



## QLIKVIEW-R PREDICTIVE ANALYTICS DEMO

R Installation and QlikView Demo Configuration

QlikView Technical Brief

February 2013





## Contact Information

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<b>Date</b>	February 26, 2013

### 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 INSTALLER

You will utilize a package called RAndFriends to carry out the installation. RAndFriends is available directly from the source <http://rcom.univie.ac.at/download.html>.

#### RAndFriends

This package will automatically install and configure

- R 2.15.2
- rscproxy 2.0-5
- rcom 2.2-5

The R version contained in RAndFriends contains the 32bit and the 64bit versions of R will be installed. All the statconn tools (statconnDCOM supported for Excel 2003, Excel 2007, and Excel 2010.

RAndFriendsSetup will also download and install a suitable version of the :

The installer named RAndFriends will (among other things) download the RExcel available at the release of RAndFriends. If a new version of RExcel was released after the release of RAndFriends,

This version of RAndFriends was created 20130117.

Download [RAndFriendsSetup2152V3.2-9-1](#)

If you installed RAndFriendsSetup2120V3.1-9-1, you might have problems

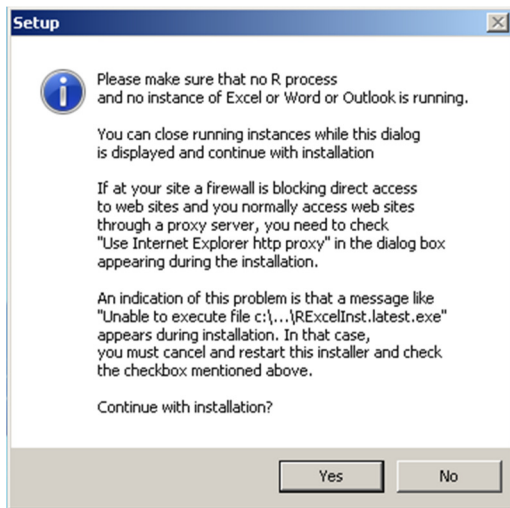
We also give you information how to [download all sources](#) for R and the R

### COMPONENTS TO BE INSTALLED

- 1) R for Windows
- 2) RExcel Noncommercial (not necessary, but is installed by default)
- 3) statconnDCOM Noncommercial

## EXECUTE RANDFRIENDS INSTALLER

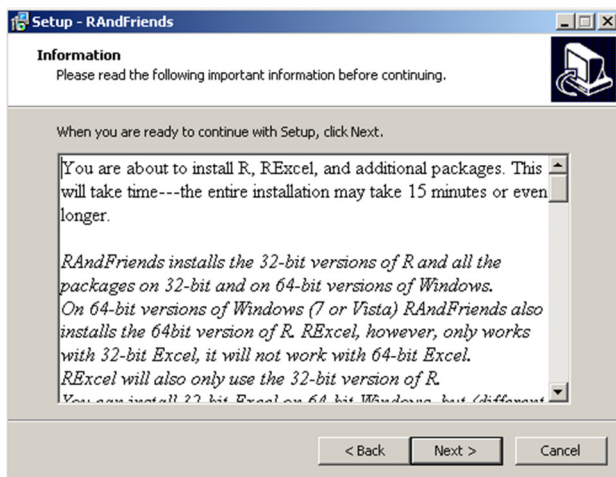
Run the RAndFriendsSetup executable (version RAndFriendsSetup2152V3.2-9-1.exe at the time of this writing) and follow these step-by-step instructions.



