

EQS for Mac Installation Guide (2016-09-20)

Download the Install Package

Go to <http://www.mvsoft.com/eqsdownload.htm> and, from **EQS 6.3 for Mac/Unix (Build 115)** [[installation file](#)] (2016 version, 08/24/2016) field, select the highlighted **Installation file** to download. You will see the Download window popup and the file *SetupEQS63Mac.pkg.zip* starts to download. When the install package is complete, it is converted into *SetupEQS63Mac.pkg* automatically and placed in the Downloads folder under your account.

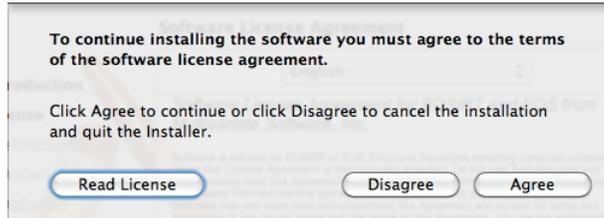
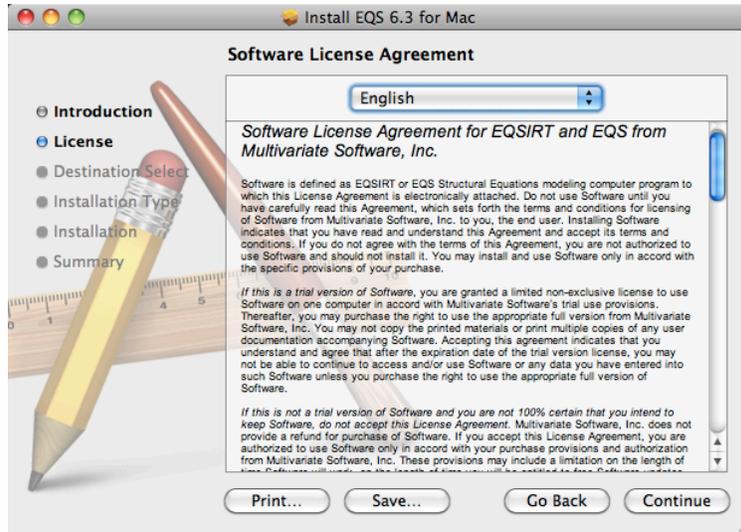
Install EQS for Mac

Double click on *SetupEQS63Mac.pkg* to initiate the install process. You will see the startup screen as the one shown below.



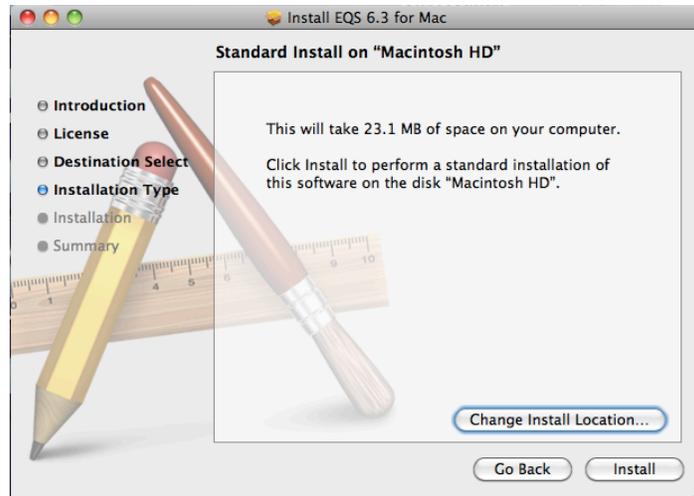
Click the *Continue* button to continue. You will be prompted a license agreement screen. You should read through the agreement to make sure that you agree with terms and conditions before you proceed. If you determine that you cannot abide the conditions set forth by this agreement, you should quit this setup process and arrange a refund for your purchase of EQS.

Proceed with this installation process you have implicitly and explicitly agreed with the license agreement. Next two screen shots are examples of what you will be seeing regarding license agreement.



Now you have agreed to continue. Next you will be asked to confirm where EQS will be installed. By default, it will install into your hard drive. You will click on the **Continue** button on Select a Destination screen.

