QLIKVIEW-R PREDICITVE ANALYTICS DEMO

R Installation and QlikView Demo Configuration

QlikView Technical Brief

April 2014

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Date	April 22, 2014

CONFIDENTIALITY OF INFORMATION

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QLIKVIEW-R PREDICTIVE DEMO

Demonstrate QlikView Interaction with an R Predictive Scoring Model

Installation and Setup

This brief document's purpose is to enable you to create an environment for demonstrating the interoperability between QlikView Desktop and the R statistics engine. More specifically, the demonstration is aimed at showing how a set of data selected within a QlikView discovery application can be sent to R for scoring against a predictive scoring model. The results of the scoring from R are passed back to QlikView to visualize within the context of the application. R is available as Free Software under the terms of the Free Software Foundation's GNU General Public License (http://www.r-project.org/).

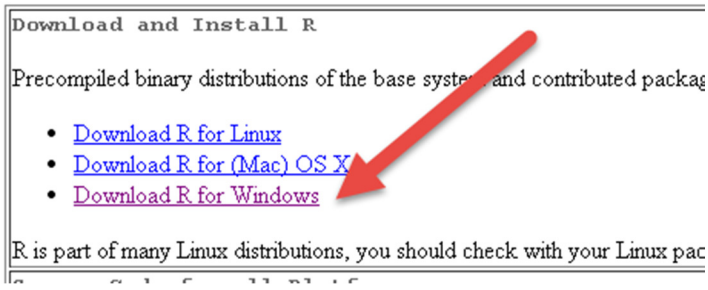
These are steps you will go through:

1. Install R and associated components
2. Install required Rattle Library (http://rattle.togaware.com/)
3. Deploy QlikView-R Predictive Demo
4. Demonstrate QlikView and R

Install R and associated components

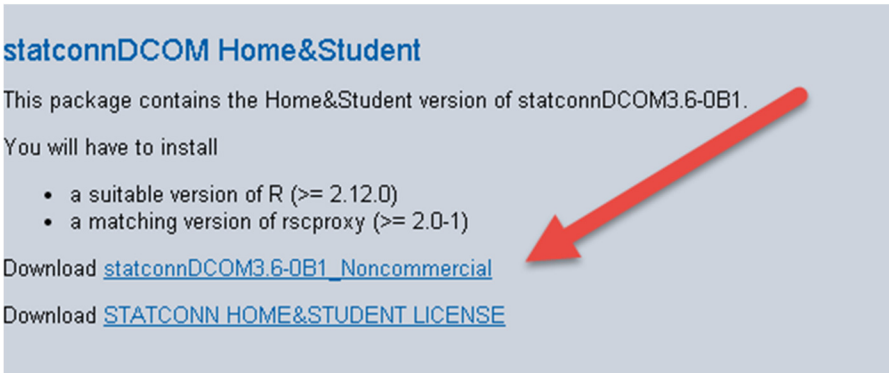
DOWNLOAD R

You will download R (version R-3.1.0 as of this writing) from The R Project for Statistical Computing website http://www.r-project.org/. On the home page you will see a directive to download R from your preferred CRAN mirror. CRAN = Comprehensive R Archive Network. Choose the site closest to your geographic location if you have no preference. Once you navigate to the download page, select "Download R for Windows". On the subsequent page, choose the "base" link. Finally, download the R installer, which is for 32-bit and 64-bit systems.



DOWNLOAD STATCONNDCOM HOME&STUDENT

statconnDCOM Home&Student (version statconnDCOM3.6-0B1_Noncommercial.exe at the time of this writing) is available directly from the source http://rcom.univie.ac.at/download.html.



COMPONENTS TO BE INSTALLED

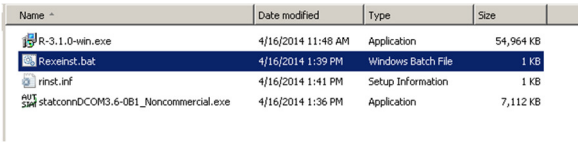
1) R for Windows
2) statconnDCOM Home&Student (Noncommercial version)

R SETUP

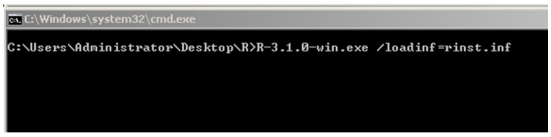
Follow these step-by-step instructions.

1) You will simplify the installation by creating a batch file (.bat) and a setup information file (.inf) to configure some defaults for the install. For example, SDI (single document interface) mode is one item you need to set. In the folder where you downloaded the R installer, create two empty text files a) Rexeinst.bat and b) rinst.inf.

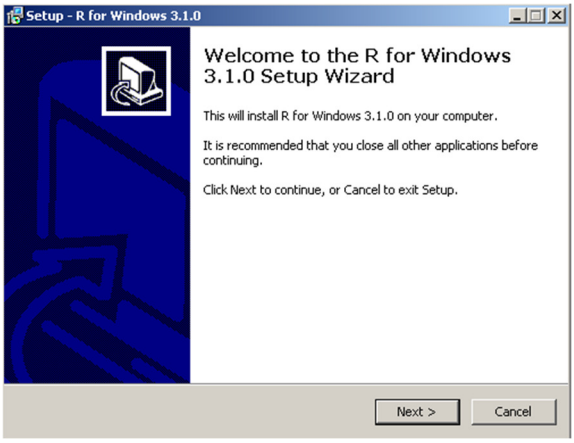
2) **Edit the contents of** Rexeinst.bat **and include this single line:**	3) **Edit the contents of** rinst.inf **and include these lines (replace R-3.1.0 with your R version):**
R-3.1.0-win.exe /loadinf=rinst.inf **Save and close** Rexeinst.bat **NOTE: replace R-3.1.0-win.exe with your current version of R.**	[Setup] Lang=en Dir=C:\Program Files\R\R-3.1.0 Group=R NoIcons=0 SetupType=user Components=main,i386,x64,translations Tasks=desktopicon,recordversion,associate [R] MDISDI=SDI HelpStyle=HTML Internet=Standard



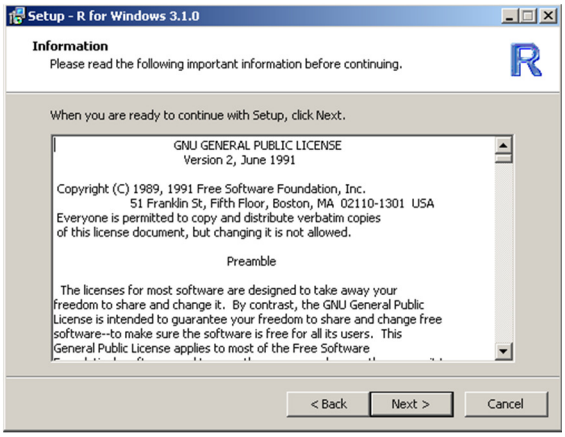
4) **Begin installation. Right click and run Rexeinst.bat as Administrator.**



