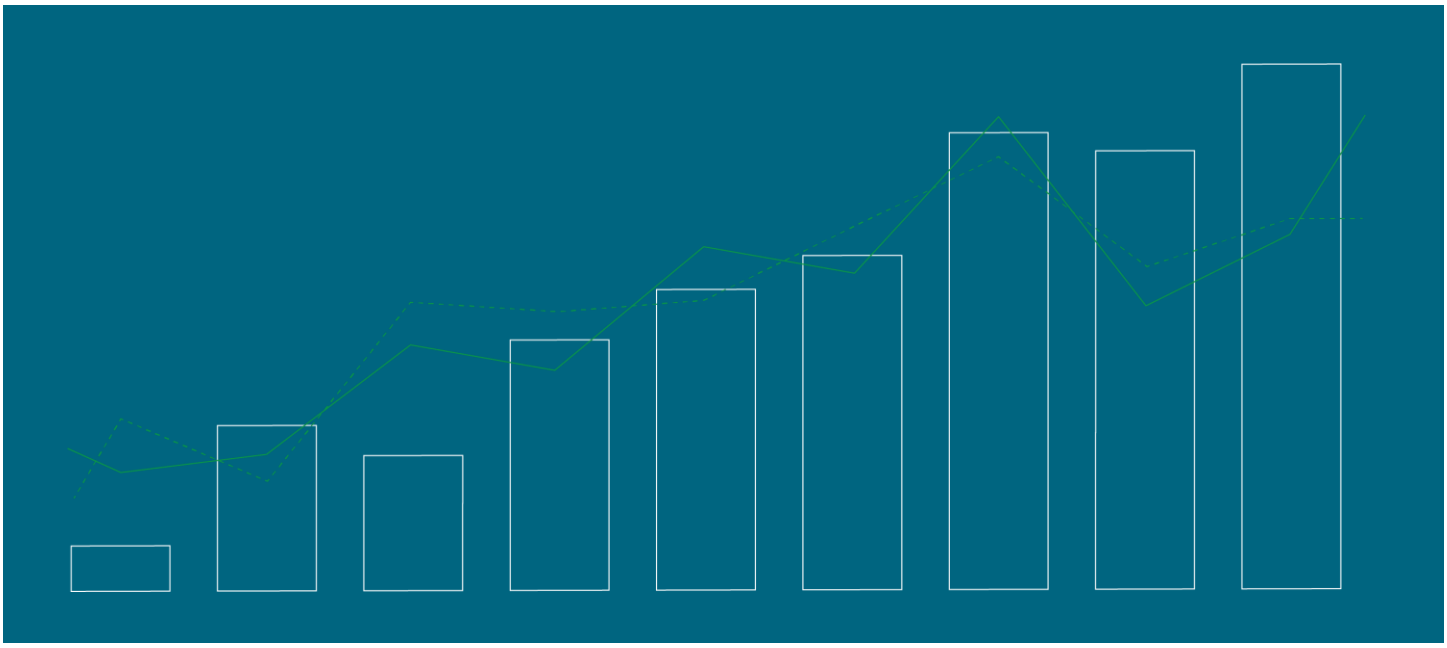
Qlik2DataRobot Installation Guide

Integrate Qlik with DataRobot



DataRobot

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LEAD WITH DATA™ Qlik

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Document Information

This document is maintained with each version of the software, for the latest version visit:

https://github.com/AnalyticsEarth/Qlik2DataRobot/tree/master/docs

Author:

Steven Pressland, Principal Solution Architect, Qlik

Version Date:

25 January 2019

What's required to get started?

Before you can start integrating Qlik Sense and DataRobot you need to have the following components in place:

- Qlik Sense; this can either be the free Desktop edition which can be downloaded with a QlikID from qlik.com (a great way to get started and test the integration), or using Qlik Sense Enterprise.
- DataRobot; users will need an API key, which can be found on the account profile page within DataRobot.
- Connectivity from the Qlik2DataRobot application to both Qlik Sense and DataRobot. DataRobot typically runs against an internet facing URL and therefore the appropriate network access must be available to ensure server to server communication.

Download the extensions

Download the two installation packages required for installation on Windows and pick a location for the server side extension to be run, if not already downloaded to that machine, transfer **Qlik2DataRobot Windows Installer.msi** to a convenient location on that machine.

- If you are running Qlik Sense Desktop the installation will likely be on the same machine as desktop is running, but does not have to be.
- For Qlik Sense Enterprise you can install on an existing Qlik Sense server, however you are free to install on a separate machine if it is accessible by all Qlik Sense nodes running an engine service.

The Qlik2DataRobot installation files can be found on github (download all components from the releases page):

https://github.com/AnalyticsEarth/Qlik2DataRobot/releases

https://github.com/AnalyticsEarth/Qlik2DataRobot-Ext/releases

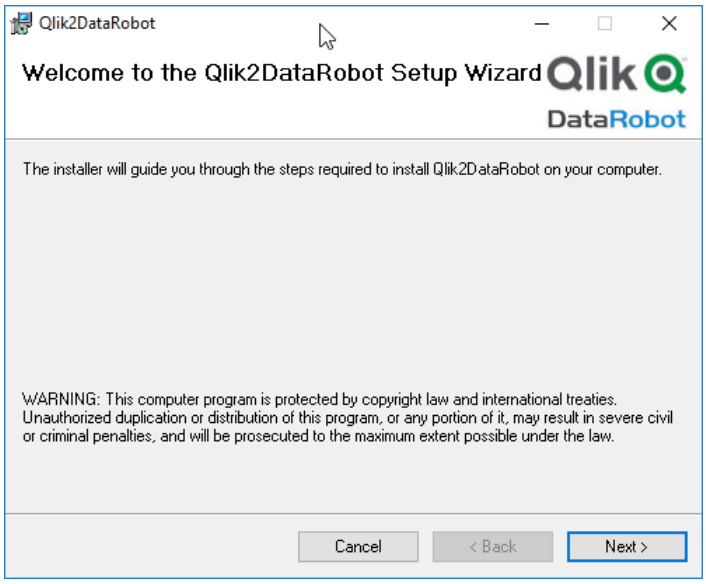
Qlik2DataRobot (Server Side Extension)

The first component to consider is the Server Side Extension, which will be configured as an Analytic Connector within Qlik Sense. This provides the link between the Qlik associative engine and DataRobot.

