Package ‘antaresViz’

February 24, 2020

Type Package
Title Antares Visualizations
Version 0.15.1
Description Visualize results generated by Antares, a powerful open source software developed by RTE to simulate and study electric power systems (more information about Antares here: https://github.com/AntaresSimulatorTeam/Antares_Simulator). This package provides functions that create interactive charts to help Antares users visually explore the results of their simulations.

URL https://github.com/rte-antares-rpackage/antaresViz
BugReports https://github.com/rte-antares-rpackage/antaresViz/issues
License GPL (>= 2) | file LICENSE
LazyData TRUE
Encoding UTF-8
Depends antaresRead (>= 2.0.0), antaresProcessing (>= 0.13.0), spMaps (>= 0.2)
Imports dygraphs (>= 1.1.1.6), shiny (>= 0.13.0), plotly (>= 4.5.6), htmltools, htmlwidgets (>= 0.7.0), manipulateWidget (>= 0.10.0), leaflet (>= 1.1.0), sp, rgeos, raster, webshot, data.table, methods, lubridate, geojsonio, graphics, stats, leaflet.minicharts (>= 0.5.3), assertthat, rAmCharts, utils
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Suggests testthat, covr, rhdf5 (>= 2.20.2), rbokeh, knitr, visNetwork
VignetteBuilder knitr
NeedsCompilation no
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addShadows

Add a shadow to map layers

Description

This function adds a shadow to every svg element added to a leaflet map. It can greatly improve the lisibility of the map.

Usage

addShadows(map)

Arguments

map A leaflet map object.
Value

The modified map object

Examples

```r
require(leaflet)
require(leaflet.minicharts)

leaflet() %>%
  addTiles() %>%
  addFlows(0, 0, 1, 0, col = gray(0.9)) %>%
  addCircleMarkers(c(0, 1), c(0, 0), color = "white", fillOpacity = 1, stroke = FALSE) %>%
  addShadows()
```

---

Description

This function draws a stack representing the evolution of the exchanges of an area with its neighbours. Positive values denotes exports and negative values imports.

