Package ‘rsyncrosim’

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Type Package
Title The R Interface to 'SyncroSim'
Version 1.2.4
Description 'SyncroSim' is a generalized framework for managing scenario-based datasets (<https://syncrosim.com/>). 'rsyncrosim' provides an interface to 'SyncroSim'. Simulation models can be added to 'SyncroSim' in order to transform these datasets, taking advantage of general features such as defining scenarios of model inputs, running Monte Carlo simulations, and summarizing model outputs. 'rsyncrosim' requires 'SyncroSim' 2.2.13 or higher (API documentation: <http://docs.syncrosim.com/>).
License MIT + file LICENSE
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   'addPackageFile.R' 'addRow.R' 'addon.R' 'backup.R'
   'basePackage.R' 'breakpoint.R' 'command.R' 'datasheet.R'
   'datasheetRaster.R' 'dateModified.R' 'delete.R'
   'deleteModule.R' 'deletePackage.R' 'dependency.R'
   'description.R' 'disableAddon.R' 'enableAddon.R' 'filepath.R'
   'info.R' 'internalHelpers.R' 'name.R' 'scenarioId.R'
   'projectId.R' 'sqlStatement.R' 'scenario.R' 'project.R'
   'ssimLibrary.R' 'session.R' 'internalWrappers.R'
   'mergeDependencies.R' 'model.R' 'module.R' 'owner.R'
   'package.R' 'parentId.R' 'print.R' 'printCmd.R' 'readOnly.R'
   'rsyncrosim.R' 'run.R' 'runLog.R' 'saveDatasheet.R' 'silent.R'
   'ssimEnvironment.R' 'ssimUpdate.R' 'updatePackage.R'
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addBreakpoint

Add a Scenario breakpoint.

Description

When the Scenario is run the breakpoint’s callback function will be called for the specified iterations or timesteps.
Usage

addBreakpoint(x, transformerName, breakpointType, arguments, callback)

## S4 method for signature 'Scenario'
addBreakpoint(x, transformerName, breakpointType, arguments, callback)

Arguments

- x: A SyncroSim Scenario
- transformerName: A Stochastic Time Transformer (e.g. stsim_Runtime)
- breakpointType: bi: before iteration; ai: after iteration; bt: before timestep; at: after timestep
- arguments: A vector of timesteps or iterations e.g. c(1,2)
- callback: A function to be called when the breakpoint is hit

Details

Breakpoints are only supported for Stochastic Time Transformers.

Value

A SyncroSim Scenario with an updated list of breakpoints

Examples

```r
callbackFunction <- function(x, iteration, timestep) {
  print(paste0("Breakpoint hit: ", scenarioId(x)))
}

temp_dir <- tempdir()
myses <- session()
mylib <- ssimLibrary(name = file.path(temp_dir,"testlib"), session = myses)
myScenario <- scenario(mylib, "testScenario")

myScenario <- addBreakpoint(x= myScenario, transformerName= "stsim_Runtime", breakpointType = "bi",
arguments = c(1,2), callback = callbackFunction)
```

Description

Add module or modules to SyncroSim Deprecated. See: addPackage and addPackageFile
**Usage**

```
addModule(filename, session = NULL)
```

```r
## S4 method for signature 'character'
addModule(filename, session = NULL)
```

**Arguments**

- **filename**: Character string or vector of these. The path to an .ssimpkg file on disk, or a vector of filepaths.
- **session**: Session.

**Value**

Deprecated: produces a error.

---

addon(s) of an SsimLibrary or Session

---

**Description**

The addon(s) of an SsimLibrary or Session.

**Usage**

```
addon(ssimObject)
```

```r
## S4 method for signature 'character'
addon(ssimObject)
```

```r
## S4 method for signature 'missingOrNULL'
addon(ssimObject)
```

```r
## S4 method for signature 'Session'
addon(ssimObject)
```

```r
## S4 method for signature 'SsimObject'
addon(ssimObject)
```

**Arguments**

- **ssimObject**: SsimLibrary/Project/Scenario or Session.

**Value**

A dataframe of addons.
Examples

```r
temp_dir <- tempdir()
myses <- session()
myLibrary <- ssimLibrary(name = file.path(temp_dir,"testlib"), session = myses)
addon(myLibrary)
```

<table>
<thead>
<tr>
<th>addPackage</th>
<th>Adds a package to SyncroSim</th>
</tr>
</thead>
</table>

Description

Adds a package to SyncroSim. This function will query the syncrosim package server for the package name provided as input.

Usage

```r
addPackage(name, session = NULL)
```

## S4 method for signature 'ANY,character'
```r
addPackage(name, session = NULL)
```

## S4 method for signature 'ANY,missingOrNULL'
```r
addPackage(name, session = NULL)
```

## S4 method for signature 'ANY,Session'
```r
addPackage(name, session = NULL)
```

Arguments

- **name**: Character string. The name of the package to install.
- **session**: Session.

Value

This function will invisibly return ‘TRUE’ upon success (i.e. successful install) and ‘FALSE’ upon failure.
addPackageFile

Description

Adds a package to SyncroSim from a package file.

Usage

addPackageFile(filename, session = NULL)

Arguments

filename Character string. The path to a SyncroSim package file.
session Session.

Value

This function invisibly returns ‘TRUE’ upon success (i.e. successful install) and ‘FALSE’ upon failure.

addRow

Description

Adds row(s) to a dataframe.

Usage

addRow(targetDataframe, value)

Arguments

targetDataframe
value
Arguments

- **targetDataframe**
  - Dataframe.

- **value**
  - Dataframe, character string vector, or list. Columns in value should be a subset of columns in targetDataframe.

Details

Preserves the types and factor levels of the targetDataframe. Fills missing values if possible using factor levels. If value is a named vector or list, it will be converted to a single row dataframe. If value is an unnamed vector or list, the number of elements should equal the number of columns in the targetDataframe; elements are assumed to be in same order as dataframe columns.

Value

A dataframe with new rows.

Backup an SsimLibrary.

Usage

```r
backup(ssimObject)
```

## S4 method for signature 'character'
```r
backup(ssimObject)
```

## S4 method for signature 'SsimObject'
```r
backup(ssimObject)
```

Arguments

- **ssimObject**
  - SsimLibrary/Project/Scenario.

Value

This function invisibly returns ‘TRUE’ upon success (i.e. successful backup) and ‘FALSE’ upon failure.
**basePackage**

---

### Description

Base packages installed with this version of SyncroSim

### Usage

```r
basePackage(ssimObject = NULL)
```

#### S4 method for signature 'character'

```r
basePackage(ssimObject = NULL)
```

#### S4 method for signature 'missingOrNULL'

```r
basePackage(ssimObject = NULL)
```

#### S4 method for signature 'Session'

```r
basePackage(ssimObject = NULL)
```

#### S4 method for signature 'SsimLibrary'

```r
basePackage(ssimObject = NULL)
```

### Arguments

- `ssimObject` Session or SsimLibrary.

### Value

A dataframe of base packages (for Session) or named vector of character strings (for SsimLibrary)

---

**breakpoint**

---

### Description

Lists the breakpoints for a Scenario.

