Package 'openxlsx'

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Type Package

Title Read, Write and Edit xlsx Files

Version 4.1.5

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Language en-US

Description Simplifies the creation of Excel .xlsx files by providing a high level interface to writing, styling and editing worksheets. Through the use of 'Rcpp', read/write times are comparable to the 'xlsx' and 'XLConnect' packages with the added benefit of removing the dependency on Java.

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URL https://ycphs.github.io/openxlsx/index.html, https://github.com/ycphs/openxlsx

BugReports https://github.com/ycphs/openxlsx/issues

Depends R (>= 3.3.0)

Imports grDevices, methods, Rcpp, stats, utils, zip, stringi

Suggests knitr, testthat, roxygen2

LinkingTo Rcpp

VignetteBuilder knitr

Encoding UTF-8

RoxygenNote 7.1.0

Collate 'CommentClass.R' 'HyperlinkClass.R' 'RcppExports.R' 'class_definitions.R' 'StyleClass.R' 'WorkbookClass.R' 'baseXML.R' 'borderFunctions.R' 'chartsheet_class.R' 'conditional_formatting.R' 'helperFunctions.R' 'loadWorkbook.R' 'onUnload.R' 'openXL.R' 'openxlsx-package.R' 'openxlsx.R' 'openxlsxCoerce.R' 'readWorkbook.R' 'sheet_data_class.R' 'workbook_column_widths.R' 'workbook_read_workbook.R' 'workbook_write_data.R' 'worksheet_class.R' 'wrappers.R' 'writeData.R' 'writeDataTable.R' 'writexlsx.R'

NeedsCompilation yes

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Repository CRAN

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R topics documented:

`addCreator` *Add another author to the meta data of the file.*

Description

Just a wrapper of wb$addCreator()

Usage

```
addCreator(wb, Creator)
```

Arguments

wb	A workbook object
Creator	A string object with the name of the creator

Author(s)

Philipp Schauberger

Examples

```
wb <- createWorkbook()
addCreator(wb, "test")
```

---

addFilter *Add column filters*

Description

Add excel column filters to a worksheet

Usage

```
addFilter(wb, sheet, rows, cols)
```

Arguments

wb	A workbook object
sheet	A name or index of a worksheet
rows	A row number.
cols	columns to add filter to.

Details

adds filters to worksheet columns, same as filter parameters in writeData. writeDataTable automatically adds filters to first row of a table. NOTE Can only have a single filter per worksheet unless using tables.

See Also

writeData

addFilter

Examples

```
wb <- createWorkbook()
addWorksheet(wb, "Sheet 1")
addWorksheet(wb, "Sheet 2")
addWorksheet(wb, "Sheet 3")

writeData(wb, 1, iris)
addFilter(wb, 1, row = 1, cols = 1:ncol(iris))

## Equivalently
writeData(wb, 2, x = iris, withFilter = TRUE)

## Similarly
writeDataTable(wb, 3, iris)
## Not run:
saveWorkbook(wb, file = "addFilterExample.xlsx", overwrite = TRUE)

## End(Not run)
```

---

addStyle *Add a style to a set of cells*

Description

Function adds a style to a specified set of cells.

Usage

```
addStyle(wb, sheet, style, rows, cols, gridExpand = FALSE, stack = FALSE)
```

Arguments

wb	A Workbook object containing a worksheet.
sheet	A worksheet to apply the style to.
style	A style object returned from createStyle()
rows	Rows to apply style to.
cols	columns to apply style to.
gridExpand	If TRUE, style will be applied to all combinations of rows and cols.
stack	If TRUE the new style is merged with any existing cell styles. If FALSE, any existing style is replaced by the new style.

Author(s)

Alexander Walker

See Also

createStyle

expand.grid

Examples

```
## See package vignette for more examples.

## Create a new workbook
wb <- createWorkbook("My name here")

## Add a worksheets
addWorksheet(wb, "Expenditure", gridLines = FALSE)

## write data to worksheet 1
writeData(wb, sheet = 1, USPersonalExpenditure, rowNames = TRUE)

## create and add a style to the column headers
headerStyle <- createStyle(
  fontSize = 14, fontColour = "#FFFFFF", halign = "center",
  fgFill = "#4F81BD", border = "TopBottom", borderColour = "#4F81BD"
)

addStyle(wb, sheet = 1, headerStyle, rows = 1, cols = 1:6, gridExpand = TRUE)

## style for body
bodyStyle <- createStyle(border = "TopBottom", borderColour = "#4F81BD")
addStyle(wb, sheet = 1, bodyStyle, rows = 2:6, cols = 1:6, gridExpand = TRUE)
setColWidths(wb, 1, cols = 1, widths = 21) ## set column width for row names column
## Not run:
saveWorkbook(wb, "addStyleExample.xlsx", overwrite = TRUE)

## End(Not run)
```