Usage

```r
exchangesStack(
  x,
  area = NULL,
  mcYear = "average",
  dateRange = NULL,
  colors = NULL,
  main = NULL,
  ylab = NULL,
  unit = c("MWh", "GWh", "TWh"),
  compare = NULL,
  compareOpts = list(),
  interactive = getInteractivity(),
  legend = TRUE,
  legendId = sample(1e+09, 1),
  groupId = legendId,
  legendItemsPerRow = 5,
  width = NULL,
  height = NULL,
  xyCompare = c("union", "intersect"),
  h5requestFiltering = list(),
  stepPlot = FALSE,
  drawPoints = FALSE,
)```
exchangesStack

timeSteph5 = "hourly",
mcYearh5 = NULL,
tablesh5 = c("areas", "links"),
language = "en",
hidden = NULL,
refStudy = NULL,
...
)

Arguments

x  Object of class antaresData created with function readAntares. It is required to contain link data. If it also contains area data with column 'ROW BAL.', then exchanges with the rest of the world are also displayed on the chart.

area  Name of a single area. The flows from/to this area will be drawn by the function.

mcYear  If x, contains multiple Monte-Carlo scenarios, this parameter determine which scenario is displayed. Must be an integer representing the index of the scenario or the word "average". In this case data are averaged.

dateRange  A vector of two dates. Only data points between these two dates are displayed. If NULL, then all data is displayed.

colors  Vector of colors with same length as parameter variables. If variables is an alias, then this argument should be NULL in order to use default colors.

main  Title of the graph.

ylab  Title of the Y-axis.

unit  Unit used in the graph. Possible values are "MWh", "GWh" or "TWh".

compare  An optional character vector containing names of parameters. When it is set, two charts are outputed with their own input controls. Alternatively, it can be a named list with names corresponding to parameter names and values being list with the initial values of the given parameter for each chart. See details if you are drawing a map.

compareOpts  List of options that indicates the number of charts to create and their position. Check out the documentation of compareOptions to see available options.

interactive  LogicalValue. If TRUE, then a shiny gadget is launched that lets the user interactively choose the areas or districts to display.

legend  Logical value indicating if a legend should be drawn. This argument is usefull when one wants to create a shared legend with prodStackLegend

legendId  Id of the legend linked to the graph. This argument is usefull when one wants to create a shared legend with prodStackLegend

groupId  Parameter that can be used to synchronize the horizontal zoom of multiple charts. All charts that need to be synchronized must have the same group.

legendItemsPerRow  Number of elements to put in each row of the legend.

width  Width of the graph expressed in pixels or in percentage of the parent element. For instance "500px" and "100%" are valid values.
exchangesStack

height
Height of the graph expressed in pixels or in percentage of the parent element. For instance "500px" and "100%" are valid values.

xyCompare
Use when you compare studies, can be "union" or "intersect". If union, all of mcYears in one of studies will be selectable. If intersect, only mcYears in all studies will be selectable.

h5requestFiltering
Contains arguments used by default for h5 request, typically h5requestFiltering = list(links = getLinks(areas = myArea), mcYears = myMcYear)

stepPlot boolean, step style for curves.
drawPoints boolean, add points on graph
timeSteph5 character timeStep to read in h5 file. Only for Non interactive mode.
mcYearh5 numeric mcYear to read for h5. Only for Non interactive mode.
tables h5 character tables for h5 ("areas" "links", "clusters" or "districts"). Only for Non interactive mode.
language character language use for label. Default to 'en'. Can be 'fr'.
hidden logical Names of input to hide. Default to NULL
refStudy An object of class antaresData created with function readAntares containing data for areas and or districts. Can also contains an opts who refer to a h5 file.

... Other arguments for manipulateWidget

Details

Compare argument can take following values :

- "mcYear"
- "main"
- "unit"
- "area"
- "legend"
- "stepPlot"
- "drawPoints"

Value

A htmlwidget of class dygraph. It can be modified with functions from package dygraphs.

Examples

## Not run:
mydata <- readAntares(links = "all", timeStep = "daily")
exchangesStack(mydata)

# Also display exchanges with the rest of the world
mydata <- readAntares(areas = "all", links = "all", timeStep = "daily")
exchangesStack(mydata)
# Use compare :
exchangesStack(mydata, compare = "mcYear")
exchangesStack(mydata, compare = "area")
exchangesStack(mydata, compare = "unit")
exchangesStack(mydata, compare = "legend")

# Compare studies with refStudy argument
exchangesStack(x = myData1, refStudy = myData2)
exchangesStack(x = myData1, refStudy = myData2, interactive = FALSE)
exchangesStack(x = list(myData2, myData3, myData4), refStudy = myData1)
exchangesStack(x = list(myData2, myData3, myData4), refStudy = myData1, interactive = FALSE)

# Use h5 opts
# Set path of simulator
setSimulationPath(path = path1)

# Convert your study in h5 format
writeAntaresH5(path = mynewpath)

# Redefine sim path with h5 file
opts <- setSimulationPath(path = mynewpath)
exchangesStack(x = opts)

# Compare elements in a single study
exchangesStack(x = opts, .compare = "mcYear")

# Compare 2 studies
exchangesStack(x = list(opts, opts2))

# Compare 2 studies with argument refStudy
exchangesStack(x = opts, refStudy = opts2)
exchangesStack(x = opts, refStudy = opts2, interactive = FALSE, mcYearh5 = 2, areas = myArea)
exchangesStack(x = opts, refStudy = opts2, h5requestFiltering = list(
areas = getAreas(select = "a"),
links = getLinks(areas = myArea),
mcYears = myMcYear))

## End(Not run)

---

limitSizeGraph

*Use to change limit size of graph (in Mb)*

**Description**

Use to change limit size of graph (in Mb)

**Usage**

limitSizeGraph(size)
mapLayout

Arguments

size numeric widget size authorized in modules (default 200)

Examples

## Not run:
limitSizeGraph(500)

## End(Not run)

mapLayout Place areas of a study on a map

Description

This function launches an interactive application that let the user place areas of a study on a map. the GPS coordinates of the areas are then returned and can be used in functions. This function should be used only once per study. The result should then be saved in an external file and be reused.

Usage

mapLayout(
  layout,
  what = c("areas", "districts"),
  map = getSpMaps(),
  map_builder = TRUE
)

Arguments

layout object returned by function readLayout
what Either "areas" or "districts". Indicates what type of object to place on the map.
map An optional SpatialPolygons or SpatialPolygonsDataFrame object. See getSpMaps
map_builder logical Add inputs for build custom map ? Default to TRUE.

Details

With map_builder option, you can build a quiet custom map using spMaps package. This package help you to build SpatialPolygonsDataFrame on Europe. Moreover, you can use two options in the module :

- "Merge countries" : Some countries like UK or Belgium are firstly rendered in multiple and different area. You can so choose to finally use this countries as one single area on the map
- "Merge states" : If you need states details but not having one area per state, the map will be incomplete for some countries, plotting only states with area. So you can choose to aggregate the states of the countries. This is done using a nearest states algorithm. The result is available only after layout validation.
modRpart

Make rpart from antares data

Description

Make rpart from antares data

Usage

modRpart(data)

Arguments

data an antaresData after use of mergeAllAntaresData

Examples

## Not run:
setSimulationPath("Mystud", 1)
mydata <- readAntares(areas = "all", select = "OIL")
mydata <- mergeAllAntaresData(mydata)
modRpart(mydata)

## End(Not run)

Value

An object of class mapLayout.

See Also

plotMapLayout

Examples

## Not run:
# Read the coordinates of the areas in the Antares interface, then convert it
# in a map layout.
layout <- readLayout()
ml <- mapLayout(layout)

# visualize mapLayout
plotMapLayout(ml)

# Save the result for future use
save(ml, file = "ml.rda")

## End(Not run)
modXY

Description

Make X-Y hockey plot, interactive version

Usage

modXY(x, xyCompare = c("union", "intersect"))

Arguments

x            optsH5 or list of optsH5
xyCompare     Use when you compare studies, can be "union" or "intersect". If union, all of
              mcYears in one of studies will be selectable. If intersect, only mcYears in all
              studies will be selectable.

Examples

## Not run:
  opts <- setSimulationPath("h5File")
  modXY(opts)
  modXY(list(opts, opts))

## End(Not run)

placeGeoPoints-shiny

Shiny bindings for placeGeoPoints

Description

Output and render functions for using placeGeoPoints within Shiny applications and interactive
Rmd documents.

Usage

leafletDragPointsOutput(outputId, width = "100\%", height = "400px")

renderLeafletDragPoints(expr, env = parent.frame(), quoted = FALSE)
### Arguments

- **outputId**
  - Output variable to read from

- **width, height**
  - Must be a valid CSS unit (like '100%', '400px', 'auto') or a number, which will be coerced to a string and have 'px' appended.

- **expr**
  - An expression that generates a `placeGeoPoints`

- **env**
  - The environment in which to evaluate `expr`.

- **quoted**
  - Is `expr` a quoted expression (with `quote()`)? This is useful if you want to save an expression in a variable.

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### Description

This method can be used to visualize the network of an antares study. It generates an interactive map with a visual representation of a map layout created with function `mapLayout`.

### Usage