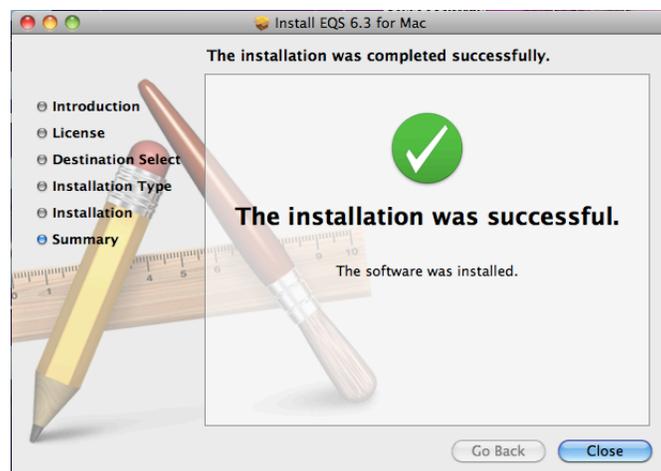




After the destination of the EQS files is determined, you will be asked for the password of your computer. This is the security feature built into your Mac. Enter your password and click the OK button.



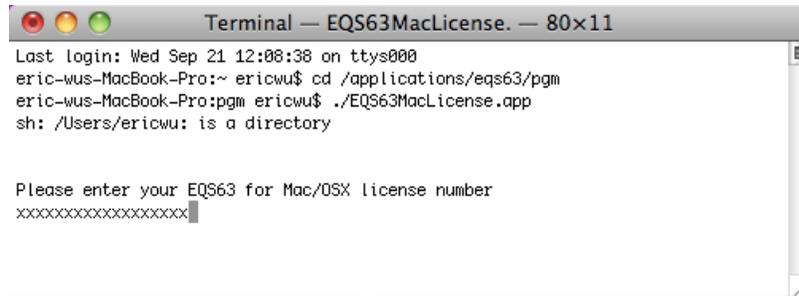
The EQS installation package will start to unpack files and copy them to your hard drive. By default, all EQS files are copied to `/Applications/EQS63` folder. **The installation was successful** screen will appear. This concludes the file preparatory stage of the installation. You are ready to enter your license number. You are given a license number when you purchase the program. The license number needs to enter into the program so that it becomes functional.



Setup Your License Number

You are ready to initialize your license to the Mac system and this requires you to open a terminal window by clicking *Terminal* from **/Application/Utilities** folder. When you are in the terminal mode (it is a unix command window), enter the following two commands

```
$ cd /Applications/EQS63/pgm
$ ./EQS63MacLicense.app
```



```
Terminal — EQS63MacLicense. — 80x11
Last login: Wed Sep 21 12:08:38 on ttys000
eric-wus-MacBook-Pro:~ ericwu$ cd /applications/eqs63/pgm
eric-wus-MacBook-Pro:pgm ericwu$ ./EQS63MacLicense.app
sh: /Users/ericwu: is a directory

Please enter your EQS63 for Mac/OSX license number
xxxxxxxxxxxxxxxxxxxx
```

You will be given a prompt “*Please enter your EQS63 for Mac/OSX license number*”, enter the license number on the screen. Please note the license number is a 18-digit number. You have to enter all the digits in one string without spaces embedded. On finishing each command, you will have to press the **ENTER** key. When this process is complete, you will see the message

EQS63 for MAC/OSX has setup successfully.

You are ready to run EQS63 now.

Run EQS 6.3 for Mac as an Unix program

You are ready to run EQS from the system and it has to be done from terminal mode (it is a unix command window, for those who do not familiar with unix commands, please ignore the “\$” since it is the unix system prompt and you don’t have to type it).

Option 1: Using Native UNIX commands

Enter the following two commands

```
$ cd /Applications/EQS63/Examples
$ /Applications/EQS63/pgm/eqs63Mac.app in=manul3.eqs
out=manul3.out len=2000000 ser=xxxxxxx
```

IN= the input model file name. This input file is usually created with .eqs extension.

OUT= the output file name

LEN= internal working space. You start with 2000000 and can be increased if needed

SER= a 18-digit license number without spaces.

You have to enter this command every time you run the EQS program. Of course, you should

specify the appropriate input model and output file names.

Option 2: Using UNIX Shell Script

An UNIX command file “runeqs” is installed in /Applications/EQS63/pgm folder. The command file has following lines

```
#  
# Command to run EQS 6.3 for mac  
#  
/Applications/EQS63/pgm/EQS63Mac.app in=$1.eqs out=$1.out  
len=2000000 ser=xxxxxxx
```

As you can see, the license number has been inserted when this command file is created during the license initialization process. To run EQS, you first go the folder where your EQS model and data files reside and enter the command