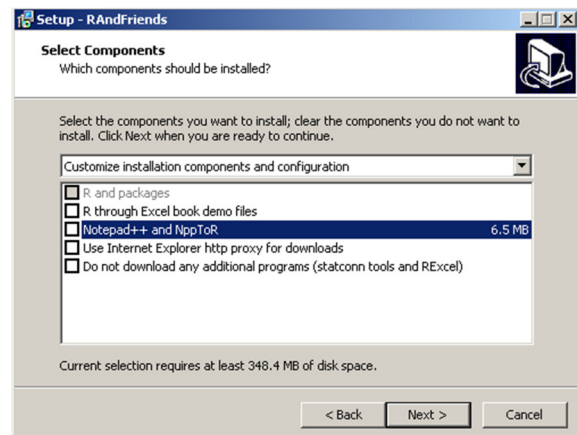
1) Select Yes



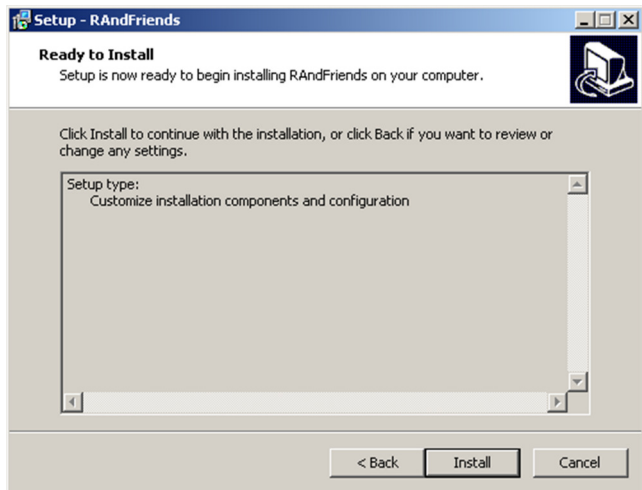
2) Select Next >



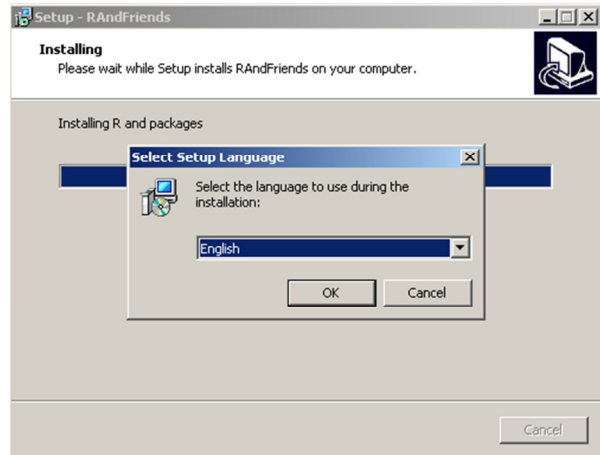
3) Select Next >



4) Optionally select Notepad++ and NppToR if Notepad++ is used. Select Next >



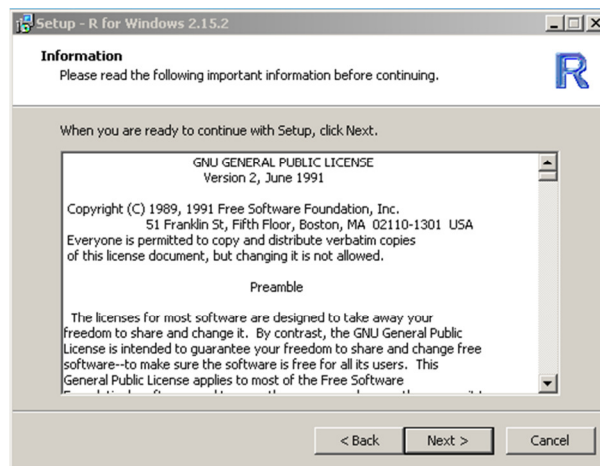
5) Choose Install



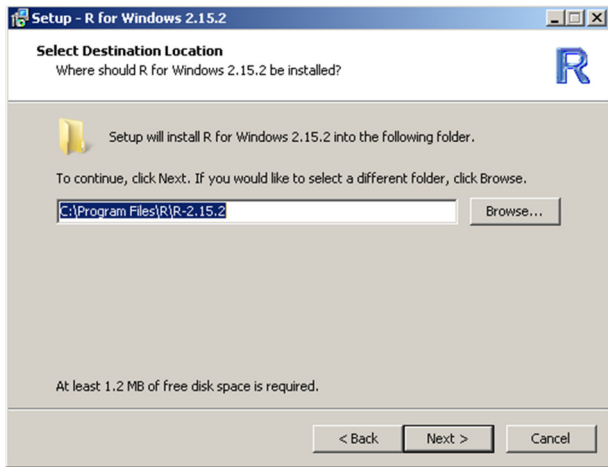
6) Click OK for English



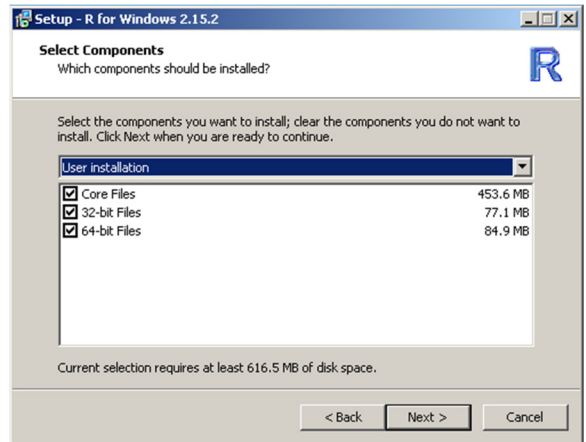
7) Select Next>



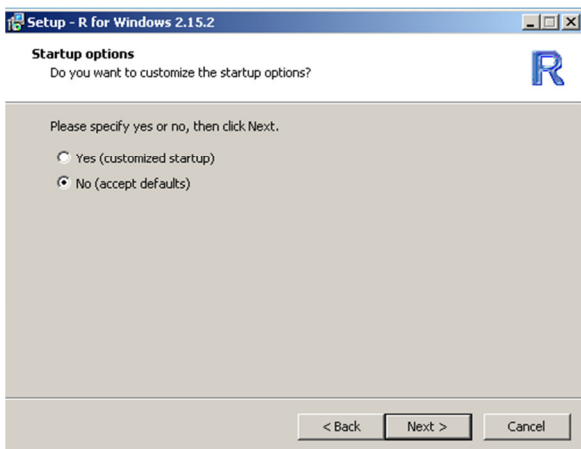
8) Select Next>



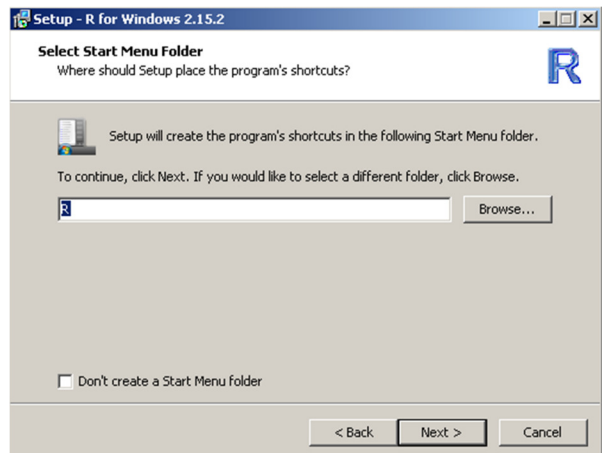
9) Select Next>