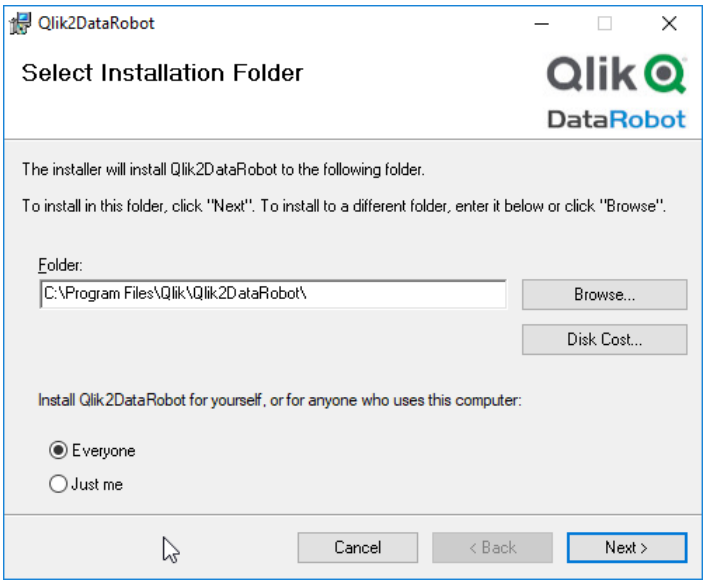
Installing Qlik2DataRobot on Windows

Installing on Windows is straightforward and achieved through an installation wizard package which will install and configure the application.

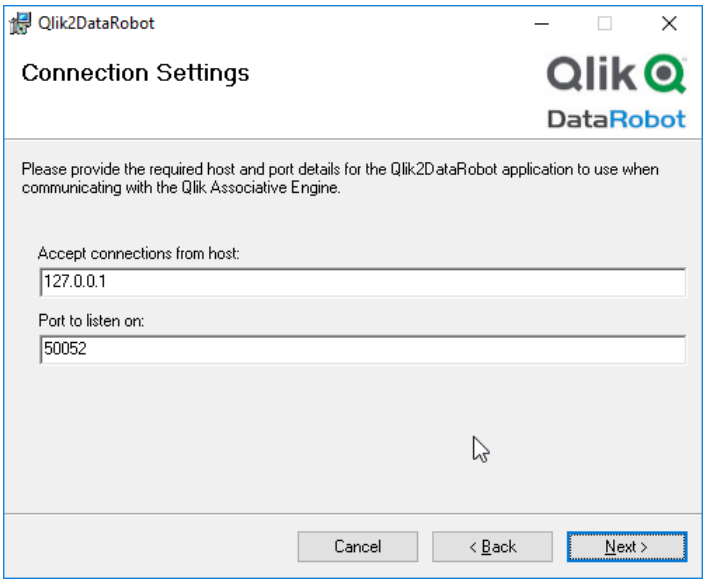
1. Run Qlik2DataRobot Windows Installer.msi



2. Click Next



3. Confirm the location you wish to install at click **Next**



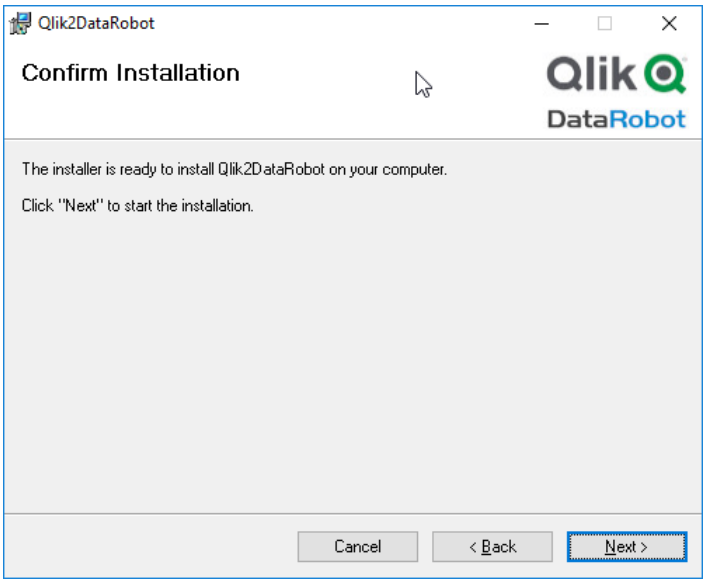
4. Update the connection settings required:

    a. The default settings will only allow connections coming from the local machine, if you are running on a different machine to the Qlik Associative Engine, the host setting will need to change.

