Package 'ROpenFLUID'

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Type Package

Title Package for using OpenFLUID within the GNU R environment

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Description This package allows to load, parameterize, run and analyze OpenFLUID simulations within the GNU R environment

URL http://www.openfluid-project.org

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Depends R (>= 2.6.2)

Suggests RUnit

LazyLoad yes

R topics documented:

`OpenFLUID.addExtraObserversPaths`

Adds paths to search for observers

Description

Adds paths to search for observers

Usage

```
OpenFLUID.addExtraObserversPaths(paths)
```

Arguments

`paths`	the colon separated paths to add

See Also

OPENFLUID.getObserversPaths

OPENFLUID.getExtraObserversPaths

OPENFLUID.resetExtraObserversPaths

Examples

```
## Not run:
OPENFLUID.addExtraObserversPaths("/first/path/to/add")
OPENFLUID.addExtraObserversPaths("/second/path/to/add":/third/path/to/add")

## End(Not run)
```

OpenFLUID.addExtraSimulatorsPaths

Adds paths to search for simulators

Description

Adds paths to search for simulators

Usage

```
OpenFLUID.addExtraSimulatorsPaths(paths)
```

Arguments

paths	the colon separated paths to add

See Also

OpenFLUID.getSimulatorsPaths

OpenFLUID.getExtraSimulatorsPaths

OPENFLUID.resetExtraSimulatorsPaths

Examples

```
## Not run:
OpenFLUID.addExtraSimulatorsPaths("/first/path/to/add")
OpenFLUID.addExtraSimulatorsPaths("/second/path/to/add:/third/path/to/add")

## End(Not run)
```

`OpenFLUID.addVariablesExportAsCSV`
Adds export of simulation variables as CSV files for a given units class

---

Description

Adds export of simulation variables as CSV files for a given units class

Usage

```
OpenFLUID.addVariablesExportAsCSV(ofblob, unitclass)
```

Arguments

`ofblob`	the simulation definition blob
`unitclass`	the units class to add for simulation variables export

See Also

`OpenFLUID.loadResult`

Examples

```
## Not run:
OpenFLUID.addVariablesExportAsCSV("TU")
OpenFLUID.addVariablesExportAsCSV("RS")

## End(Not run)
```

`OpenFLUID.createAttribute`
Creates an attribute for all spatial units of a class, initialized with a default value

---

Description

Creates an attribute for all spatial units of a class, initialized with a default value

Usage

```
OpenFLUID.createAttribute(ofblob, unitclass, attrname, attrval)
```

Arguments

ofblob	the simulation definition blob
unitclass	the unit class
attrname	the attribute name
attrval	the default attribute value for alla units

See Also

OpenFLUID.getAttribute

OpenFLUID.setAttribute

OpenFLUID.removeAttribute

Examples

```
## Not run:
OpenFLUID.createAttribute(ofsim,"SU","area",1.0)
OpenFLUID.createAttribute(ofsim,"SU","code","NONE")

## End(Not run)
```

OpenFLUID.getAttribute

Returns an attribute value for a given spatial unit

Description

Returns an attribute value for a given spatial unit

Usage

```
OpenFLUID.getAttribute(ofblob, unitclass, unitid, attrname)
```

Arguments

ofblob	the simulation definition blob
unitclass	the unit class
unitid	the unit ID
attrname	the name of the attribute

Value

the attribute value

See Also

OpenFLUID.createAttribute

OpenFLUID.setAttribute

OpenFLUID.removeAttribute

Examples

```
## Not run:
val = OpenFLUID.getAttribute(ofsim,"SU",18,"length")

## End(Not run)
```

OpenFLUID.getDefaultDeltaT

Returns the simulation time step

Description

Returns the simulation time step

Usage

```
OpenFLUID.getDefaultDeltaT(ofblob)
```

Arguments

ofblob	the simulation definition blob

Value

the time step value in seconds

See Also

OpenFLUID.setDefaultDeltaT

Examples

```
## Not run:
deltat = OpenFLUID.getDefaultDeltaT(ofsim)

## End(Not run)
```