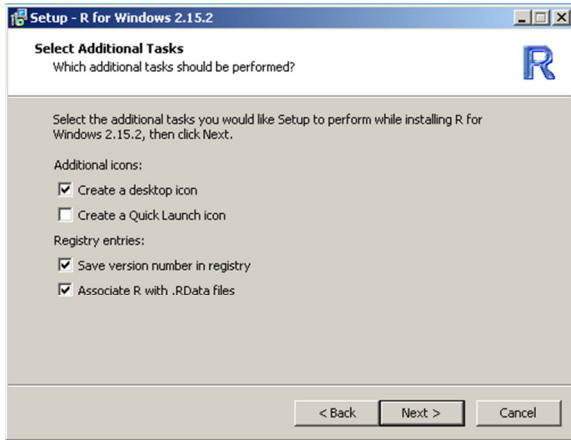
10) Select Next>



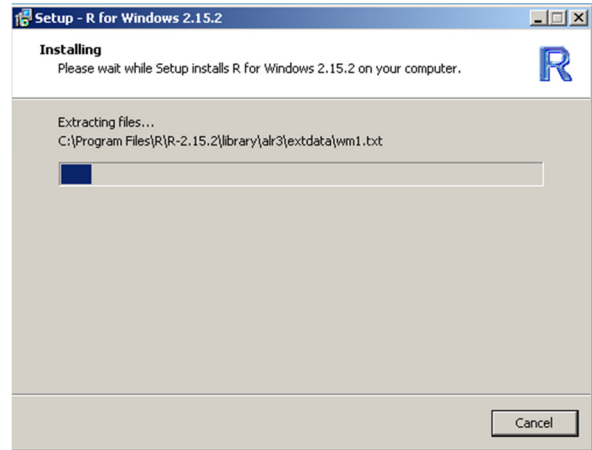
11) Select Next>



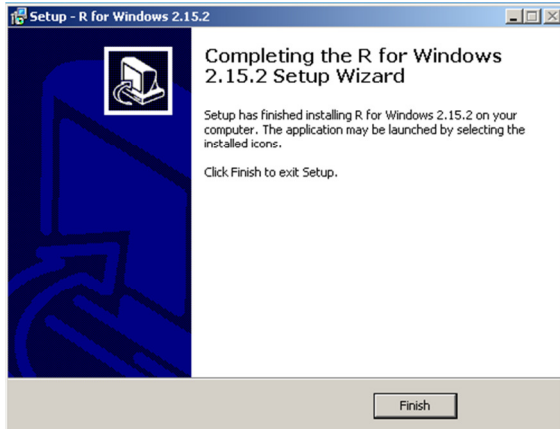
12) Select Next>



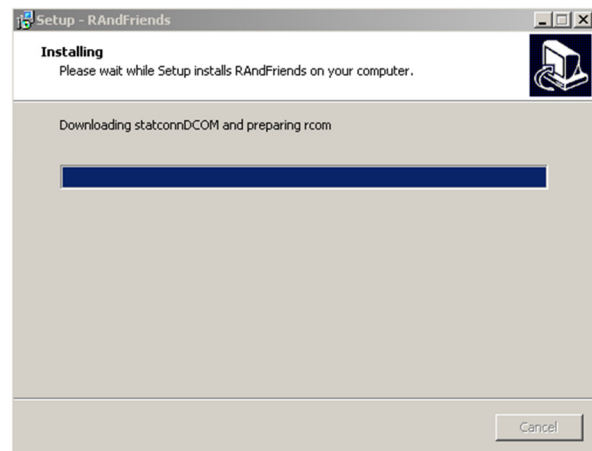
13) Select Next>



14) R installs



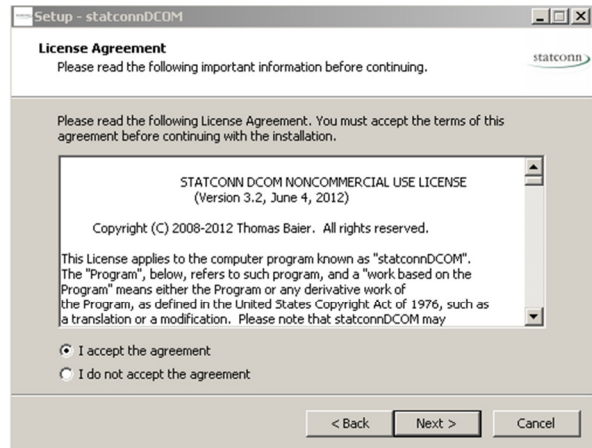
15) When complete, click Finish



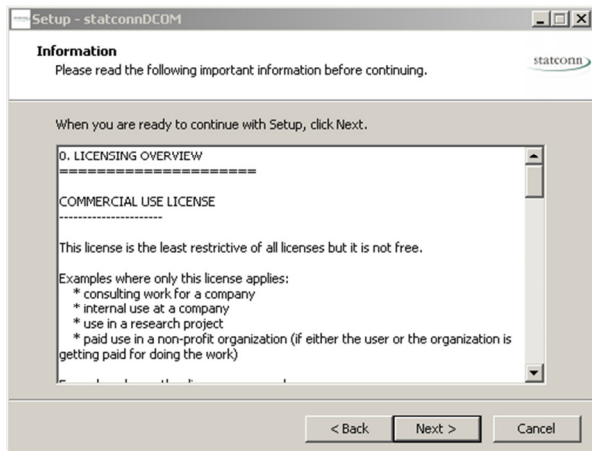
16) RAndFriends installer automatically begins installing the statconnDCOM package



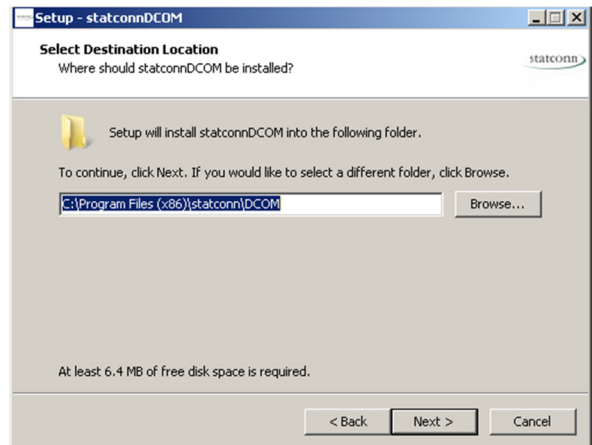
17) Click Next>



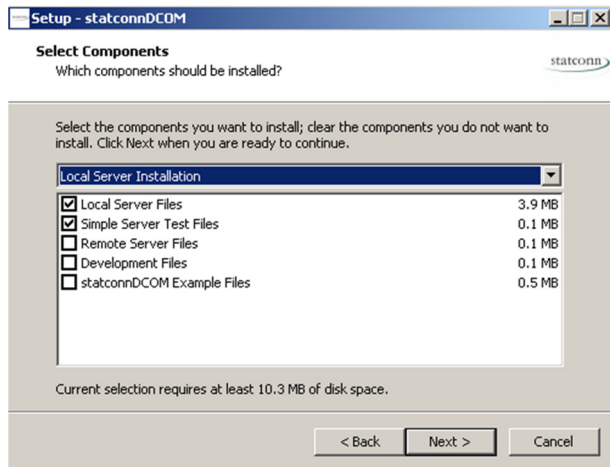
18) Accept the agreement and choose Next>