```r
## S3 method for class 'mapLayout'
plot(
  x,
  colAreas = x$coords$color,
  dataAreas = 1,
  opacityArea = 1,
  areaMaxSize = 30,
  areaMaxHeight = 50,
  areaChartType = c("auto", "bar", "pie", "polar-area", "polar-radius"),
  labelArea = NULL,
  labelMinSize = 8,
  labelMaxSize = 8,
  colLinks = "#CCCCCC",
  sizeLinks = 3,
  opacityLinks = 1,
  dirLinks = 0,
  links = TRUE,
  areas = TRUE,
  tilesURL = defaultTilesURL(),
  preprocess = function(map) { map },
  width = NULL,
  height = NULL,
  ...
)
```
Arguments

x Object created with function \texttt{mapLayout}

colAreas Vector of colors for areas. By default, the colors used in the Antares software are used.

dataAreas A numeric vector or a numeric matrix that is passed to function \texttt{link[addMinicharts]}. A single vector will produce circles with different radius. A matrix will produce bar charts or pie charts or polar charts, depending on the value of \texttt{areaChartType}

opacityArea Opacity of areas. It has to be a numeric vector with values between 0 and 1.

areaMaxSize Maximal width in pixels of the symbols that represent areas on the map.

areaMaxHeight Maximal height of bars. Used only if a barchart representation is used.

areaChartType Type of chart to use to represent areas.

labelArea Character vector containing labels to display inside areas.

labelMinSize minimal height of labels.

labelMaxSize maximal height of labels.

colLinks Vector of colors for links.

sizeLinks Line width of the links, in pixels.

opacityLinks Opacity of the links. It has to be a numeric vector with values between 0 and 1.

dirLinks Single value or vector indicating the direction of the link. Possible values are 0, -1 and 1. If it equals 0, then links are represented by a simple line. If it is equal to 1 or -1 it is represented by a line with an arrow pointing respectively the destination and the origin of the link.

links Should links be drawn on the map?

areas Should areas be drawn on the map?

tilesURL URL template used to get map tiles. The following site provides some URLs: \url{https://leaflet-extras.github.io/leaflet-providers/preview/}

preprocess A function that takes as argument a map and that returns a modified version of this map. This parameter can be used to add extra information on a map.

width Width of the graph expressed in pixels or in percentage of the parent element. For instance "500px" and "100%" are valid values.

height Height of the graph expressed in pixels or in percentage of the parent element. For instance "500px" and "100%" are valid values.

... Currently unused.

Value

The function generates an htmlwidget of class \texttt{leaflet}. It can be stored in a variable and modified with package \texttt{leaflet}
Examples

## Not run:
# Read the coordinates of the areas in the Antares interface, then convert it
# in a map layout.
layout <- readLayout()
ml <- mapLayout(layout)

# Save the result for future use
save(ml, file = "ml.rda")

# Plot the network on an interactive map
plot(ml)

# change style
plot(ml, colAreas = gray(0.5), colLinks = "orange")

# Use polar area charts to represent multiple values for each area.
nareas <- nrow(ml$coords)
fakeData <- matrix(runif(nareas * 3), ncol = 3)
plot(ml, sizeAreas = fakeData)

# Store the result in a variable to change it with functions from leaflet
# package
library(leaflet)

center <- c(mean(ml$coords$x), mean(ml$coords$y))

p <- plot(ml)
p %>%
  addCircleMarker(center[1], center[2], color = "red",
                  popup = "I'm the center!")

## End(Not run)

plotMap

Display results of a simulation on a map

Description

This function generates an interactive map that let the user visually explore the results of an Antares simulation. By default the function starts a Shiny gadget that let the user which variables to represent.

Usage

plotMap(
  x,
  refStudy = NULL,
```r
mapLayout,
  colAreaVar = "none",
  sizeAreaVars = c(),
  areaChartType = c("bar", "pie", "polar-area", "polar-radius"),
  uniqueScale = FALSE,
  showLabels = FALSE,
  popupAreaVars = c(),
  labelAreaVar = "none",
  colLinkVar = "none",
  sizeLinkVar = "none",
  popupLinkVars = c(),
  type = c("detail", "avg"),
  timeId = NULL,
  mcYear = "average",
  main = "",
  typeSizeAreaVars = FALSE,
  aliasSizeAreaVars = c(),
  compare = NULL,
  compareOpts = list(),
  interactive = getInteractivity(),
  options = plotMapOptions(),
  width = NULL,
  height = NULL,
  dateRange = NULL,
  xyCompare = c("union", "intersect"),
  h5requestFiltering = list(),
  timeStepH5 = "hourly",
  mcYearH5 = NULL,
  tablesH5 = c("areas", "links"),
  sizeMiniPlot = FALSE,
  language = "en",
  hidden = NULL,
  ...
)
```

**Arguments**

- **x**: Object of class `antaresDataList` created with `readAntares` and containing areas and links data. It can be a list of `antaresData` objects. In this case, one chart is created for each object.

- **refStudy**: An object of class `antaresData` created with function `readAntares` containing data for areas and or districts. Can also contains an opts who refer to a h5 file.

- **mapLayout**: Object created with function `mapLayout`

- **colAreaVar**: Name of a variable present in `areas`. The values of this variable are represented by the color of the areas on the map. If "none", then the default color is used for all areas.

- **sizeAreaVars**: Vector of variables present in `areas` to associate with the size of areas on the map. If this parameter has length equal to 0, all areas have the same size.
If it has length equal to one, then the radius of the areas change depending on the values of the variable choosen. If it has length greater than 1 then areas are represented by a polar area chart where the size of each section depends on the values of each variable.

areaChartType
If parameter `sizeAreaVars` contains multiple variables, this parameter determines the type of representation. Possible values are "bar" for bar charts, "pie" for pie charts, "polar-area" and "polar-radius" for polar area charts where the values are represented respectively by the area or the radius of the slices.

uniqueScale
If the map contains polar or bar charts, should the different variables represented use the same scale or should each variable have its own scale? This parameter should be TRUE only if the variables have the same unit and are comparable: for instance production variables.

showLabels
Used only when `sizeAreaVars` contains multiple variables. If it is TRUE, then values of each variable are displayed.

popupAreaVars
Vector of variables to display when user clicks on an area.

labelAreaVar
Variable to display inside the areas. This parameter is used only if parameter `sizeAreaVars` contains zero or one variable.

collLinkVar
Name of a variable present in `x$links`. The values of this variable are represented by the color of the links on the map. If "none", then the default color is used for all links.

sizeLinkVar
Name of a variable present in `x$links`. Its values are represented by the line width of the links on the map.

popupLinkVars
Vector of variables to display when user clicks on a link.

type
If `type="avg"`, the data is averaged by area/and or link and represented on the map. If it is equal to "detail", only one time step at a time. In interactive mode, an input control permits to choose the time step shown.

timeId
time id present in the data.

mcYear
If `x` contains multiple Monte-Carlo scenarios, this parameter determine which scenario is displayed. Must be an integer representing the index of the scenario or the word "average". In this case data are averaged.

main
Title of the map.

`typeSizeAreaVars` logical. Select `sizeAreaVars` using alias? Default to FALSE.

`aliasSizeAreaVars`
If `typeSizeAreaVars` is set to TRUE, name of alias. You can find the list of aliases with the function `showAliases`.

compare
An optional character vector containing names of parameters. When it is set, two charts are outputed with their own input controls. Alternatively, it can be a named list with names corresponding to parameter names and values being list with the initial values of the given parameter for each chart. See details if you are drawing a map.

`compareOpts`
List of options that indicates the number of charts to create and their position. Check out the documentation of `compareOptions` to see available options.
interactive LogicalValue. If TRUE, then a shiny gadget is launched that lets the user interactively choose the areas or districts to display.

options List of parameters that override some default visual settings. See the help of plotMapOptions.

width Width of the graph expressed in pixels or in percentage of the parent element. For instance "500px" and "100%" are valid values.

height Height of the graph expressed in pixels or in percentage of the parent element. For instance "500px" and "100%" are valid values.

dateRange A vector of two dates. Only data points between these two dates are displayed. If NULL, then all data is displayed.

xyCompare Use when you compare studies, can be "union" or "intersect". If union, all of mcYears in one of studies will be selectable. If intersect, only mcYears in all studies will be selectable.

h5requestFiltering Contains arguments used by default for h5 request, typically h5requestFiltering = list(mcYears = 3)

timeSteph5 character timeStep to read in h5 file. Only for Non interactive mode.

mcYearh5 numeric mcYear to read for h5. Only for Non interactive mode.

tablesh5 character tables for h5 ("areas" "links", "clusters" or "districts"). Only for Non interactive mode.

sizeMiniPlot boolean variable size for miniplot

language character language use for label. Default to 'en'. Can be 'fr'.

hidden logical Names of input to hide. Default to NULL

... Other arguments for manipulateWidget

Details

compare argument can take following values :

- "mcYear"
- "type"
- "colAreaVar"
- "sizeAreaVars"
- "areaChartType"
- "showLabels"
- "popupAreaVars"
- "labelAreaVar"
- "colLinkVar"
- "sizeLinkVar"
- "popupLinkVars"
- "typeSizeAreaVars"
- "aliasSizeAreaVars"
Value

An htmlwidget of class "leaflet". It can be modified with package leaflet. By default the function starts a shiny gadget that lets the user play with most of the parameters of the function. The function returns a leaflet map when the user clicks on the button "OK".

Examples