`OpenFLUID.getExtraObserversPaths`
Returns the added paths to search for observers

Description

Returns the added paths to search for observers

Usage

```
OpenFLUID.getExtraObserversPaths()
```

Value

a vector of paths

See Also

`OpenFLUID.addExtraObserversPaths`

`OpenFLUID.getObserversPaths`

`OPENFLUID.resetExtraObserversPaths`

Examples

```
## Not run:
paths = OpenFLUID.getExtraObserversPaths()

## End(Not run)
```

`OpenFLUID.getExtraSimulatorsPaths`
Returns the added paths to search for simulators

Description

Returns the added paths to search for simulators

Usage

```
OpenFLUID.getExtraSimulatorsPaths()
```

Value

a vector of paths

See Also

`OpenFLUID.addExtraSimulatorsPaths`

`OpenFLUID.getSimulatorsPaths`

`OPENFLUID.resetExtraSimulatorsPaths`

Examples

```
## Not run:
paths = OpenFLUID.getExtraSimulatorsPaths()

## End(Not run)
```

`OpenFLUID.getGeneratorParam`

Returns a generator parameter value

Description

Returns a generator parameter value

Usage

```
OpenFLUID.getGeneratorParam(ofblob, unitclass, varname, paramname)
```

Arguments

`ofblob`	the simulation definition blob
`unitclass`	the unit class to which the generator is applied
`varname`	the variable name to which the generator is applied
`paramname`	the name of the parameter

Value

the parameter value

See Also

`OpenFLUID.setGeneratorParam`

Examples

```
## Not run:
val = OpenFLUID.getGeneratorParam(ofsim,"SU","var.flux","fixedvalue")

## End(Not run)
```

`OpenFLUID.getModelGlobalParam`

Returns a model global parameter value

Description

Returns a model global parameter value

Usage

```
OpenFLUID.getModelGlobalParam(ofblob, paramname)
```

Arguments

`ofblob`	the simulation definition blob
`paramname`	the name of the parameter

Value

the parameter value

See Also

`OpenFLUID.setModelGlobalParam`

`OpenFLUID.removeModelGlobalParam`

Examples

```
## Not run:
val = OpenFLUID.getModelGlobalParam(ofsim,"gvalue")

## End(Not run)
```

`OpenFLUID.getObserverParam`

Returns an observer parameter value

Description

Returns an observer parameter value

Usage

```
OpenFLUID.getObserverParam(ofblob, obsid, paramname)
```

Arguments

ofblob	the simulation definition blob
obsid	the observer ID
paramname	the name of the parameter

Value

the parameter value

See Also

OpenFLUID.setObserverParam

OpenFLUID.removeObserverParam

Examples

```
## Not run:
val = OpenFLUID.getObserverParam(ofsim,"my.observer","value")

## End(Not run)
```

OpenFLUID.getObserversPaths

Returns the paths to search for observers

Description

Returns the paths to search for observers

Usage

```
OpenFLUID.getObserversPaths()
```

Value

a vector of paths

See Also

OpenFLUID.addExtraObserversPaths

OpenFLUID.getExtraObserversPaths

OPENFLUID.resetExtraObserversPaths

Examples

```
## Not run:
paths = OpenFLUID.getObserversPaths()

## End(Not run)
```

`OpenFLUID.getPeriodBeginDate`
Returns the simulation period begin date

Description

Returns the simulation period begin date

Usage

```
OpenFLUID.getPeriodBeginDate(ofblob)
```

Arguments

`ofblob`	the simulation definition blob

Value

the begin date as an ISO datetime string (%Y-%m-%d %H:%M:%S)

See Also

`OpenFLUID.setPeriodBeginDate`

`OpenFLUID.getPeriodEndDate`

`OpenFLUID.setPeriodEndDate`

Examples

```
## Not run:
bdate = OpenFLUID.getPeriodBeginDate(ofsim)

## End(Not run)
```