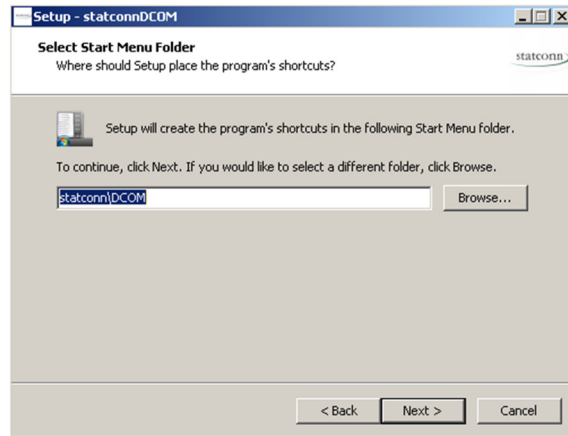
19) Select Next>



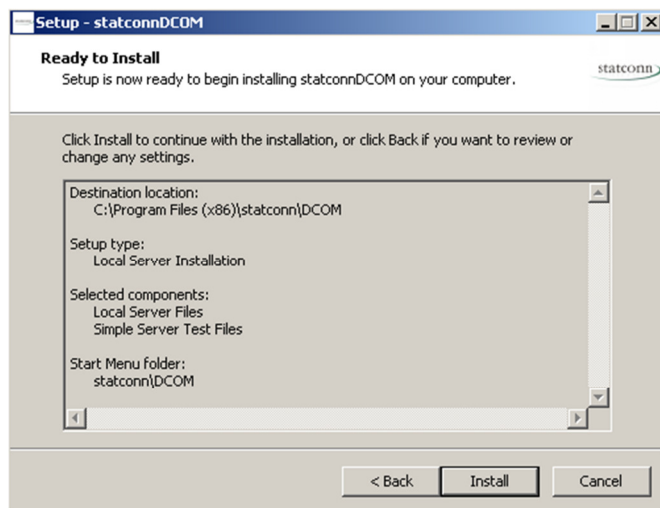
20) Select Next>



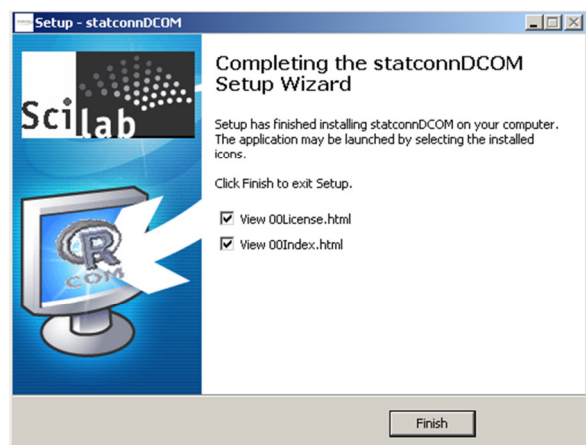
21) Select Next>



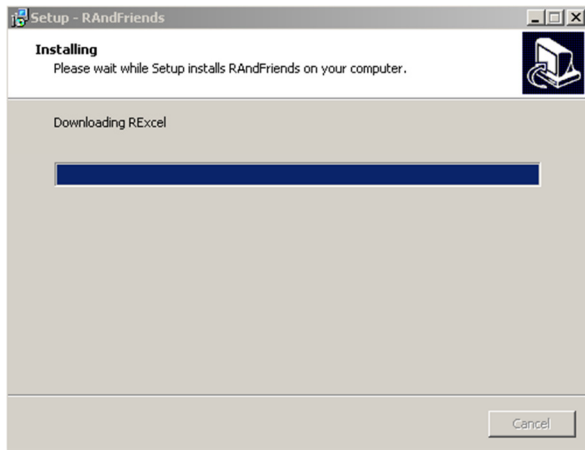
22) Select Next>



23) Choose Install



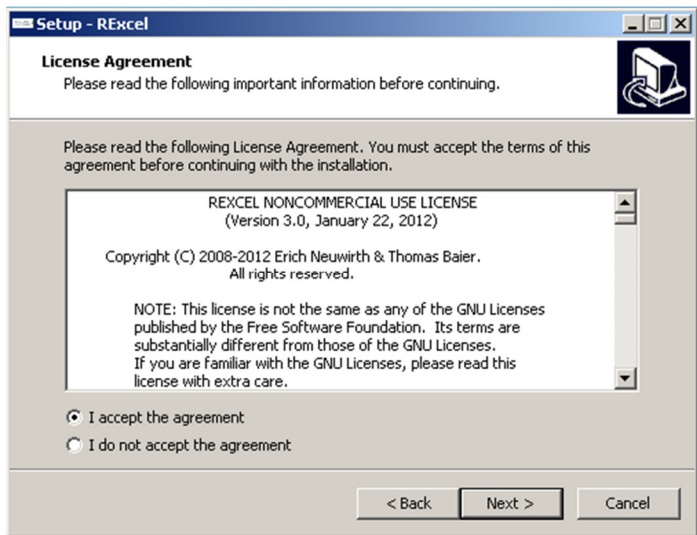
24) Select Finish



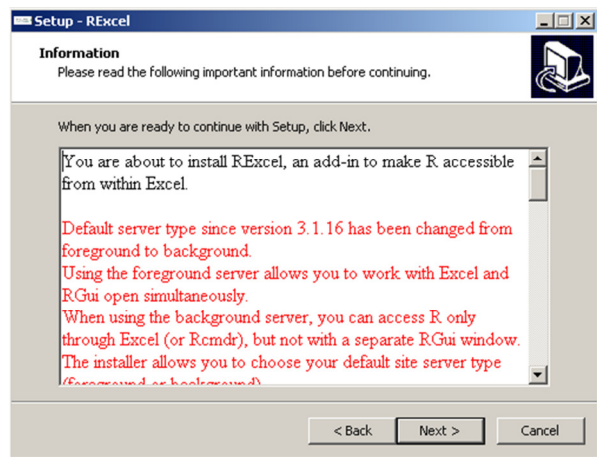
25) RAndFriends installer automatically begins installing the RExcel module



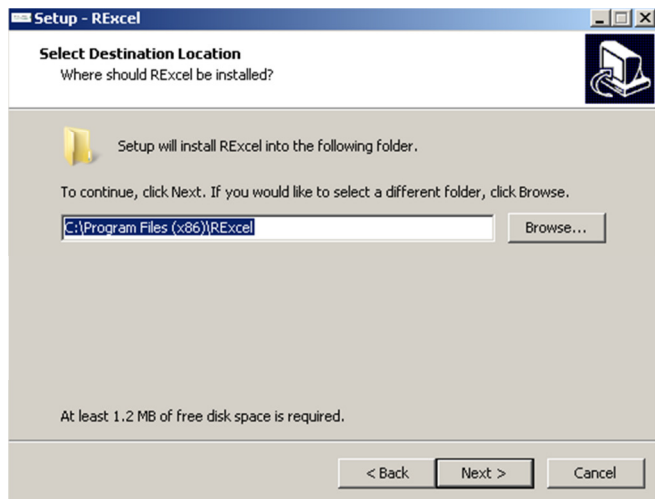
26) Select Next>



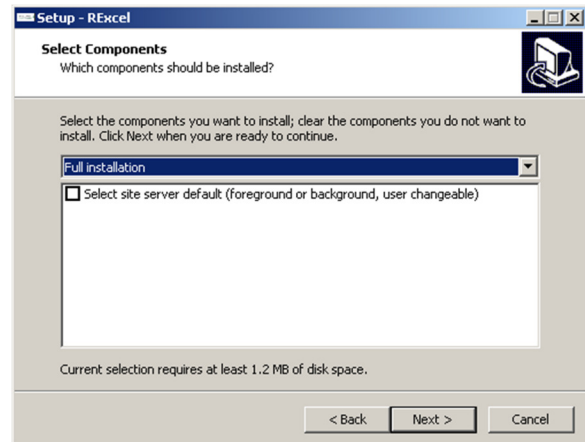
27) Accept the agreement and choose Next>