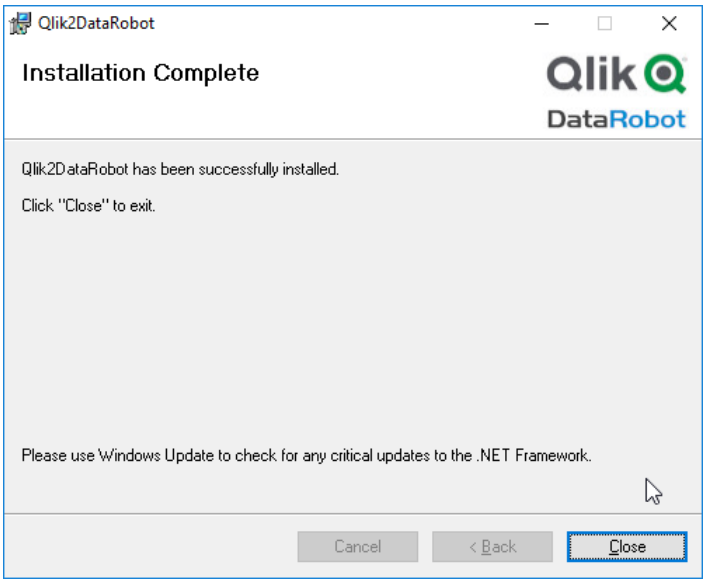
    b. The port is arbitrary, however if you already have a connector listening on this port, you will need to set a new one.

    c. These settings can be changed post installation by editing a configuration file.

    d. Click **Next**

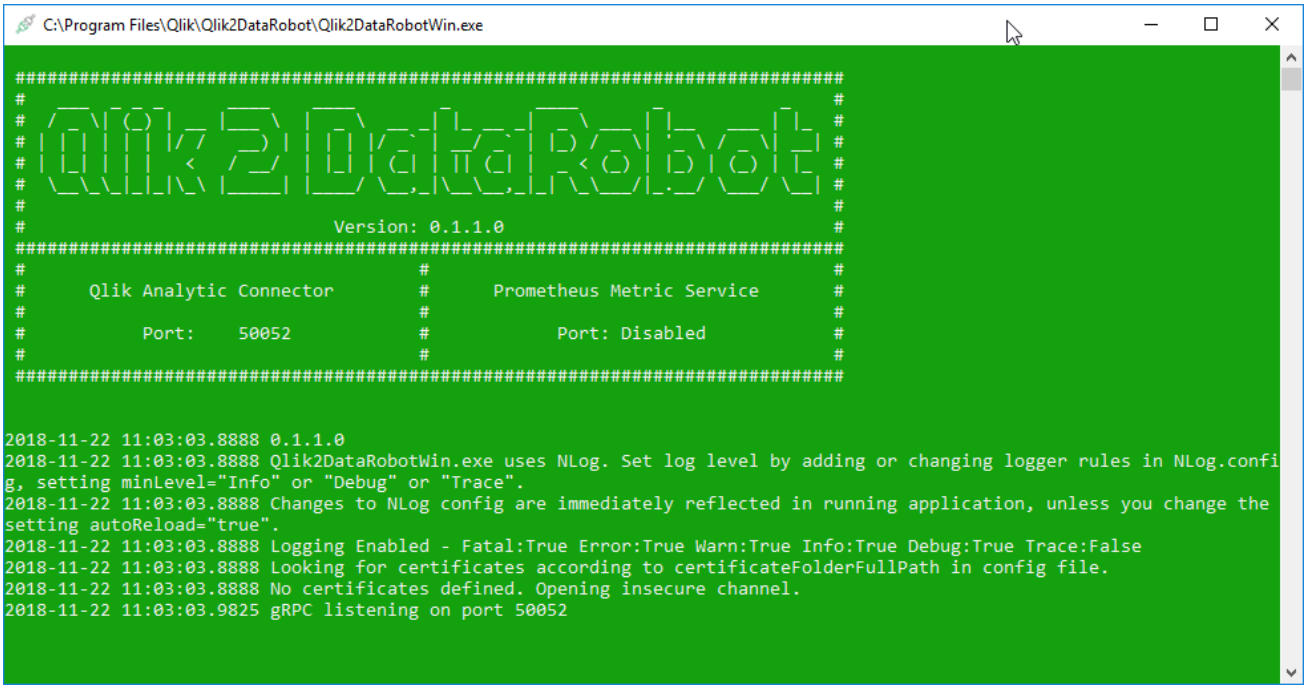


5. Click **Next**



6. Once installation has completed, click **Close**

7. A new shortcut is provided on the windows application list. Launch the application.

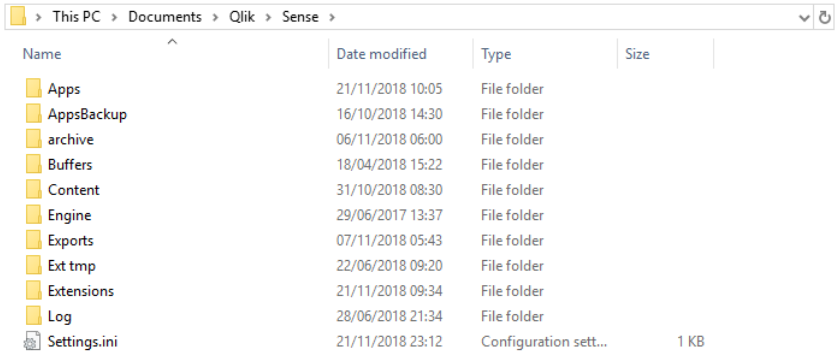


8. Confirm that **Qlik2DataRobot** is running. The application needs to be left open for the connectivity to work (you can minimize the window).

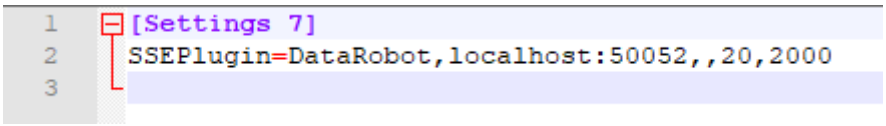
9. Always launch Qlik2DataRobot before starting Qlik Sense as the connection is made on start up.