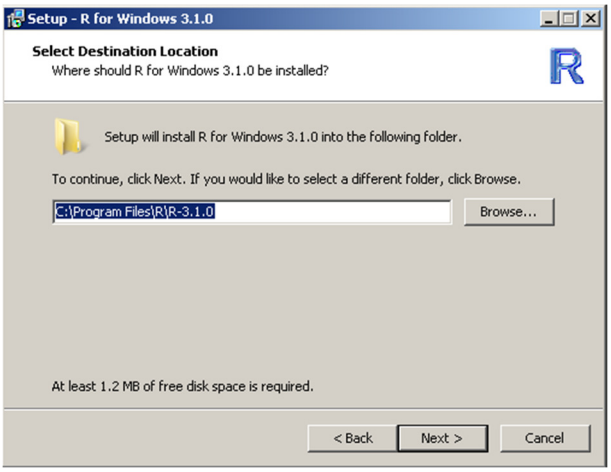
5) **Command window appears. Wait for R setup dialog to appear.**



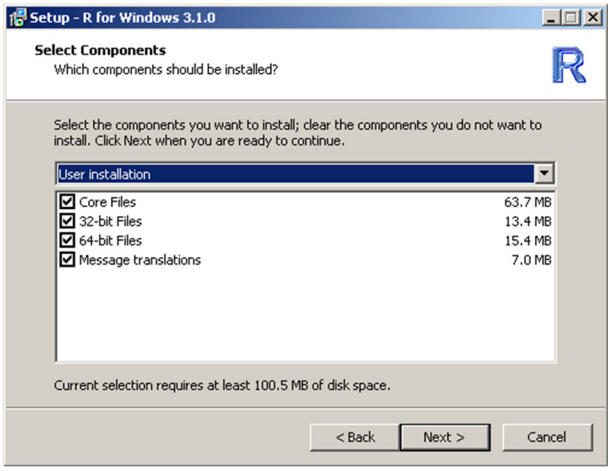
6) **Choose Next>**



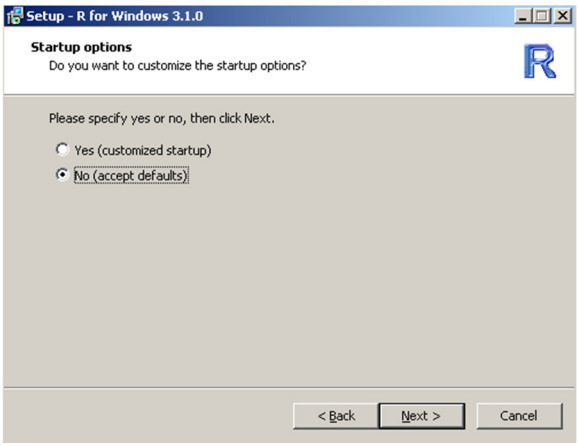
7) **Select Next>**



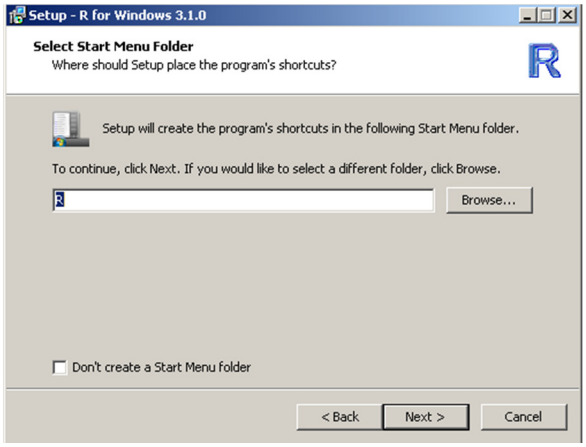
8) Select Next>



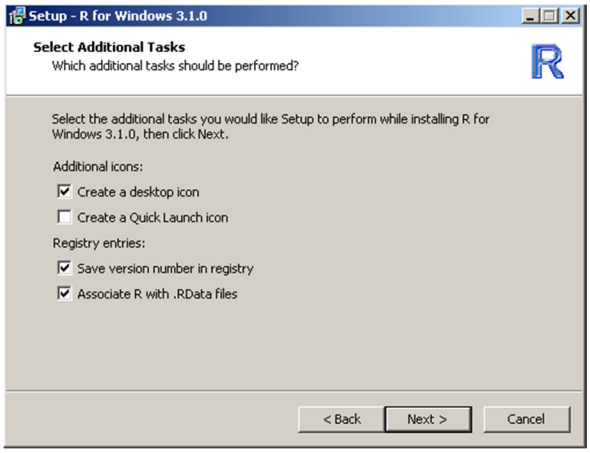
9) Select Next>



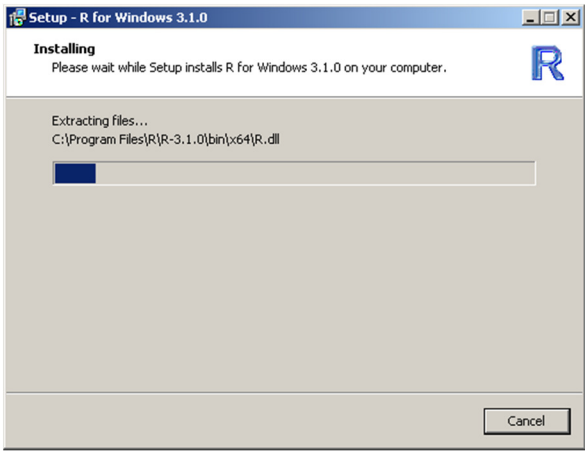
10) Select Next>



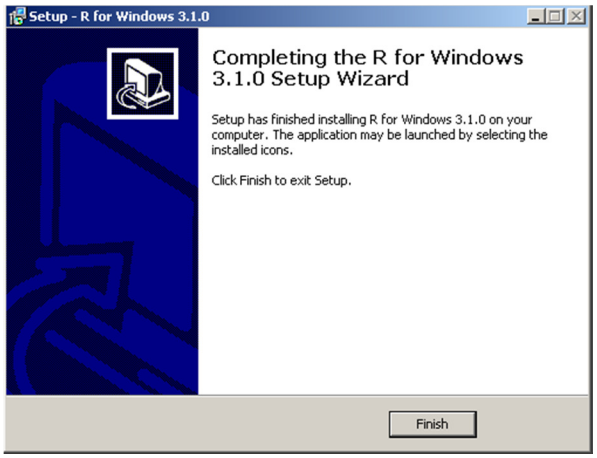
11) Select Next>



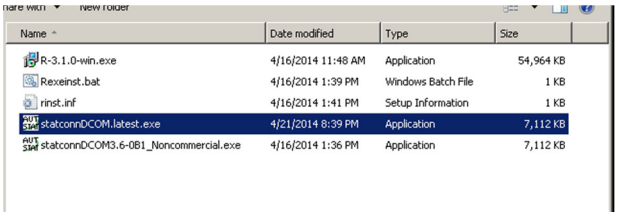
12) Select Next>



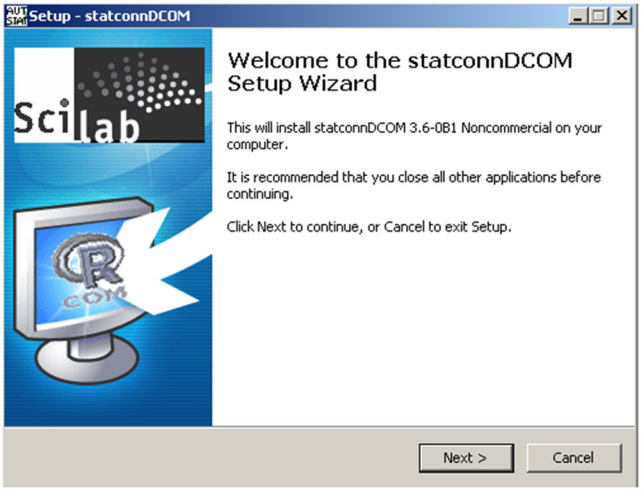