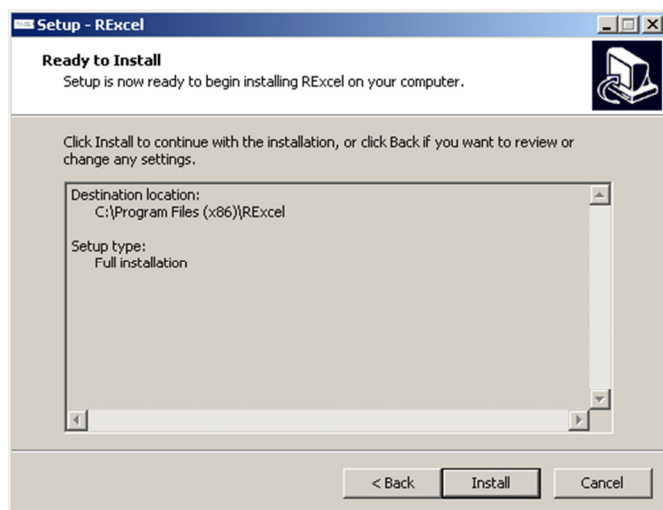
28) Select Next>



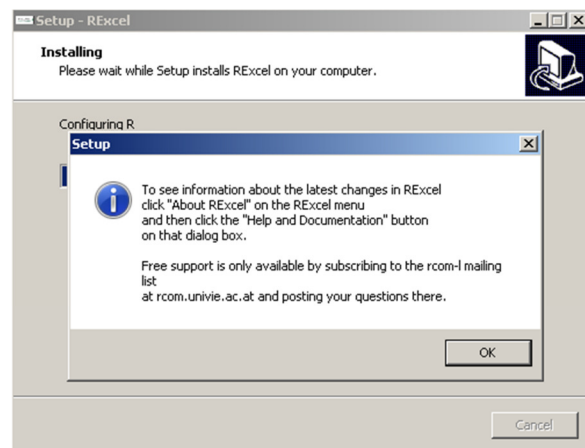
29) Select Next>



30) Choose Next>



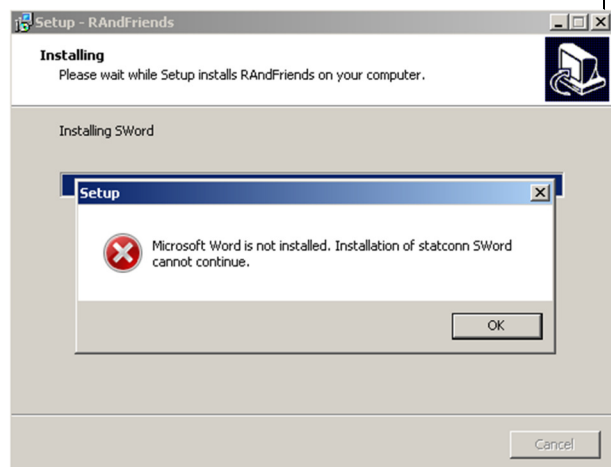
31) Click Install



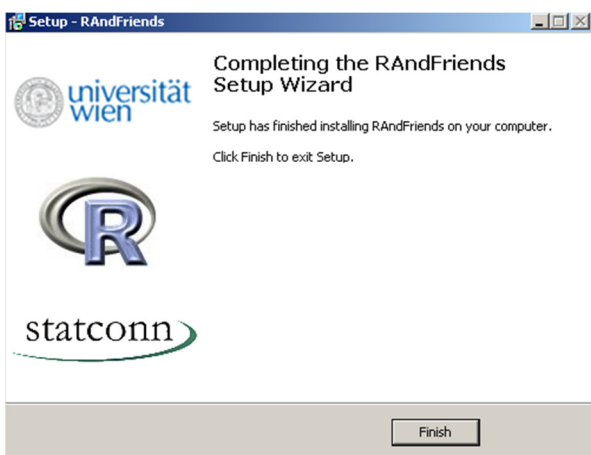
32) Select OK



33) Click Finish



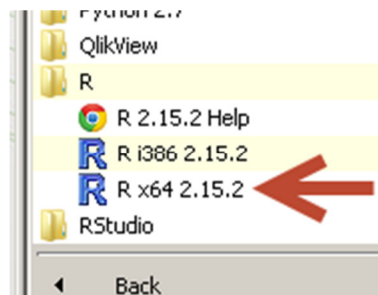
34) Click OK



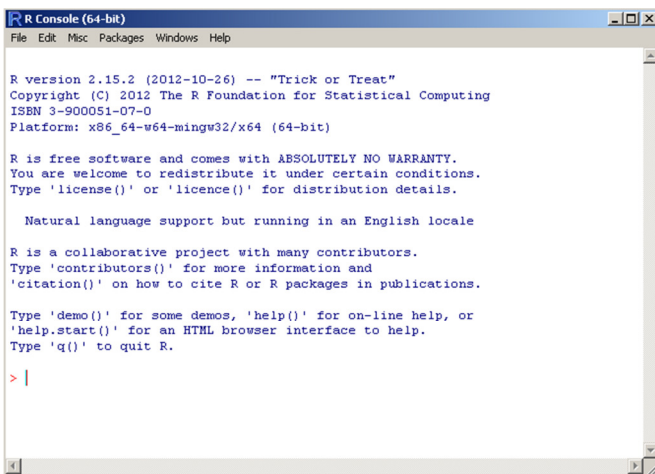
35) Click Finish and the RAndFriends setup is complete

## Install required Rattle Library

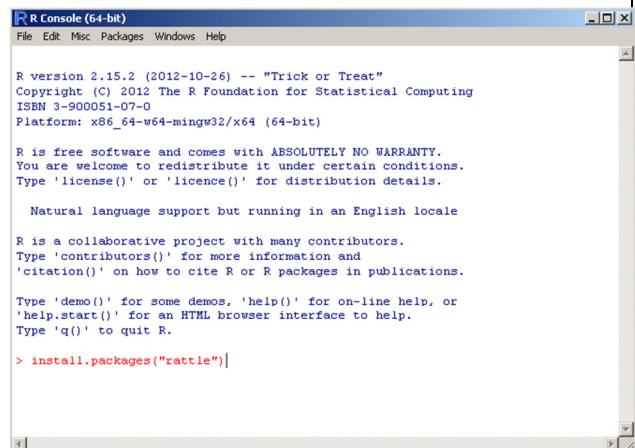
In order for the predictive scoring in R to work in this example, you will need to install a module from Togaware (<http://rattle.togaware.com/>) called the Rattle (the R Analytical Tool To Learn Easily) library. The installation is done from within the R console. You may also refer to the installation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



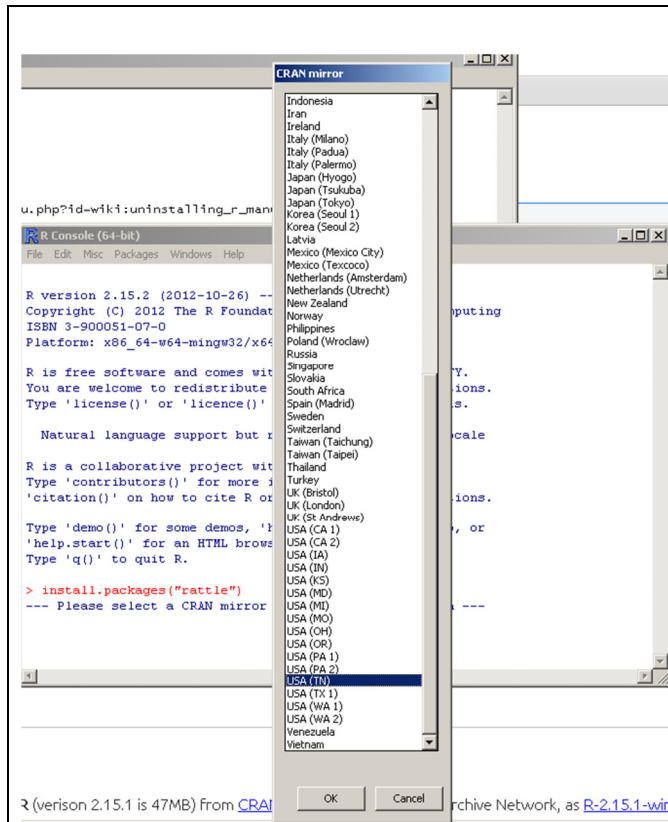
- 1) Select R x64 from the Windows Start menu



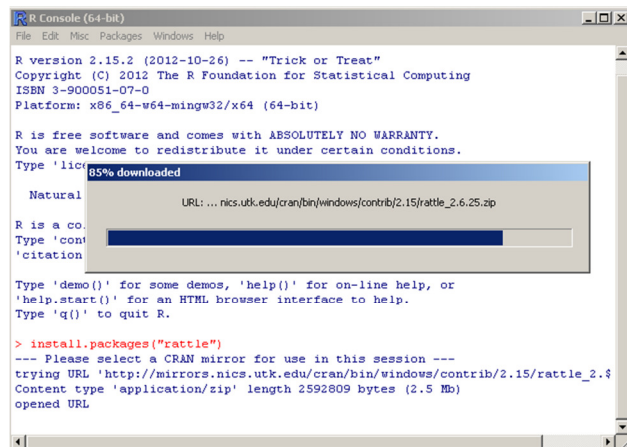
- 2) The R Console window opens



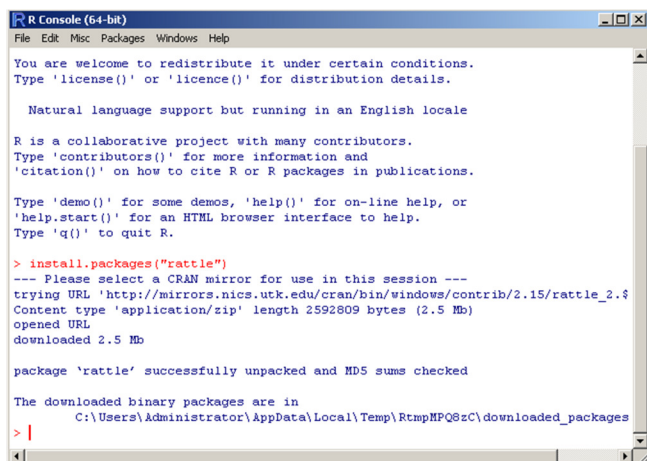
- 3) At the prompt, type `install.packages("rattle")`



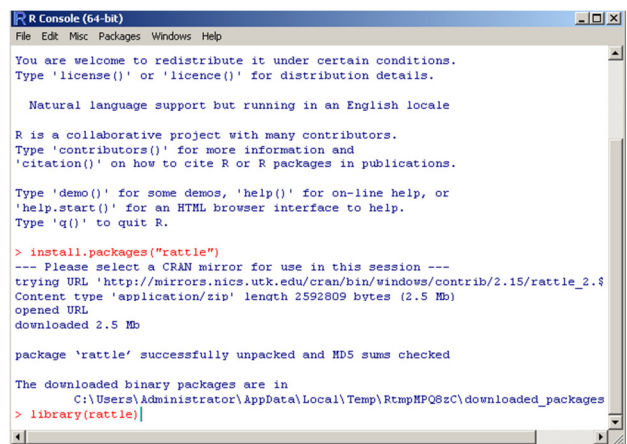
4) Select a nearby CRAN mirror



5) R begins to download and install the Rattle library



6) The Rattle library is installed



7) Load the Rattle library by typing library(rattle)

```

R Console (64-bit)
File Edit Misc Packages Windows Help

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

> install.packages("rattle")
--- Please select a CRAN mirror for use in this session ---
trying URL 'http://mirrors.nics.utk.edu/cran/bin/windows/contrib/2.15/rattle_2.5'
Content type 'application/zip' length 2592809 bytes (2.5 Mb)
opened URL
downloaded 2.5 Mb

package 'rattle' successfully unpacked and MD5 sums checked

The downloaded binary packages are in
C:\Users\Administrator\AppData\Local\Temp\RtmpMPQ8zC\downloaded_packages
> library(rattle)
Rattle: A free graphical interface for data mining with R.
Version 2.6.25 r42 Copyright (c) 2006-2013 Togaware Pty Ltd.
Type 'rattle()' to shake, rattle, and roll your data.
>

