R/RStudio Setup Guide

This document details the step-by-step installation of R package, used for statistical computing and RStudio (IDE), one of the free and open source integrated development environment for R. These software packages can be downloaded from http://www.r-project.org/ and http://rstudio.org/ respectively and are available on the Windows, Linux and Mac OS X platforms. However, this guide will only include the installation for the Windows platform. Please refer to the above websites for further instructions.

It must be noted that the R-Scripts can run without the installation of the IDE, using R-Console, and students are free to use any other IDE for R if they wish to do so.

Prerequisites for RStudio

• Any version of R (2.11.1 or higher)

Installation of R on a Windows 7 operating system

- 1. Download the latest precompiled binary distributions from CRAN website [http://www.rproject.org/]
- 2. Only the **base** package is required for this installation. (*At the time of writing the latest version of R is R-2.15.1*)
- 3. Follow the instructions on the website to complete the installation of R

4. Once completed, launch RGui from the shortcut. Or you can locate RGui.exe from your installation path. The default path for Windows is "C:\Program Files\R\R-

2.15.1\bin\x64\Rgui.exe"

5. Type help.start() at the R-Console prompt and press Enter. If you can see the help server page then you have successfully installed and configured your R package (See screenshot below),

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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.	
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Installation of RStudio IDE on Windows 7 operating system

- Download the latest version of RStudio IDE for your Windows platform from <u>http://rstudio.org/download/desktop</u> (At the time of writing the latest available version of *RStudio is v0.96*)
- 2. Start the installation and follow the steps required by the Setup Wizard



- Once completed, launch RStudio IDE from Start -> All Programs-> RStudio -> RStudio.exe or from your custom installation directory. The default installation directory for RStudio IDE is "C:\Program Files\RStudio\bin\rstudio.exe"
- 4. Type help.start() at the RStudio prompt and press Enter. If you can see the following screen then you have successfully installed and configured RStudio IDE to run with R.



- 5. Download all R-Scripts from [INSERT BOOK WEBSITE LINK HERE]
- 6. Extract/Unzip all R-Scripts to a folder location you want. For example "C:\EMTS\R\"

- 7. All R-Scripts make use of the required utility functions implemented by EMTSUtil.R. Make sure that this file exists in your extracted directory and make sure you have installed the required packages/library for the text book exercises. These can be found in section below (*see Installing additional packages with RStudio IDE*).
- Set your working directory to your R-scripts using the command, setwd(dir) For example, setwd("C:\EMTS\R")

Alternatively you can use RStudio's Tools Menu: Tools -> Set Working Directory -> Choose Directory...

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9. To run a script, open the script in RStudio's script editor and choose "Source" from the menu or the following command at the Console prompt,

>	<pre>source('C:/EMTS/R/stsm_simulate.R')</pre>
>	<pre>stsm_simulate()</pre>

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If you can see the results below then you have successfully configured RStudio IDE with R and the required packages for the exercises of the book. If not, please go through steps 4-9 again.

Installing additional packages with RStudio IDE

The following is a list of the additional packages for the EMTS book,

- scatterplot3d
- ks
- matlab
- numDeriv
- nlme
- KernSmooth

All required packages can be downloaded from the CRAN Repository or installed directly, along with any dependencies, by issuing the following command,

install.packages("scatterplot3d") at the R-Console or RStudio IDE prompts.

For further options please refer to R Documentation (?install.packages).

Alternatively, you can easily install each of these packages using RStudio IDE by clicking the "Install Packages" button of the IDE and you will be asked to create a personal library directory (See screenshot),

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Repeat the above steps to install the remaining packages or alternatively you can run the following script at the Console prompt,

> source('C:/EMTS/R/setup/installAll.R')

Note: the installAll.R script is located in R/setup/ folder.