`OpenFLUID.getPeriodEndDate`

Returns the simulation period end date

Description

Returns the simulation period end date

Usage

```
OpenFLUID.getPeriodEndDate(ofblob)
```

Arguments

`ofblob`	the simulation definition blob

Value

the end date as an ISO datetime string (%Y-%m-%d %H:%M:%S)

See Also

`OpenFLUID.setPeriodEndDate`

`OpenFLUID.getPeriodBeginDate`

`OpenFLUID.setPeriodBeginDate`

Examples

```
## Not run:
edate = OpenFLUID.getPeriodEndDate(ofsim)

## End(Not run)
```

`OpenFLUID.getSimulatorParam`

Returns a simulator parameter value

Description

Returns a simulator parameter value

Usage

```
OpenFLUID.getSimulatorParam(ofblob, simid, paramname)
```

Arguments

`ofblob`	the simulation definition blob
`simid`	the simulator ID
`paramname`	the name of the parameter

Value

the parameter value

See Also

`OpenFLUID.setSimulatorParam`

`OpenFLUID.removeSimulatorParam`

Examples

```
## Not run:
val = OpenFLUID.getSimulatorParam(ofsim,"my.simulator","coeff")

## End(Not run)
```

`OpenFLUID.getSimulatorsPaths`

Returns the paths to search for simulators

Description

Returns the paths to search for simulators

Usage

```
OpenFLUID.getSimulatorsPaths()
```

Value

a vector of paths

See Also

`OpenFLUID.addExtraSimulatorsPaths`

`OpenFLUID.getExtraSimulatorsPaths`

`OPENFLUID.resetExtraSimulatorsPaths`

Examples

```
## Not run:
paths = OpenFLUID.getSimulatorsPaths()

## End(Not run)
```

`OpenFLUID.getUnitsClasses`
Returns the existing units classes

Description

Returns the existing units classes

Usage

```
OpenFLUID.getUnitsClasses(ofblob)
```

Arguments

`ofblob`	the simulation definition blob

Value

a vector of units classes

See Also

`OpenFLUID.getUnitsIDs`

Examples

```
## Not run:
cls = OpenFLUID.getUnitsClasses(ofsim)

## End(Not run)
```

`OpenFLUID.getUnitsIDs`

Returns the existing units IDs for a given units class

Description

Returns the existing units IDs for a given units class

Usage

```
OpenFLUID.getUnitsIDs(ofblob, unitclass)
```

Arguments

`ofblob`	the simulation definition blob
`unitclass`	the units class

Value

a vector of units IDs

See Also

`OpenFLUID.getUnitsClasses`

Examples

```
## Not run:
ids = OpenFLUID.getUnitsIDs(ofsim,"SU")

## End(Not run)
```

`OpenFLUID.getVersion`

Returns the OpenFLUID version

Description

Returns the OpenFLUID version

Usage

```
OpenFLUID.getVersion()
```

Value

the OpenFLUID version number

Examples

```
## Not run:
v = OpenFLUID.getVersion()

## End(Not run)
```

`OpenFLUID.loadResult`
Loads results as a dataframe, giving dataset informations

Description

Loads results as a dataframe, giving dataset informations

Usage

```
OpenFLUID.loadResult(ofblob, unitclass, unitid, varname)
```

Arguments

`ofblob`	the simulation definition blob
`unitclass`	the unit class
`unitid`	the unit ID
`varname`	the variable name

Value

a dataframe containing the simulation results

See Also

`OpenFLUID.loadResultFile`

Examples

```
## Not run:
resSU18 = OpenFLUID.loadResult(ofsim,"SU",18,"runoff")
resRS1 = OpenFLUID.loadResult(ofsim,"RS",1,"waterlevel")

## End(Not run)
```