```r
## Not run:
mydata <- readAntares(areas = "all", links = "all", timeStep = "daily",
                        select = "nostat")

# Place areas on a map. This has to be done once for a given study. Then the # object returned by "mapLayout" may be saved and reloaded with # functions save and load

layout <- readLayout()
ml <- mapLayout(layout = layout)
save("ml", file = "ml.rda")

plotMap(x = mydata, mapLayout = ml)

# Specify the variables to use to control the color or size of elements.
plotMap(mydata, mapLayout = ml,
        sizeAreaVars = c("WIND", "SOLAR", "H. ROR"),
        sizeLinkVar = "FLOW LIN.")

# Change default graphical properties
plotMap(x = mydata, mapLayout = ml, options = list(colArea="red", colLink = "orange"))
plotMap(x = list(mydata, mydata), mapLayout = ml)

# Use custom alias
setAlias("custom_alias", "short description", c("OIL", "GAS", "COAL"))
plotMap(x = mydata, mapLayout = ml, typeSizeAreaVars = TRUE,
        aliasSizeAreaVars = "custom_alias")

plotMap(x = mydata, mapLayout = ml, interactive = FALSE,
        language = "fr", aliasSizeAreaVars = "Renouvelable", typeSizeAreaVars = TRUE)

# Use h5 for dynamic request / exploration in a study
# Set path of simulaiton
setSimulationPath(path = path1)

# Convert your study in h5 format
writeAntaresH5(path = myNewPath)

# Redefine sim path with h5 file
opts <- setSimulationPath(path = myNewPath)
plotMap(x = opts, mapLayout = ml)

# Compare elements in a single study
plotMap(x = opts, mapLayout = ml, .compare = "mcYear")
```
# Compare 2 studies
plotMap(x = list(opts, opts2), mapLayout = ml)

# Compare 2 studies with argument refStudies
plotMap(x = opts, refStudy = opts2, mapLayout = ml)
plotMap(x = opts, refStudy = opts2, mapLayout = ml, interactive = FALSE, mcYearh5 = 2)
plotMap(x = opts, refStudy = opts2, mapLayout = ml, h5requestFiltering = list(mcYears = myMcYear))

## End(Not run)

---

### plotMapLayout

Visualize mapLayout output.

#### Description

Visualize mapLayout output.

#### Usage

plotMapLayout(mapLayout)

#### Arguments

- **mapLayout**: object returned by function `mapLayout`

#### See Also

- `mapLayout`

#### Examples

## Not run:

# Read the coordinates of the areas in the Antares interface, then convert it
# in a map layout.
layers <- readLayout()
layers <- layers[,]
layers <- layers[,]
ml <- mapLayout(layers)

# visualize mapLayout
plotMapLayout(ml)

## End(Not run)
plotMapOptions  

Graphical options for plotMap

Description

These functions get and set options that control some graphical aspects of maps created with plotMap.

Usage

plotMapOptions(
  areaDefaultCol = "#DDDDE5",
  areaDefaultSize = 30,
  areaMaxSize = 50,
  areaMaxHeight = 50,
  areaChartColors = NULL,
  areaColorScaleOpts = colorScaleOptions(),
  labelMinSize = 8,
  labelMaxSize = 24,
  linkDefaultCol = "#BEBECE",
  linkDefaultSize = 3,
  linkMaxSize = 15,
  linkColorScaleOpts = colorScaleOptions(),
  legend = c("choose", "visible", "hidden"),
  tilesURL = defaultTilesURL(),
  preprocess = function(map) { map }
)

defaultTilesURL()

colorScaleOptions(
  breaks = 5,
  domain = NULL,
  negCol = "#FF0000",
  zeroCol = "#FAFAFA",
  posCol = "#0000FF",
  naCol = "#EEEEEE",
  zeroTol = NULL,
  colors = NULL,
  levels = NULL
)

Arguments

areaDefaultCol  default color of areas.
areaDefaultSize  default size of areas.
areaMaxSize  maximal size of an area when it represents the value of some variable.
areaMaxHeight  Maximal height of bars. Used only if a barchart representation is used.
areaChartColors  Vector of colors to use in polar area charts and bar charts
areaColorScaleOpts  List of options used to construct a continuous color scale. This list should be generated with function colorScaleOptions.
labelMinSize  minimal height of labels.
labelMaxSize  maximal height of labels.
linkDefaultCol  Default color of links.
linkDefaultSize  Default line width of links.
linkMaxSize  Maximal line width of a link when it represents the value of some variable.
linkColorScaleOpts  List of options used to construct a continuous color scale. This list should be generated with function colorScaleOptions.
legend  Should the legend be displayed or not ? Default is to mask the legend but add a button to display it. Other values are "visible" to make the legend always visible and "hidden" to mask it.
tilesURL  URL template used to get map tiles. The following site provides some URLs; https://leaflet-extras.github.io/leaflet-providers/preview/
preprocess  A function that takes as argument a map and that returns a modified version of this map. This parameter can be used to add extra information on a map.
bracks  Either a single number indicating the approximate number of colors to use, or a vector of values at which values to change color. In the first case, the function tries to cut the data nicely, so the real number of colors used may vary.
domain  Range of the data, ie. the range of possible values. If NULL, the the range of the data is used
negCol  color of the extreme negative value.
zeroCol  color of the 0 value.
posCol  Color of the extreme positive value.
naCol  Color for missing values
zeroTol  All values in the interval [-zeroTol,+zeroTol] are mapped to the zeroCol color. If NULL, the function tries to pick a nice value that is approximately equal to 1% of the maximal value.
colors  Vector of colors. If it is set and if user manually sets break points, then these colors are used instead of the colors defined by parameters negCol, zeroCol and posCol.
levels  Vector of the distinct values a variable can take. Only used when the variable to represent is a categorical variable.

Value

A list with the values of the different graphical parameters.
Examples

## Not run:

# Example : Change color for area variables

