QLIK AAI LOAD SCRIPT EXAMPLE - R

Qlik Advanced Analytics Integration (AAI) with R

Qlik Technical Brief

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Demonstrate Qlik Advanced Analytics Integration (AAI) with R for Data Loads Only (No Chart Expression Example)

This brief document is intended to get you up and running with a simple example, a template, using AAI in Qlik load script. AAI is designed for use in Qlik chart expressions and within the load script. The use case in this example is scoring of a data set using an advanced algorithm in R. This is a common use case and prior to having this capability within Qlik software had to be accomplished outside of Qlik through an external ETL process which processed the data using R or another system (e.g., Python). Then the output (usually some sort of a score) would be made available for Qlik to load, along with its associated data. The great news is now Qlik can handle the process as part of its built-in load scripting – allowing for greater flexibility with the manipulation and enrichment of the data – right within Qlik.

The AAI capability first became generally available in the Qlik Sense June 2017 release. Because the same Qlik Associative Engine code is used in QlikView, it is a matter of time before we see the same capability in QlikView, too. In fact, there is a very good chance it will be generally available in the QlikView November 2017 release. Unless something changes, as of this writing (September 2017) that is the expectation. See the resources section below for a link to the QlikView November 2017 Technical Preview announcement. This example contains not only a Qlik Sense sample, but also a QlikView one. For those who have access to the future QlikView preview, you can start to explore it today.

Installation and Setup

I'm going to keep this simple. The steps you will go through to see the working example are simple and straightforward. However, you will need to have the AAI R analytics connection configured for your environment – along with the R software. This document does not go into that process. You will need to follow the guidelines in the Qlik online Help and the Qlik Community to configure it – referenced below. You can choose to run AAI with Qlik Sense Server, Qlik Sense Desktop – and soon with QlikView Server and QlikView Desktop.

Configure Qlik Sense Desktop and AAI

This example is packaged up and ready to roll for Qlik Sense Desktop. If you already have a working Qlik Sense Desktop and AAI environment, you can skip this section. However, if you do not, these are steps you will go through to set up Qlik Sense Desktop and AAI:

1. Install Qlik Sense Desktop June 2017 or later.

2. Install R and Rserve

 You will find instructions here: https://community.qlik.com/docs/DOC-18785 (Installing R with Qlik Sense.pdf).

3. Install the AAI Open Source R Plugin (SSE-R-Plugin).

 The Plugin may be found here: https://community.qlik.com/docs/DOC-18813 (Compiled Open Source R Plugin

[SSE-R-Plugin])

4. Test your Qlik Sense environment with AAI and R.

Use the Qlik Sense examples found here: https://community.qlik.com/docs/DOC-18786 (Example QVF Files and Extension Objects for use with R & AAI)
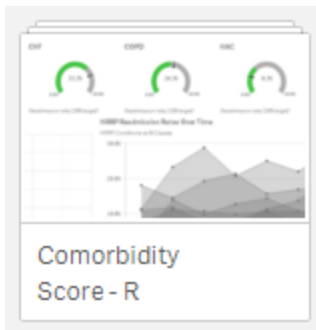

Configure and Run the Example

Once you have successfully configured your Qlik Sense Desktop with R and the SSE-R-Plugin and tested it with the examples above, you are ready to install my Qlik Sense AAI load script example.

1. We'll start by opening your R x64 console and install a specific package needed to run the example. The package is called medicalrisk. In the R console, type: install.packages("medicalrisk")

   After the medicalrisk package installs, you can invoke the necessary R library from within the Qlik load script.

2. Unpack the Qlik Sense AAI example (Comorbidity Score - R.qvf)

   a. Open the zip archive called "Qlik AAI Load Script Example - R.zip" in Windows Explorer.

   b. Copy the folder inside "Qlik AAI Load Script Example – R".

   c. Paste the folder into your Qlik Sense Apps folder (C:\Users*<username>*\Documents\Qlik\Sense\Apps). Go ahead and paste the folder and all its contents into the Apps folder.