13) R installs.



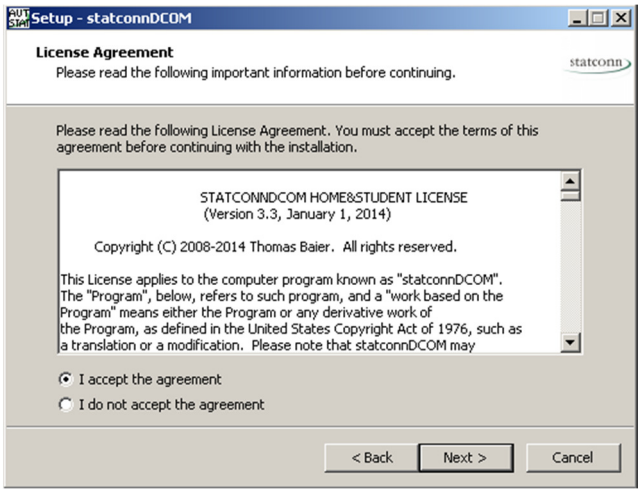
14) When R install complete, click Finish.



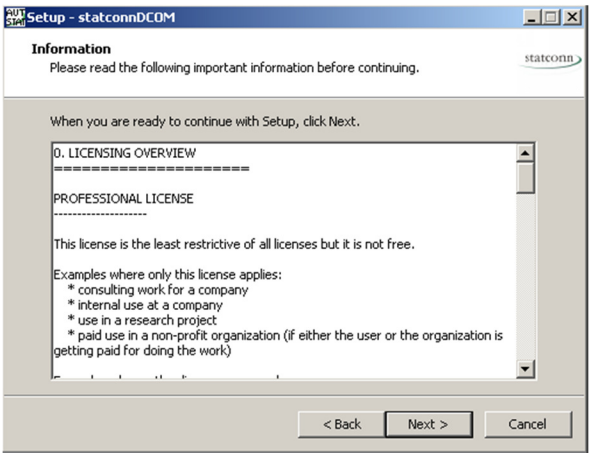
15) Now install the statconnDCOM package by right clicking the installer and running as Administrator. The installer will either be statconnDCOM3.6-0B1_Noncommercial.exe (or a later version) or statconnDCOM.latest.exe, depending on which link you used to downloaded statconnDCOM.latest.exe.



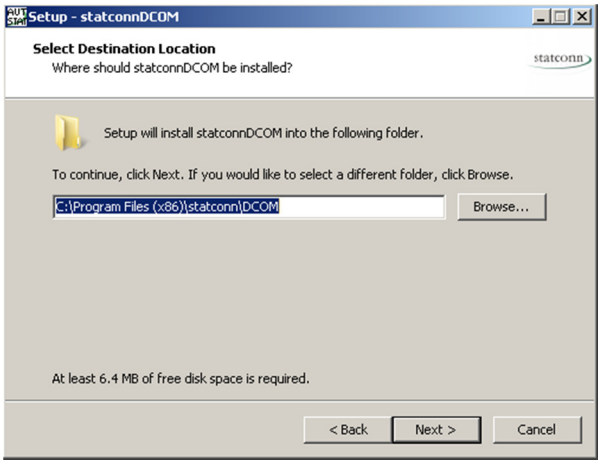
16) Click Next>



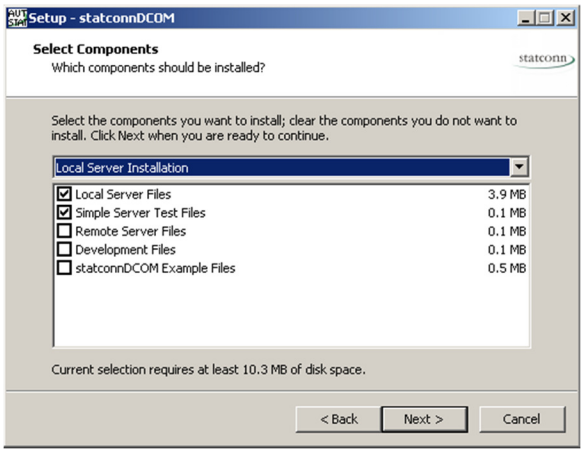
17) Accept the agreement and choose Next>