```

8) Indication Rattle is loaded

```

R Console (64-bit)
File Edit Misc Packages Windows Help

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Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

> install.packages("rattle")
--- Please select a CRAN mirror for use in this session ---
trying URL 'http://mirrors.nics.utk.edu/cran/bin/windows/contrib/2.15/rattle_2.5'
Content type 'application/zip' length 2592809 bytes (2.5 Mb)
opened URL
downloaded 2.5 Mb

package 'rattle' successfully unpacked and MD5 sums checked

The downloaded binary packages are in
C:\Users\Administrator\AppData\Local\Temp\RtmpMPQ8zC\downloaded_packages
> library(rattle)
Rattle: A free graphical interface for data mining with R.
Version 2.6.25 r42 Copyright (c) 2006-2013 Togaware Pty Ltd.
Type 'rattle()' to shake, rattle, and roll your data.
> rattle()

```

9) Invoke Rattle (the application) by typing rattle()

```

R Console (64-bit)
File Edit Misc Packages Windows Help

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

> install.packages("rattle")
--- Please select a CRAN mirror for use in this session ---
trying URL 'http://mirrors.nics.utk.edu/cran/bin/windows/contrib/2.15/rattle_2.5'
Content type 'application/zip' length 2592809 bytes (2.5 Mb)
opened URL
downloaded 2.5 Mb

package 'rattle' successfully unpacked and MD5 sums checked

The downloaded binary packages are in
C:\Users\Administrator\AppData\Local\Temp\RtmpMPQ8zC\downloaded_packages
> library(rattle)
Rattle: A free graphical interface for data mining with R.
Version 2.6.25 r42 Copyright (c) 2006-2013 Togaware Pty Ltd.
Type 'rattle()' to shake, rattle, and roll your data.
> rattle()

```

10) You should receive an error indicating a library is missing. Click OK

```

R Console (64-bit)
File Edit Misc Packages Windows Help

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

> install.packages("rattle")
--- Please select a CRAN mirror for use in this session ---
trying URL 'http://mirrors.nics.utk.edu/cran/bin/windows/contrib/2.15/rattle_2.5'
Content type 'application/zip' length 2592809 bytes (2.5 Mb)
opened URL
downloaded 2.5 Mb

package 'rattle' successfully unpacked and MD5 sums checked

The downloaded binary packages are in
C:\Users\Administrator\AppData\Local\Temp\RtmpMPQ8zC\downloaded_packages
> library(rattle)
Rattle: A free graphical interface for data mining with R.
Version 2.6.25 r42 Copyright (c) 2006-2013 Togaware Pty Ltd.
Type 'rattle()' to shake, rattle, and roll your data.
> rattle()
Error in inDL(x, as.logical(local), as.logical(now), ...) :
  unable to load shared object 'C:/Program Files/R/R-2.15.2/library/RGtk2/libs/$
loadLibrary failure: The specified module could not be found.

```

11) Install GTK+. Click OK

```

R Console (64-bit)
File Edit Misc Packages Windows Help

> install.packages("rattle")
--- Please select a CRAN mirror for use in this session ---
trying URL 'http://mirrors.nics.utk.edu/cran/bin/windows/contrib/2.15/rattle_2.5.zip'
Content type 'application/zip' length 2592809 bytes (2.5 Mb)
opened URL
downloaded 2.5 Mb

package 'rattle' is being installed
13% downloaded
URL: ...naries/win64/gtk+/2.22/gtk+-bundle_2.22.1-20101229_win64.zip

> library(rattle)
Rattle: A
Version 2
Type 'rattle()' to shake, rattle, and roll your data.
> rattle()
Error in inDL(x, as.logical(local), as.logical(now), ...) :
  unable to load shared object 'C:/Program Files/R/R-2.15.2/library/RGtk2/libs/$
LoadLibrary failure: The specified module could not be found.

trying URL 'http://ftp.gnome.org/pub/gnome/binaries/win64/gtk+/2.22/gtk+-bundle$
Content type 'application/zip' length 25830230 bytes (24.6 Mb)
opened URL

```

12) GTK+ installing

```

R Console (64-bit)
File Edit Misc Packages Windows Help

--- Please select a CRAN mirror for use in this session ---
trying URL 'http://mirrors.nics.utk.edu/cran/bin/windows/contrib/2.15/rattle_2.5.zip'
Content type 'application/zip' length 2592809 bytes (2.5 Mb)
opened URL
downloaded 2.5 Mb

package 'rattle' successfully unpacked and MD5 sums checked

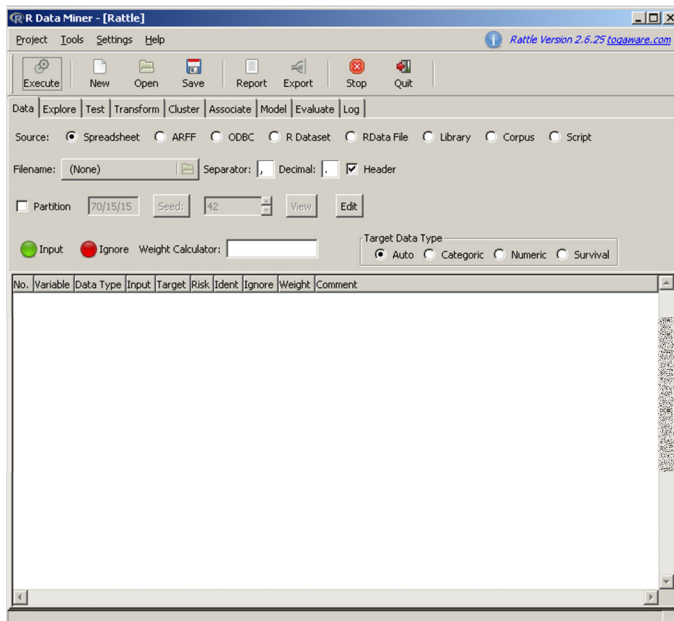
The downloaded binary packages are in
  C:\Users\Administrator\AppData\Local\Temp\RtmpMPQ8zC\downloaded_packages

> library(rattle)
Rattle: A free graphical interface for data mining with R.
Version 2.6.25 r42 Copyright (c) 2006-2013 Togaware Pty Ltd.
Type 'rattle()' to shake, rattle, and roll your data.
> rattle()
Error in inDL(x, as.logical(local), as.logical(now), ...) :
  unable to load shared object 'C:/Program Files/R/R-2.15.2/library/RGtk2/libs/$
LoadLibrary failure: The specified module could not be found.

trying URL 'http://ftp.gnome.org/pub/gnome/binaries/win64/gtk+/2.22/gtk+-bundle$
Content type 'application/zip' length 25830230 bytes (24.6 Mb)
opened URL
downloaded 24.6 Mb

