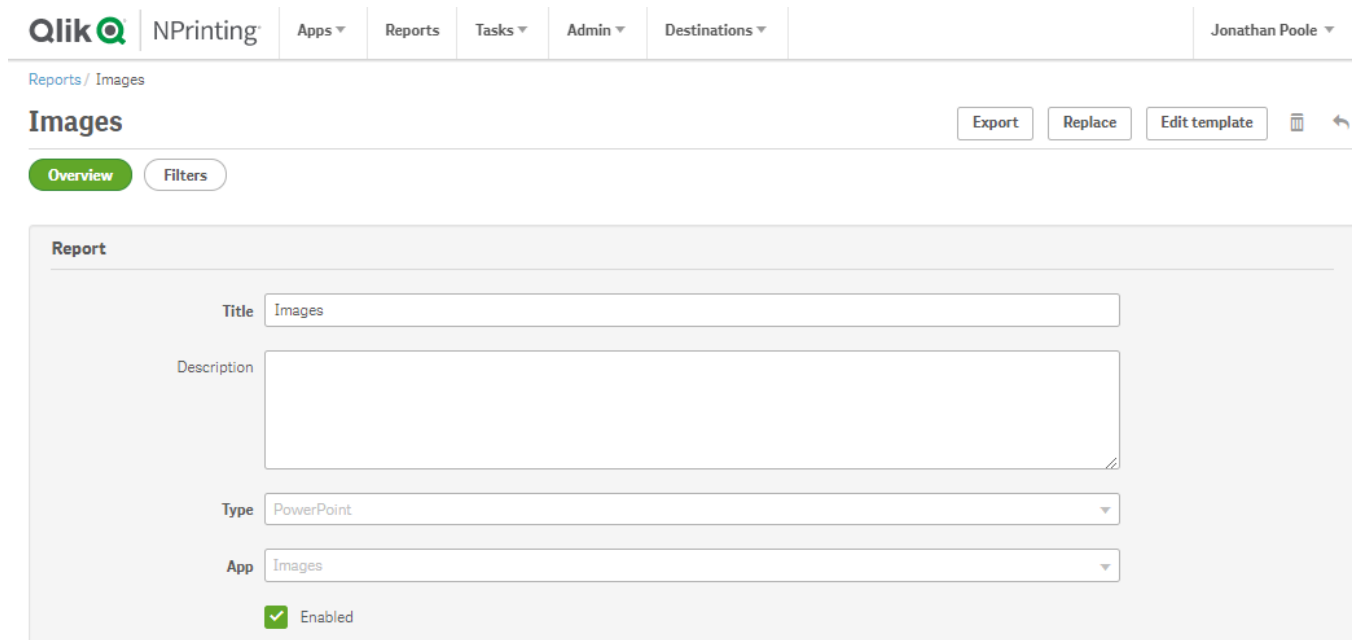
App: Images

Source: QlikView Qlik Sense

Proxy address: https://usrem-jpe00.qliktech.com/

Sense app ID: af081a8c-be5d-4aa8-8ed2-1cc310f5c347

Then create a PowerPoint report



Qlik NPrinting | Apps ▾ | Reports | Tasks ▾ | Admin ▾ | Destinations ▾ | Jonathan Poole ▾

Reports / Images

Images

Export Replace Edit template

Overview Filters

Report

Title: Images

Description:

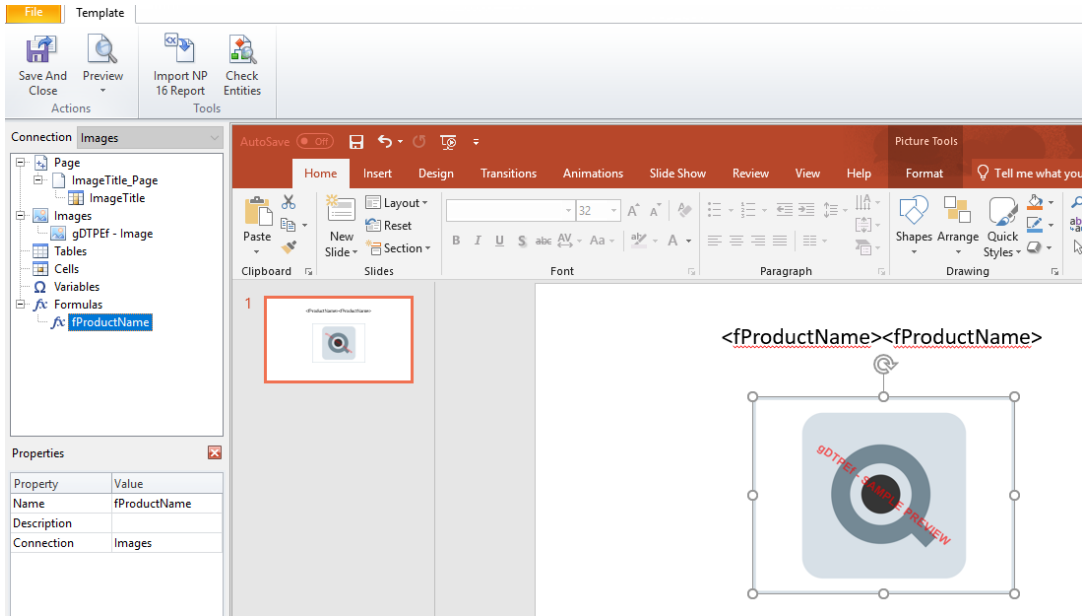
Type: PowerPoint

App: Images

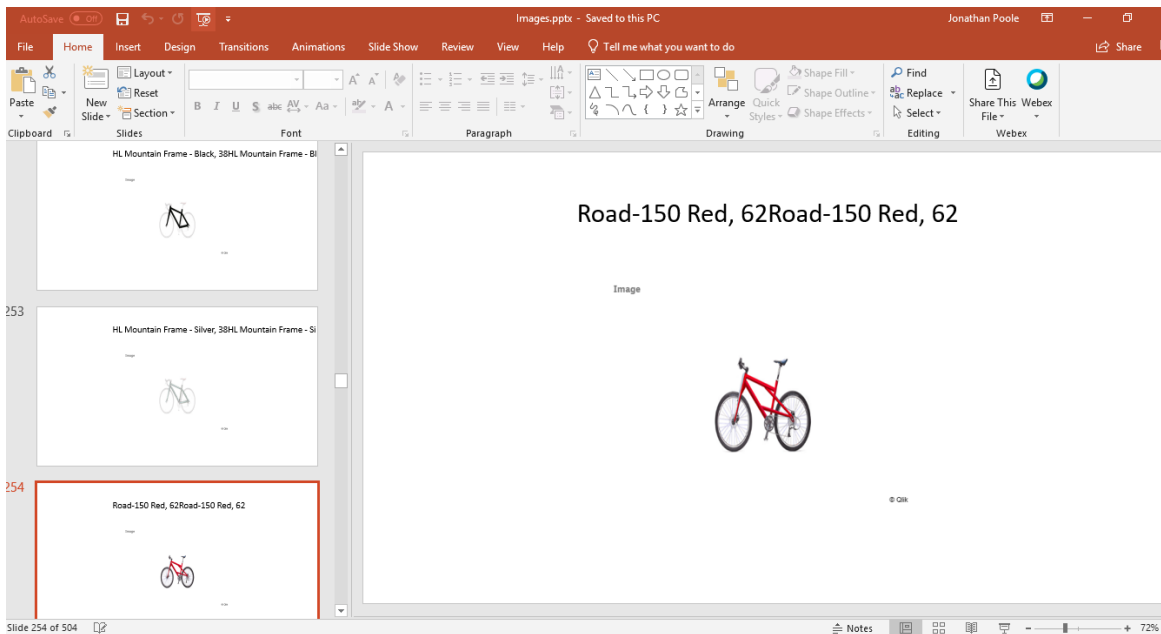
Enabled

Now edit the report in Designer. The following template will paginate on each ProductName (Field: ImageTitle) and display each unique ProductName and their corresponding photo on a separate sheet.

Note: With 600 products, this will execute for several minutes to create a 606 page Slide deck ! Add a filter prior to testing, however below I did not 😊



Here is a sample of the output



Notes

Images do not need to be loaded into Qlik Sense via a load script, they can also be sourced via URL from an HTTP server. This technique is a possible method when the images are stored inside a database and need an extraction method accessible to Qlik developers.

Resources

Top 10 Viz tricks - Qonnections 2019

<https://community.qlik.com/t5/Qlik-Sense-Enterprise-Documents/Top-10-Viz-tricks-Qonnections-2019/ta-p/1580174>

Online conversion tester

<https://codebeautify.org/base64-to-image-converter>