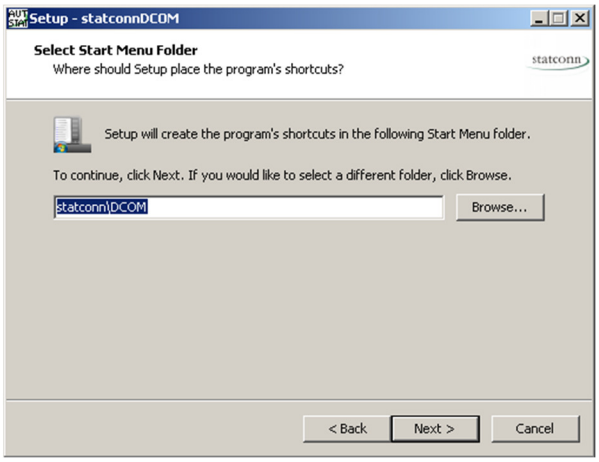
18) Select Next>



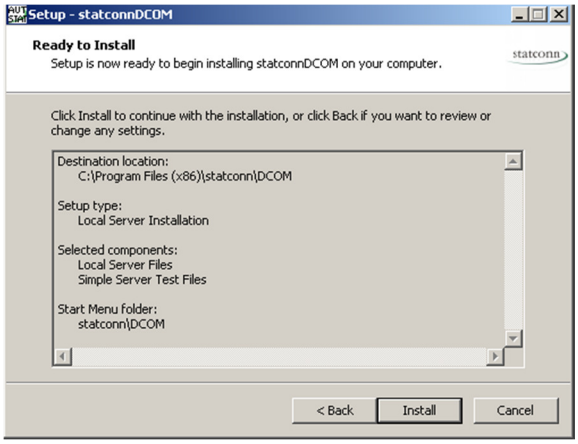
19) Select Next>



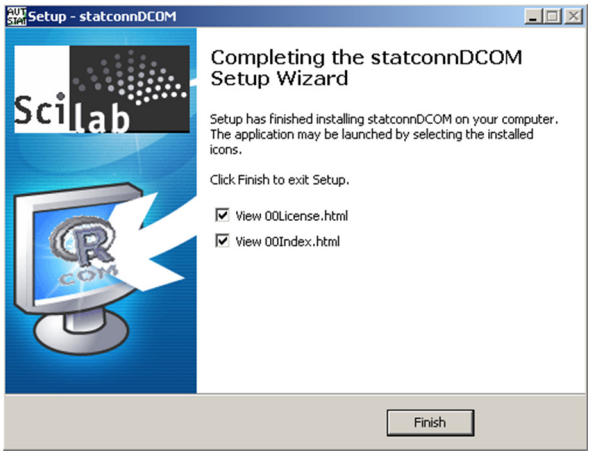
20) Select Next>



21) Select Next>



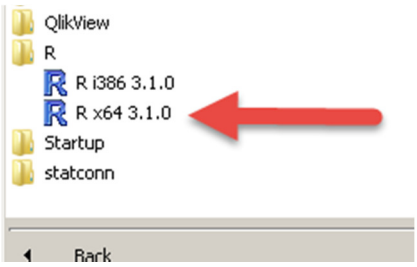
22) Choose Install.



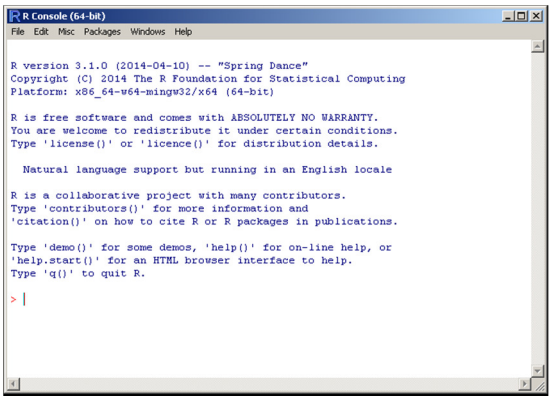
23) Select Finish. statconnDCOM setup is complete.

Install required Rattle Library

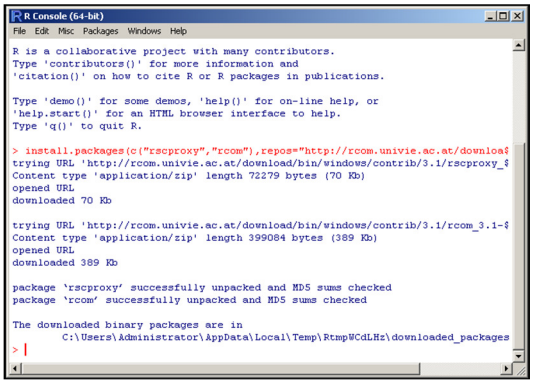
In order for the predictive scoring in R to work in this example, you will need to install a module from Togaware (http://rattle.togaware.com/) called the Rattle (the R Analytical Tool To Learn Easily) library. The installation is done from within the R console. You may also refer to the installation instructions at Togaware's web site – Rattle: Installation on MS/Windows (http://rattle.togaware.com/rattle-install-mswindows.html).



1) Right click R x64 from the Windows Start menu and run as Administrator.



2) The R Console window opens

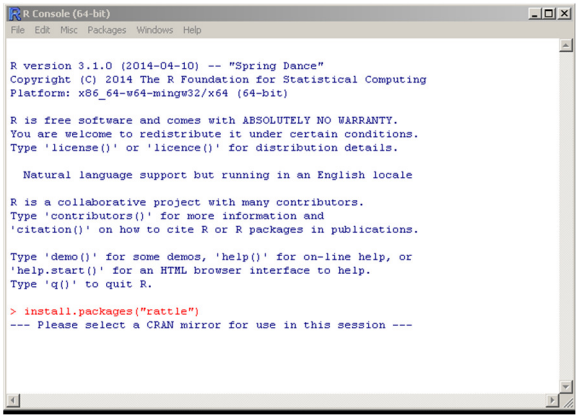


3) Run these commands separately:

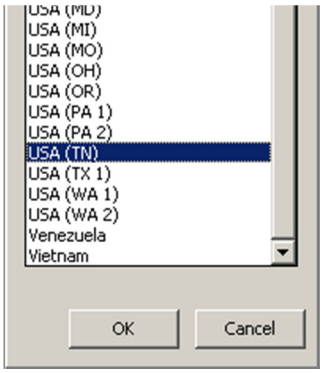
install.packages(c("rscproxy","rcom"),repos="http://rcom.univie.ac.at/download",lib=.Library)

library(rcom)

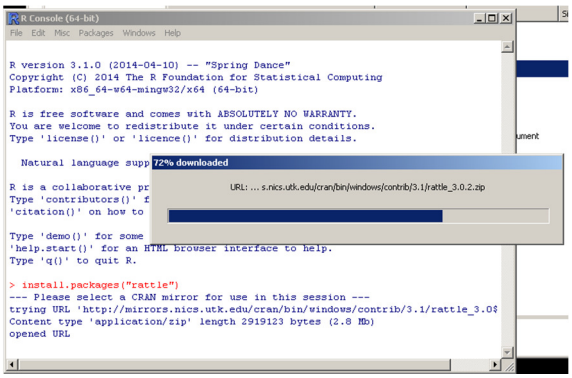
comRegisterRegistry()