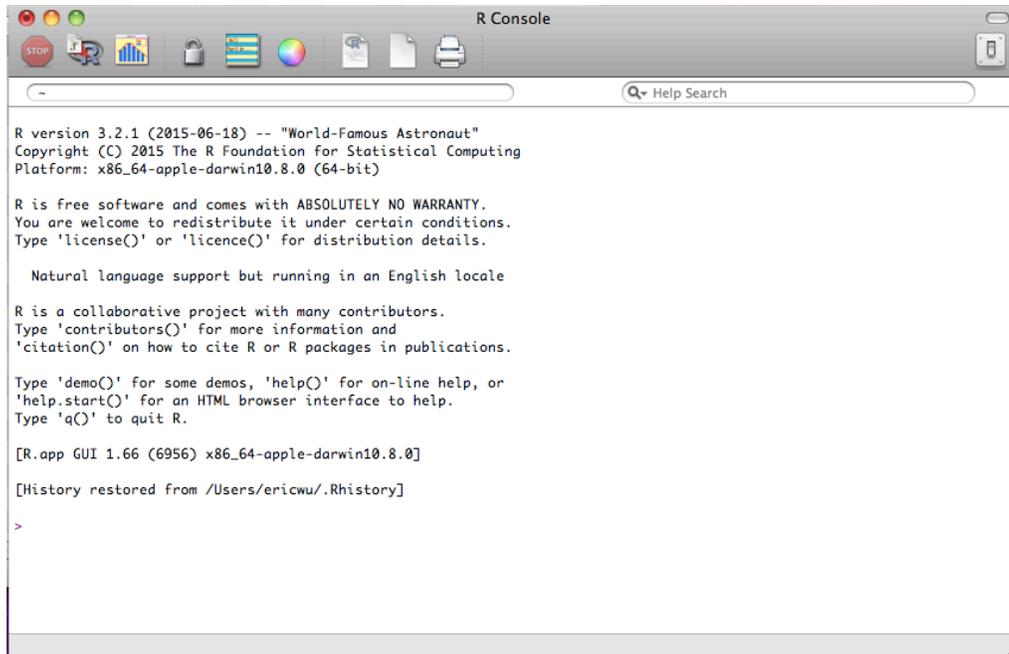
```
$ /Applications/EQS63/pgm/runeqs manul3
```

where “manul3.eqs” is your EQS input model file. The program will run and the output file is stored in manul3.out.

Option 3: Using R Package

Another way to run EQS for Mac is using R as the program driver. The R is an open source statistical program. It has gained momentums and popularities in recent years and provided many useful statistical procedures. Regardless whether you need to use R for your research, learn what it is and how to use it would be beneficial. We can use its file editing capability and program launching ability to simplify the process of running EQS for Mac. You can access <https://www.r-project.org> to learn its detail and download the R for Mac. Current version of the R for Mac OS X is R-3.3.1. We will use version 3.2.1 as our illustration since it is the legacy version for the author’s Mac OS X 10.6.8. You need to download and install R for Mac before we can continue to the following topics.

After start up the R program, you will see the R Console as show in the picture below. The R Console is where you execute all the R commands.



```
R version 3.2.1 (2015-06-18) -- "World-Famous Astronaut"
Copyright (C) 2015 The R Foundation for Statistical Computing
Platform: x86_64-apple-darwin10.8.0 (64-bit)

R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.

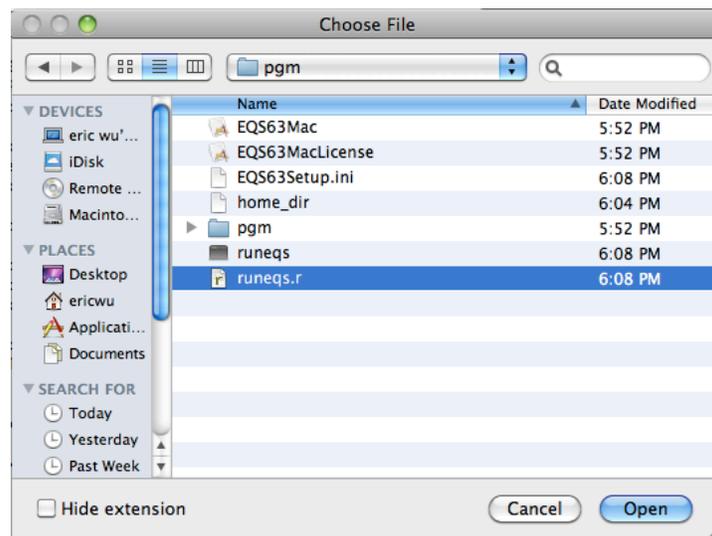
Natural language support but running in an English locale

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.

[R.app GUI 1.66 (6956) x86_64-apple-darwin10.8.0]
[History restored from /Users/ericwu/.Rhistory]
>
```

An R script file *runeqs.r* is created in the **/Applications/EQS63/pgm** folder when the EQS license is initiated. You can use the R to open this *runeqs.r* file.