### Usage

```r
breakpoint()
```

#### S4 method for signature 'Scenario'

```r
breakpoint()
```
command

Arguments

- A SyncroSim Scenario

Value

Does not return anything, used for printing purposes.

command

| command | SyncroSim console command |

Description

Issues a command to the SyncroSim console and returns the output.

Usage

command(args, session = NULL, program = "SyncroSim.Console.exe", wait = TRUE)

Arguments

- args: Character string, named list, named vector, unnamed list, or unnamed vector. Arguments for the SyncroSim console. See details.
- session: Session. If NULL, a default session will be used.
- program: Character. The name of the target SyncroSim executable. Options include SyncroSim.Console.exe (default), SyncroSim.Server.exe, SyncroSim.PackageManager.exe and SyncroSim.Multiband.exe.
- wait: Logical. If TRUE (default) R will wait for the command to finish before proceeding. Note that silent(session) is ignored if wait=FALSE.

Details

Example args, and the resulting character string passed to the SyncroSim console:

- Character string e.g. "--create --help": "--create --help"
- Named list or named vector e.g. list(name1=NULL,name2=value2): "--name1 --name2=value2"
- Unnamed list or unnamed vector e.g. c("create","help"): "--create --help"

Value

A character string, output from the SyncroSim program.
Examples

# Use a default session to create a new library in the current working directory.
args <- list(create = NULL, library = NULL,
           name = paste0(tempdir(), "/temp.ssim"),
           package = "stsim")
output <- command(args, session = session(printCmd = TRUE))
output

# Three different ways to provide args to command
command(c("create", "help"))
command("--create --help")
command(list(create = NULL, help = NULL))


datasheet Get a datasheet

Description

Retrieves a SyncroSim datasheet.

Usage

datasheet(
  ssimObject,
  name = NULL,
  project = NULL,
  scenario = NULL,
  summary = NULL,
  optional = FALSE,
  empty = FALSE,
  lookupsAsFactors = TRUE,
  sqlStatement = list(select = "SELECT *", groupBy = ""),
  includeKey = FALSE,
  forceElements = FALSE,
  fastQuery = FALSE
)

## S4 method for signature 'list'
datasheet(
  ssimObject,
  name = NULL,
  project = NULL,
  scenario = NULL,
  summary = NULL,
  optional = FALSE,
  empty = FALSE,
datasheet

lookupsAsFactors = TRUE,
sqlStatement = list(select = "SELECT *", groupBy = ""),
includeKey = FALSE,
forceElements = FALSE,
fastQuery = FALSE
)

## S4 method for signature 'character'
datasheet(
  ssimObject,
  name,
  project,
  scenario,
  summary,
  optional,
  empty,
  lookupsAsFactors,
  sqlStatement,
  includeKey,
  fastQuery
)

## S4 method for signature 'SsimObject'
datasheet(
  ssimObject,
  name = NULL,
  project = NULL,
  scenario = NULL,
  summary = NULL,
  optional = FALSE,
  empty = FALSE,
  lookupsAsFactors = TRUE,
  sqlStatement = list(select = "SELECT *", groupBy = ""),
  includeKey = FALSE,
  forceElements = FALSE,
  fastQuery = FALSE
)

Arguments

ssimObject  SsimLibrary/Project/Scenario, or list of objects. Note that all objects in a list must be of the same type, and belong to the same library.

name  Character or vector of these. Sheet name(s). If NULL, all datasheets in the ssimObject will be returned. Note that setting summary=FALSE and name=NULL pulls all datasheets, which is timeconsuming and not generally recommended.

project  Character, numeric, or vector of these. One or more Project names, ids or objects. Note that integer ids are slightly faster.
scenario Character, numeric, or vector of these. One or more Scenario names, ids or objects. Note that integer ids are slightly faster.

summary Logical. If TRUE returns a dataframe of sheet names and other info. If FALSE returns dataframe or list of dataframes.

optional Logical. If summary=TRUE and optional=TRUE returns only scope, name and displayName. If summary=FALSE and optional=TRUE returns all of the datasheet’s columns, including the optional columns. If summary=TRUE, optional=FALSE, returns only those columns that are mandatory and contain data (if empty=FALSE). Ignored if summary=FALSE, empty=FALSE and lookupsAsFactors=FALSE.

empty Logical. If TRUE returns empty dataframes for each datasheet. Ignored if summary=TRUE.

lookupsAsFactors Logical. If TRUE (default) dependencies returned as factors with allowed values (levels). Set FALSE to speed calculations. Ignored if summary=TRUE.

sqlStatement List returned by sqlStatement(). SELECT and GROUP BY SQL statements passed to SQLite database. Ignored if summary=TRUE.

includeKey Logical. If TRUE include primary key in table.

forceElements Logical. If FALSE and name has a single element returns a dataframe; otherwise a list of dataframes. Ignored if summary=TRUE.

fastQuery Logical. If TRUE, the request is optimized for performance. Ignored if combined with summary, empty, or sqlStatement flags.

Details

If summary=TRUE or summary=NULL and name=NULL a dataframe describing the datasheets is returned: If optional=TRUE columns include: scope, package, name, displayName, isSingle, isOutput, data. data only displayed for scenarios. dataInherited and dataSource columns added if a scenario has dependencies. If optional=FALSE columns include: scope, name, displayName. All other arguments are ignored.

Otherwise, for each element in name a datasheet is returned as follows:

- If lookupsAsFactors=TRUE (default): Each column is given the correct data type, and dependencies returned as factors with allowed values (levels). A warning is issued if the lookup has not yet been set.
- If empty=TRUE: Each column is given the correct data type. Fast (1 less console command)
- If empty=FALSE and lookupsAsFactors=FALSE: Column types are not checked, and the optional argument is ignored. Fast (1 less console command).
- If ssimObject is a list of Scenario or Project objects (output from run(), scenario() or project()): Adds ScenarioID/ProjectID column if appropriate.
- If scenario/project is a vector: Adds ScenarioID/ProjectID column as necessary.
- If requested datasheet has scenario scope and contains info from more than one scenario: ScenarioID/ScenarioName/ScenarioParent columns identify the scenario by name, id, and parent (if a result scenario)
- If requested datasheet has project scope and contains info from more than one project: ProjectID/ProjectName columns identify the project by name and id.
Value

If summary=TRUE returns a dataframe of datasheet names and other info, otherwise returns a
dataframe or list of these.

datasheetRaster

Get spatial inputs or outputs from a Scenario(s).

Description

Get spatial inputs or outputs from one or more SyncroSim scenarios.