OpenFLUID.loadResultFile

Loads results as a dataframe, giving output file name

Description

Loads results as a dataframe, giving output file name

Usage

```
OpenFLUID.loadResultFile(filepath)
```

Arguments

filepath	the full path of file to load

Value

a dataframe containing the simulation results

See Also

OpenFLUID.loadResult

Examples

```
## Not run:
resSU18 = OpenFLUID.loadResultFile("/path/to/output/SU18_full.out")
resRS1 = OpenFLUID.loadResultFile("/path/to/output/RS1_waterlevel.out")

## End(Not run)
```

OpenFLUID.openDataset

Opens a dataset and returns a simulation definition blob

Description

Opens a dataset and returns a simulation definition blob

Usage

```
OpenFLUID.openDataset(path)
```

Arguments

path	the full path of the dataset to open

Value

a simulation definition blob

See Also

`OpenFLUID.openProject`

`OpenFLUID.runSimulation`

Examples

```
## Not run:
ofsim = OpenFLUID.openDataset("/path/to/dataset")

## End(Not run)
```

`OpenFLUID.openProject`

Opens a project and returns a simulation definition blob

Description

Opens a project and returns a simulation definition blob

Usage

```
OpenFLUID.openProject(path)
```

Arguments

`path`	the full project to open

Value

a simulation definition blob

See Also

`OpenFLUID.openDataset`

`OpenFLUID.runProject`

Examples

```
## Not run:
ofsim = OpenFLUID.openProject("/path/to/project")

## End(Not run)
```

OpenFLUID.printSimulationInfo

Prints informations to screen about simulation definition blob

Description

Prints informations to screen about simulation definition blob

Usage

```
OpenFLUID.printSimulationInfo(ofblob)
```

Arguments

ofblob	the simulation definition blob

Examples

```
## Not run:
OpenFLUID.printSimulationInfo(ofsim)

## End(Not run)
```

OpenFLUID.removeAttribute

Removes an attribute value for a given spatial unit

Description

Removes an attribute value for a given spatial unit

Usage

```
OpenFLUID.removeAttribute(ofblob, unitclass, attrname)
```

Arguments

ofblob	the simulation definition blob
unitclass	the unit class
attrname	the name of the attribute

See Also

OpenFLUID.createAttribute
OpenFLUID.getAttribute
OpenFLUID.setAttribute

Examples

```
## Not run:
OpenFLUID.removeAttribute(ofsim,"SU","length")

## End(Not run)
```

`OpenFLUID.removeModelGlobalParam`
Removes a model global parameter value

Description

Removes a model global parameter value

Usage

```
OpenFLUID.removeModelGlobalParam(ofblob, paramname)
```

Arguments

`ofblob`	the simulation definition blob
`paramname`	the name of the parameter

See Also

`OpenFLUID.getModelGlobalParam`

`OpenFLUID.setModelGlobalParam`

Examples

```
## Not run:
OpenFLUID.removeModelGlobalParam(ofsim,"gvalue")

## End(Not run)
```

OpenFLUID.removeObserverParam

Removes a observer parameter

Description

Removes a observer parameter

Usage

```
OpenFLUID.removeObserverParam(ofblob, obsid, paramname)
```

Arguments

ofblob	the simulation definition blob
obsid	the simulation observer id
paramname	the name of the parameter

See Also

OpenFLUID.getObserverParam

OpenFLUID.setObserverParam

Examples

```
## Not run:
OpenFLUID.removeObserverParam(ofsim,"my.observer","value")

## End(Not run)
```

OpenFLUID.removeSimulatorParam

Removes a simulator parameter

Description

Removes a simulator parameter

Usage

```
OpenFLUID.removeSimulatorParam(ofblob, simid, paramname)
```

Arguments

ofblob	the simulation definition blob
simid	the simulation simulator id
paramname	the name of the parameter

See Also

OpenFLUID.getSimulatorParam

OpenFLUID.setSimulatorParam

Examples

```
## Not run:
OpenFLUID.removeSimulatorParam(ofsim,"my.simulator","coeff")

## End(Not run)
```