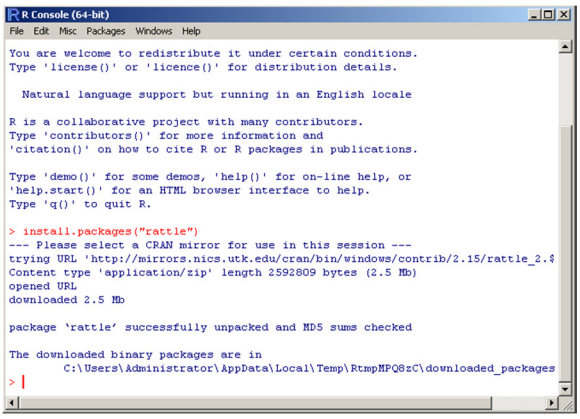
4) **At the prompt, type: install.packages("rattle")**



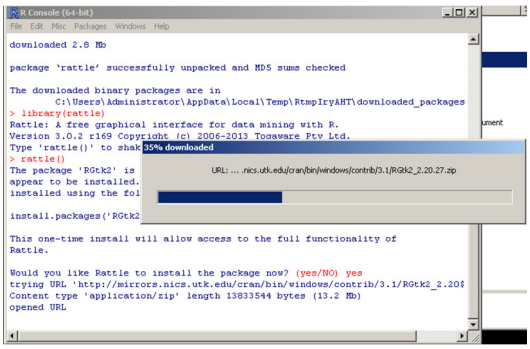
5) Select a nearby CRAN mirror.



6) R begins to download and install the Rattle package.



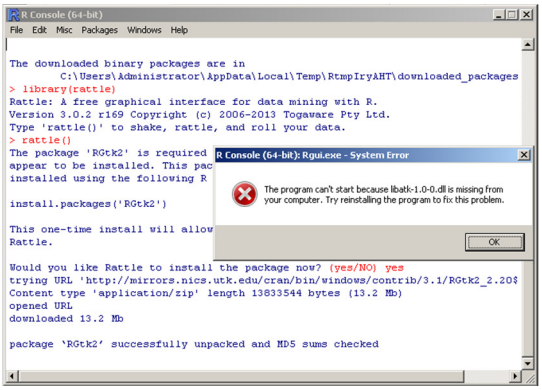
7) The Rattle package is installed.



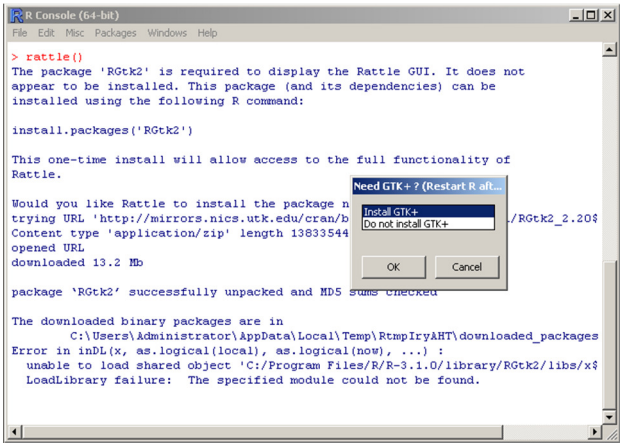
8) Load the Rattle library by typing: library(rattle)

Then invoke Rattle by typing: rattle()

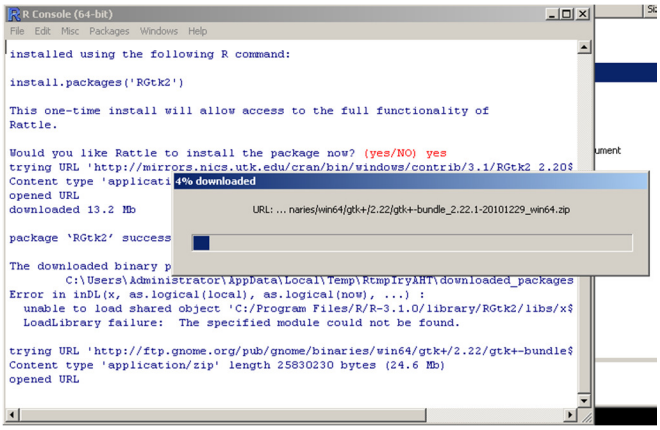
You may be prompted to install the package RGtk2. If so, enter yes



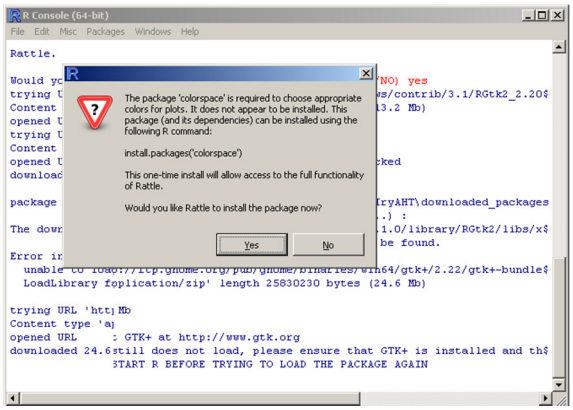
9) You may receive an error indicating a library is missing. Click OK.



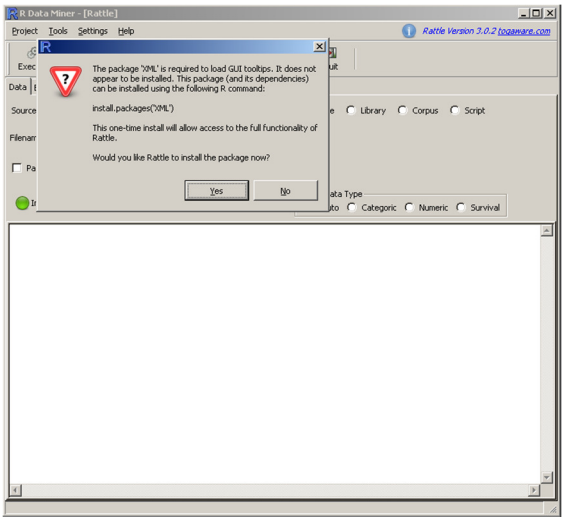
10) If so, install GTK+. Click OK.