3. Open Qlik Sense Desktop. You will see the application pictured below.

4. Click on the "Comorbidity Score – R" app to open it.

5. Immediately open the Data load editor. Be sure to read through the comments and follow the instructions.

   a. IMPORTANT: The load script is designed to run in legacy mode (a.k.a. with standard mode disabled). See the following URL for information: https://help.qlik.com/en-US/sense/Subsystems/Hub/Content/LoadData/disable-standard-mode.htm. If you wish to run the load script in standard mode, configure a folder data connection and ensure the data files are setup appropriately. That includes the LOAD of the Hospital.qvd and the STORE of the icd9cm table, as well as the final LOAD of the [Comorbidity Scores].

   b. ASSUMES LEGACY MODE: On the second tab "Load Hospital Data (QVD)", change the path for QvWorkPath to reflect your path (replace bbu with your trigram/username).

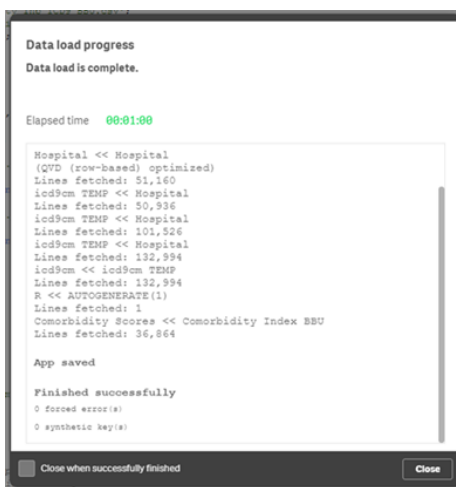   c. The third tab "Comorbidity Score" is where the interesting activity happens – the interaction with

R occurs. Please read through the comments to understand how the example works and use the R.ScriptEvalStr() parameters as a guide for your own work.

You are ready to run the example and load the data. If in legacy mode and you updated the QvWorkPath variable for your system as instructed above, you should be set.

6. Qlik on "Load data".

    a. The data load dialog box appears. Most of the activity is with the R engine. The Qlik engine does a little bit of data manipulation before pushing a data frame to R for R to score the patients for comorbidities. The entire load process should take 1 to 1.5 minutes, depending on the CPU speed/load of your computer.

    b. After the load is complete you can see in the "C:\Users\<username>\Documents\Qlik\Sense\Apps\Qlik AAI Load Script Example - R\data" folder two CSV files. One was produced by the Qlik engine to pass into R (the list of patients and their diagnosis and procedure codes – "Comorbidity Inp ICD9 BBU.csv"). The other CSV file is output from R ("Comorbidity Index BBU.csv") and is the list of derived Comorbidity scores – one record per patient – which was used as a data source by Qlik and load into the data model after the R process completed.

That's the example. Review the load script to closely examine how it works. The key part is the R table – beginning on line 94 of the third tab "Comorbidity Score". Quite a bit of effort went into formulating the R.ScriptEvalStr() parameters to get it to perform properly. The R code is externalized in the file called "Comorbidity.R", so it makes it easier to repurpose this example for your needs.

Experiment with the example and use it as a template. Find other R packages that meet your requirements for scoring and configure the template appropriately.

A Word About Qlik Sense Server

This example will work if you have your Qlik Sense Server configured successfully with AAI. You will place the unpacked example folder somewhere the server can access and import the app in the QMC. Remember, if you are not running your Qlik Sense Server in legacy mode, you will need to adjust your data sources in the load

script to accommodate a Folder connection pointing to the data folder.

QlikView Example

As support for AAI in QlikView is coming soon, I wanted to provide a working example QVW. For those who have access to the preview, you may begin exploring it immediately. The AAI setup is like Qlik Sense. In fact, QlikView can use the same R/Rserve/SSE-R-Plugin. So, for Desktop editions it is very easy to bounce between Qlik Sense Desktop and QlikView and see how it works in both.

Resources

Advanced Analytics Integration Qlik Community Space -- https://community.qlik.com/community/advanced-analytics-integration

Analytic connections (Qlik Sense) – https://help.qlik.com/en-US/sense/Subsystems/ManagementConsole/Content/analytic-connections-overview.htm

QlikView November 2017 Technical Preview is now available – https://community.qlik.com/blogs/technicalbulletin/2017/09/04/qlikview-november-2017-technical-preview-is-now-available