---

addWorksheet *Add a worksheet to a workbook*

Description

Add a worksheet to a Workbook object

Usage

```
addWorksheet(
  wb,
  sheetName,
  gridLines = TRUE,
  tabColour = NULL,
  zoom = 100,
```

```
  header = NULL,
  footer = NULL,
  evenHeader = NULL,
  evenFooter = NULL,
  firstHeader = NULL,
  firstFooter = NULL,
  visible = TRUE,
  paperSize = getOption("openxlsx.paperSize", default = 9),
  orientation = getOption("openxlsx.orientation", default = "portrait"),
 vdpi = getOption("openxlsx.vdpi", default = getOption("openxlsx.dpi", default = 300)),
 hdpi = getOption("openxlsx.hdpi", default = getOption("openxlsx.dpi", default = 300))
)
```

Arguments

wb	A Workbook object to attach the new worksheet
sheetName	A name for the new worksheet
gridLines	A logical. If FALSE, the worksheet grid lines will be hidden.
tabColour	Colour of the worksheet tab. A valid colour (belonging to colours()) or a valid hex colour beginning with "#"
zoom	A numeric between 10 and 400. Worksheet zoom level as a percentage.
header	document header. Character vector of length 3 corresponding to positions left, center, right. Use NA to skip a position.
footer	document footer. Character vector of length 3 corresponding to positions left, center, right. Use NA to skip a position.
evenHeader	document header for even pages.
evenFooter	document footer for even pages.
firstHeader	document header for first page only.
firstFooter	document footer for first page only.
visible	If FALSE, sheet is hidden else visible.
paperSize	An integer corresponding to a paper size. See ?pageSetup for details.
orientation	One of "portrait" or "landscape"
vdpi	Vertical DPI. Can be set with options("openxlsx.dpi" = X) or options("openxlsx.vdpi" = X)
hdpi	Horizontal DPI. Can be set with options("openxlsx.dpi" = X) or options("openxlsx.hdpi" = X)

Details

Headers and footers can contain special tags

- **&[Page]** Page number
- **&[Pages]** Number of pages
- **&[Date]** Current date

- **&[Time]** Current time
- **&[Path]** File path
- **&[File]** File name
- **&[Tab]** Worksheet name

Value

XML tree

Author(s)

Alexander Walker

Examples

```
## Create a new workbook
wb <- createWorkbook("Fred")

## Add 3 worksheets
addWorksheet(wb, "Sheet 1")
addWorksheet(wb, "Sheet 2", gridLines = FALSE)
addWorksheet(wb, "Sheet 3", tabColour = "red")
addWorksheet(wb, "Sheet 4", gridLines = FALSE, tabColour = "#4F81BD")

## Headers and Footers
addWorksheet(wb, "Sheet 5",
  header = c("ODD HEAD LEFT", "ODD HEAD CENTER", "ODD HEAD RIGHT"),
  footer = c("ODD FOOT RIGHT", "ODD FOOT CENTER", "ODD FOOT RIGHT"),
  evenHeader = c("EVEN HEAD LEFT", "EVEN HEAD CENTER", "EVEN HEAD RIGHT"),
  evenFooter = c("EVEN FOOT RIGHT", "EVEN FOOT CENTER", "EVEN FOOT RIGHT"),
  firstHeader = c("TOP", "OF FIRST", "PAGE"),
  firstFooter = c("BOTTOM", "OF FIRST", "PAGE")
)

addWorksheet(wb, "Sheet 6",
  header = c("&[Date]", "ALL HEAD CENTER 2", "&[Page] / &[Pages]"),
  footer = c("&[Path]&[File]", NA, "&[Tab]"),
  firstHeader = c(NA, "Center Header of First Page", NA),
  firstFooter = c(NA, "Center Footer of First Page", NA)
)

addWorksheet(wb, "Sheet 7",
  header = c("ALL HEAD LEFT 2", "ALL HEAD CENTER 2", "ALL HEAD RIGHT 2"),
  footer = c("ALL FOOT RIGHT 2", "ALL FOOT CENTER 2", "ALL FOOT RIGHT 2")
)

addWorksheet(wb, "Sheet 8",
  firstHeader = c("FIRST ONLY L", NA, "FIRST ONLY R"),
  firstFooter = c("FIRST ONLY L", NA, "FIRST ONLY R")
)
```

```
## Need data on worksheet to see all headers and footers
writeData(wb, sheet = 5, 1:400)
writeData(wb, sheet = 6, 1:400)
writeData(wb, sheet = 7, 1:400)
writeData(wb, sheet = 8, 1:400)

## Save workbook
## Not run:
saveWorkbook(wb, "addWorksheetExample.xlsx", overwrite = TRUE)

## End(Not run)
```

`all.equal` *Check equality of workbooks*

Description

Check equality of workbooks

Usage

```
## S3 method for class 'Workbook'
all.equal(target, current, ...)
```

Arguments

`target`	A `Workbook` object
`current`	A `Workbook` object
`...`	ignored

`cloneWorksheet` *Clone a worksheet to a workbook*

Description

Clone a worksheet to a Workbook object

Usage

```
cloneWorksheet(wb, sheetName, clonedSheet)
```

Arguments

`wb`	A Workbook object to attach the new worksheet
`sheetName`	A name for the new worksheet
`clonedSheet`	The name of the existing worksheet to be cloned.