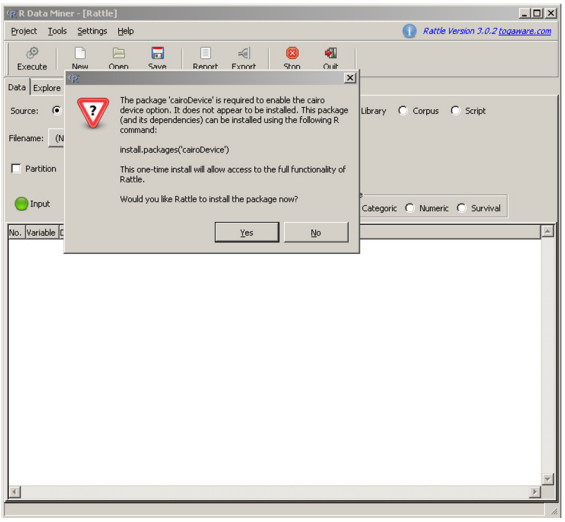
11) GTK+ installing.



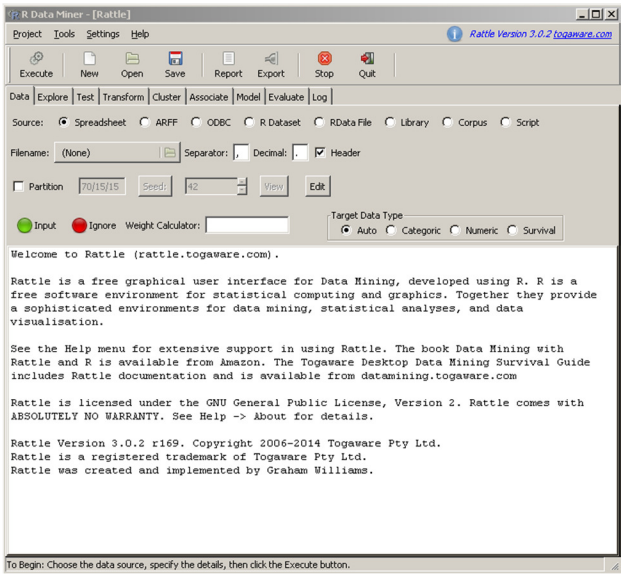
12) GTK+ is installed. Rattle should begin automatically. You may be prompted to install package 'colorspace'. If so, select Yes.



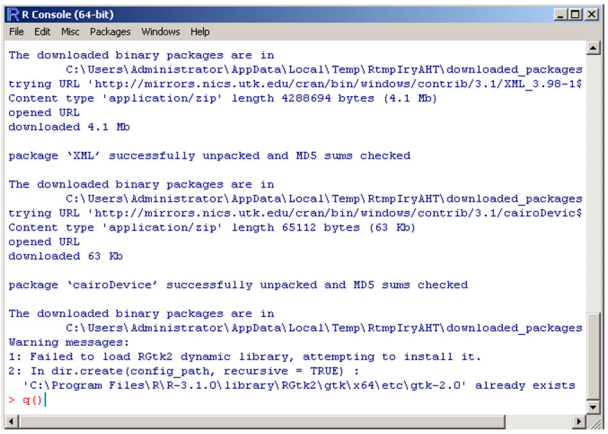
13) Rattle UI appears. You may be prompted to install the package XML. If so, choose Yes.



14) You may be prompted to install the package cairoDevice. If so, choose Yes.



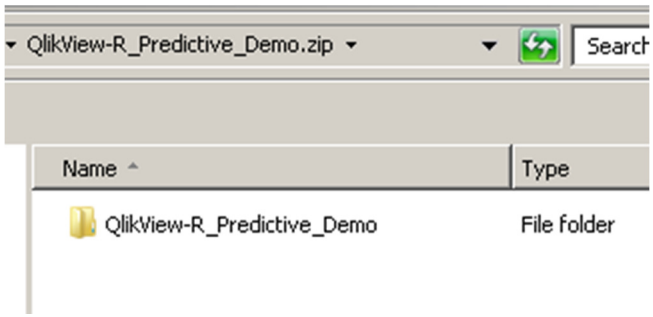
15) Rattle UI. Rattle installation complete. Exit Rattle now.



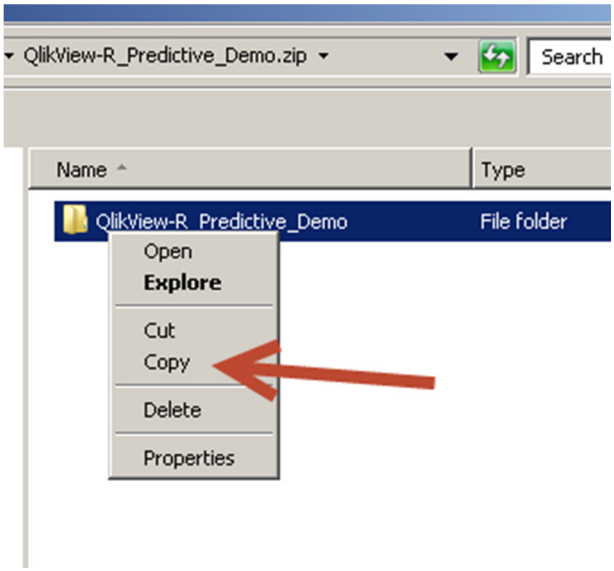
16) Close R Console. Type q() and click No at save workspace image dialog.

Deploy QlikView-R Predictive Demo

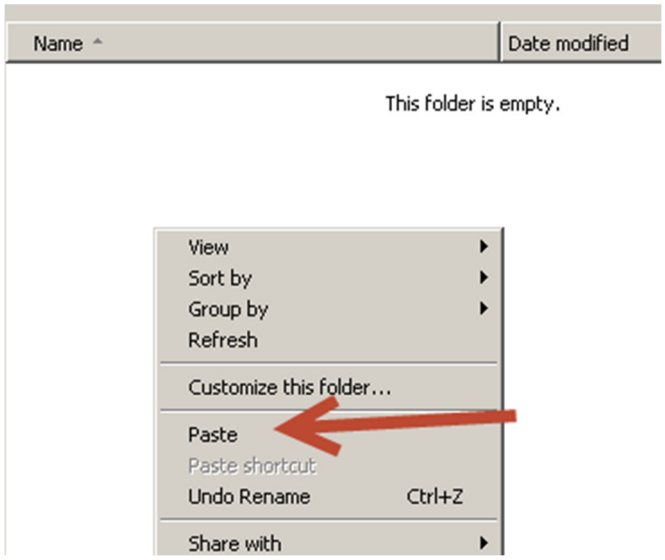
Open the accompanying zip archive – QlikView-R_Predictive_Demo.zip.