```r
library(antaresViz)

studyPath <- "path/to/study"
setSimulationPath(path = studyPath, simulation = -1)
myData<-readAntares(areas = "all", links = "all")

ml<-readRDS(file = "path/to/mapLayout.rds")
myOption<-plotMapOptions(areaChartColors = c("yellow", "violetred"))

plotMap(myData, 
ml, 
sizeAreaVars = c("SOLAR", "WIND"), 
type="avg", 
interactive = FALSE, 
options = myOption
)

# for pie chart
plotMap(myData, 
ml, 
sizeAreaVars = c("SOLAR", "WIND"), 
type="avg", 
interactive = FALSE, 
options = myOption, 
areaChartType = "pie", 
sizeMiniPlot = TRUE
)

# Example : Change color for link and area variables
myOption <- plotMapOptions(areaChartColors = c("yellow", "violetred"), linkDefaultCol = "green")

plotMap(myData, 
ml, 
type="avg", 
sizeAreaVars = c("SOLAR", "WIND"), 
interactive = FALSE, 
options = myOption
)

# Change default area color
myOption <- plotMapOptions(areaDefaultCol = "green")

plotMap(myData, 
ml, 
interactive = FALSE, 
options = myOption
)
# Change the scale
plotMap(myData,
  ml,
  colAreaVar = "MRG. PRICE",
  options = plotMapOptions(
    areaColorScaleOpts = colorScaleOptions(
      breaks = c(-1000, 100, 200, 20000),
      colors = c("green", "orange", "red")
    ),
    interactive = FALSE
  )
)

## End(Not run)

---

**plotThermalGroupCapacities**

*Plot for Thermal Group Capacities*

**Description**

Plot for Thermal Group Capacities

**Usage**

```r
plotThermalGroupCapacities(
  data,
  area = "all",
  main = "Thermal group capacities"
)
```

**Arguments**

- `data`: data.table of Thermal Group capacities
- `area`: areas to select, default all
- `main`: title

**Examples**

```r
## Not run:
opts <- setSimulationPath(getwd())
plotThermalGroupCapacities( thermalGroupCapacities(opts))

## End(Not run)
```
**plotXY**  
*Plot density between X et Y with rbokeh*

**Description**

This function takes some arguments from rbokeh and makes a plot.

**Usage**

```r
plotXY(
  data, 
  x, 
  y, 
  precision = 30, 
  sizeOnCount = FALSE, 
  outLine = TRUE, 
  transform = NULL
)
```

**Arguments**

- `data` data.frame can be antaresData object
- `x` character, x variable
- `y` character, y variable
- `precision` numeric, precision for plot
- `sizeOnCount` boolean, should adapt size of object based on count
- `outLine` boolean, add outline on your shape
- `transform` function, transform function apply on count (by cells), can be log

**Examples**

```r
## Not run:
setSimulationPath("myStudy")
myData <- readAntares()

plotXY(myData, "NODU", "LOAD", precision = 50,
  sizeOnCount = FALSE)

myData <- readAntares(areas = "all", links = "all")
myData <- mergeAllAntaresData(myData)
plotXY(myData, "OP. COST_max_b", "OP. COST_max_c", precision = 50,
  sizeOnCount = FALSE)

## End(Not run)
```
prodStackAliases

Visualize the production stack of an area

Description

prodStack draws the production stack for a set of areas or districts. User can see available stacks with prodStackAliases and create new ones with setProdStackAlias.

Usage

prodStackAliases()

setProdStackAlias(
  name,
  variables,
  colors,
  lines = NULL,
  lineColors = NULL,
  lineWidth = 3,
  description = NULL
)

prodStack(
  x,
  stack = "eco2mix",
  areas = NULL,
  mcYear = "average",
  dateRange = NULL,
  main = .getLabelLanguage("Production stack", language),
  unit = c("MWh", "GWh", "TWh"),
  compare = NULL,
  compareOpts = list(),
  interactive = getInteractivity(),
  legend = TRUE,
  legendId = sample(1e+09, 1),
  groupId = legendId,
  legendItemsPerRow = 5,
  width = NULL,
  height = NULL,
  xyCompare = c("union", "intersect"),
  h5requestFiltering = list(),
  stepPlot = FALSE,
  drawPoints = FALSE,
  timeStepH5 = "hourly",
  mcYearH5 = NULL,
  tablesh5 = c("areas", "links"),
  language = "en"
hidden = NULL,
refStudy = NULL,
...
)

Arguments

name name of the stack to create or update
variables A named list of expressions created with \texttt{alist}. The name of each element is the name of the variable to draw in the stacked graph. The element itself is an expression explaining how to compute the variable (see examples).

colors Vector of colors with same length as parameter variables. If \texttt{variables} is an alias, then this argument should be \texttt{NULL} in order to use default colors.

lines A named list of expressions created with \texttt{alist} indicating how to compute the curves to display on top of the stacked graph. It should be \texttt{NULL} if there is no curve to trace or if parameter \texttt{variables} is an alias.

lineColors Vector of colors with same length as parameter \texttt{lines}. This argument should be \texttt{NULL} if there is no curve to trace or if parameter \texttt{variables} is an alias.

lineWidth Optionnal. Default to 3. Vector of width with same length as parameter \texttt{lines} (or only one value).

description Description of the stack. It is displayed by function \texttt{prodStackAliases}.

x An object of class \texttt{antaresData} created with function \texttt{readAntares} containing data for areas and or districts. it can be a list of \texttt{antaresData} objects. In this case, one chart is created for each object. Can also contains opts who refer to a h5 file or list of opts.

stack Name of the stack to use. One can visualize available stacks with \texttt{prodStackAliases}

areas Vector of area or district names. The data of these areas or districts is aggregated by the function to construct the production stack.

mcYear If \texttt{x}, contains multiple Monte-Carlo scenarios, this parameter determine which scenario is displayed. Must be an integer representing the index of the scenario or the word "average". In this case data are averaged.

dateRange A vector of two dates. Only data points between these two dates are displayed. If \texttt{NULL}, then all data is displayed.

main Title of the graph.

unit Unit used in the graph. Possible values are "MWh", "GWh" or "TWh".

compare An optional character vector containing names of parameters. When it is set, two charts are outputed with their own input controls. Alternatively, it can be a named list with names corresponding to parameter names and values being list with the initial values of the given parameter for each chart. See details if you are drawing a map.

compareOpts List of options that indicates the number of charts to create and their position. Check out the documentation of \texttt{compareOptions} to see available options.

interactive LogicalValue. If \texttt{TRUE}, then a shiny gadget is launched that lets the user interactively choose the areas or districts to display.
prodStackAliases

*legend*  Logical value indicating if a legend should be drawn. This argument is useful when one wants to create a shared legend with prodStackLegend.