Usage

datasheetRaster(
  ssimObject,
  datasheet,
  column = NULL,
  scenario = NULL,
  iteration = NULL,
  timestep = NULL,
  subset = NULL,
  forceElements = FALSE
)

## S4 method for signature 'character'
datasheetRaster(
  ssimObject,
  datasheet,
  column = NULL,
  scenario = NULL,
  iteration = NULL,
  timestep = NULL,
  subset = NULL,
  forceElements = FALSE
)

## S4 method for signature 'list'
datasheetRaster(
  ssimObject,
  datasheet,
  column = NULL,
  scenario = NULL,
  iteration = NULL,
  timestep = NULL,
  subset = NULL,
  forceElements = FALSE
)
## S4 method for signature 'SsimObject'

datasheetRaster(
  ssimObject,
  datasheet,
  column = NULL,
  scenario = NULL,
  iteration = NULL,
  timestep = NULL,
  subset = NULL,
  forceElements = FALSE
)

## S4 method for signature 'Scenario'

datasheetRaster(
  ssimObject,
  datasheet,
  column = NULL,
  scenario = NULL,
  iteration = NULL,
  timestep = NULL,
  subset = NULL,
  forceElements = FALSE
)

### Arguments

- **ssimObject**: SsimLibrary/Project/Scenario or list of Scenarios. If SsimLibrary/Project, then scenario argument is required.
- **datasheet**: character string. The name of the datasheet containing the raster data.
- **column**: character string. The name of the column in the datasheet containing the filenames for raster data. If NULL then use the first column that contains raster filenames.
- **scenario**: character string, integer, or vector of these. The scenarios to include. Required if ssimObject is an SsimLibrary/Project, ignored if ssimObject is a list of Scenarios.
- **iteration**: integer, character string, or vector of integer/character strings. Iteration(s) to include. If NULL then all iterations are included. If no Iteration column in the datasheet, then ignored.
- **timestep**: integer, character string, or vector of integer/character string. Timestep(s) to include. If NULL then all timesteps are included. If no Timestep column in the datasheet, then ignored.
- **subset**: logical expression. logical expression indicating datasheet rows to return. e.g. expression(grepl("Ts0001",Filename,fixe=d=T)). See subset() for details.
- **forceElements**: logical. If TRUE then returns a single raster as a RasterStack; otherwise returns a single raster as a RasterLayer directly.
Details

The names() of the returned raster stack contain metadata. For datasheets without Filename this is: `paste0(<datasheet name>,".Scn",<scenario id>",,"<tif name>)` For datasheets containing Filename this is: `paste0(<datasheet name>,".Scn",<scenario id>,".It",<iteration>,".Ts",<timestep>)`

Value

A RasterLayer, RasterStack or RasterBrick object. See raster package documentation for details.

Examples

```
## Not run:  
## Not run as it would require a result scenario (long runtime)  
datasheetRaster(myResult,  
  datasheet = "OutputSpatialState",  
  subset = expression(grepl("Ts0001", Filename, fixed = TRUE))  
)
## End(Not run)
```

---

**dateModified**

The last date a SsimLibrary/Project/Scenario was modified.

Description

The most recent modification date of an SsimLibrary/Project/Scenario

Usage

```
dateModified(ssimObject)
```

```
## S4 method for signature 'character'
dateModified(ssimObject)
```

```
## S4 method for signature 'SsimLibrary'
dateModified(ssimObject)
```

```
## S4 method for signature 'Project'
dateModified(ssimObject)
```

```
## S4 method for signature 'Scenario'
dateModified(ssimObject)
```

Arguments

ssimObject SsimLibrary/Project/Scenario.
Value

A character string of the date and time of the most recent modification to the ssimObject provided as input.

Description

Deletes one or more items. Note this is irreversible

Usage

delete(
    ssimObject,
    project = NULL,
    scenario = NULL,
    datasheet = NULL,
    force = FALSE
)

## S4 method for signature 'character'

delete(
    ssimObject,
    project = NULL,
    scenario = NULL,
    datasheet = NULL,
    force = FALSE
)

## S4 method for signature 'SsimObject'

delete(
    ssimObject,
    project = NULL,
    scenario = NULL,
    datasheet = NULL,
    force = FALSE
)

Arguments

ssimObject  SsimLibrary/Project/Scenario, or path to a library.
project     character string, numeric, or vector of these. One or more project names or ids. Note that project argument is ignored if ssimObject is a list. Note that integer ids are slightly faster.
scenario character string, numeric, or vector of these. One or more scenario names or ids. Note that scenario argument is ignored if ssimObject is a list. Note that integer ids are slightly faster.
datasheet character string or vector of these. One or more datasheet names.
force logical. If FALSE (default), user will be prompted to approve removal of each item.

Value
This function returns invisibly a list of boolean values corresponding to each of the input: ‘TRUE’ upon success (i.e. successful deletion) and ‘FALSE’ upon failure.

Examples

```r
temp_dir <- tempdir()
myses <- session()
myLibrary <- ssimLibrary(name = file.path(temp_dir,"testlib"), session = myses)

myProject <- project(myLibrary, project = "a project")
project(myLibrary)
delete(myLibrary, project = "a project", force = TRUE)
project(myLibrary)
```

---

**deleteBreakpoint**

Delete a Scenario breakpoint.

**Description**
This function will delete a Scenario breakpoint.

**Usage**

```r
deleteBreakpoint(x, transformerName = NULL, breakpointType = NULL)
```

```r
## S4 method for signature 'Scenario'
deleteBreakpoint(x, transformerName = NULL, breakpointType = NULL)
```

**Arguments**

- **x** A SyncroSim Scenario
- **transformerName** A Stochastic Time Transformer (e.g. stsim_Runtime). Optional.
- **breakpointType** bi: before iteration; ai: after iteration; bt: before timestep; at: after timestep. Optional.
Value

A SyncroSim Scenario with an updated list of breakpoints

Examples

temp_dir <- tempdir()
myses <- session()
mylib <- ssimLibrary(name = file.path(temp_dir,"testlib"), session = myses)
myScenario <- scenario(mylib, "testScenario")

myScenario <- deleteBreakpoint(myScenario)
myScenario <- deleteBreakpoint(myScenario, transformerName = "stsim_Runtime")

deleteModule

Delete module or modules

Description

Deprecated. See: deletePackage

Usage

deleteModule(name, session = NULL, force = FALSE)

## S4 method for signature 'ANY,missingOrNULLOrChar'
deleteModule(name, session = NULL, force = FALSE)

## S4 method for signature 'ANY,Session'
deleteModule(name, session = NULL, force = FALSE)

Arguments

name Character string or vector of these. A module or vector of modules to remove. See modules() for options.

session Session.

force logical. If TRUE, delete without requiring confirmation from user.

Value

"saved" or error message.
deletePackage

Deletes a package

**Description**

DEletes a package from your syncrosim instalation.

**Usage**

```
deletePackage(name, session = NULL, force = FALSE)
```

```
## S4 method for signature 'ANY,character'
deletePackage(name, session = NULL, force = FALSE)
```

```
## S4 method for signature 'ANY,missingOrNULL'
deletePackage(name, session = NULL, force = FALSE)
```

```
## S4 method for signature 'ANY,Session'
deletePackage(name, session = NULL, force = FALSE)
```

**Arguments**

- **name** Character. The name of the package to delete.
- **session** Session.
- **force** logical. If T, delete without requiring confirmation from user.

**Value**

This function invisibly returns ‘TRUE’ upon success (i.e. successful deletion) and ‘FALSE’ upon failure.

dependency

Set or remove Scenario dependency(s), or get existing dependencies.

**Description**

Set or remove Scenario dependency(s), or get existing dependencies.