The content of the *runeqs.r* is shown in the R editor. This R file contains two parts. The first part is the commands to define the EQS model and to launch the EQS program. The second part is the program (or function) that collects all the information and preparation of the launching of the EQS program. Their contents are shown as follows:

```

##
##
## R SCRIPT FOR RUNNING EQS 6.3 FOR MAC/OSX
##
##
## SET DEFAULT WORKING FOLDER
setwd("/Applications/eqs63/examples")
## go to the folder where EQS model and data resided
## before issuing the following two commands
##
model <- "manul3"
run_eqs(model)
##
## SYSTEM COMMAND TO LAUNCH EQS 6.3 FOR MAC
##
run_eqs <- function(model)
{
eqs_model <- paste("in=",model,".eqs",sep="")
eqs_output <- paste("out=",model,".out",sep="")
len <- paste("len=5000000",sep="")
ser <- paste("ser=          ",sep="")
pgm <- paste("/Applications/eqs63/pgm/EQS63Mac.app")
eqs_command <- paste(pgm,eqs_model,eqs_output,len,ser)
system(eqs_command,wait=TRUE)
}

```

We must run (or called source) the run_eqs program so its procedures can be activated in the memory and ready to be called. To activate run_eqs, we need to copy from “run_eqs <- function(model)” down to the end of the file and paste the contents to the R console.

```

R Console
Natural language support but running in an English locale
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.

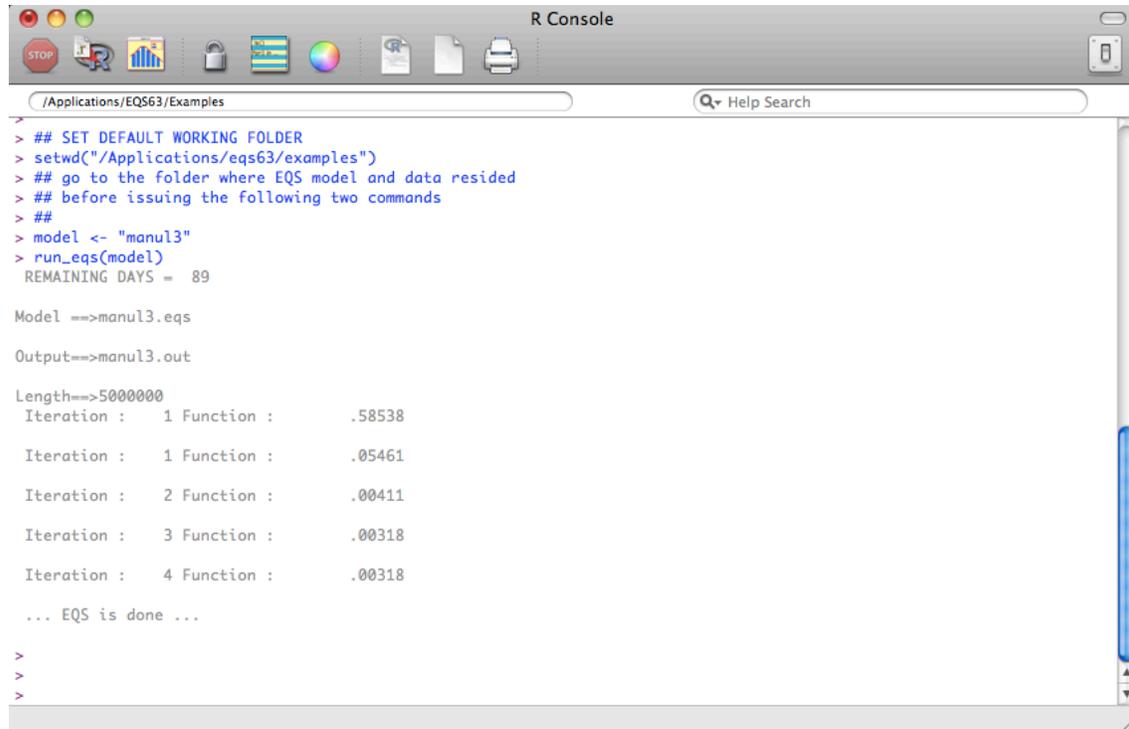
[R.app GUI 1.66 (6956) x86_64-apple-darwin10.8.0]
[History restored from /Users/ericwu/.Rhistory]

> ##
> ## SYSTEM COMMAND TO LAUNCH EQS 6.3 FOR MAC
> ##
> run_eqs <- function(model)
+ {
+ eqs_model <- paste("in=",model,".eqs",sep="")
+ eqs_output <- paste("out=",model,".out",sep="")
+ len <- paste("len=5000000",sep="")
+ ser <- paste("ser=          ",sep="")
+ pgm <- paste("/Applications/eqs63/pgm/EQS63Mac.app")
+ eqs_command <- paste(pgm,eqs_model,eqs_output,len,ser)
+ system(eqs_command,wait=TRUE)
+ }
>
>

