

User Guide - How to Connect to MS SQL Database Server from Data Enclave Linux VDI using R

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Overview

In this user facing document, we have a tested solution for connecting to SQL server from R in the Linux VDI.

This solution is to connect from a Linux machine to a MS Windows SQL Server with odbc.

A connection to SQLserver using *odbc* R package would look something like this

```
library(DBI)
con <- dbConnect(odbc::odbc(), "DSN", Database="DB_Name")
dbGetQuery(con, "SELECT xyz FROM table")
```

The solution here is provided as a minimum set of the instructions for the user to make the connection.

There is a better documented it the Rstudio website here -> [odbc](#)

Step 1. Install R library – odbc and other modules

Open **Rstudio** to install the R packages

```
getOption("repos")
## Install odbc packages
install.packages('odbc')
library(odbc)
library(DBI)
```

Step 2. Configuring the User DSN in ~/.odbc.ini

From a Terminal or text editor, create/edit the file ~/.odbc.ini

```
[i2b2]
Driver = FreeTDS
Server = mssql01.analyticsenclave.org
Port = 1433
TDS_Version = 8.0
use ntlmv2 = yes
```

The first line between brackets name will be your **DSN** (Data Source Name). You can use any name/label that is representative to your data source (i.e. as **i2b2** in our example). The **Server** and **Port** must be replaced by the actual IP address/hostname and port of the server you want to connect



Please, keep in mind that connections to any server outside of the Enclave network is restricted.

Step 3. Setup Environment Variables

From a Terminal or text editor, set up the environment variables MGB_USERNAME and MGB_PASSWORD at the end of your ~/.**Renviron** file.

```
# Set MGB username and password
MGB_USERNAME="Partners\myusername"
MGB_PASSWORD="mypassword"
```

Step 4. Programming Examples using odbc

From Rstudio , you can use dbConnect to connect from a Linux machine to a MS Windows SQL Server with odbc.

Note: Replace "i2b2" with your actual DSN if you choose a different name. You can use a different option to pass your credentials, **but hardcoding your username and password in your code must be avoided at all costs.**

```
getOption("repos")
##install odbc packages extracts
install.packages('odbc')

library(odbc)
library(DBI)

# Get the MGB_USERNAME and MGB_PASSWORD
MGB_USERNAME <- Sys.getenv("MGB_USERNAME")
MGB_PASSWORD <- Sys.getenv("MGB_PASSWORD")

# Set up the database connection
connection <- dbConnect(odbc::odbc(), dsn="i2b2", uid=MGB_USERNAME, pwd=MGB_PASSWORD)
# Perform data query
DBI::dbGetQuery(connection, "SELECT count(*) FROM i2b2.dbo.ACT_COVID")
```