**Usage**

```
dependency(scenario, dependency = NULL, remove = FALSE, force = FALSE)
```

```
## S4 method for signature 'character'
dependency(scenario, dependency = NULL, remove = FALSE, force = FALSE)
```

```
## S4 method for signature 'Scenario'
dependency(scenario, dependency = NULL, remove = FALSE, force = FALSE)
```
Arguments

**scenario**
character string, integer, or vector of these. Name or ID of scenario(s) to which a dependency is to be added (or has been already added if remove=TRUE). If NULL, then ssimObject must be a Scenario. Note that integer ids are slightly faster.

**dependency**
Scenario, character string, integer, or list/vector of these. The scenario(s) that are the source of the dependency, in order from lowest to highest precedence. If NULL, other arguments are ignored and the list of existing dependencies is returned.

**remove**
logical. If F (default) dependencies are added. If T, dependencies are removed.

**force**
logical. If F (default) prompt before removing dependencies.

Details

If dependency==NULL, other arguments are ignored, and set of existing dependencies is returned in order of precedence (from highest to lowest precedence). Otherwise, returns list of saved or error messages for each dependency of each scenario.

Note that the order of dependencies can be important - dependencies added most recently take precedence over existing dependencies. So, dependencies included in the dependency argument take precedence over any other existing dependencies. If the dependency argument includes more than one element, elements are ordered from lowest to highest precedence.

Value

If dependency is NULL, a dataframe of existing dependencies, or list of these if multiple inputs are provided. If dependency is not NULL, the function invisibly returns a list bearing the names of the dependencies inputted and carrying a logical ‘TRUE’ upon success (i.e.successful addition or deletion) and ‘FALSE’ upon failure.

---

**description**

*Description of an SsimLibrary/Project/Scenario.*

Description

The description of an SsimLibrary/Project/Scenario.

Usage

description(ssimObject)

## S4 method for signature 'character'
description(ssimObject)

## S4 method for signature 'SsimObject'
description(ssimObject)
Arguments
ssimObject  SsimLibrary/Project/Scenario.

Value
A character string describing the ssimObject.

```
description<-  Set the description of an SsimLibrary/Project/Scenario.
```

Description
Set the description of an SsimLibrary/ProjectScenario.

Usage
description(ssimObject) <- value

```r
## S4 replacement method for signature 'character'
description(ssimObject) <- value
```

Arguments
ssimObject  Scenario/Project/SsimLibrary
value       The new description.

Value
The object with updated description.

```
disableAddon  Disable addon or addons.
```

Description
Disable addon or addons of an SsimLibrary, or Project/Scenario with an associated SsimLibrary.
enableAddon

Usage

disableAddon(ssimLibrary, name)

## S4 method for signature 'character'
disableAddon(ssimLibrary, name)

## S4 method for signature 'SsimLibrary'
disableAddon(ssimLibrary, name)

Arguments

ssimLibrary  SsimLibrary
name  Character string or vector of addon names

Value

This function invisibly returns 'TRUE' upon success (i.e. successful deactivation of the addon and 'FALSE' upon failure.

Examples

temp_dir <- tempdir()
myses <- session()
myLibrary <- ssimLibrary(name = file.path(temp_dir,"testlib"), session = myses)

enableAddon(myLibrary, c("stsimecodep"))
addon(myLibrary)
disableAddon(myLibrary, c("stsimecodep"))
addon(myLibrary)

enableAddon  Enable addon or addons.

Description

Enable addon or addons of an SsimLibrary.

Usage

enableAddon(ssimLibrary, name)

## S4 method for signature 'character'
enableAddon(ssimLibrary, name)

## S4 method for signature 'SsimLibrary'
enableAddon(ssimLibrary, name)
Arguments

- `ssimLibrary` (SsimLibrary)
- `name` (Character string or vector of addon names)

Value

This function invisibly returns 'TRUE' upon success (i.e., successful activation of the addon and 'FALSE' upon failure.

Examples

```r
temp_dir <- tempdir()
myses <- session()
myLibrary <- ssimLibrary(name = file.path(temp_dir, "testlib"), session = myses)

enableAddon(myLibrary, c("stsim-ecological-departure"))
addon(myLibrary)
disableAddon(myLibrary, c("stsim-ecological-departure"))
addon(myLibrary)
```

---

**Description**

Creates and returns a SyncroSim DataSheet Input Folder.

**Usage**

```r
envInputFolder(scenario, datasheetName)
```

**Arguments**

- `scenario` (Scenario. A SyncroSim result scenario.
- `datasheetName` (character. The input datasheet name.

**Value**

a folder name for the specified data sheet
**envOutputFolder**

---

### Description

Creates and returns a SyncroSim DataSheet Output Folder.

### Usage

```plaintext
envOutputFolder(scenario, datasheetName)
```

### Arguments

- **scenario**
  - Scenario. A SyncroSim result scenario.
- **datasheetName**
  - character. The output datasheet name.

### Value

a folder name for the specified data sheet

---

**envReportProgress**

---

### Description

Reports progress for a SyncroSim simulation.

Begins a SyncroSim simulation.

Steps a SyncroSim simulation.

Ends a SyncroSim simulation.

### Usage

```plaintext
envReportProgress(iteration, timestep)
envBeginSimulation(totalSteps)
envStepSimulation()
envEndSimulation()
```

### Arguments

- **iteration**
  - integer. The current iteration.
- **timestep**
  - integer. The current timestep.
- **totalSteps**
  - integer. The total number of steps in the simulation.
Value

No returned value, used for side effects.
No returned value, used for side effects.

envTempFolder  

SyncroSim Temporary Folder

Description

Creates and returns a SyncroSim Temporary Folder.

Usage

envTempFolder(folderName)

Arguments

folderName  character. The folder name

Value

A temporary folder name

filepath  
The path to a SyncroSim object on disk

Description

The path to a SyncroSim Session, SSimLibrary, Project or Scenario on disk.

Usage

filepath(ssimObject)

## S4 method for signature 'character'
filepath(ssimObject)

## S4 method for signature 'Session'
filepath(ssimObject)

## S4 method for signature 'SsimObject'
filepath(ssimObject)

Arguments

ssimObject  An object containing a filepath.
**Value**

A character string: the path to a SyncroSim object on disk.

---

**Description**

Get basic information about a Library

**Usage**

```r
info(ssimLibrary)
```

### S4 method for signature 'SsimLibrary'  
```r
info(ssimLibrary)
```

**Arguments**

- `ssimLibrary`  
  A SsimLibrary object.

**Value**

A data.frame with information on the properties of the library object.

---

**mergeDependencies**  
**Merge Dependencies for a Scenario.**

**Description**

Retrieves whether or not a Scenario is configured to merge dependencies at run time.

**Usage**

```r
mergeDependencies(ssimObject)
```

### S4 method for signature 'character'  
```r
mergeDependencies(ssimObject)
```

### S4 method for signature 'Scenario'  
```r
mergeDependencies(ssimObject)
```

**Arguments**

- `ssimObject`  
  Scenario
Value

Returns a logical: ‘TRUE’ is the scenario is configured to merge dependencies at run time, and ‘FALSE’ otherwise.

Usage

mergeDependencies(ssimObject) <- value

## S4 replacement method for signature 'character'
mergeDependencies(ssimObject) <- value

## S4 replacement method for signature 'Scenario'
mergeDependencies(ssimObject) <- value

Arguments

ssimObject Scenario

value Logical. If TRUE the Scenario will be set to merge dependencies at run time.