Value

XML tree

Author(s)

Reinhold Kainhofer

Examples

```
## Create a new workbook
wb <- createWorkbook("Fred")

## Add 3 worksheets
addWorksheet(wb, "Sheet 1")
cloneWorksheet(wb, "Sheet 2", clonedSheet = "Sheet 1")

## Save workbook
## Not run:
saveWorkbook(wb, "cloneWorksheetExample.xlsx", overwrite = TRUE)

## End(Not run)
```

---

conditionalFormat *Add conditional formatting to cells*

Description

DEPRECATED! USE conditionalFormatting

Usage

```
conditionalFormat(
  wb,
  sheet,
  cols,
  rows,
  rule = NULL,
  style = NULL,
  type = "expression"
)
```

Arguments

wb	A workbook object
sheet	A name or index of a worksheet
cols	Columns to apply conditional formatting to
rows	Rows to apply conditional formatting to

rule	The condition under which to apply the formatting or a vector of colours. See examples.
style	A style to apply to those cells that satisfy the rule. A Style object returned from createStyle()
type	Either 'expression', 'colorscale' or 'databar'. If 'expression' the formatting is determined by a formula. If colorScale cells are coloured based on cell value. See examples.

Details

DEPRECATED! USE conditionalFormatting

Valid operators are "<", "<=", ">", ">=", "==", "!=". See Examples. Default style given by: createStyle(fontColour = "#9C0006", bgFill = "#FFC7CE")

Author(s)

Alexander Walker

See Also

createStyle

---

conditionalFormatting *Add conditional formatting to cells*

Description

Add conditional formatting to cells

Usage

```
conditionalFormatting(
  wb,
  sheet,
  cols,
  rows,
  rule = NULL,
  style = NULL,
  type = "expression",
  ...
)
```

Arguments

wb	A workbook object
sheet	A name or index of a worksheet
cols	Columns to apply conditional formatting to
rows	Rows to apply conditional formatting to
rule	The condition under which to apply the formatting. See examples.
style	A style to apply to those cells that satisfy the rule. Default is createStyle(fontColour = "#9C0006", bgFill = "#FFC7CE")
type	Either 'expression', 'colorscale', 'databar', 'duplicates' or "contains' (case insensitive).
...	See below

Details

See Examples.

If type == "expression"

- style is a Style object. See createStyle
- rule is an expression. Valid operators are "<", "<=", ">", ">=", "==", "!=".

If type == "colourScale"

- style is a vector of colours with length 2 or 3
- rule can be NULL or a vector of colours of equal length to styles

If type == "databar"

- style is a vector of colours with length 2 or 3
- rule is a numeric vector specifying the range of the databar colours. Must be equal length to style
- ...
  - **showvalue** If FALSE the cell value is hidden. Default TRUE.
  - **gradient** If FALSE colour gradient is removed. Default TRUE.
  - **border** If FALSE the border around the database is hidden. Default TRUE.

If type == "duplicates"

- style is a Style object. See createStyle
- rule is ignored.

If type == "contains"

- style is a Style object. See createStyle
- rule is the text to look for within cells

If type == "between"

- style is a Style object. See createStyle
- rule is a numeric vector of length 2 specifying lower and upper bound (Inclusive)

Author(s)