```

After the run_eqs program is sourced (or activated) we can run the EQS program now. It is a two-step process

- Step 1, define the EQS model
- Step 2, launch the EQS program.



```
> ## SET DEFAULT WORKING FOLDER
> setwd("/Applications/eqs63/examples")
> ## go to the folder where EQS model and data resided
> ## before issuing the following two commands
> ##
> model <- "manul3"
> run_eqs(model)
REMAINING DAYS = 89

Model ==>manul3.eqs

Output==>manul3.out

Length==>5000000
Iteration : 1 Function : .58538
Iteration : 1 Function : .05461
Iteration : 2 Function : .00411
Iteration : 3 Function : .00318
Iteration : 4 Function : .00318
... EQS is done ...
>
>
>
```

Above picture shows that a EQS model file manul3.eqs is used to be analyzed. The commands are

setwd("/Applications/eqs63/examples") set the default working folder
model <- "manul3" this command passes the manul3.eqs model to the keyword **model**.
run_eqs(model) this command run the R program "run_eqs" using **model** as input.

When we run any model, we need to know where the model and data file reside. Then we make that folder as the default working folder. The R command "setwd" is the way to set the default working directory. The command **setwd("/applications/eqs63/examples")** make the /applications/eqs63/examples folder as the default folder. This folder is created when the EQS for Mac was installed. Next step is to define the EQS model. EQS model files consist two sections; first is the file name and the second is the extension. The manul3.eqs is the typical way to specify an EQS file name. The keyword "model" is used to define the EQS model file. We only need to use its file name part. The eqs extension is automatically attached when the model file is defined. The command **model <- "manul3"** defines the model file as manul3.eqs. After all the modeling information is prepared, we are ready to run the EQS model. The command **run_eqs(model)** would run the EQS model and create the output file in manul3.out.

```
1 EQS, A STRUCTURAL EQUATION PROGRAM          MULTIVARIATE SOFTWARE, INC.
2 COPYRIGHT BY P.M. BENTLER                    VERSION 6.3 (C) 1985 - 2016 (8115).
3
4
5 PROGRAM CONTROL INFORMATION
6
7 1 /TITLE
8 2 FACTOR ANALYSIS MODEL (EXAMPLE IN EQS MANUAL P.29)
9 3 /SPECIFICATIONS
10 4 CAS=932; VAR=6; ME=GLS;
11 5 /LABEL
12 6 V1=ANOMIA67; V2=POWRLS67; V3=ANOMIA71; V4=POWRLS71;
13 7 /EQUATIONS
14 8 V1 = 2*F1 + E1;
15 9 V2 = 2*F1 + E2;
16 10 V3 = 2*F2 + E3;
17 11 V4 = 2*F2 + E4;
18 12 /VARIANCES
19 13 F1 TO F2 = 1.0;
20 14 E1 TO E4 = 3*;
21 15 /COVARIANCES
22 16 F2,F1= .3*;
23 17 e3,e1 = *;
24 18 e4,e2 = *;
25 19 /MATRIX
26 20 11.834
27 21 6.947 9.364
28 22 6.819 5.091 12.532
29 23 4.783 5.028 7.495 9.986
```

You can use the R program to open the output file manul3.out. Please note that you have to find your output file from the “/Applications/EQS63/Examples” since you have made this is your default folder. The following command is how it is set.

```
setwd( "/Applications/EQS63/Examples" )
```

If you need to change the model file to run, just change the “model” command definition. Using the a new model file “mymodel.eqs” as an example, you need to enter

```
model <- “mymodel”
```

at R console and then

```
run_eqs(model)
```

You can repeat this process again and again to run your EQS models. Due to the lack of a good user interface program, the R solution has made running EQS for Mac a relatively easy task.

The complete R command to launch EQS is as follows:

```
system( "./EQS63Mac.app in=/Applications/EQS63/Examples/manul3.eqs
out=/Applications/EQS63/Examples/manul3.out len=3000000
ser=xxxxxxx" )
```