

# Package ‘REQS’

February 19, 2015

**Type** Package

**Title** R/EQS Interface

**Version** 0.8-12

**Date** 2011-04-05

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**Description** This package contains the function `run.eqs()` which calls an EQS script file, executes the EQS estimation, and, finally, imports the results as R objects. These two steps can be performed separately: `call.eqs()` calls and executes EQS, whereas `read.eqs()` imports existing EQS outputs as objects into R. It requires EQS 6.2 (build 98 or higher).

**License** GPL

**URL** <http://www.mvsoft.com>

**LazyLoad** yes

**Depends** gtools

**Repository** CRAN

**Date/Publication** 2012-10-29 08:57:30

**NeedsCompilation** no

## R topics documented:

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 call.eqs

*Call EQS from R*


---

### Description

This function calls an EQS script file (.eqs) and executes it.

### Usage

```
call.eqs(EQSpgm, EQSmodel, serial, Rmatrix = NA, datname = NA, LEN = 2000000)
```

### Arguments

|          |  |
|----------|--|
| EQSpgm   | String containing path including program name where EQS is located (see details)   |
| EQSmodel | String containing path where .eqs script file is located (see details)   |
| serial   | EQS serial number as character   |
| Rmatrix  | Optional matrix argument if data or covariances are stored in R  |
| datname  | If data is specified, a filename (string) must be provided for saving the data in text format (blank separated; see details) |
| LEN      | Integer containing number of working array units. By default, it is 2000000 8 bytes units                                    |

### Details

If the path in EQSpgm and EQSmodel contains a blank, single quotes and double quotes are required in argument. See EQSpgm argument in examples. The last statement in the EQSpgm argument refers to the name of the executable program file. Under Windows it is ".../WINEQS" (referring to WINEQS.exe), under Mac ".../MACEQS" and under Linux ".../EQS". When specifying the path, use slash instead of backslash.

The .ETS, .CBK and .ETP files are written in the directory where the .eqs file is located. Unless another path is provided within in the .eqs script file.

The argument datname must match with the input data specified in the corresponding .eqs file.

### Value

Returns TRUE is the estimation was succesfully and FALSE otherwise.

### Author(s)

Patrick Mair, Eric Wu

### References

Bentler, P. M. (1995). EQS Program Manual. Encino, CA: Multivariate Software Inc.

**See Also**

[read.eq](#), [run.eq](#)

**Examples**

```
##not executable, valid serial number has to be provided
##res <- call.eq(EQSpgm = "C:/Program Files/EQS61/WINEQS.EXE", EQSmodel = "c:/eqs61/examples/manul7.eq", serial
```

---

read.eq

*Import of EQS outputs into R*

---

**Description**

This function reads EQS output files (.ets, .CBK and .ETP) into R and stores the results as objects.

**Usage**

```
read.eq(file)
```

**Arguments**

|      |   |
|------|---|
| file | The name (string) of the .ets file or the full path which the data are to be read from. If it does not contain an absolute path, the file name is relative to the current working directory, 'getwd()'. A .CBK and .ETP file have to be of the same name and in the same directory. |
|------|---|

**Details**

The value list below provides objects for the full EQS output. If in EQS some objects are not computed, the corresponding values in R are NA.

**Value**

Returns a list with the following objects:

|             |  |
|-------------|--|
| model.info  | General model information              |
| pval        | p-values for various test statistics   |
| fit.indices | Variuos fit indices                    |
| model.desc  | Descriptive measures                   |
| Phi         | Phi matrix                             |
| Gamma       | Gamma matrix                           |
| Beta        | Beta matrix                            |
| par.table   | Parameter table (with standard errors) |

|             |  |
|-------------|--|
| sample.cov  | Sample covariance matrix                                       |
| sigma.hat   | Model covariance matrix  |
| inv.infmat  | Inverse information matrix                                     |
| rinv.infmat | Robust inverse information matrix                              |
| cinv.infmat | Corrected inverse information matrix                           |
| derivatives | First derivatives  |
| moment4     | Matrix with 4th moments  |
| ssolution   | Standardized elements  |
| Rsquared    | R-squared measures   |
| fac.means   | Factor means   |
| var.desc    | Descriptive measures for the variables (univariate statistics) |
| indstd      | Independent variable standardization vector                    |
| depstd      | Dependent variable standardization vector                      |

**Author(s)**

Patrick Mair, Eric Wu

**References**

Bentler, P. M. (2008). EQS Program Manual. Encino, CA: Multivariate Software Inc.