Alexander Walker

See Also

createStyle

Examples

```
wb <- createWorkbook()
addWorksheet(wb, "cellIs")
addWorksheet(wb, "Moving Row")
addWorksheet(wb, "Moving Col")
addWorksheet(wb, "Dependent on")
addWorksheet(wb, "Duplicates")
addWorksheet(wb, "containsText")
addWorksheet(wb, "colourScale", zoom = 30)
addWorksheet(wb, "databar")
addWorksheet(wb, "between")
addWorksheet(wb, "logical operators")

negStyle <- createStyle(fontColour = "#9C0006", bgFill = "#FFC7CE")
posStyle <- createStyle(fontColour = "#006100", bgFill = "#C6EFCE")

## rule applies to all each cell in range
writeData(wb, "cellIs", -5:5)
writeData(wb, "cellIs", LETTERS[1:11], startCol = 2)
conditionalFormatting(wb, "cellIs",
  cols = 1,
  rows = 1:11, rule = "!=0", style = negStyle
)
conditionalFormatting(wb, "cellIs",
  cols = 1,
  rows = 1:11, rule = "==0", style = posStyle
)

## highlight row dependent on first cell in row
writeData(wb, "Moving Row", -5:5)
writeData(wb, "Moving Row", LETTERS[1:11], startCol = 2)
conditionalFormatting(wb, "Moving Row",
  cols = 1:2,
  rows = 1:11, rule = "$A1<0", style = negStyle
)
conditionalFormatting(wb, "Moving Row",
  cols = 1:2,
  rows = 1:11, rule = "$A1>0", style = posStyle
)

## highlight column dependent on first cell in column
writeData(wb, "Moving Col", -5:5)
writeData(wb, "Moving Col", LETTERS[1:11], startCol = 2)
conditionalFormatting(wb, "Moving Col",
```

```
  cols = 1:2,
  rows = 1:11, rule = "A$1<0", style = negStyle
)
conditionalFormatting(wb, "Moving Col",
  cols = 1:2,
  rows = 1:11, rule = "A$1>0", style = posStyle
)

## highlight entire range cols X rows dependent only on cell A1
writeData(wb, "Dependent on", -5:5)
writeData(wb, "Dependent on", LETTERS[1:11], startCol = 2)
conditionalFormatting(wb, "Dependent on",
  cols = 1:2,
  rows = 1:11, rule = "$A$1<0", style = negStyle
)
conditionalFormatting(wb, "Dependent on",
  cols = 1:2,
  rows = 1:11, rule = "$A$1>0", style = posStyle
)

## highlight cells in column 1 based on value in column 2
writeData(wb, "Dependent on", data.frame(x = 1:10, y = runif(10)), startRow = 15)
conditionalFormatting(wb, "Dependent on",
  cols = 1,
  rows = 16:25, rule = "B16<0.5", style = negStyle
)
conditionalFormatting(wb, "Dependent on",
  cols = 1,
  rows = 16:25, rule = "B16>=0.5", style = posStyle
)


## highlight duplicates using default style
writeData(wb, "Duplicates", sample(LETTERS[1:15], size = 10, replace = TRUE))
conditionalFormatting(wb, "Duplicates", cols = 1, rows = 1:10, type = "duplicates")

## cells containing text
fn <- function(x) paste(sample(LETTERS, 10), collapse = "-")
writeData(wb, "containsText", sapply(1:10, fn))
conditionalFormatting(wb, "containsText", cols = 1, rows = 1:10, type = "contains", rule = "A")

## colourscale colours cells based on cell value
df <- read.xlsx(system.file("extdata", "readTest.xlsx", package = "openxlsx"), sheet = 4)
writeData(wb, "colourScale", df, colNames = FALSE) ## write data.frame

## rule is a vector or colours of length 2 or 3 (any hex colour or any of colours())
## If rule is NULL, min and max of cells is used. Rule must be the same length as style or NULL.
conditionalFormatting(wb, "colourScale",
  cols = 1:ncol(df), rows = 1:nrow(df),
  style = c("black", "white"),
  rule = c(0, 255),
  type = "colourScale"
)
```

```
setColWidths(wb, "colourScale", cols = 1:ncol(df), widths = 1.07)
setRowHeights(wb, "colourScale", rows = 1:nrow(df), heights = 7.5)

## Databars
writeData(wb, "databar", -5:5)
conditionalFormatting(wb, "databar", cols = 1, rows = 1:11, type = "databar") ## Default colours

## Betweem
# Highlight cells in interval [-2, 2]
writeData(wb, "between", -5:5)
conditionalFormatting(wb, "between", cols = 1, rows = 1:11, type = "between", rule = c(-2, 2))

## Logical Operators
# You can use Excels logical Opertors
writeData(wb, "logical operators", 1:10)
conditionalFormatting(wb, "logical operators",
  cols = 1, rows = 1:10,
  rule = "OR($A1=1,$A1=3,$A1=5,$A1=7)"
)
## Not run:
saveWorkbook(wb, "conditionalFormattingExample.xlsx", TRUE)

## End(Not run)


##############################################################################
## Databar Example

wb <- createWorkbook()
addWorksheet(wb, "databar")

## Databars
writeData(wb, "databar", -5:5, startCol = 1)
conditionalFormatting(wb, "databar", cols = 1, rows = 1:11, type = "databar") ## Defaults

writeData(wb, "databar", -5:5, startCol = 3)
conditionalFormatting(wb, "databar", cols = 3, rows = 1:11, type = "databar", border = FALSE)

writeData(wb, "databar", -5:5, startCol = 5)
conditionalFormatting(wb, "databar",
  cols = 5, rows = 1:11,
  type = "databar", style = c("#a6a6a6"), showValue = FALSE
)

writeData(wb, "databar", -5:5, startCol = 7)
conditionalFormatting(wb, "databar",
  cols = 7, rows = 1:11,
  type = "databar", style = c("#a6a6a6"), showValue = FALSE, gradient = FALSE
)

writeData(wb, "databar", -5:5, startCol = 9)
conditionalFormatting(wb, "databar",
```

```
  cols = 9, rows = 1:11,
  type = "databar", style = c("#a6a6a6", "#a6a6a6"), showValue = FALSE, gradient = FALSE
)
## Not run:
saveWorkbook(wb, file = "databarExample.xlsx", overwrite = TRUE)

## End(Not run)
```

---

convertFromExcelRef *Convert excel column name to integer index*

Description

Convert excel column name to integer index e.g. "J" to 10

Usage

```
convertFromExcelRef(col)
```

Arguments

col	An excel column reference

Examples

```
convertFromExcelRef("DOG")
convertFromExcelRef("COW")

## numbers will be removed
convertFromExcelRef("R22")
```

---

convertToDate *Convert from excel date number to R Date type*

Description

Convert from excel date number to R Date type

Usage

```
convertToDate(x, origin = "1900-01-01", ...)
```

Arguments

x	A vector of integers
origin	date. Default value is for Windows Excel 2010
...	additional parameters passed to as.Date()

Details

Excel stores dates as number of days from some origin day

See Also

writeData

Examples

```
## 2014 April 21st to 25th
convertToDate(c(41750, 41751, 41752, 41753, 41754, NA))
convertToDate(c(41750.2, 41751.99, NA, 41753))
```

---

convertToDateTime *Convert from excel time number to R POSIXct type.*

Description

Convert from excel time number to R POSIXct type.