Value

The updated ssimObject.

Description

Deprecated. See: package
module

Usage

model(ssimObject = NULL)

## S4 method for signature 'character'
model(ssimObject = NULL)

## S4 method for signature 'missingOrNULL'
model(ssimObject = NULL)

## S4 method for signature 'Session'
model(ssimObject = NULL)

## S4 method for signature 'SsimLibrary'
model(ssimObject = NULL)

Arguments

ssimObject Session or SsimLibrary.

Value

A dataframe of models (for Session) or named vector of character strings (for SsimLibrary)

<table>
<thead>
<tr>
<th>module</th>
<th>Installed modules</th>
</tr>
</thead>
</table>

Description

Deprecated. See: package

Usage

module(session)

## S4 method for signature 'missingOrNULL'
module(session)

## S4 method for signature 'character'
module(session)

## S4 method for signature 'Session'
module(session)

Arguments

session Session.
Value
A dataframe of modules.

name
The name of a SyncroSim library, project or scenario.

Description
Retrieves the name of an SsimLibrary, Project or Scenario.

Usage
name(ssimObject)

## S4 method for signature 'character'
name(ssimObject)

## S4 method for signature 'SsimLibrary'
name(ssimObject)

## S4 method for signature 'Scenario'
name(ssimObject)

## S4 method for signature 'Project'
name(ssimObject)

Arguments
ssimObject SsimLibrary, Project, or Scenario.

Value
Character string: the name of the ssimObject.

name<- Set ssimObject name.

Description
Set the name of a SyncroSim Project, Scenario or Library
Usage

name(ssimObject) <- value

## S4 replacement method for signature 'character'
name(ssimObject) <- value

## S4 replacement method for signature 'SsimLibrary'
name(ssimObject) <- value

## S4 replacement method for signature 'Project'
name(ssimObject) <- value

## S4 replacement method for signature 'Scenario'
name(ssimObject) <- value

Arguments

ssimObject Scenario/Project/SsimLibrary
value The updated ssimObject.

Value

The updated ssim Object.

Description

Retrieves the owner of an SsimLibrary/Project/Scenario

owner

The owner of a SsimLibrary/Project/Scenario.

Usage

owner(ssimObject)

## S4 method for signature 'character'
owner(ssimObject)

## S4 method for signature 'SsimLibrary'
owner(ssimObject)

## S4 method for signature 'Project'
owner(ssimObject)

## S4 method for signature 'Scenario'
owner(ssimObject)
Arguments

ssimObject   SsimLibrary/Project/Scenario.

Value

A character string: the owner of the ssimObject.

owner<-     Set the owner of an SsimLibrary/Project/Scenario.

Description

Set the owner of an SsimLibrary/Project/Scenario.

Usage

owner(ssimObject) <- value

## S4 replacement method for signature 'character'
owner(ssimObject) <- value

## S4 replacement method for signature 'SsimObject'
owner(ssimObject) <- value

Arguments

ssimObject   Scenario/Project/SsimLibrary
value        The new owner.

Value

The updated ssimObject.

package     Installed or available packages

Description

Packages or installed or available for this version of SyncroSim.
**Usage**

```r
package(session, installed = TRUE)
```

```r
## S4 method for signature 'missingOrNULL'
package(session, installed = TRUE)
```

```r
## S4 method for signature 'character'
package(session, installed = TRUE)
```

```r
## S4 method for signature 'Session'
package(session, installed = TRUE)
```

**Arguments**

- `session`: Session.
- `installed`: Logical. ‘TRUE’ to list installed packages and ‘FALSE’ to list available packages.

**Value**

A `data.frame` of packages installed.

---

**Description**

Retrieves the id of the parent of a SyncroSim results scenario.

**Usage**

```r
parentId(scenario)
```

```r
## S4 method for signature 'character'
parentId(scenario)
```

```r
## S4 method for signature 'Scenario'
parentId(scenario)
```

**Arguments**

- `scenario`: A `Scenario` object.

**Value**

An integer id of the parent scenario. If the input scenario does not have a parent, the function returns ‘NA’. 
**printCmd**  
*Get printCmd of a Session.*

**Description**
Retrieves a printCmd setting of a Session object.

**Usage**

```r
printCmd(session = NULL)
```

## S4 method for signature 'Session'

```r
printCmd(session = NULL)
```

## S4 method for signature 'missingOrNULLOrChar'

```r
printCmd(session = NULL)
```

**Arguments**

- **session**  
  Session or character. A Session object or path to a session. If NULL, the default session will be used.

**Value**

Returns a logical value: ‘TRUE’ is the session is configured to print commands and ‘FALSE’ if it is not.

---

**project**  
*Create or open a project or projects.*

**Description**

Creates or retrieves a project or multiple projects from a library.

**Usage**

```r
project(
  ssimObject = NULL,
  project = NULL,
  sourceProject = NULL,
  summary = NULL,
  forceElements = FALSE,
  overwrite = FALSE
)
```
**project**

**Arguments**

- **ssimObject**
  - SsimLibrary/Scenario or character. An ssimObject containing a filepath to a library, or a filepath.

- **project**
  - Character, integer, or vector of these. Names or ids of one or more projects. Note that integer ids are slightly faster.

- **sourceProject**
  - Character, integer, or Project object. If not NULL, new projects will be copies of the sourceProject.

- **summary**
  - Logical. If TRUE then return the project(s) in a dataframe with the projectId, name, description, owner, dateModified, readOnly. Default is TRUE if project=NULL and ssimObject is not Scenario/Project, FALSE otherwise.

- **forceElements**
  - Logical. If TRUE then returns a single project as a named list; otherwise returns a single project as a Project object. Applies only when summary=FALSE.

- **overwrite**
  - Logical. If TRUE an existing Project will be overwritten.

**Details**

For each element of project:

- If element identifies an existing project: Returns the existing Project
- If element identifies more than one project: Error
- If element does not identify an existing project: Creates a new Project named element. Note that SyncroSim automatically assign an id to a new project.

**Value**

A Project object representing a SyncroSim project. If summary is ‘TRUE’, a dataframe of project names and descriptions.

**Examples**

```r
# Create a Library and create a new Project
temp_dir <- tempdir()
myses <- session()
myLibrary <- ssimLibrary(name = file.path(temp_dir,"testlib"), session = myses)

myProject <- project(ssimObject = myLibrary, project = "My new project name")

# Get a named list of existing Projects.
# Each element in the list is named by a character version of the Project ID.
myProjects <- project(myLibrary, summary = FALSE)
names(myProjects) # vector of the project ids

# Get an existing Project.
myProject <- myProjects[[1]]
myProject <- project(myLibrary, project = "My new project name")

# Get/set the project properties
```
name(myProject) <- "New project name"

---

### Project-class

**SyncroSim Project class**

---

### Description

Project object representing a SyncroSim Project.

### Slots

- **session** The Session associated with the Project's Library.
- **filepath** The path to the Project's Library on disk.
- **datasheetNames** Names and scopes of datasheets in the Project's Library.
- **projectId** The Project id

### See Also

See `project` for options when creating or loading a SyncroSim Project.

