

# Package ‘mvsf’

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**Type** Package

**Title** Shapiro-Francia Multivariate Normality Test

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**Author** David Delmail

**Maintainer** David Delmail <david.delmail@wanadoo.fr>

**Description** Generalization of the Shapiro-Francia test for multivariate variables.

**License** GPL (>= 2)

**Depends** nortest,mvnormtest

**Repository** CRAN

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mvsf	<i>Shapiro-Francia Multivariate Normality Test</i>
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### Description

An extension of the Shapiro-Wilk multivariate normality test developed by Slawomir Jarek ([mshapiro.test](#)) to the Shapiro-Francia normality test.

### Usage

mvsf(m)

## Arguments

`m` a numeric matrix of data values, the number of which must be for each sample between 5 and 5000.

## Value

A list with class "htest" containing the following components:

`statistic` the value of the multivariate Shapiro-Francia statistic.  
`p.value` the p-value for the test.  
`method` the character string "Generalized Shapiro-Francia test for Multivariate Normality".  
`data.name` a character string giving the name of the data.

## Author(s)

David Delmail (<david.delmail@wanadoo.fr>)

## References

- Domanski C. (1998). Wlasnosci testu wielowymiarowej normalnosci Shapiro-Wilka i jego zastosowanie. Cracow University of Economics Rector's Lectures, 37.
- Jarek S. (2009). Shapiro-Wilk Multivariate Normality Test. Package mvnormtest. <http://cran.r-project.org/web/packages/mvnormtest/>
- Royston P. (1982). An extension of Shapiro and Wilk's test for normality to large samples. Applied Statistics, 31: 115-124.
- Royston P. (1993). A pocket-calculator algorithm for the Shapiro-Francia test for non-normality: an application to medicine. Statistics in Medicine, 12: 181-184.
- Shapiro S.S., Francia R.S. (1972). An approximate analysis of variance test for normality. Journal of the American Statistical Association, 67: 215-216.
- Thode Jr. H.C. (2002). Testing for Normality. Marcel Dekker (Ed.), New York.

## See Also

[sf.test](#) for univariate samples; [shapiro.test](#), [ad.test](#), [cvm.test](#), [lillie.test](#), [pearson.test](#) for performing further univariate tests for normality; [mshapiro.test](#) for performing another multivariate test for normality; [qqnorm](#) for producing a normal quantile-quantile plot.

## Examples

```
library(mvsf)
data(EuStockMarkets)

X <- t(EuStockMarkets[15:29,1:4])
mvsf(X)
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