*legendId*  Id of the legend linked to the graph. This argument is useful when one wants to create a shared legend with prodStackLegend.

*groupId*  Parameter that can be used to synchronize the horizontal zoom of multiple charts. All charts that need to be synchronized must have the same group.

*legendItemsPerPage*  Number of elements to put in each row of the legend.

*width*  Width of the graph expressed in pixels or in percentage of the parent element. For instance "500px" and "100%" are valid values.

*height*  Height of the graph expressed in pixels or in percentage of the parent element. For instance "500px" and "100%" are valid values.

*xyCompare*  Use when you compare studies, can be "union" or "intersect". If union, all of mcYears in one of studies will be selectable. If intersect, only mcYears in all studies will be selectable.

*h5RequestFiltering*  Contains arguments used by default for h5 request, typically h5RequestFiltering = list(areas = "a", mcYears = 2)

*stepPlot*  boolean, step style for curves.

*drawPoints*  boolean, add points on graph

*timeStepH5*  character timeStep to read in h5 file. Only for Non interactive mode.

*mcYearH5*  numeric mcYear to read for h5. Only for Non interactive mode.

*tablesh5*  character tables for h5 ("areas" "links", "clusters" or "districts"). Only for Non interactive mode.

*language*  character language use for label. Default to 'en'. Can be 'fr'.

*hidden*  logical Names of input to hide. Default to NULL

*refStudy*  An object of class antaresData created with function readAntares containing data for areas and or districts. Can also contains an opts who refer to a h5 file.

*...*  Other arguments for manipulateWidget

Details

Compare argument can take following values:

- "mcYear"
- "main"
- "unit"
- "areas"
- "legend"
- "stack"
- "stepPlot"
- "drawPoints"
Value

prodStack returns an interactive html graphic. If argument interactive is TRUE, then a shiny gadget is started and the function returns an interactive html graphic when the user clicks on button "Done".

prodStackAliases displays the list of available aliases.

setProdStackAlias creates or updates a stack alias.

See Also

prodStackLegend

Examples

## Not run:
mydata <- readAntares(areas = "all", timeStep = "daily")

# Start a shiny gadget that permits to choose areas to display.
prodStack(x = mydata, unit = "GWh")

# Use in a non-interactive way
prodStack(x = mydata, unit = "GWh", areas = "fr", interactive = FALSE)

# Define a custom stack
setProdStackAlias(
  name = "Wind and solar",
  variables = alist(wind = WIND, solar = SOLAR),
  colors = c("green", "orange")
)

prodStack(x = mydata, unit = "GWh", stack = "Wind and solar")

# In a custom stack it is possible to use computed values
setProdStackAlias(
  name = "Renewable",
  variables = alist(
    renewable = WIND + SOLAR + `H. ROR` + `H. STOR` + `MISC. NDG`,
    thermal = NUCLEAR + LIGNITE + COAL + GAS + OIL + `MIX. FUEL` + `MISC. DTG`),
  colors = c("green", gray(0.3)),
  lines = alist(goalRenewable = LOAD * 0.23),
  lineColors = "#42EB09"
)

prodStack(x = mydata, unit = "GWh", stack = "renewable")

# Use compare
prodStack(x = mydata, compare = "areas")
prodStack(x = mydata, unit = "GWh", compare = "mcYear")
prodStack(x = mydata, unit = "GWh", compare = "main")
prodStack(x = mydata, unit = "GWh", compare = "unit")
prodStack(x = mydata, unit = "GWh", compare = "areas")
prodStackLegend

Plot an interactive legend for time series plots

Description

These functions create a nice looking legend that displays values when the user hovers a time series produced with plot this package. By default, the different functions already output a legend. This function is mostly useful to share a unique legend between two or more time series plots.
Usage

```r
prodStackLegend(
  stack = "eco2mix",
  legendItemsPerRow = 5,
  legendId = "",
  language = "en"
)
```

tsLegend(labels, colors, types = "line", legendItemsPerRow = 5, legendId = "")

Arguments

- `stack` (Name of the stack to use.) One can visualize available stacks with `prodStackAliases`.
- `legendItemsPerRow` (Number of elements to put in each row of the legend.)
- `legendId` (Id of the legend linked to the graph. This argument is useful when one wants to create a shared legend with `prodStackLegend`)
- `language` (character language use for label. Default to 'en'. Can be 'fr'.)
- `labels` (vector containing the names of the times series)
- `colors` (vector of colors. It must have the same length as parameter `labels`.
- `types` ("line" or "area" or a vector with same length as `labels` containing these two values.)

Details

These functions can be used to create a legend shared by multiple plots in a Shiny application or an interactive document created with Rmarkdown. For instance, let assume one wants to display four productions stacks in a 2x2 layout and have a unique legend below them in a Rmarkdown document. To do so, one can use the following chunk code:

```r
(R, echo = FALSE)
library(manipulateWidget)

combineWidgets(
  prodStack(mydata, areas = "fr",
    main = "Production stack in France", unit = "GWh",
    legend = FALSE, legendId = 1, height = "100", width = "100"),
  prodStack(mydata, areas = "de",
    main = "Production stack in Germany", unit = "GWh",
    legend = FALSE, legendId = 1, height = "100", width = "100"),
  prodStack(mydata, areas = "es",
    main = "Production stack in Spain", unit = "GWh",
    legend = FALSE, legendId = 1, height = "100", width = "100"),
  prodStack(mydata, areas = "be",
    main = "Production stack in Belgium", unit = "GWh",
    legend = FALSE, legendId = 1, height = "100", width = "100"),
  footer = prodStackLegend(legendId = 1)
)```
runAppAntaresViz  

Description
runAppAntaresViz run antaresViz App.

Usage
runAppAntaresViz()

Value
an App Shiny.

savePlotAsPng  

Description
This function saves an interactive plot generated with one of the functions of this package as a png image. The result can then be included in documents or presentations.

Usage
savePlotAsPng(plot, file = "Rplot.png", width = 600, height = 480, ...)

Arguments
plot  A plot generated with one of the functions of this package.
file  The name of the output file
width  Width of the output file
height  height of the output file
...  Other parameters passed to function webshot

Value
The function only creates the required file. Nothing is returned
Examples

```r
## Not run:
mydata <- readAntares()
myplot <- plot(mydata, variable = "MRG. PRICE", type = "density")
savePlotAsPng(myplot, file = "myplot.png")