---

### projectId

**The projectId of a SyncroSim project or scenario.**

---

### Description

retrives the projectId of a SyncroSim Project or Scenario.

### Usage

```r
projectId(ssimObject)
```

```r
## S4 method for signature 'character'
projectId(ssimObject)
```

```r
## S4 method for signature 'Project'
projectId(ssimObject)
```

```r
## S4 method for signature 'Scenario'
projectId(ssimObject)
```

### Arguments

- **ssimObject** Project/Scenario.
Value

An integer project id.

---

**readOnly**  
Read-only status of an SsimLibrary/Project/Scenario.

---

Description

Whether or not an SsimLibrary/ProjectScenario is read-only.

Usage

```r
readOnly(ssimObject)
```

## S4 method for signature 'character'
```r
readOnly(ssimObject)
```

## S4 method for signature 'SsimLibrary'
```r
readOnly(ssimObject)
```

## S4 method for signature 'Project'
```r
readOnly(ssimObject)
```

## S4 method for signature 'Scenario'
```r
readOnly(ssimObject)
```

Arguments

ssimObject SsimLibrary/Project/Scenario.

Value

Returns a logical values: ‘TRUE’ if the ssimObject is read only and ‘FALSE’ otherwise.

---

**readOnly<-**  
Set the read/write status of an SsimLibrary/Project/Scenario.

---

Description

Set the read-only status of an SsimLibrary/Project/Scenario. Applies to child objects if ssimObject is an SsimLibrary or Project.
Usage

```r
readOnly(ssimObject) <- value
```

## S4 replacement method for signature 'character'
```r
readOnly(ssimObject) <- value
```

## S4 replacement method for signature 'SsimObject'
```r
readOnly(ssimObject) <- value
```

Arguments

- **ssimObject**: Scenario/Project/SsimLibrary
- **value**: Logical. If T the ssimObject will be read-only.

Value

The updated ssimObject.

---

**rsyncrosim**

rsyncrosim: The R interface to SyncroSim: http://syncrosim.com/

Description

rsyncrosim provides an interface to SyncroSim, a generalized framework for running and managing scenario-based stochastic simulations over space and time. Different kinds of simulation models can "plug-in" to SyncroSim as packages and take advantage of general features common to many kinds of simulation models, such as defining scenarios of inputs, running Monte Carlo simulations, and viewing charts and maps of outputs.

Details

To learn more about rsyncrosim, start with the vignette tutorial: `browseVignettes("rsyncrosim")`.

---

**run**

Run scenarios

Description

Run one or more SyncroSim scenarios.
run

Usage

run(
  ssimObject,
  scenario = NULL,
  summary = FALSE,
  jobs = 1,
  transformerName = NULL,
  forceElements = FALSE
)

## S4 method for signature 'character'
run(
  ssimObject,
  scenario = NULL,
  summary = FALSE,
  jobs = 1,
  transformerName = NULL,
  forceElements = FALSE
)

## S4 method for signature 'list'
run(
  ssimObject,
  scenario = NULL,
  summary = FALSE,
  jobs = 1,
  transformerName = NULL,
  forceElements = FALSE
)

## S4 method for signature 'SsimObject'
run(
  ssimObject,
  scenario = NULL,
  summary = FALSE,
  jobs = 1,
  transformerName = NULL,
  forceElements = FALSE
)

## S4 method for signature 'BreakpointSession'
run(ssimObject, scenario, summary, jobs, forceElements)

Arguments

ssimObject  SsimLibrary/Project/Scenario or a list of Scenarios. Or the path to a library on disk.
scenario    character, integer, or vector of these. Scenario names or ids. Or NULL. Note
that integer ids are slightly faster.

**summary** Logical. If FALSE (default) result Scenario objects are returned. If TRUE (faster) result scenario ids are returned.

**jobs** Integer. The number of jobs to run. Passed to SyncroSim where multithreading is handled.

**transformerName** Character. The name of the transformer to run.

**forceElements** Logical. If TRUE then returns a single result scenario as a named list; otherwise returns a single result scenario as a Scenario object. Applies only when summary=FALSE.

**Details**

Note that breakpoints are ignored unless ssimObject is a single scenario.

**Value**

If summary = FALSE a result Scenario object or a named list of result Scenarios. The name is the parent scenario for each result. If summary = TRUE, returns summary info for result scenarios.

---

**runLog**

*The run log of a result Scenario*

**Description**

The run log of a result Scenario.

**Usage**

```r
runLog(scenario)
```

## S4 method for signature 'character'

```r
runLog(scenario)
```

## S4 method for signature 'Scenario'

```r
runLog(scenario)
```

**Arguments**

- `scenario` A Scenario object.

**Value**

Returns a character string: the run log for a result scenario.
saveDatasheet

Description

Saves datasheets to a SsimLibrary/Project/Scenario.

Usage

```r
saveDatasheet(
  ssimObject,
  data,
  name = NULL,
  fileData = NULL,
  append = NULL,
  forceElements = FALSE,
  force = FALSE,
  breakpoint = FALSE,
  import = TRUE,
  path = NULL
)
```

## S4 method for signature 'character'
```r
saveDatasheet(
  ssimObject,
  data,
  name = NULL,
  fileData = NULL,
  append = NULL,
  forceElements = FALSE,
  force = FALSE,
  breakpoint = FALSE,
  import = TRUE,
  path = NULL
)
```

## S4 method for signature 'SsimObject'
```r
saveDatasheet(
  ssimObject,
  data,
  name = NULL,
  fileData = NULL,
  append = NULL,
  forceElements = FALSE,
  force = FALSE,
  breakpoint = FALSE,
  import = TRUE,
```
Arguments

ssimObject  SsimLibrary/Project/Scenario.
data         A dataframe, named vector, or list of these. One or more datasheets to load.
name         character or vector of these. The name(s) of the datasheet(s) to be saved. If a
             vector of names is provided, then a list must be provided for the data argument.
             Names provided here will override those provided with data argument’s list.
fileData     Named list or raster stack. Names are file names (without paths), corresponding
             to entries in data. The elements are objects containing the data associated with
             each name. Currently only supports Raster objects as elements.
append       logical. If TRUE, data will be appended to the datasheet if possible, otherwise
             current values will be overwritten by data. See details for behaviour when
             append=TRUE. Default TRUE for project/library-scope datasheets, and FALSE
             for scenario-scope datasheets.
forceElements logical. If FALSE (default) a single return message will be returns as a character
             string. Otherwise it will be returned in a list.
force        logical. If datasheet scope is project/library, and append=FALSE, datasheet will
             be deleted before loading the new data. This can also delete other definitions
             and results, so user will be prompted for approval unless force=TRUE.
breakpoint   Set to TRUE when modifying datasheets in a breakpoint function.
import       logical. Set to TRUE to import the data after saving.
path         character. An optional output path.

Details

Cautionary note re append=FALSE: Deleting project and library level datasheets that contain lookups
will also delete other definitions and results that rely on these lookups.
ssimObject/project/scenario should identify a single ssimObject.