Usage

```
convertToDateTime(x, origin = "1900-01-01", ...)
```

Arguments

x	A numeric vector
origin	date. Default value is for Windows Excel 2010
...	Additional parameters passed to as.POSIXct

Details

Excel stores dates as number of days from some origin date

Examples

```
## 2014-07-01, 2014-06-30, 2014-06-29
x <- c(41821.8127314815, 41820.8127314815, NA, 41819, NaN)
convertToDateTime(x)
convertToDateTime(x, tx = "Australia/Perth")
```

copyWorkbook *Copy a Workbook object.*

Description

Just a wrapper of wb$copy()

Usage

```
copyWorkbook(wb)
```

Arguments

wb	A workbook object

Value

Workbook

Examples

```
wb <- createWorkbook()
wb2 <- wb ## does not create a copy
wb3 <- copyWorkbook(wb) ## wrapper for wb$copy()

addWorksheet(wb, "Sheet1") ## adds worksheet to both wb and wb2 but not wb3

names(wb)
names(wb2)
names(wb3)
```

createComment *create a Comment object*

Description

Create a cell Comment object to pass to writeComment()

Usage

```
createComment(
  comment,
  author = Sys.getenv("USERNAME"),
  style = NULL,
  visible = TRUE,
  width = 2,
  height = 4
)
```

Arguments

comment	Comment text. Character vector.
author	Author of comment. Character vector of length 1
style	A Style object or list of style objects the same length as comment vector. See createStyle.
visible	TRUE or FALSE. Is comment visible.
width	Textbox integer width in number of cells
height	Textbox integer height in number of cells

See Also

writeComment

Examples

```
wb <- createWorkbook()
addWorksheet(wb, "Sheet 1")

c1 <- createComment(comment = "this is comment")
writeComment(wb, 1, col = "B", row = 10, comment = c1)

s1 <- createStyle(fontSize = 12, fontColour = "red", textDecoration = c("BOLD"))
s2 <- createStyle(fontSize = 9, fontColour = "black")

c2 <- createComment(comment = c("This Part Bold red\n\n", "This part black"), style = c(s1, s2))
c2

writeComment(wb, 1, col = 6, row = 3, comment = c2)
## Not run:
saveWorkbook(wb, file = "createCommentExample.xlsx", overwrite = TRUE)

## End(Not run)
```

---

createNamedRegion *Create a named region.*

Description

Create a named region

Usage

```
createNamedRegion(wb, sheet, cols, rows, name)
```

Arguments

wb	A workbook object
sheet	A name or index of a worksheet
cols	Numeric vector specifying columns to include in region
rows	Numeric vector specifying rows to include in region
name	Name for region. A character vector of length 1. Note region names musts be case-insensitive unique.

Details

Region is given by: min(cols):max(cols) X min(rows):max(rows)

Author(s)

Alexander Walker

See Also

getNamedRegions

Examples

```
## create named regions
wb <- createWorkbook()
addWorksheet(wb, "Sheet 1")

## specify region
writeData(wb, sheet = 1, x = iris, startCol = 1, startRow = 1)
createNamedRegion(
  wb = wb,
  sheet = 1,
  name = "iris",
  rows = 1:(nrow(iris) + 1),
  cols = 1:ncol(iris)
)


## using writeData 'name' argument
writeData(wb, sheet = 1, x = iris, name = "iris2", startCol = 10)

out_file <- tempfile(fileext = ".xlsx")
## Not run:
saveWorkbook(wb, out_file, overwrite = TRUE)

## see named regions
getNamedRegions(wb) ## From Workbook object
getNamedRegions(out_file) ## From xlsx file

## read named regions
df <- read.xlsx(wb, namedRegion = "iris")
```

```
head(df)

df <- read.xlsx(out_file, namedRegion = "iris2")
head(df)

## End(Not run)
```

---

createStyle *Create a cell style*

Description

Create a new style to apply to worksheet cells

Usage

```
createStyle(
  fontName = NULL,
  fontSize = NULL,
  fontColour = NULL,
  numFmt = "GENERAL",
  border = NULL,
  borderColour = getOption("openxlsx.borderColour", "black"),
  borderStyle = getOption("openxlsx.borderStyle", "thin"),
  bgFill = NULL,
  fgFill = NULL,
  halign = NULL,
  valign = NULL,
  textDecoration = NULL,
  wrapText = FALSE,
  textRotation = NULL,
  indent = NULL,
  locked = NULL,
  hidden = NULL
)
```

