Hands-on Lab: Accessing Your Database using RJDBC

Welcome!

In this hands-on lab, we will discover how to connect and query data from database servers with R using RJDBC.

Tasks

a. Load the RJDBC library
b. Provide database credentials
c. Connect to the database
d. Execute a Query (and retrieve results)
e. Dis-connect

Estimated Time Needed: **10 min**

Pre-requisite: In this lab we will use Jupyter Notebooks within SN Labs to access data in a Db2 on Cloud database using RJDBC. Information about Jupyter notebooks, SN Labs, and Db2 services is provided in the previous labs.

a. Load the RJDBC library

The RJDBC package is pre-installed in SN Labs. Let's load the RJDBC package by clicking on the following cell and executing it (Shift+Enter):

[ ]:
```
library(RJDBC);
```

b. Provide database credentials

In the following cell enter the connection details for your instance of **Db2** and run it. Remember to update the values for hostname, userid, and password.

For instructions on accessing **Db2 Service Credentials**, go to **Hands-on Lab: Setup your database service instance and Access service credentials**.

[ ]:

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```
# Fill in the ...
dsn_driver = "com.ibm.db2.jcc.DB2Driver"
dsn_database = "..."
dsn_hostname = "<yourhostname>"
dsn_port = "..."
dsn_protocol = "..."
dsn_uid = "<username>"
dsn_pwd = "<password>"
```

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```
#Enter the values for you database connection
dsn_driver = "com.ibm.db2.jcc.DB2Driver"
dsn_database = "bludb"            # e.g. "bludb"
dsn_hostname = "<yourhostname>"   # e.g. replace <yourhostname> with your hostname
dsn_port = ""                  # e.g. "3273"
dsn_protocol = "TCPIP"            # i.e. "TCPIP"
dsn_uid = "<username>"              # e.g. replace <username> with your userid
dsn_pwd = "<password>"            # e.g. replace <password> with your password
```

c. Connect to the database

First we will specify which database driver to use. Then create a JDBC connection string.

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```
# Fill in the ...
jcc = JDBC("com.ibm.db2.jcc....r", "/home/jupyterlab/.rlang/db2jcc-db2jcc4.jar");
jdbc_path = paste("jdbc:db2://",  dsn_port, ":", ..., "/", dsn_database, ...);
```

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```
jcc = JDBC("com.ibm.db2.jcc.DB2Driver", "/home/jupyterlab/.rlang/db2jcc-db2jcc4.jar");
jdbc_path = paste("jdbc:db2://",  dsn_hostname, ":", dsn_port, "/", dsn_database, sep="");
```

Now, let's use the driver and connection string to actually connect to the database using the RJDBC function dbConnect().

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```
# Fill in the ...
conn = dbConnect(..., ..., user=..., password=...,sslConnection='true')
```

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```
conn = dbConnect(jcc, jdbc_path, user=dsn_uid, password=dsn_pwd,sslConnection='true')
```

d. Execute a Query (and return the results)

Next, execute a query against the Db2 system catalog table **SYSIBM.SYSSCHEMATA** and fetch the results into a R dataframe.

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```
Fill in the ...
query = "SELECT * FROM ...";
rs = dbSendQuery(...);
df = fetch(...);
```

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```
query = "SELECT * FROM SYSIBM.SYSSCHEMATA";
rs = dbSendQuery(conn, query);
df = fetch(rs, -1);
```

Let's examine the contents of the dataframe by looking at the first few rows:

[ ]:

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```
# Fill in the ...
head(...)
```

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```
head(df)
```

e. Dis-connect

Finally, as a best practice we should close the database connection once we're done with it.

[ ]:

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```
# Fill in the ...
dbDisconnect(...)
```

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```
dbDisconnect(conn)
```

Summary

In this lab you accessed data in a Db2 on Cloud database using RJDBC connection from a R notebook in Jupyter, and fetched the results of a query for analysis in a R dataframe.

Did you know? IBM Watson Studio lets you build and deploy an AI solution, using the best of open source and IBM software and giving your team a single environment to work in. Learn more here.

Thank you for completing this lab on getting connected and querying databases using RJDBC.

Authors

- Rav Ahuja
- Agatha Colangelo
- Sandip Saha Joy

Changelog

Date (YYYY-MM-DD)	Version	Changed By	Change Description
2021-07-14	2.1	Lakshmi Holla	Added ssl information to connection string
2021-01-22	2.0	Sandip Saha Joy	Created revised version of the lab
2017	1.0	Rav Ahuja & Agatha Colangelo	Created initial version of the lab

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Simple
0
6
R | Connecting
Waiting...
Mem: 3.90 / 6.00 GB
Mode: Command
Ln 1, Col 1
English (American)
Lab2A.ipynb