If fileData !=NULL, each element of names(fileData) should correspond uniquely to at most one
entry in data. If a name is not found in data the element will be ignored with a warning. If
names(fileData) are full filepaths, rsyncrosim will write each object to the corresponding path for
subsequent loading by SyncroSim. Note this is generally more time-consuming because the files
must be written twice. If names(fileData) are not filepaths (faster, recommended), rsyncrosim will
write each element directly to the appropriate SyncroSim input/output folders. rsyncrosim will write
each element of fileData directly to the appropriate SyncroSim input/output folders. If fileData !=
NULL, data should be a dataframe, vector, or list of length 1, not a list of length >1.

There are 2 circumstances in which data will not be appended even if append=TRUE:

- New data will not be appended if it is redundant with existing data, and the table does not
  allow redundancy.
- Old data will be replaced by new data if the datasheet allows only a single row.
**Scenario**

Create or open one or more Scenarios.

**Value**

This function invisibly returns a vector or list of logical values for each input: ‘TRUE’ upon success (i.e. successful save) and ‘FALSE’ upon failure.

---

**Description**

Create or retrieves one or more Scenarios from a library

**Usage**

```r
scenario(
  ssimObject = NULL,
  scenario = NULL,
  sourceScenario = NULL,
  summary = NULL,
  results = FALSE,
  forceElements = FALSE,
  overwrite = FALSE
)
```

**Arguments**

- `ssimObject`: SsimLibrary/Project or character. An ssimObject containing a filepath to a library, or a filepath.
- `scenario`: Character, integer, or vector of these. Names or ids of one or more scenarios. Note integer ids are slightly faster.
- `sourceScenario`: Character or integer. If not NULL, new scenarios will be copies of the sourceScenario.
- `summary`: Logical. If TRUE then loads and returns the scenario(s) in a named vector/dataframe with the scenarioId, name, description, owner, dateModified, readOnly, parentID. Default is TRUE if scenario=NULL, FALSE otherwise.
- `results`: Logical. If TRUE only return result scenarios.
- `forceElements`: Logical. If TRUE then returns a single scenario as a named list; otherwise returns a single scenario as a Scenario object. Applies only when summary=FALSE.
- `overwrite`: Logical. If TRUE an existing Scenario will be overwritten.

**Details**

For each element of scenario:

- If element/project/ssimObject uniquely identifies an existing scenario: Returns the existing Scenario
• If element/project/ssimObject uniquely identifies more than one existing scenario: Error
• If element/project/ssimObject do not identify an existing scenario or project: Error
• If element/project/ssimObject do not identify an existing scenario and element is numeric: Error - a name is required for new scenarios. SyncroSim will automatically assign an id when a scenario is created.
• If element/project/ssimObject do not identify an existing scenario and do identify a project, and element is a character string: Creates a new Scenario named element in the project. SyncroSim automatically assigns an id. If sourceScenario is not NULL the new scenario will be a copy of sourceScenario.

Value

A Scenario object representing a SyncroSim scenario, a list of Scenario objects, or a dataframe of scenario names and descriptions. If summary = FALSE, returns one or more Scenario objects representing a SyncroSim scenarios. If summary = TRUE, returns scenario summary info.

Examples

# Create a new scenario
temp_dir <- tempdir()
mySession <- session()
myLibrary <- ssimLibrary(name = file.path(temp_dir,"testlib"), session = mySession)

myProject <- project(myLibrary, project = "a project")
myScenario <- scenario(myProject, scenario = "a scenario", overwrite = TRUE)

Scenario-class SyncroSim Scenario class

Description

Scenario object representing a SyncroSim Scenario.

Slots

  session The Session associated with the Scenario.
  filepath The path to the Scenario’s Library on disk.
  datasheetNames Names and scope of all datasheets in Scenario’s Library.
  projectId The project id.
  scenarioId The scenario id.
  parentId For a result scenario, this is the id of the parent scenario. 0 indicates this is not a result scenario.
  breakpoints An (optional) list of Breakpoint objects.
**scenarioId**

The scenarioId of a scenario.

---

**Description**

Retrieves the scenarioId of a Scenario.

**Usage**

```r
scenarioId(scenario)

## S4 method for signature 'character'
scenarioId(scenario)

## S4 method for signature 'Scenario'
scenarioId(scenario)
```

**Arguments**

- `scenario` Scenario.

**Value**

Integer id of the input scenario.

---

**session**

Creates or returns a SyncroSim session.

---

**Description**

Methods to create or return a SyncroSim session.

**Usage**

```r
session(x = NULL, silent = TRUE, printCmd = FALSE)

## S4 method for signature 'missingOrNULLOrChar'
session(x = NULL, silent = TRUE, printCmd = FALSE)

## S4 method for signature 'SsimObject'
session(x = NULL, silent = TRUE, printCmd = FALSE)
```
Arguments

- **x**  
  Character or SsimObject. An optional path to the SyncroSim installation.

- **silent**  
  Logical. Applies only if x is a path or NULL. If TRUE, warnings from the console are ignored. Otherwise they are printed.

- **printCmd**  
  Logical. Applies only if x is a path or NULL. If TRUE, arguments passed to the SyncroSim console are also printed. Helpful for debugging. FALSE by default.

Value

A SyncroSim Session object.

Examples

```r
# Create Session
temp_dir <- tempdir()
mySession <- session()
myLibrary <- ssimLibrary(name = file.path(temp_dir,"testlib"), session = mySession)

filepath(mySession) # Lists the folder location of syncrosim session
version(mySession) # Lists the version of syncrosim session
package(mySession) # Dataframe of the packages installed with this version of syncrosim.
basePackage(mySession) # Dataframe of the base packages installed with this version of syncrosim.
```

Description

A SyncroSim Session object contains a link to a SyncroSim installation. SsimLibrary, Project and Scenario objects contain a Session used to query and modify the object.

Slots

- **filepath**  
  The path to the SyncroSim installation.

- **silent**  
  If FALSE, all SyncroSim output with non-zero exit status is printed. Helpful for debugging.  
  Default=TRUE.

- **printCmd**  
  If TRUE, arguments passed to the SyncroSim console are also printed. Helpful for debugging. Default=FALSE.

See Also

See `session` for options when creating a Session.
session<-  

Set a SyncroSim session.

Description
Set the Session of a SsimLibrary, Project or Scenario object.

Usage
session(ssimObject) <- value

## S4 replacement method for signature 'character'
session(ssimObject) <- value

## S4 replacement method for signature 'SsimObject'
session(ssimObject) <- value

Arguments
ssimObject  SsimObject/Project/Scenario.
value  A SyncroSim Session.

Details
In order to avoid problems with SyncroSim version compatibility and library updating, the new session must have the same filepath as the session of the SsimObject e.g. filepath(value)==filepath(session(ssimObject))

Value
An SyncroSim object containing a Session.

silent  

Check if a Session is silent

Description
Checks whether a SyncroSim Session is silent or not.

Usage
silent(session)

## S4 method for signature 'Session'
silent(session)

## S4 method for signature 'missingOrNULLOrChar'
silent(session)
**sqlStatement**

**Arguments**

- **session**: Session or character. A SyncroSim `Session` object or path to a session. If NULL, the default session will be used.

**Value**

Logical value: ‘TRUE’ if the session is silent and ‘FALSE’ otherwise.