Arguments

fontName	A name of a font. Note the font name is not validated. If fontName is NULL, the workbook base font is used. (Defaults to Calibri)
fontSize	Font size. A numeric greater than 0. If fontSize is NULL, the workbook base font size is used. (Defaults to 11)
fontColour	Colour of text in cell. A valid hex colour beginning with "#" or one of colours(). If fontColour is NULL, the workbook base font colours is used. (Defaults to black)
numFmt	Cell formatting

- **GENERAL**
- **NUMBER**
- **CURRENCY**
- **ACCOUNTING**
- **DATE**
- **LONGDATE**
- **TIME**
- **PERCENTAGE**
- **FRACTION**
- **SCIENTIFIC**
- **TEXT**
- **COMMA** for comma separated thousands
- For date/datetime styling a combination of d, m, y and punctuation marks
- For numeric rounding use "0.00" with the preferred number of decimal places

`border` Cell border. A vector of "top", "bottom", "left", "right" or a single string).

- **"top"** Top border
- **bottom** Bottom border
- **left** Left border
- **right** Right border
- **TopBottom** or **c("top", "bottom")** Top and bottom border
- **LeftRight** or **c("left", "right")** Left and right border
- **TopLeftRight** or **c("top", "left", "right")** Top, Left and right border
- **TopBottomLeftRight** or **c("top", "bottom", "left", "right")** All borders

`borderColour` Colour of cell border vector the same length as the number of sides specified in "border" A valid colour (belonging to colours()) or a valid hex colour beginning with "#"

`borderStyle` Border line style vector the same length as the number of sides specified in "border"

- **none** No Border
- **thin** thin border
- **medium** medium border
- **dashed** dashed border
- **dotted** dotted border
- **thick** thick border
- **double** double line border
- **hair** Hairline border
- **mediumDashed** medium weight dashed border
- **dashDot** dash-dot border
- **mediumDashDot** medium weight dash-dot border
- **dashDotDot** dash-dot-dot border
- **mediumDashDotDot** medium weight dash-dot-dot border

- **slantDashDot** slanted dash-dot border

`bgFill` Cell background fill colour. A valid colour (belonging to colours()) or a valid hex colour beginning with "#". – **Use for conditional formatting styles only.**

`fgFill` Cell foreground fill colour. A valid colour (belonging to colours()) or a valid hex colour beginning with "#"

`halign` Horizontal alignment of cell contents

- **left** Left horizontal align cell contents
- **right** Right horizontal align cell contents
- **center** Center horizontal align cell contents

`valign` A name Vertical alignment of cell contents

- **top** Top vertical align cell contents
- **center** Center vertical align cell contents
- **bottom** Bottom vertical align cell contents

`textDecoration` Text styling.

- **bold** Bold cell contents
- **strikeout** Strikeout cell contents
- **italic** Italicise cell contents
- **underline** Underline cell contents
- **underline2** Double underline cell contents

`wrapText` Logical. If `TRUE` cell contents will wrap to fit in column.

`textRotation` Rotation of text in degrees. 255 for vertical text.

`indent` Horizontal indentation of cell contents.

`locked` Whether cell contents are locked (if worksheet protection is turned on)

`hidden` Whether the formula of the cell contents will be hidden (if worksheet protection is turned on)

Value

A style object

Author(s)

Alexander Walker

See Also

`addStyle`

Examples

```
## See package vignettes for further examples

## Modify default values of border colour and border line style
options("openxlsx.borderColour" = "#4F80BD")
options("openxlsx.borderStyle" = "thin")
```

```
## Size 18 Arial, Bold, left horz. aligned, fill colour #1A33CC, all borders,
style <- createStyle(
  fontSize = 18, fontName = "Arial",
 textDecoration = "bold", halign = "left", fgFill = "#1A33CC", border = "TopBottomLeftRight"
)

## Red, size 24, Bold, italic, underline, center aligned Font, bottom border
style <- createStyle(
  fontSize = 24, fontColour = rgb(1, 0, 0),
  textDecoration = c("bold", "italic", "underline"),
  halign = "center", valign = "center", border = "Bottom"
)

# borderColour is recycled for each border or all colours can be supplied

# colour is recycled 3 times for "Top", "Bottom" & "Right" sides.
createStyle(border = "TopBottomRight", borderColour = "red")

# supply all colours
createStyle(border = "TopBottomLeft", borderColour = c("red", "yellow", "green"))
```

`createWorkbook` *Create a new Workbook object*

Description

Create a new Workbook object

Usage

```
createWorkbook(
  creator = ifelse(.Platform$OS.type == "windows", Sys.getenv("USERNAME"),
    Sys.getenv("USER")),
  title = NULL,
  subject = NULL,
  category = NULL
)
```

Arguments

`creator`	Creator of the workbook (your name). Defaults to login username
`title`	Workbook properties title
`subject`	Workbook properties subject
`category`	Workbook properties category

Value

Workbook object

Author(s)

Alexander Walker

See Also

loadWorkbook

saveWorkbook

Examples

```
## Create a new workbook
wb <- createWorkbook()

## Save workbook to working directory
## Not run:
saveWorkbook(wb, file = "createWorkbookExample.xlsx", overwrite = TRUE)

## End(Not run)

## Set Workbook properties
wb <- createWorkbook(
  creator = "Me",
  title = "title here",
  subject = "this & that",
  category = "something"
)
```