```

13) Indication GTK+ is installed. Rattle should begin automatically



14) Rattle UI

```

R Console (64-bit)
File Edit Misc Packages Windows Help

The downloaded binary packages are in
  C:\Users\Administrator\AppData\Local\Temp\RtmpMPQ8zC\downloaded_packages

> library(rattle)
Rattle: A free graphical interface for data mining with R.
Version 2.6.25 r42 Copyright (c) 2006-2013 Togaware Pty Ltd.
Type 'rattle()' to shake, rattle, and roll your data.
> rattle()
Error in inDL(x, as.logical(local), as.logical(now), ...) :
  unable to load shared object 'C:/Program Files/R/R-2.15.2/library/RGtk2/libs/$
LoadLibrary failure: The specified module could not be found.

trying URL 'http://ftp.gnome.org/pub/gnome/binaries/win64/gtk+/2.22/gtk+-bundle$
Content type 'application/zip' length 25830230 bytes (24.6 Mb)
opened URL
downloaded 24.6 Mb

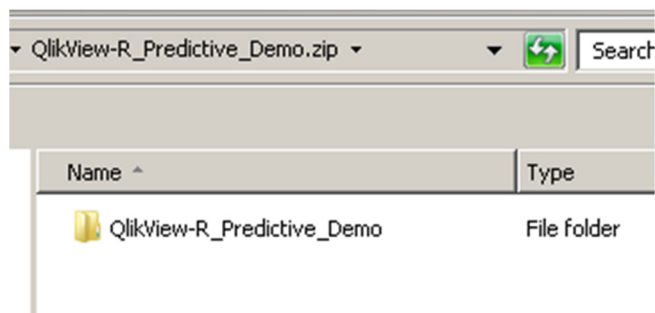
Learn more about GTK+ at http://www.gtk.org
If the package still does not load, please ensure that GTK+ is installed and th$
IN ANY CASE, RESTART R BEFORE TRYING TO LOAD THE PACKAGE AGAIN
Warning messages:
1: Failed to load RGtk2 dynamic library, attempting to install it.
2: In dir.create(config_path, recursive = TRUE) :
  'C:/Program Files/R/R-2.15.2/library/RGtk2/gtk/x64/etc/gtk-2.0' already exists
> q()

```

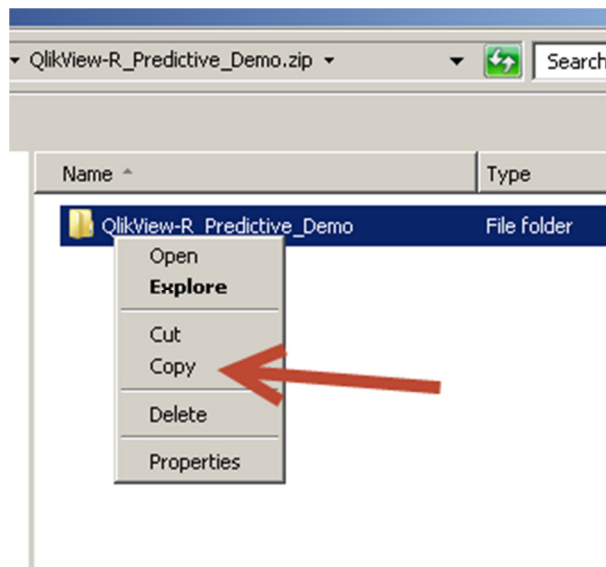
15) Close R Console. Type q() and click No at save workspace image dialog

## Deploy QlikView-R Predictive Demo

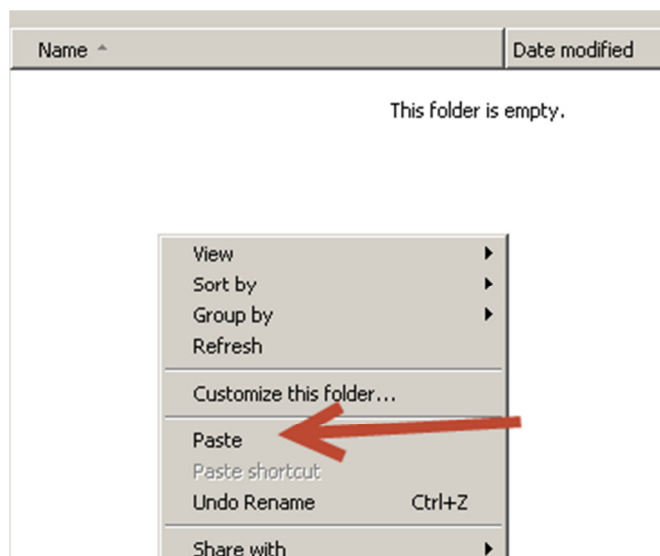
Open the accompanying zip archive – QlikView-R\_Predictive\_Demo.zip.



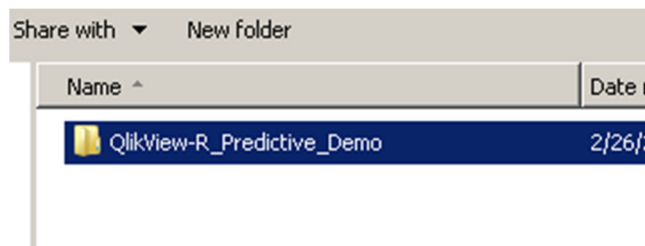
- 1) QlikView-R\_Predictive\_Demo.zip opened in Windows Explorer



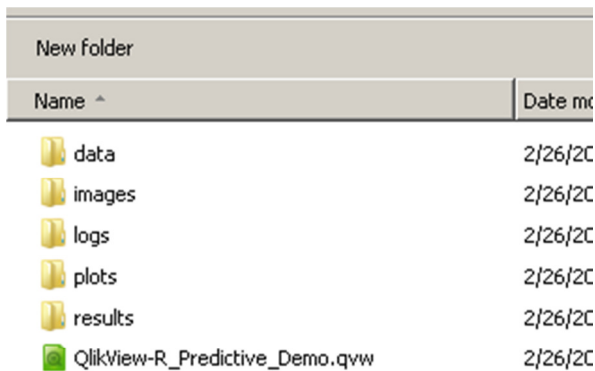
- 2) Copy the folder QlikView-R\_Predictive\_Demo inside the zip archive



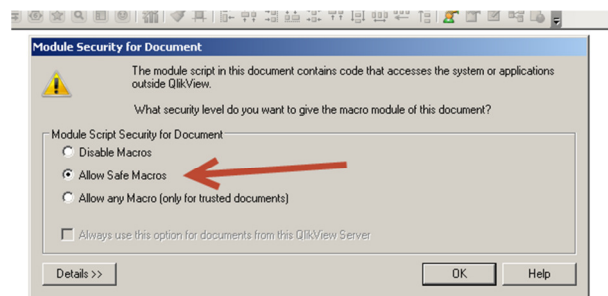
- 3) Paste the folder to any folder location on your PC



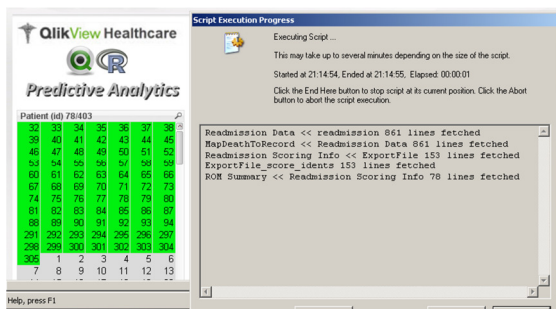
- 4) QlikView-R\_Predictive\_Demo folder in its new home. Click on the folder