---

```
silent<- Set silent property of a Session
```

**Description**

Set silent property of a sessio to TRUE or FALSE

**Usage**

```
silent(session) <- value
```

```markdown
## S4 replacement method for signature 'character'
silent(session) <- value
```

```markdown
## S4 replacement method for signature 'Session'
silent(session) <- value
```

**Arguments**

- **session**: Session
- **value**: logical

**Value**

The updated ssimObject.

---

```
sqlStatement Construct an SQLite query
```

**Description**

Creates SELECT, GROUP BY and WHERE SQL statements. The resulting list of SQL statements will be converted to an SQLite database query by the datasheet() function.
sqlStatement

Usage

sqlStatement(
  groupBy = NULL,
  aggregate = NULL,
  aggregateFunction = "SUM",
  where = NULL
)

Arguments

groupBy character string or vector of these. Vector of variables (column names) to GROUP BY.
aggregate character string of vector of these. Vector of variables (column names) to aggregate using aggregateFunction
aggregateFunction character string. An SQL aggregate function (e.g. SUM, COUNT)
where named list. A list of subset variables. Names are column names, and elements are the values to be selected from each column.

Details

Variables are column names of the datasheet. See column names using datasheet(,empty=TRUE). Variables not included in groupBy, aggregate or where will be dropped from the table. Note that it is not possible to construct a complete SQL query at this stage, because the datasheet() function may add ScenarioID and/or ProjectID to the query.

Value

A list of SELECT, GROUP BY and WHERE SQL statements used by datasheet() to construct an SQLite database query.

Examples

# Query the total Amount for each combination of ScenarioID, Iteration, Timestep and StateLabelXID, # including only Timesteps 0,1 and 2, and Iterations 3 and 4.
mySQL <- sqlStatement(
  groupBy = c("ScenarioID", "Iteration", "Timestep", "StateLabelXID"),
  aggregate = c("Amount"), where = list(Timestep = c(0, 1, 2), Iteration = c(3, 4))
)
mySQL
**ssimEnvironment**  
*SyncroSim Environment.*

---

**Description**

Retrieves SyncroSim specific environment variables.

**Usage**

```r
ssimEnvironment()
```

**Value**

A data.frame of SyncroSim specific environment variables.

---

**ssimLibrary**  
*Create or open a library.*

---

**Description**

Creates or opens an `SsimLibrary` object. If `summary = TRUE`, returns library summary info. If `summary = NULL`, returns library summary info if `ssimObject` is an `SsimLibrary`, `SsimLibrary` object otherwise.

**Usage**

```r
ssimLibrary(
  name = NULL,
  summary = NULL,
  package = NULL,
  session = NULL,
  addon = NULL,
  forceUpdate = FALSE,
  overwrite = FALSE
)
```

```r
## S4 method for signature 'SsimObject'
ssimLibrary(
  name = NULL,
  summary = NULL,
  package = NULL,
  session = NULL,
  addon = NULL,
  forceUpdate = FALSE,
  overwrite = FALSE
)
```
ssimLibrary

## S4 method for signature 'missingOrNULLOrChar'

### ssimLibrary()

- `name = NULL`,
- `summary = NULL`,
- `package = NULL`,
- `session = NULL`,
- `addon = NULL`,
- `forceUpdate = FALSE`,
- `overwrite = FALSE`

### Arguments

- **name**  
  Character string. Project/Scenario/SsimLibrary. The path to a library or SsimObject.

- **summary**  
  logical. Default TRUE

- **package**  
  Character. The package type. The default is "stsim".

- **session**  
  Session. If NULL, session() will be used.

- **addon**  
  Character or character vector. One or more addons. See addon() for options.

- **forceUpdate**  
  Logical. If FALSE (default) user will be prompted to approve any required updates. If TRUE, required updates will be applied silently.

- **overwrite**  
  Logical. If TRUE an existing Library will be overwritten.

### Details

- If name is SyncroSim Project or Scenario: Returns the SsimLibrary associated with the Project or Scenario.
- If name is NULL: Create/open a SsimLibrary in the current working directory with the filename SsimLibrary.ssim.
- If name is a string: If string is not a valid path treat as filename in working directory. If no file suffix provided in string then add .ssim. Attempts to open a library of that name. If library does not exist creates a library of type package in the current working directory.
- If given a name and a package: Create/open a library called <name>.ssim. Returns an error if the library already exists but is a different type of package.

### Value

An SsimLibrary object.

### Examples

# Create or open a library using the default session
myLibrary <- ssimLibrary(name = file.path(tempdir(), "mylib"))
# Create library using a specific session
mySession <- session()
myLibrary <- ssimLibrary(name = file.path(tempdir(), "mylib"), session = mySession)

session(myLibrary)
filepath(myLibrary)
info(myLibrary)

---

**SsimLibrary-class**  
*SyncroSim Library class*

**Description**

SsimLibrary object representing a SyncroSim Library.

**Slots**

- `session`  
The SyncroSim Session.
- `filepath`  
The path to the Library on disk.
- `datasheetNames`  
The name and scope of all datasheets in the Library.

**See Also**

See `ssimLibrary` for options when creating or loading a SyncroSim Library.

---

**ssimUpdate**  
*Apply updates*

**Description**

Apply updates to a SyncroSim Library, or a Project or Scenario associated with a Library.

**Usage**

ssimUpdate(ssimObject)

## S4 method for signature 'character'

ssimUpdate(ssimObject)

## S4 method for signature 'SsimObject'

ssimUpdate(ssimObject)

**Arguments**

- `ssimObject`  
SsimLibrary/Project/Scenario
Value

This function invisibly returns ‘TRUE’ upon success (i.e. successful update) and ‘FALSE’ upon failure.

Description

The temporary file path to a SyncroSim object on disk.

Usage

tempfilepath(ssimObject)

## S4 method for signature 'character'
tempfilepath(ssimObject)

## S4 method for signature 'Session'
tempfilepath(ssimObject)

## S4 method for signature 'SsimObject'
tempfilepath(ssimObject)

Arguments

ssimObject An object containing a filepath.

Value

A character string: the temporary file path to a SyncroSim object on disk.

Description

Updates a SyncroSim package.
Usage

updatePackage(name = NULL, session = NULL, listonly = FALSE)

## S4 method for signature 'ANY,character'
updatePackage(name = NULL, session = NULL, listonly = FALSE)

## S4 method for signature 'ANY,missingOrNULL'
updatePackage(name = NULL, session = NULL, listonly = FALSE)

## S4 method for signature 'ANY,Session'
updatePackage(name = NULL, session = NULL, listonly = FALSE)

Arguments

name Character string. The name of the package to update. If NULL, all packages will be updated.

session Session.

listonly Logical. If TRUE, available updates are listed only.

Value

This function invisibly returns ‘TRUE’ upon success (i.e. successful update) and ‘FALSE’ upon failure.

Description

The version of a SyncroSim Session.

Usage

version(session = NULL)

## S4 method for signature 'character'
version(session = NULL)

## S4 method for signature 'missingOrNULL'
version(session = NULL)

## S4 method for signature 'Session'
version(session = NULL)

Arguments

session Session.
version

Value

A character string e.g. "2.2.13".
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