---

dataValidation *Add data validation to cells*

Description

Add Excel data validation to cells

Usage

```
dataValidation(
  wb,
  sheet,
  cols,
  rows,
  type,
  operator,
  value,
  allowBlank = TRUE,
  showInputMsg = TRUE,
  showErrorMsg = TRUE
)
```

Arguments

wb	A workbook object
sheet	A name or index of a worksheet
cols	Contiguous columns to apply conditional formatting to
rows	Contiguous rows to apply conditional formatting to
type	One of 'whole', 'decimal', 'date', 'time', 'textLength', 'list' (see examples)
operator	One of 'between', 'notBetween', 'equal', 'notEqual', 'greaterThan', 'lessThan', 'greaterThanOrEqual', 'lessThanOrEqual'
value	a vector of length 1 or 2 depending on operator (see examples)
allowBlank	logical
showInputMsg	logical
showErrorMsg	logical

Examples

```
wb <- createWorkbook()
addWorksheet(wb, "Sheet 1")
addWorksheet(wb, "Sheet 2")

writeDataTable(wb, 1, x = iris[1:30, ])

dataValidation(wb, 1,
  col = 1:3, rows = 2:31, type = "whole",
  operator = "between", value = c(1, 9)
)

dataValidation(wb, 1,
  col = 5, rows = 2:31, type = "textLength",
  operator = "between", value = c(4, 6)
)


## Date and Time cell validation
df <- data.frame(
  "d" = as.Date("2016-01-01") + -5:5,
  "t" = as.POSIXct("2016-01-01") + -5:5 * 10000
)

writeData(wb, 2, x = df)
dataValidation(wb, 2,
  col = 1, rows = 2:12, type = "date",
  operator = "greaterThanOrEqual", value = as.Date("2016-01-01")
)

dataValidation(wb, 2,
  col = 2, rows = 2:12, type = "time",
  operator = "between", value = df$t[c(4, 8)]
)
```

```
## Not run:
saveWorkbook(wb, "dataValidationExample.xlsx", overwrite = TRUE)

## End(Not run)


######################################################################
## If type == 'list'
# operator argument is ignored.

wb <- createWorkbook()
addWorksheet(wb, "Sheet 1")
addWorksheet(wb, "Sheet 2")

writeDataTable(wb, sheet = 1, x = iris[1:30, ])
writeData(wb, sheet = 2, x = sample(iris$Sepal.Length, 10))

dataValidation(wb, 1, col = 1, rows = 2:31, type = "list", value = "'Sheet 2'!$A$1:$A$10")

# openXL(wb)
```

`deleteData` *Delete cell data*

Description

Delete contents and styling from a cell.

Usage

```
deleteData(wb, sheet, cols, rows, gridExpand = FALSE)
```

Arguments

`wb`	A workbook object
`sheet`	A name or index of a worksheet
`cols`	columns to delete data from.
`rows`	Rows to delete data from.
`gridExpand`	If `TRUE`, all data in rectangle min(rows):max(rows) X min(cols):max(cols) will be removed.

Author(s)

Alexander Walker

Examples

```
## write some data
wb <- createWorkbook()
addWorksheet(wb, "Worksheet 1")
x <- data.frame(matrix(runif(200), ncol = 10))
writeData(wb, sheet = 1, x = x, startCol = 2, startRow = 3, colNames = FALSE)

## delete some data
deleteData(wb, sheet = 1, cols = 3:5, rows = 5:7, gridExpand = TRUE)
deleteData(wb, sheet = 1, cols = 7:9, rows = 5:7, gridExpand = TRUE)
deleteData(wb, sheet = 1, cols = LETTERS, rows = 18, gridExpand = TRUE)
## Not run:
saveWorkbook(wb, "deleteDataExample.xlsx", overwrite = TRUE)

## End(Not run)
```

---

freezePane *Freeze a worksheet pane*

Description

Freeze a worksheet pane

Usage

```
freezePane(
  wb,
  sheet,
  firstActiveRow = NULL,
  firstActiveCol = NULL,
  firstRow = FALSE,
  firstCol = FALSE
)
```

Arguments

wb	A workbook object
sheet	A name or index of a worksheet
firstActiveRow	Top row of active region
firstActiveCol	Furthest left column of active region
firstRow	If TRUE, freezes the first row (equivalent to firstActiveRow = 2)
firstCol	If TRUE, freezes the first column (equivalent to firstActiveCol = 2)

Author(s)

Alexander Walker

Examples

```
## Create a new workbook
wb <- createWorkbook("Kenshin")

## Add some worksheets
addWorksheet(wb, "Sheet 1")
addWorksheet(wb, "Sheet 2")
addWorksheet(wb, "Sheet 3")
addWorksheet(wb, "Sheet 4")

## Freeze Panes
freezePane(wb, "Sheet 1", firstActiveRow = 5, firstActiveCol = 3)
freezePane(wb, "Sheet 2", firstCol = TRUE) ## shortcut to firstActiveCol = 2
freezePane(wb, 3, firstRow = TRUE) ## shortcut to firstActiveRow = 2
freezePane(wb, 4, firstActiveRow = 1, firstActiveCol = "D")

## Save workbook
## Not run:
saveWorkbook(wb, "freezePaneExample.xlsx", overwrite = TRUE)

## End(Not run)
```

---

getBaseFont *Return the workbook default font*

Description

Return the workbook default font

Returns the base font used in the workbook.