Configuring Qlik Sense Desktop

Configuration of Qlik Sense Desktop is done using the Settings.ini file located at:



1. Open this file (or create one if it does not exist).



2. Within the [Settings 7] section add a SSEPlugin line:

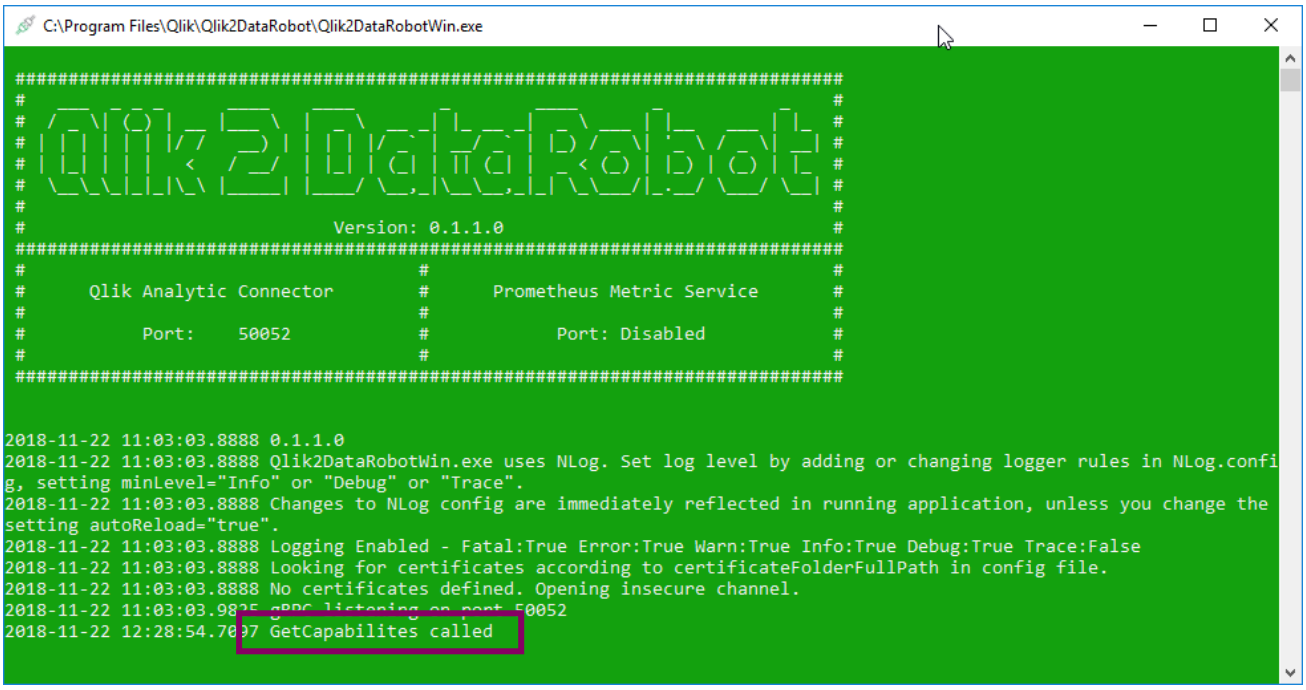
```
SSEPlugin=DataRobot,localhost:50052,,20,2000
```

   a. If other plugins have been installed, the connection should be appended to the end of the line, delimited with a semi-colon:

```
SSEPlugin=R,localhost:50051,,2000,2000;DataRobot,localhost:50052,,20,2000
```

3. Ensure there is a blank line at the end of the text file.

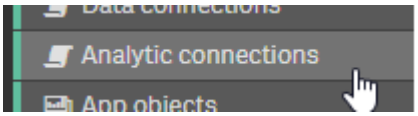
4. Start Qlik Sense Desktop, if everything is configured correctly a new log entry should appear in the Qlik2DataRobot window.



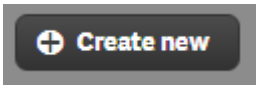
Configuring Qlik Sense Enterprise on Windows

Configuration of Qlik Sense Enterprise is performed through the QMC:

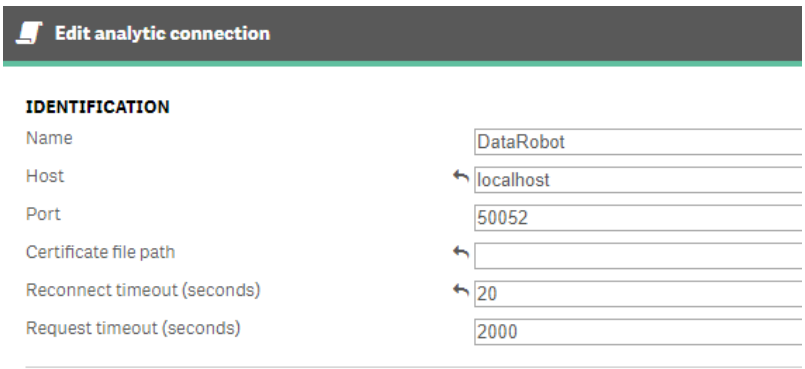
1. Navigate to the QMC for the Qlik Sense site



2. Select Analytic connections

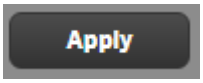


3. Click Create new



4. Enter the correct details to refer to the host and port you set when configuring the application above.

*The name by default should be called **DataRobot**. If you choose to change this, you will need to make additional changes when configuring the client extension and script code snippets.*



5. Click **Apply**

6. All Qlik engines will attempt to connect to Qlik2DataRobot and you should see a *GetCapabilites* log item for each request.