## End(Not run)
```

---

**setInteractivity**  
*Get and set interactivity mode*

**Description**

setInteractivity globally sets the interactivity mode of plot functions. This is useful to avoid repeating `interactive = FALSE` or `interactive = TRUE` in each function. `getInteractivity` gets the interactivity mode.

**Usage**

```r
setInteractivity(interactive = "auto")
```

**Arguments**

- `interactive`  
  Should plot functions generate a UI that lets users to interactively modify input data and graphical parameters of a chart? It should be TRUE or FALSE. The default behavior is to set it to TRUE if the R session is interactive and to FALSE otherwise (for instance in Rmarkdown document).

**Value**

`getInteractivity` returns a boolean indicating the interactivity mode of plot functions. `setInteractivity` is only used for its side effects.

---

**stackMap**  
*plot stack and map*

**Description**

plot stack and map

**Usage**

```r
stackMap(x, mapLayout)
```
tsPlot

plot time series contained in an antaresData object

Description

This function generates an interactive plot of an antares time series.

Usage

tsPlot(
  x,
  refStudy = NULL,
  table = NULL,
  variable = NULL,
  elements = NULL,
  variable2Axe = NULL,
  mcYear = "average",
  type = c("ts", "barplot", "monotone", "density", "cdf", "heatmap"),
  dateRange = NULL,
  typeConfInt = FALSE,
  confInt = 0,
  minValue = NULL,
  maxValue = NULL,
  aggregate = c("none", "mean", "sum", "mean by areas", "sum by areas"),
  compare = NULL,
  compareOpts = list(),
  interactive = getInteractivity(),
  colors = NULL,
  main = NULL,
  ylab = NULL,
)
legend = TRUE,
legendItemsPerRow = 5,
colorScaleOpts = colorScaleOptions(20),
width = NULL,
height = NULL,
xyCompare = c("union", "intersect"),
h5requestFiltering = list(),
highlight = FALSE,
stepPlot = FALSE,
drawPoints = FALSE,
secondAxis = FALSE,
timeSteph5 = "hourly",
mcYearh5 = NULL,
tablesH5 = c("areas", "links"),
language = "en",
hidden = NULL,

## S3 method for class 'antaresData'
plot(
  x,
  refStudy = NULL,
  table = NULL,
  variable = NULL,
  elements = NULL,
  variable2Axe = NULL,
  mcYear = "average",
type = c("ts", "barplot", "monotone", "density", "cdf", "heatmap"),
dateRange = NULL,
typeConfInt = FALSE,
confInt = 0,
minValue = NULL,
maxValue = NULL,
aggregate = c("none", "mean", "sum", "mean by areas", "sum by areas"),
compare = NULL,
compareOpts = list(),
interactive = getInteractivity(),
colors = NULL,
main = NULL,
ylab = NULL,
legend = TRUE,
legendItemsPerRow = 5,
colorScaleOpts = colorScaleOptions(20),
width = NULL,
height = NULL,
xyCompare = c("union", "intersect"),
h5requestFiltering = list(),
highlight = FALSE,
stepPlot = FALSE,
drawPoints = FALSE,
secondAxis = FALSE,
timeSteph5 = "hourly",
mcYearh5 = NULL,
tablesh5 = c("areas", "links"),
language = "en",
hidden = NULL,
...
)

## S3 method for class 'simOptions'
plot(
x, refStudy = NULL, table = NULL, variable = NULL, elements = NULL, variable2Axe = NULL, mcYear = "average", type = c("ts", "barplot", "monotone", "density", "cdf", "heatmap"), dateRange = NULL, typeConfInt = FALSE, confInt = 0, minValue = NULL, maxValue = NULL, aggregate = c("none", "mean", "sum", "mean by areas", "sum by areas"), compare = NULL, compareOpts = list(), interactive = getInteractivity(), colors = NULL, main = NULL, ylab = NULL, legend = TRUE, legendItemsPerRow = 5, colorScaleOpts = colorScaleOptions(20), width = NULL, height = NULL, xyCompare = c("union", "intersect"), h5requestFiltering = list(), highlight = FALSE, stepPlot = FALSE, drawPoints = FALSE, secondAxis = FALSE, timeSteph5 = "hourly", mcYearh5 = NULL, tablesh5 = c("areas", "links"),
language = "en",
hidden = NULL,
...
)

## S3 method for class 'list'
plot(
  x,
  refStudy = NULL,
  table = NULL,
  variable = NULL,
  elements = NULL,
  variable2Axe = NULL,
  mcYear = "average",
  type = c("ts", "barplot", "monotone", "density", "cdf", "heatmap"),
  dateRange = NULL,
  typeConfInt = FALSE,
  confInt = 0,
  minValue = NULL,
  maxValue = NULL,
  aggregate = c("none", "mean", "sum", "mean by areas", "sum by areas"),
  compare = NULL,
  compareOpts = list(),
  interactive = getInteractivity(),
  colors = NULL,
  main = NULL,
  ylab = NULL,
  legend = TRUE,
  legendItemsPerRow = 5,
  colorScaleOpts = colorScaleOptions(20),
  width = NULL,
  height = NULL,
  xyCompare = c("union", "intersect"),
  h5requestFiltering = list(),
  highlight = FALSE,
  stepPlot = FALSE,
  drawPoints = FALSE,
  secondAxis = FALSE,
  timeSteph5 = "hourly",
  mcYearh5 = NULL,
  tablesh5 = c("areas", "links"),
  language = "en",
  hidden = NULL,
...
Arguments

- **x**: Object of class `antaresData`. Alternatively, it can be a list of `antaresData` objects. In this case, one chart is created for each object. Can also be an object from an h5 file or a list of `antaresData` objects from an h5 file.

- **refStudy**: An object of class `antaresData` created with function `readAntares` containing data for areas and districts. Can also contain an `opts` object referring to an h5 file.

- **table**: Name of the table to display when x is an `antaresDataList` object.

- **variable**: Name of the variable to plot. If this argument is missing, a shiny gadget that lets the user choose the variable to represent is displayed. When the user clicks on the "Done" button, the graphical is returned by the function.

- **elements**: Vector of "element" names indicating for which elements of `x` should the variable be plotted. For instance, if the input data contains areas, then this parameter should be a vector of area names. If data contains clusters data, this parameter has to be the concatenation of the area name and the cluster name, separated by ">". This is to prevent confusion when two clusters from different areas have the same name.

- **variable2Axe**: character, variables on second axis.

- **mcYear**: If `x` contains multiple Monte-Carlo scenarios, this parameter determines which scenario is displayed. Must be an integer representing the index of the scenario or the word "average". In this case, data are averaged.

- **type**: Type of plot to draw. "ts" creates a time series plot, "barplot" creates a barplot with one bar per element representing the average value of the variable for this element. "monotone" draws the monotone curve of the variable for each element.

- **dateRange**: A vector of two dates. Only data points between these two dates are displayed. If NULL, then all data is displayed.

- **typeConfInt**: logical. If multiple Monte-Carlo scenarios are present in the input data, see all curves (FALSE, default), or mean and confidence interval (TRUE)

- **confInt**: Number between 0 and 1 indicating the size of the confidence interval to display. If it equals to 0, then confidence interval is not computed or displayed. Used only when multiple Monte Carlo scenarios are present in the input data.

- **minValue**: Only used if parameter type is "density" or "cdf". If this parameter is set, all values that are less than minValue are removed from the graphic. This is useful to deal with variables containing a few extreme values (generally cost and price variables). If minValue is unset, all values are displayed.

- **maxValue**: Only used if parameter type is "density" or "cdf". If this parameter is set, all values not in [-minValue, maxValue] are removed from the graphic. This is useful to deal with variables containing a few extreme values (generally cost and price variables). If maxValue is 0 or unset, all values are displayed.

- **aggregate**: When multiple elements are selected, should the data be aggregated. If "none", each element is represented separately. If "mean" values are averaged and if "sum" they are added. You can also compute mean ans sum by areas.

- **compare**: An optional character vector containing names of parameters. When it is set, two charts are outputted with their own input controls. Alternatively, it can be a
named list with names corresponding to parameter names and values being list with the initial values of the given parameter for each chart. See details if you are drawing a map.

**compareOpts** List of options that indicates the number of charts to create and their position. Check out the documentation of `compareOptions` to see available options.

**interactive** LogicalValue. If `TRUE`, then a shiny gadget is launched that lets the user interactively choose the areas or districts to display.

**colors** Vector of colors

**main** Title of the graph.

**ylab** Label of the Y axis.

**legend** Logical value indicating if a legend should be drawn. This argument is usefull when one wants to create a shared legend with `prodStackLegend`

**legendItemsPerRow** Number of elements to put in each row of the legend.

**colorScaleOpts** A list of parameters that control the creation of color scales. It is used only for heatmaps. See `colorScaleOptions()` for available parameters.

**width** Width of the graph expressed in pixels or in percentage of the parent element. For instance "500px" and "100%" are valid values.

**height** Height of the graph expressed in pixels or in percentage of the parent element. For instance "500px" and "100%" are valid values.

**xyCompare** Use when you compare studies, can be "union" or "intersect". If union, all of mcYears in one of studies will be selectable. If intersect, only mcYears in all studies will be selectable.

**h5requestFiltering** Contains arguments used by default for h5 request, typically h5requestFiltering = list(mcYears = 2)

**highlight** highlight curve when mouse over

**stepPlot** boolean, step style for curves.

**drawPoints** boolean, add points on graph

**secondAxis** add second axis to graph

**timeSteph5** character timeStep to read in h5 file. Only for Non interactive mode.

**mcYearh5** numeric mcYear to read for h5. Only for Non interactive mode.

**tablesh5** character tables for h5 ("areas", "links", "clusters" or "districts"). Only for Non interactive mode.

**language** character language use for label. Default to `en`. Can be `fr`.

**hidden** logical Names of input to hide. Default to NULL

... Other arguments for `manipulateWidget`
Details

If the input data contains several Monte-Carlo scenarios, the function will display the evolution of the average value. Moreover it will represent a 95%

If the input data has a annual time step, the function creates a barplot instead of a line chart.

compare argument can take following values :

• "mcYear"
• "main"
• "variable"
• "type"
• "typeConfInt"
• "confInt"
• "elements"
• "aggregate"
• "legend"
• "highlight"
• "stepPlot"
• "drawPoints"
• "secondAxis"

Value

The function returns an object of class "htmlwidget". It is generated by package highcharter if time step is annual or by dygraphs for any other time step. It can be directly displayed in the viewer or be stored in a variable for later use.

Examples