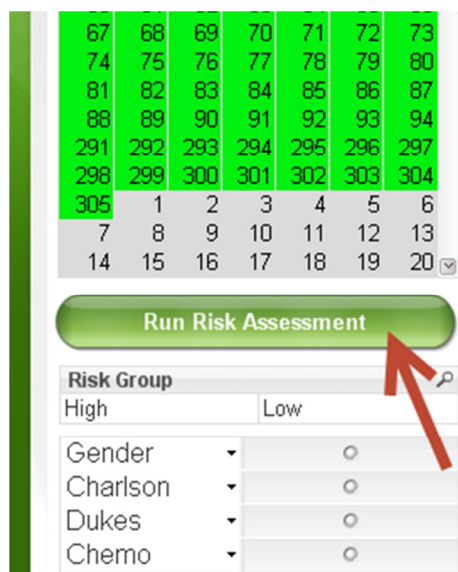


- 5) The contents of the main folder. Do not alter any folders or files in this structure. Click on the QlikView-R\_Predictive\_Demo.qvw

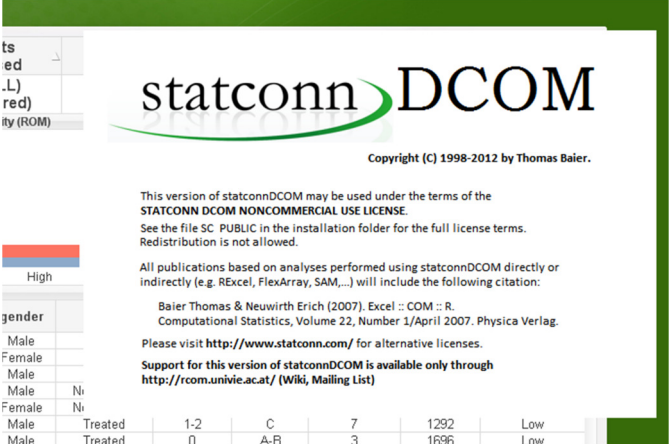


- 6) Select Allow Safe Macros. Click OK





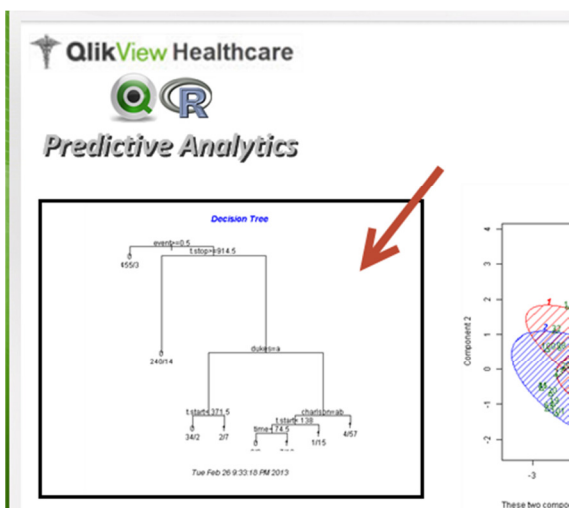
9) Click Run Risk Assessment



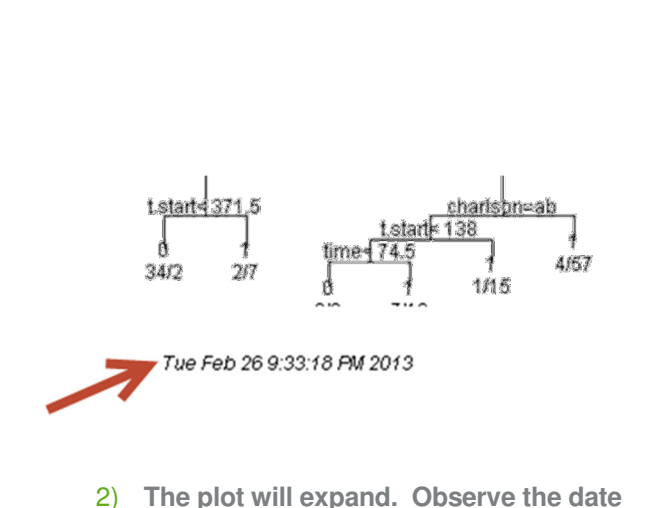
10) If all is installed and configured properly, the statconn DCOM banner should appear. Success!

## 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".



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

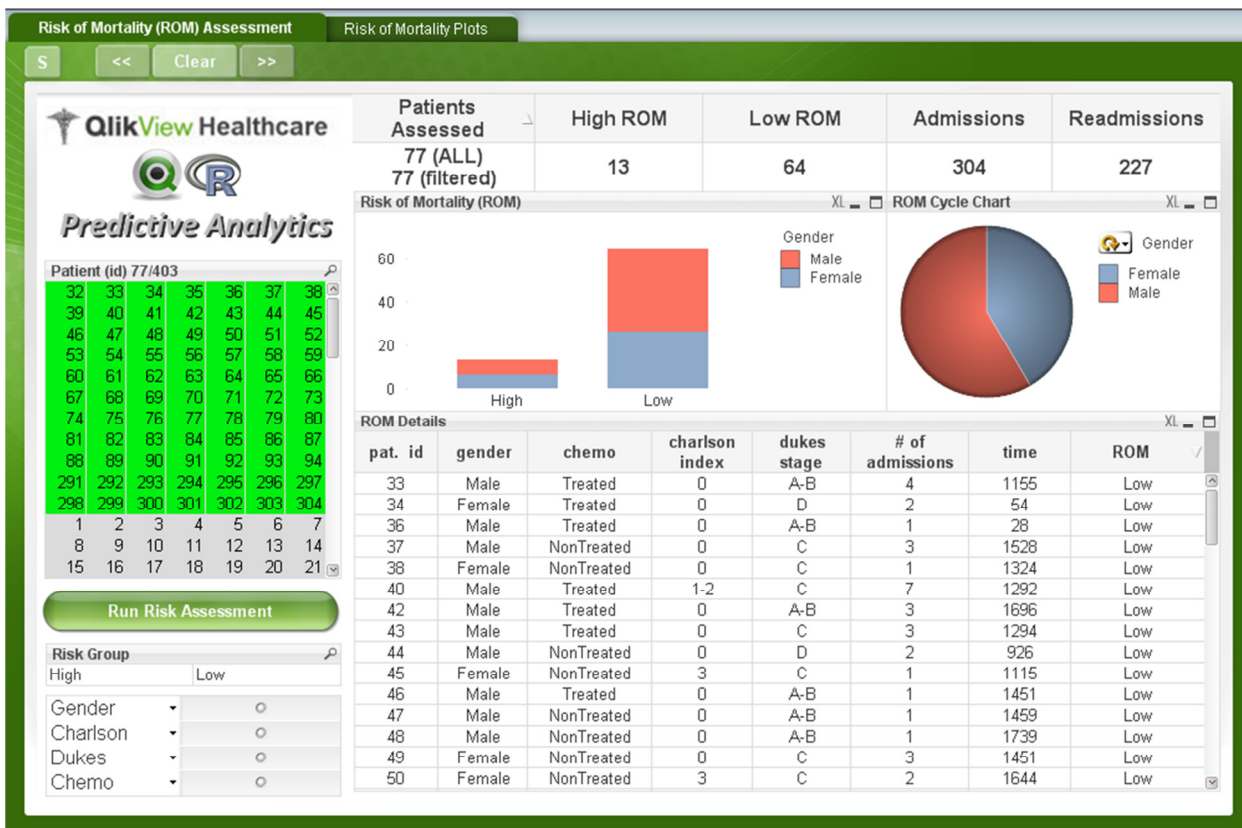


2) The plot will expand. Observe the date and timestamp. If the R integration is working, this will be current as of just seconds ago.

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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