OpenFLUID.resetExtraObserversPaths

Resets list of added paths to search for observers

Description

Resets list of added paths to search for observers

Usage

```
OpenFLUID.resetExtraObserversPaths()
```

See Also

OPENFLUID.addExtraObserversPaths

OPENFLUID.getObserversPaths

OPENFLUID.getExtraObserversPaths

Examples

```
## Not run:
OPENFLUID.resetExtraObserversPaths()

## End(Not run)
```

`OpenFLUID.resetExtraSimulatorsPaths`
Resets list of added paths to search for simulators

Description

Resets list of added paths to search for simulators

Usage

```
OpenFLUID.resetExtraSimulatorsPaths()
```

See Also

`OPENFLUID.addExtraSimulatorsPaths`

`OPENFLUID.getSimulatorsPaths`

`OPENFLUID.getExtraSimulatorsPaths`

Examples

```
## Not run:
OPENFLUID.resetExtraSimulatorsPaths()

## End(Not run)
```

`OpenFLUID.runProject`
Runs a project and returns a simulation definition blob

Description

Runs a project and returns a simulation definition blob

Usage

```
OpenFLUID.runProject(path)
```

Arguments

`path`	the full path of the dataset to open

Value

a simulation definition blob

See Also

`OpenFLUID.runSimulation`

`OpenFLUID.openProject`

Examples

```
## Not run:
ofsim = OpenFLUID.runProject("/path/to/dataset")

## End(Not run)
```

`OpenFLUID.runSimulation` *Runs a simulation from a simulation definition blob*

Description

Runs a simulation from a simulation definition blob

Usage

```
OpenFLUID.runSimulation(ofblob)
```

Arguments

`ofblob`	the simulation definition blob

See Also

`OpenFLUID.runProject`

`OpenFLUID.openProject`

`OpenFLUID.openDataset`

Examples

```
## Not run:
OpenFLUID.runSimulation(ofsim)

## End(Not run)
```

`OpenFLUID.setAttribute`

Sets an attribute value for a given spatial unit

Description

Sets an attribute value for a given spatial unit

Usage

```
OpenFLUID.setAttribute(ofblob, unitclass, unitid, attrname, attrval)
```

Arguments

`ofblob`	the simulation definition blob
`unitclass`	the unit class
`unitid`	the unit ID
`attrname`	the name of the attribute
`attrval`	the value of the attribute

See Also

`OpenFLUID.createAttribute`

`OpenFLUID.getAttribute`

`OpenFLUID.removeAttribute`

Examples

```
## Not run:
OpenFLUID.setAttribute(ofsim,"SU",18,"length",12.3)
OpenFLUID.setAttribute(ofsim,"SU",18,"CODE","ABC")

## End(Not run)
```

`OpenFLUID.setCurrentOutputDir`

Sets the current output directory for simulations

Description

Sets the current output directory for simulations

Usage

```
OpenFLUID.setCurrentOutputDir(path)
```

Arguments

path	the output directory path

Examples

```
## Not run:
OpenFLUID.setCurrentOutputDir("/path/to/output")

## End(Not run)
```

OpenFLUID.setDefaultDeltaT

Sets the simulation time step

Description

Sets the simulation time step

Usage

```
OpenFLUID.setDefaultDeltaT(ofblob, deltat)
```

Arguments

ofblob	the simulation definition blob
deltat	the time step value in seconds

See Also

OpenFLUID.getDefaultDeltaT

Examples

```
## Not run:
OpenFLUID.setDefaultDeltaT(60)
OpenFLUID.setDefaultDeltaT(86400)

## End(Not run)
```

OpenFLUID.setGeneratorParam

Sets a generator parameter value

Description

Sets a generator parameter value

Usage

```
OpenFLUID.setGeneratorParam(ofblob, unitclass, varname, paramname, paramval)
```

Arguments

ofblob	the simulation definition blob
unitclass	the unit class to which the generator is applied
varname	the variable name to which the generator is applied
paramname	the name of the parameter
paramval	the value of the parameter

See Also

OpenFLUID.getGeneratorParam

Examples

```
## Not run:
OpenFLUID.setGeneratorParam(ofsim,"SU","var.flux","fixedvalue",12.3)

## End(Not run)
```