```r
## Not run:
setSimulationPath(path = path1)
mydata <- readAntares(areas = "all", timeStep = "hourly")
plot(x = mydata)
  
# Plot only a few areas
plot(x = mydata[area %in% c("area1", "area2", "area3")])

# If data contains detailed results, then the function adds a confidence interval
dataDetailed <- readAntares(areas = "all", timeStep = "hourly", mcYears = 1:2)
plot(x = dataDetailed)

# If the time step is annual, the function creates a barplot instead of a linechart
dataAnnual <- readAntares(areas = "all", timeStep = "annual")
plot(x = dataAnnual)
```
# Compare two simulations
# Compare the results of two simulations
setSimulationPath(path1)
mydata1 <- readAntares(areas = "all", timeStep = "daily")
setSimulationPath(path2)
mydata2 <- readAntares(areas = "all", timeStep = "daily")

plot(x = list(mydata1, mydata2))

# When you compare studies, you have 2 ways to define inputs, union or intersect.
# for example, if you chose union and you have mcYears 1 and 2 in the first study
# and mcYears 2 and 3 in the second, mcYear input will be worth c(1, 2, 3)
# In same initial condition (study 1 -> 1, 2 ans study 2 -> 2, 3) if you choose intersect,
# mcYear input will be worth 2.
# You must specify union or intersect with xyCompare argument (default union).
plot(x = list(mydata1[area %in% c("a", "b")],
      mydata1[area %in% c("b", "c")]), xyCompare = "union")
plot(x = list(mydata1[area %in% c("a", "b")],
      mydata1[area %in% c("b", "c")]), xyCompare = "intersect")

# Compare data in a single simulation
# Compare two periods for the same simulation
plot(x = mydata1, compare = "dateRange")

# Compare two Monte-Carlo scenarios
detailedData <- readAntares(areas = "all", mcYears = "all")
plot(x = detailedData, .compare = "mcYear")

# Use h5 for dynamic request / exploration in a study
# Set path of simulation
setSimulationPath(path = path1)

# Convert your study in h5 format
writeAntaresH5(path = mynewpath)

# Redefine sim path with h5 file
opts <- setSimulationPath(path = mynewpath)
plot(x = opts)

# Compare elements in a single study
plot(x = opts, .compare = "mcYear")
# Compare 2 studies
plot(x = list(opts, opts2))

# Compare 2 studies with argument refStudy
plot(x = opts, refStudy = opts2)
plot(x = opts, refStudy = opts2, type = "ts", interactive = FALSE, mcYearh5 = 2)
plot(x = opts, refStudy = opts2, type = "ts", dateRange = DR, h5requestFiltering = list(
  mcYears = mcYears = mcYearToTest))

## End(Not run)
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