Qlik2DataRobot (Client Extension)

Qlik Sense client extensions are distributed as .zip files. The client extension for Qlik2DataRobot is called:

- qlik2datarobotext.zip

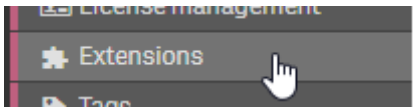
Installing on Qlik Sense Desktop

Unzip the contents of the file and copy to the extension folder, by standard located at:

- Documents\Qlik\Sense\Extensions
- The files should be placed in a folder called qlik2datarobotext

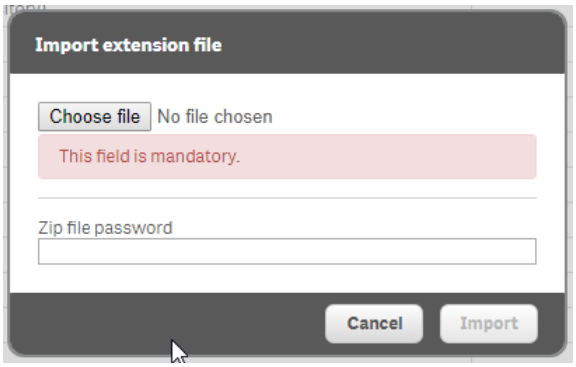
Installing on Qlik Sense Enterprise on Windows

Import the zip file using the QMC

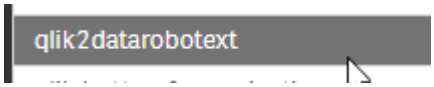


1. Click Extensions

2. Click Import



3. Select the zip file and click Import



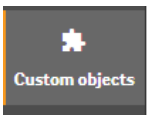
4. Confirm that the extension is listed in the extension list

Using Qlik2DataRobot

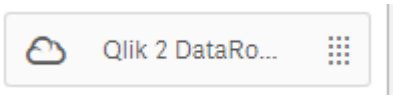
Sending data to DataRobot from Qlik Sense

Sending data from a Qlik application happens after the app has been loaded. The transfer is configured and triggered by the client extension. The data sent will be limited to that included in selections made by the user. All data transfers happen via the server side extension and no data is sent to or via the client browser.

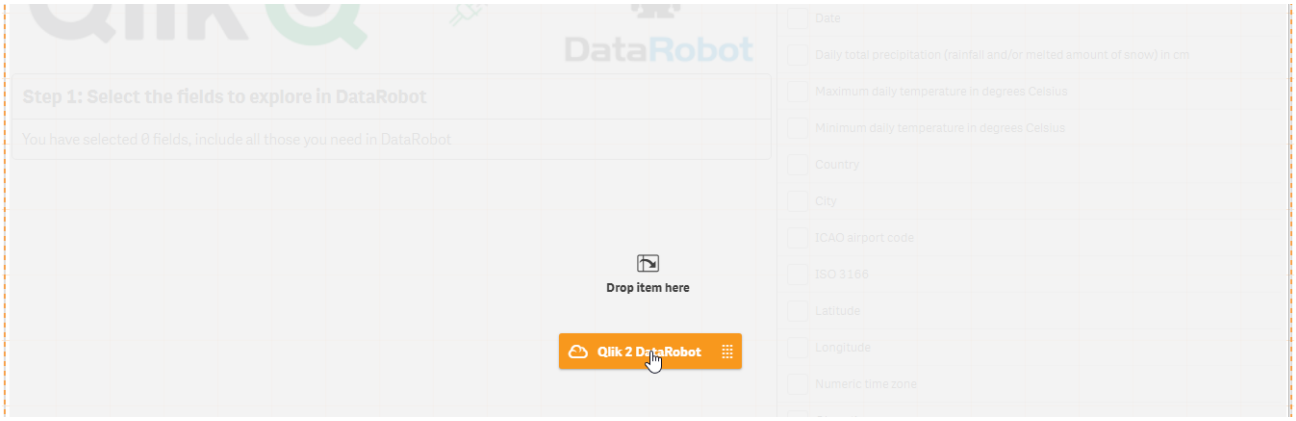
Add the *Qlik 2 DataRobot* extension from the Custom object menu:



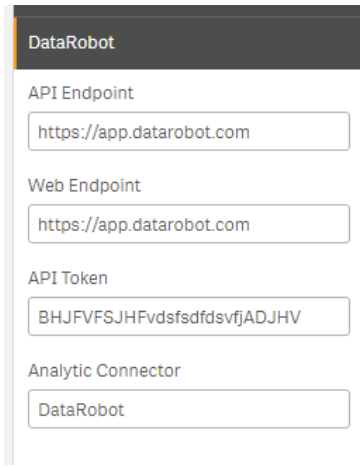
1. Select Custom objects



2. Drag Qlik 2 DataRobot onto the sheet



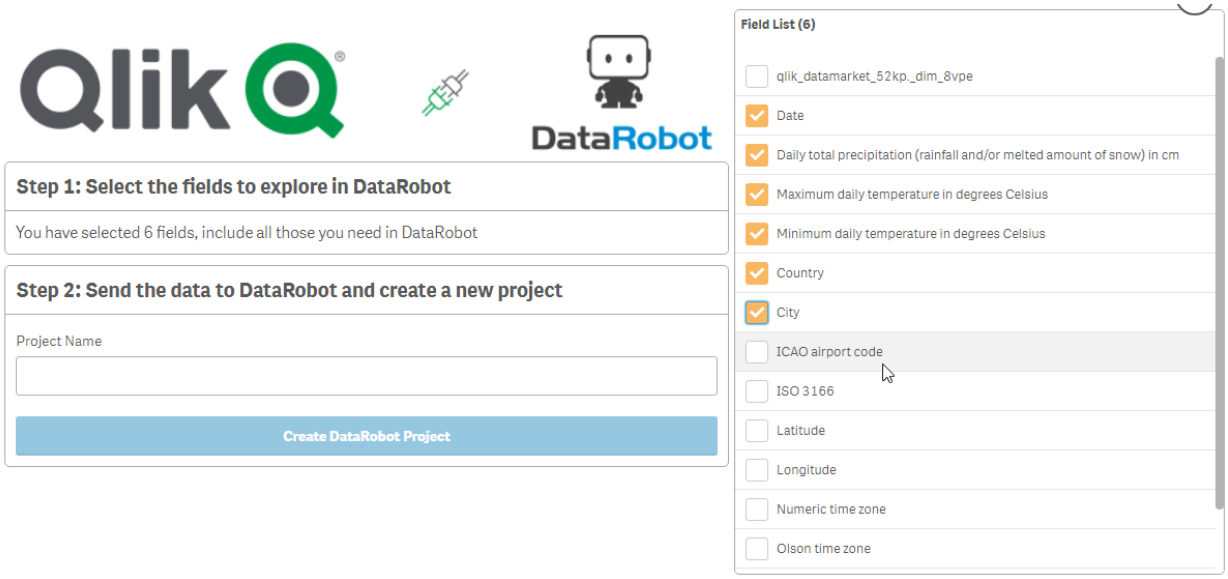
3. Configure the extension:



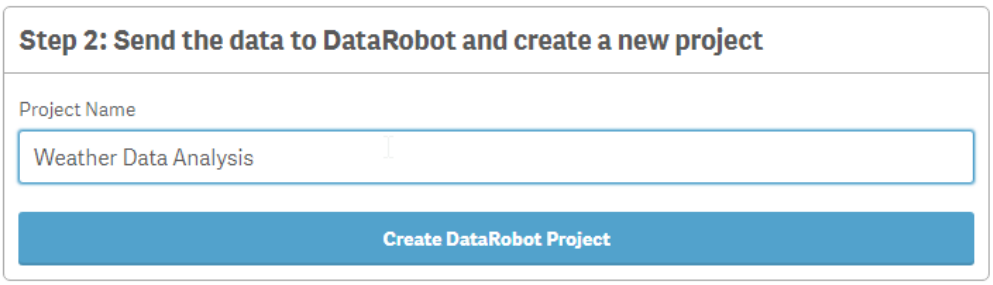
4. Enter your API Token, the other endpoints should not need changing, however if you have a different configuration it can be entered here.

   (If you do not enter the API token, you will be prompted to enter it each time when creating a project. This is helpful if the extension is part of a shared application)

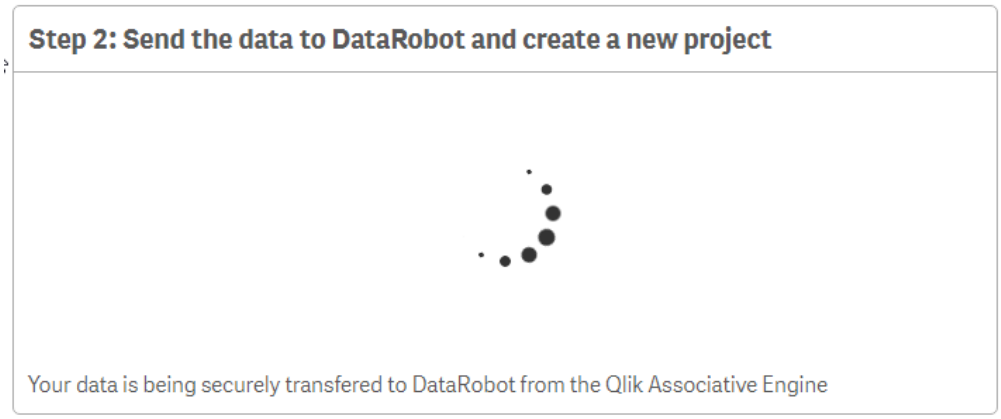
5. Click Done



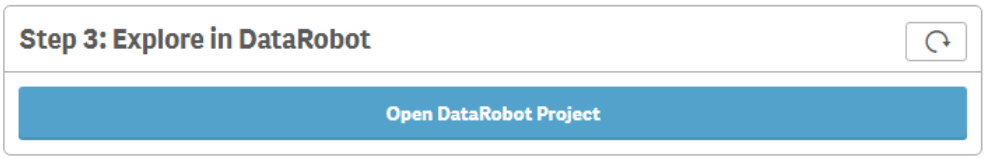
6. Select the fields you wish to send to DataRobot



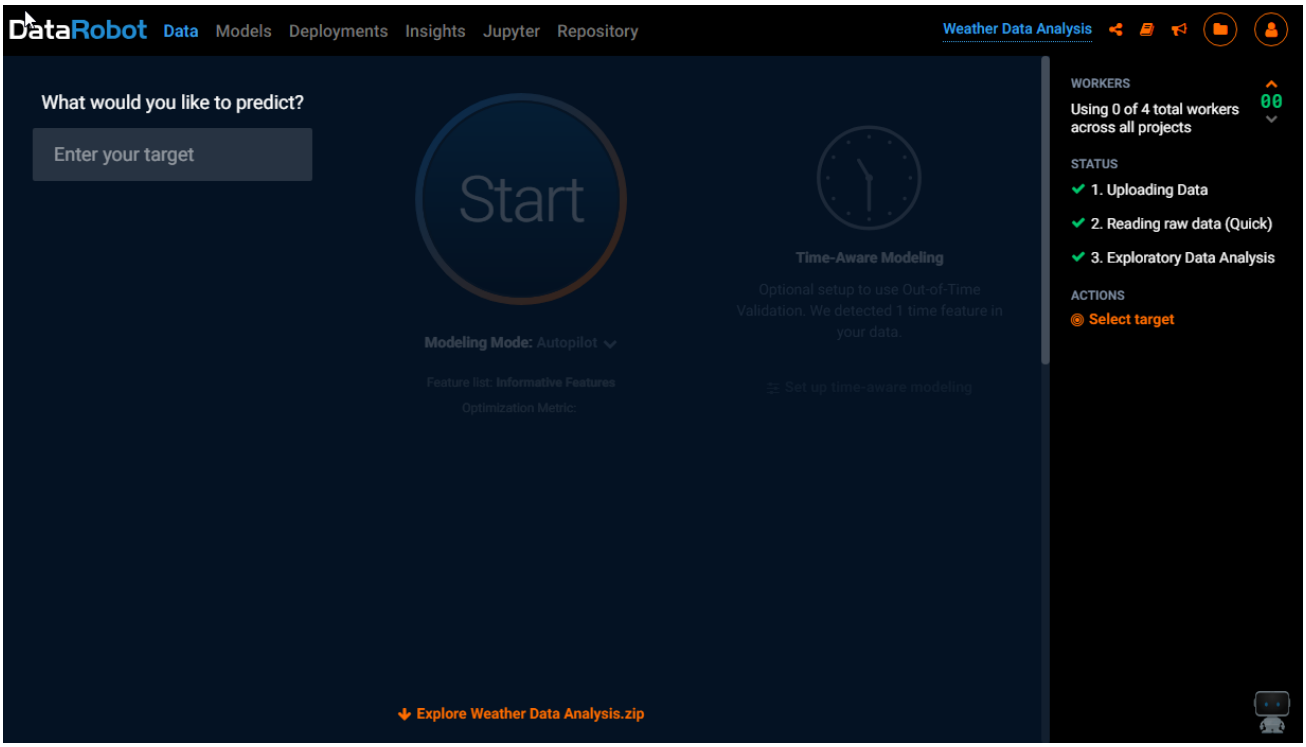
7. Enter the Project Name and click Create DataRobot Project