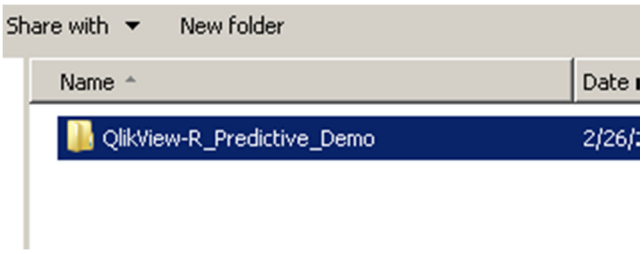
17) **QlikView-R_Predictive_Demo.zip opened in Windows Explorer.**



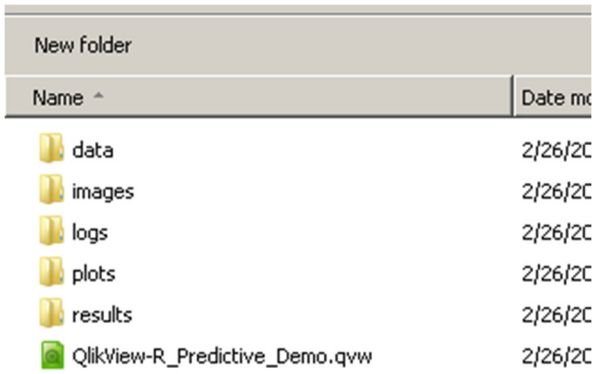
18) **Copy the folder QlikView-R_Predictive_Demo inside the zip archive.**



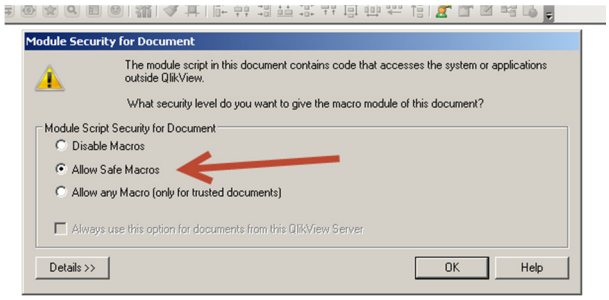
19) **Paste the folder to any folder location on your PC.**



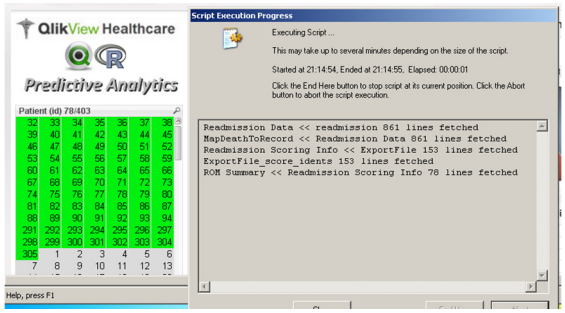
20) **QlikView-R_Predictive_Demo folder in its new home. Click on the folder.**



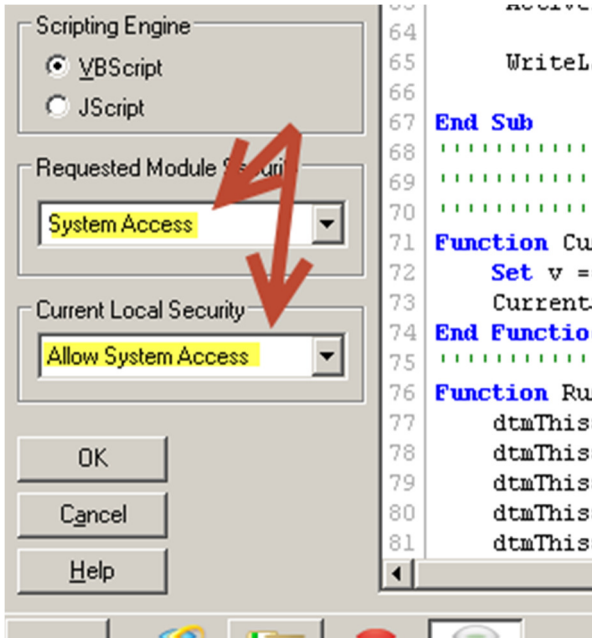
21) **The contents of the main folder. Do not alter any folders or files in this structure. Click on the QlikView-R_Predictive_Demo.qvw.**



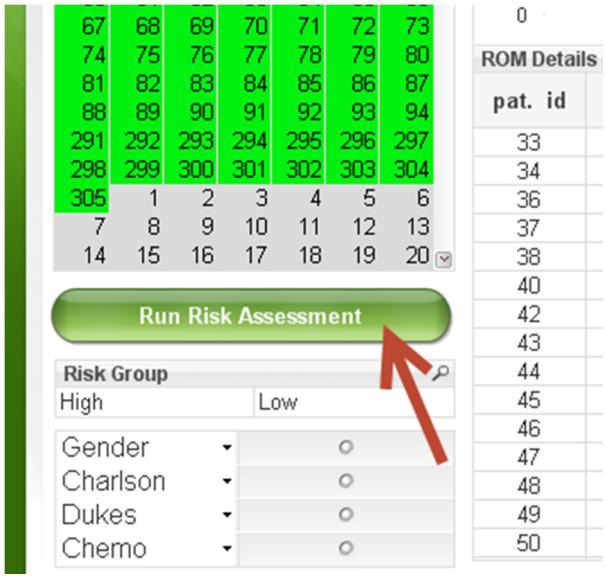
22) **Select Allow Safe Macros. Click OK.**



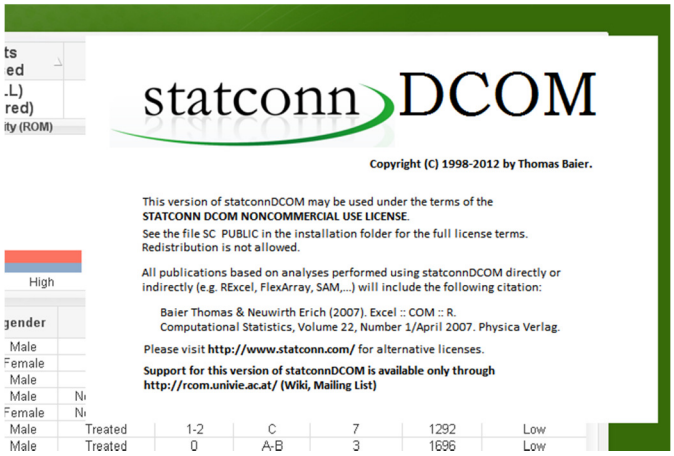
23) **Upon invoking the QVW file, the load script runs automatically. Click OK.**



24) **Type Control-m to invoke the macro editor in QlikView. Ensure the security settings are set like the above illustration – System Access and Allow System Access. Click OK.**