OpenFLUID.setModelGlobalParam

Sets a model global parameter value

Description

Sets a model global parameter value

Usage

```
OpenFLUID.setModelGlobalParam(ofblob, paramname, paramval)
```

Arguments

ofblob	the simulation definition blob
paramname	the name of the parameter
paramval	the value of the parameter

See Also

OpenFLUID.getModelGlobalParam

OpenFLUID.removeModelGlobalParam

Examples

```
## Not run:
OpenFLUID.setModelGlobalParam(ofsim,"gvalue",37.2)

## End(Not run)
```

OpenFLUID.setObserverParam

Sets an observer parameter value

Description

Sets an observer parameter value

Usage

```
OpenFLUID.setObserverParam(ofblob, obsid, paramname, paramval)
```

Arguments

ofblob	the simulation definition blob
obsid	the simulation observer id
paramname	the name of the parameter
paramval	the parameter value

See Also

OpenFLUID.getObserverParam

OpenFLUID.removeObserverParam

Examples

```
## Not run:
OpenFLUID.setObserverParam(ofsim,"my.observer","value",3)

## End(Not run)
```

OpenFLUID.setPeriodBeginDate

Sets the simulation period begin date

Description

Sets the simulation period begin date

Usage

```
OpenFLUID.setPeriodBeginDate(ofblob, begindate)
```

Arguments

ofblob	the simulation definition blob
begindate	the begin date as an ISO datetime string (%Y-%m-%d %H:%M:%S)

See Also

OpenFLUID.getPeriodBeginDate

OpenFLUID.setPeriodEndDate

OpenFLUID.getPeriodEndDate

Examples

```
## Not run:
OpenFLUID.setPeriodBeginDate(ofsim,"1997-06-05 04:00:00")

## End(Not run)
```

OpenFLUID.setPeriodEndDate

Sets the simulation period end date

Description

Sets the simulation period end date

Usage

```
OpenFLUID.setPeriodEndDate(ofblob, enddate)
```

Arguments

ofblob	the simulation definition blob
enddate	the end date as an ISO datetime string (%Y-%m-%d %H:%M:%S)

See Also

OpenFLUID.getPeriodEndDate

OpenFLUID.setPeriodBeginDate

OpenFLUID.getPeriodBeginDate

Examples

```
## Not run:
OpenFLUID.setPeriodEndDate(ofsim,"1997-06-05 16:07:17")

## End(Not run)
```

OpenFLUID.setSimulatorParam

Sets a simulator parameter value

Description

Sets a simulator parameter value

Usage

```
OpenFLUID.setSimulatorParam(ofblob, simid, paramname, paramval)
```

Arguments

ofblob	the simulation definition blob
simid	the simulation simulator id
paramname	the name of the parameter
paramval	the parameter value

See Also

OpenFLUID.getSimulatorParam

OpenFLUID.removeSimulatorParam

Examples

```
## Not run:
OpenFLUID.setSimulatorParam(ofsim,"my.simulator","coeff",3)

## End(Not run)
```

ROpenFLUID *Package for using OpenFLUID within the GNU R environment*

Description

This package allows to load, parameterize, run and analyze OpenFLUID simulations within the GNU R environment

Details

Package:	ROpenFLUID
Type:	Package
Version:	
Date:	
License:	GPLv3 with special exception
LazyLoad:	yes

Author(s)

Jean-Christophe Fabre <fabrejc@supagro.inra.fr>

Examples

```
## Not run:
# load OpenFLUID library
library("ROpenFLUID")

# add optional paths to search for simulators
OpenFLUID.addExtraSimulatorsPaths("/path/to/simulators")

# open an input dataset
ofsim = OpenFLUID.openDataset("/path/to/dataset")

# set the output dir
OpenFLUID.setCurrentOutputDir("/path/to/output")

# run the simulation
OpenFLUID.runSimulation(ofsim)

## End(Not run)
```