8. Wait for the data to transfer



9. Once the data transfer is complete, click Open DataRobot Project to launch in a new browser window.

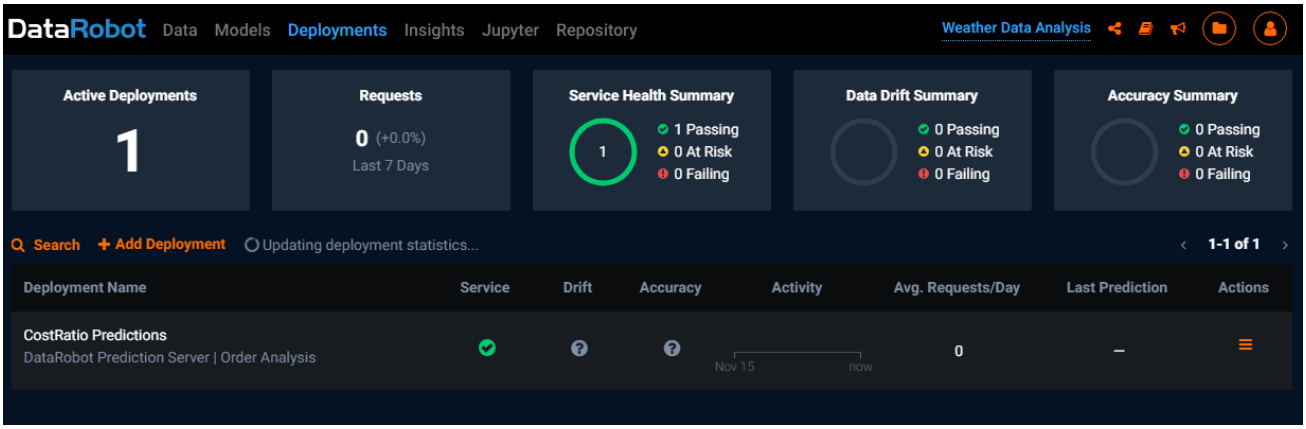

DataRobot
Data
Models
Deployments
Insights
Jupyter
Repository
Weather Data Analysis
What would you like to predict?
Enter your target
Start
Modeling Mode: Autopilot
Feature list: Informative Features
Optimization Metric:
Time-Aware Modeling
Optional setup to use Out-of-Time Validation. We detected 1 time feature in your data.
Set up time-aware modeling
Explore Weather Data Analysis.zip
WORKERS
Using 0 of 4 total workers across all projects
00
STATUS
1. Uploading Data
2. Reading raw data (Quick)
3. Exploratory Data Analysis
ACTIONS
Select target

Consuming a published DataRobot Deployment

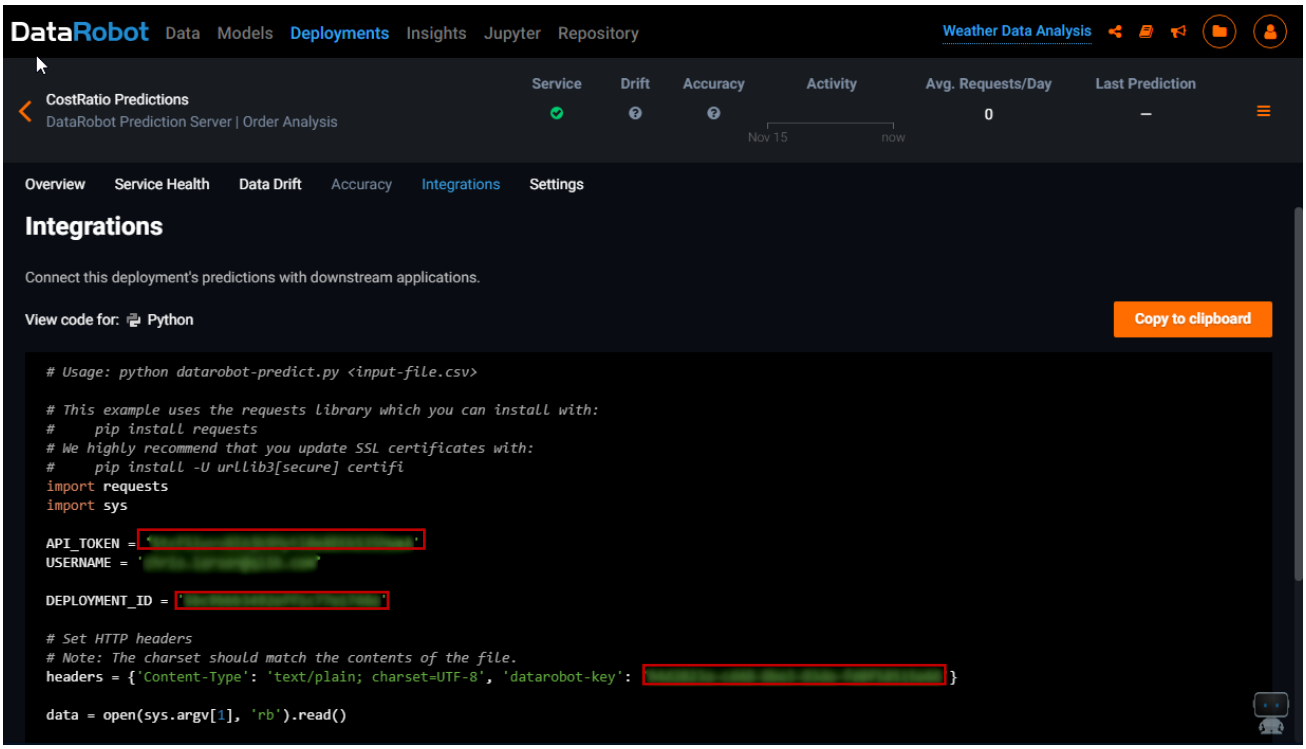
Once a deployment has been created within DataRobot this can be used to request a prediction from a Qlik application. The functionality used for this capability does not reply on a Qlik Sense specific extension, therefore is compatible with Qlik Sense, QlikView and Qlik Core.