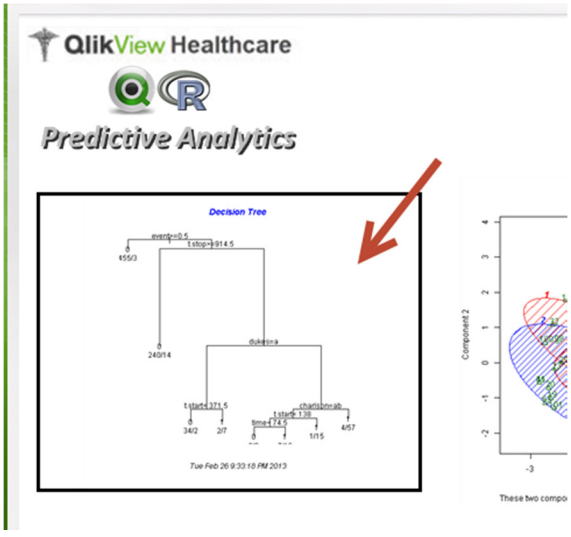
25) **Click Run Risk Assessment.**



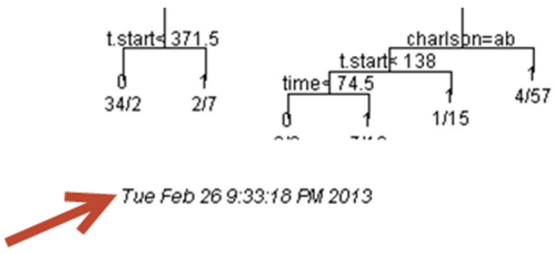
26) **If all is installed and configured properly, the statconn DCOM banner should appear. Success!**

Demonstrate QlikView and R

When the statconn DCOM banner appears, that indicates the interaction with the R statistical engine should be working. To verify, click on the tab in the QlikView application called “Risk of Mortality Plots”.



27) **Click on the Decision Tree plot on the left side of the sheet.**

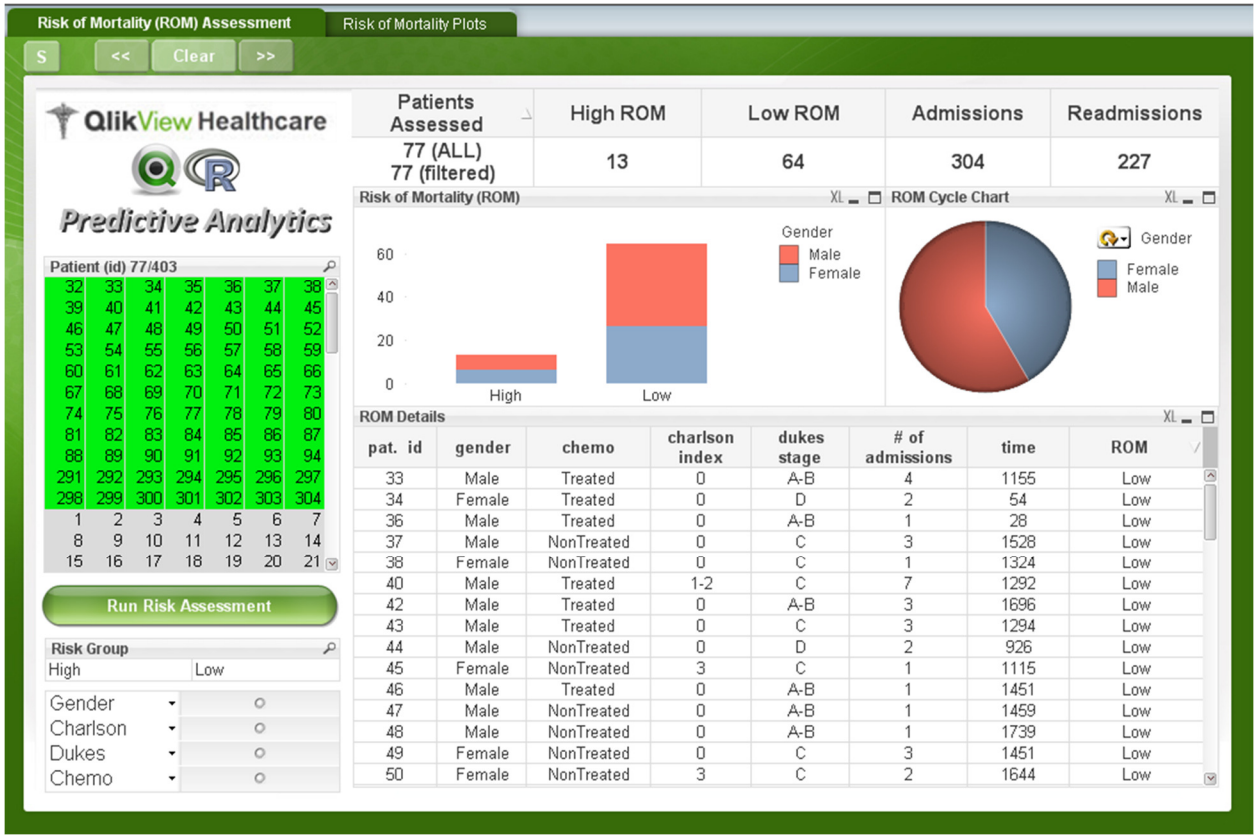


28) **The plot will expand. Observe the date and timestamp. If the R integration is working, this will be current as of just seconds ago.**

You are now ready to demonstrate the ease at which QlikView and the R engine can interoperate. QlikView and R combined is a powerful solution as Business Discovery and Predictive Analytics join forces.

This particular demo is intended to show the potential of the integration. The predictive model is rudimentary to make it easy to follow. An R developer can look at the code sample in the QlikView macro (Control-m) and understand the logic necessary to invoke R code when sending data from QlikView. It is also straightforward to take the results (a scoring, in this example) coming back from R and surface them within the QlikView application for further discoveries.

Explore the application and become familiar with the flow. The Patient list box is there to allow random selection of patient id values. Imagine that a QlikView application permits discovery of patient clinical data. At some point in the analysis a set of patient records is selected to be scored by the predictive model (in our case, using R) to determine risk of mortality. The data, with all its variables, are sent to the R engine where it is scored against the model – which was trained by a set of data with known outcomes (mortality). So, select a random set (or not-so-random set) of patients. Run the scoring by clicking on Run Risk Assessment. The banner indicating the R connection is being made will show and then disappear. The sheet will update with the ROM (risk of mortality) scores for the patients being assessed. Select the Risk of Mortality Plots tab and see the chart from R is updated as well. Now, additional discoveries may be made and actions may be taken to mitigate the risk for these patients. The use cases are virtually unlimited for this match of QlikView and R powers. You are now able to show the potential.



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