**See Also**

[call.eqs](#), [run.eqs](#)

**Examples**

```
##not executable
##eqsout <- read.eqs("c:/home/user/eqs/eqsfile.ets")
```

---

run.eqs

*Run EQS from R*

---

**Description**

Calls an EQS script file from R, executes EQS, and imports the results into R. Basically it is a wrapper function of `call.eqs` and the subsequent `read.eqs`.

**Usage**

```
run.eqs(EQSpgm, EQSmodel, serial, Rmatrix = NA, datname = NA, LEN = 2000000)
```

### Arguments

|          |  |
|----------|--|
| EQSpgm   | String containing path where EQS is located (see details)  |
| EQSmodel | String containing path where .eqs script file is located (see details)   |
| serial   | EQS serial number as integer value   |
| Rmatrix  | Optional matrix argument if data or covariances are stored in R  |
| datname  | If data is specified, a filename (string) must be provided for saving the data in text format (blank separated; see details) |
| LEN      | Integer containing number of working array units. By default, it is 2000000 8 bytes units                                    |

### Details

If the path in EQSpgm and EQSmodel contains a blank, single quotes and double quotes are required in argument. See EQSpgm argument in examples. The last statement in the EQSpgm argument refers to the name of the executable program file. Under Windows it is ".../WINEQS" (referring to WINEQS.exe), under Mac ".../MACEQS" and under Linux ".../EQS". When specifying the path, use slash instead of backslash.

The .ETS, .CBK and .ETP files are written in the directory where the .eqs file is located. Note that these 3 files must be in the same directory than the .eqs file.

The argument datname must match with the input data specified in the corresponding .eqs file. This option can be used for simulations: Generate data in R, run eqs() on with the corresponding data argument, pick out the relevant return values.

The value list below provides objects for the full EQS output. If in EQS some objects are not computed, the corresponding values in R are NA.

### Value

Returns a list with the following objects:

|             |  |
|-------------|--|
| success     | TRUE if estimation was successful, FALSE otherwise |
| model.info  | General model information                          |
| pval        | p-values for various test statistics               |
| fit.indices | Variuos fit indices                                |
| model.desc  | Descriptive measures                               |
| Phi         | Phi matrix   |
| Gamma       | Gamma matrix                                       |
| Beta        | Beta matrix  |
| par.table   | Parameter table (with standard errors)             |
| sample.cov  | Sample covariance matrix                           |
| sigma.hat   | Model covariance matrix                            |
| inv.infmt   | Inverse information matrix                         |
| rinv.infmt  | Robust inverse information matrix                  |

|             |  |
|-------------|--|
| cinv.infmat | Corrected inverse information matrix                           |
| derivatives | First derivatives  |
| moment4     | Matrix with 4th moments  |
| ssolution   | Standardized elements  |
| Rsquared    | R-squared measures   |
| fac.means   | Factor means   |
| var.desc    | Descriptive measures for the variables (univariate statistics) |
| indstd      | Independent variable standardization vector                    |
| depstd      | Dependent variable standardization vector                      |

**Author(s)**

Patrick Mair, Eric Wu

**References**

Bentler, P. M. (1995). EQS Program Manual. Encino, CA: Multivariate Software Inc.

**See Also**

[read.eq](#), [call.eq](#)

**Examples**

```
##not executable, valid serial number has to be provided
##res <- run.eq(EQSpGM = "C:/Program Files/EQS61/WINEQS.EXE", EQSmodel = "c:/eqs61/examples/manul7.eq", serial

##For instance, to extract the parameter table you can do
##res$par.table

##simulation example: not executable, provide serial number and proper eqs script file
##simulated 100 replications, extract CFI
##cfivec <- NULL
##for (i in 1:100) {
##  X <- matrix(rnorm(1000), ncol = 10, nrow = 100)
##  res <- run.eq(EQSpGM = "C:/Program Files/EQS61/WINEQS.EXE", EQSmodel = "c:/eqs61/examples/manul7.eq", data
##  cfivec <- c(cfivec, res.run$fit.indices[9,])
##}
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