Getting the required information from DataRobot

1. Select your deployment



2. Select Integrations



Using the sample Python code, make a note of the following parameters:

- API_TOKEN
- DEPLOYMENT_ID
- datarobot-key

Creating a Qlik application load script

Ensure all the data needed in DataRobot is in one Qlik table within your script. This may involve transforming your tables using joins for scoring. This table does not have to be used in the finished data model, so can be a temporary asset as required. This document does not cover how to produce this table.

The current version of Qlik2DataRobot requires the requests be made for a block of data no larger than the limit allowed by DataRobot deployments service.

Using a Qlik script loop, the requests can be made in succession and combined back into a single results table. The result table will provide two columns of data, the field supplied in the request marked as the “keyfield” and the prediction value from the DataRobot API.

Example Script

The example script presumes the data is stored in a table called LoadStats

```
LET vRows = NoOfRows('LoanStats');
SET vBatchSize = 80000; //Set the batch size required
LET vGroups = $(vRows) / $(vBatchSize);

FOR i = 0 TO $(vGroups)
TRACE BATCH $(i);

[BatchData]:
NoConcatenate
LOAD
      [RecID],
    [loan_amnt],
      [term],
      [int_rate],
      [installment],
      [grade],
      [sub_grade],
      [emp_title],
      [emp_length],
      [home_ownership],
      [annual_inc],
      [verification_status],
      [issue_d],
      [loan_status],
      [pymnt_plan],
      [purpose],
      [title],
      [addr_state],
      [dti]
RESIDENT [LoanStats]
WHERE [RecID] > ($(i) * $(vBatchSize)) AND [RecID] <= (($(i) + 1) *
$(vBatchSize));

GetFromDataRobot:
LOAD
[RecID],
[Prediction]
EXTENSION DataRobot.ScriptEvalStr('{
    "request_type":"predictapi",
    "auth_config":{
        "api_token":"SdcF4iwyv8ILjk9Nytl3e8EHkS45hUeB",
        "endpoint":"https://customer.orm.datarobot.com",
        "datarobot_key":"84e2322a-cd38-8bf3-04da-fd6f57516e21"
    },
    "deployment_id":"5cf9abc3432eff2c75e1644f",
    "keyfield":"RecID"
}',BatchData);

Drop Table [BatchData];
Next
```

Appendix 1: Connector Specification

The Qlik2DataRobot connector uses the SSE protocol for communication. More specifically it uses the script evaluation functions to provide a more flexible framework for integration.

In the context of this connector, the "Script" expected in the SSE protocol should be a JSON message.

The JSON message specification differs based upon the value of the mandatory "request_type" object.

Base JSON message:

```
{
      "request_type":"<REQUEST TYPE>",
      "auth_config":{
            "api_token":"<API TOKEN>",
            "endpoint":"<API ENDPOINT>"
      }
}
```

Supported Request Types

createproject

```
{
    "request_type":"createproject",
    "auth_config":{
        "api_token":"<API TOKEN>",
        "endpoint":"<API ENDPOINT>"
    },
      "project_name":"<PROJECT NAME>"
}
```

Example Values:

Parameter	Type	Required	Example
API TOKEN	String	Yes	SdcF4iwyv8ILjk9Nytl3e8EHkS45hUeB
API ENDPOINT	String (URL)	Yes	https://app.datarobot.com/api/v2
PROJECT NAME	String	Yes	Data Churn Analysis

predictapi

```
{
      "request_type":"predictapi",
      "auth_config":{
            "api_token":"<API TOKEN>",
            "endpoint":"<ENDPOINT>",
            "datarobot_key":"<DATAROBOT KEY>"
      },
      "deployment_id":"<DEPLOYMENT ID>",
      "keyfield":"<KEYFIELD>",
      "should_cache":<SHOULD CACHE>,

}
```

Example Values:

Parameter	Type	Required	Example
API TOKEN	String	Yes	SdcF4iwyv8ILjk9Nytl3e8EHkS45hUeB
ENDPOINT	String (URL)	Yes	https://customer.orm.datarobot.com
DATAROBOT KEY	String	Yes	84e2322a-cd38-8bf3-04da-fd6f57516e21
DEPLOYMENT ID	String	Yes	5cf9abc3432eff2c75e1644f
KEYFIELD	String	No	RowID (NOT for use in chart expressions)
SHOULD CACHE	Boolean	No	true (defaults to false, only for use in chart expressions)

About Qlik

Qlik is on a mission to create a data-literate world, where everyone can use data to solve their most challenging problems. Only Qlik's end-to-end data management and analytics platform brings together all of an organization's data from any source, enabling people at any skill level to use their curiosity to uncover new insights. Companies use Qlik to see more deeply into customer behavior, reinvent business processes, discover new revenue streams, and balance risk and reward. Qlik does business in more than 100 countries and serves over 48,000 customers around the world.

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