Usage

```
getBaseFont(wb)
```

Arguments

wb	A workbook object

Author(s)

Alexander Walker

Examples

```
## create a workbook
wb <- createWorkbook()
getBaseFont(wb)

## modify base font to size 10 Arial Narrow in red
```

```
modifyBaseFont(wb, fontSize = 10, fontColour = "#FF0000", fontName = "Arial Narrow")

getBaseFont(wb)
```

`getCellRefs` *Return excel cell coordinates from (x,y) coordinates*

Description

Return excel cell coordinates from (x,y) coordinates

Usage

```
getCellRefs(cellCoords)
```

Arguments

`cellCoords`	A data.frame with two columns coordinate pairs.

Value

Excel alphanumeric cell reference

Author(s)

Philipp Schauberger, Alexander Walker

Examples

```
getCellRefs(data.frame(1, 2))
# "B1"
getCellRefs(data.frame(1:3, 2:4))
# "B1" "C2" "D3"
```

`getCreators` *Add another author to the meta data of the file.*

Description

Just a wrapper of wb$getCreators() Get the names of the

Usage

```
getCreators(wb)
```

Arguments

`wb`	A workbook object

Value

vector of creators

Author(s)

Philipp Schauberger

Examples

```
wb <- createWorkbook()
getCreators(wb)
```

`getDateOrigin` *Get the date origin an xlsx file is using*

Description

Return the date origin used internally by an xlsx or xlsm file

Usage

```
getDateOrigin(xlsxFile)
```

Arguments

`xlsxFile`	An xlsx or xlsm file.

Details

Excel stores dates as the number of days from either 1904-01-01 or 1900-01-01. This function checks the date origin being used in an Excel file and returns is so it can be used in `convertToDate`

Value

One of "1900-01-01" or "1904-01-01".

Author(s)

Alexander Walker

See Also

`convertToDate`

Examples

```
## create a file with some dates
## Not run:
write.xlsx(as.Date("2015-01-10") - (0:4), file = "getDateOriginExample.xlsx")
m <- read.xlsx("getDateOriginExample.xlsx")

## convert to dates
do <- getDateOrigin(system.file("extdata", "readTest.xlsx", package = "openxlsx"))
convertToDate(m[[1]], do)

## End(Not run)
```

`getNamedRegions` *Get named regions*

Description

Return a vector of named regions in a xlsx file or Workbook object

Usage

```
getNamedRegions(x)
```

Arguments

x	An xlsx file or Workbook object

See Also

createNamedRegion

Examples

```
## create named regions
wb <- createWorkbook()
addWorksheet(wb, "Sheet 1")

## specify region
writeData(wb, sheet = 1, x = iris, startCol = 1, startRow = 1)
createNamedRegion(
  wb = wb,
  sheet = 1,
  name = "iris",
  rows = 1:(nrow(iris) + 1),
  cols = 1:ncol(iris)
)
```

```
## using writeData 'name' argument to create a named region
writeData(wb, sheet = 1, x = iris, name = "iris2", startCol = 10)
## Not run:
out_file <- tempfile(fileext = ".xlsx")
saveWorkbook(wb, out_file, overwrite = TRUE)

## see named regions
getNamedRegions(wb) ## From Workbook object
getNamedRegions(out_file) ## From xlsx file

## read named regions
df <- read.xlsx(wb, namedRegion = "iris")
head(df)

df <- read.xlsx(out_file, namedRegion = "iris2")
head(df)

## End(Not run)
```

`getSheetNames` *Get names of worksheets*

Description

Returns the worksheet names within an xlsx file

Usage

```
getSheetNames(file)
```

Arguments

`file`	An xlsx or xlsm file.

Value

Character vector of worksheet names.

Author(s)

Alexander Walker

Examples

```
getSheetNames(system.file("extdata", "readTest.xlsx", package = "openxlsx"))
```

getStyles *Returns a list of all styles in the workbook*

Description

Returns list of style objects in the workbook

Usage

```
getStyles(wb)
```

Arguments

wb	A workbook object

See Also

replaceStyle

Examples

```
## load a workbook
wb <- loadWorkbook(file = system.file("extdata", "loadExample.xlsx", package = "openxlsx"))
getStyles(wb)[1:3]
```

getTables *List Excel tables in a workbook*

Description

List Excel tables in a workbook

Usage

```
getTables(wb, sheet)
```

Arguments

wb	A workbook object
sheet	A name or index of a worksheet

Value

character vector of table names on the specified sheet

Examples

```
wb <- createWorkbook()
addWorksheet(wb, sheetName = "Sheet 1")
writeDataTable(wb, sheet = "Sheet 1", x = iris)
writeDataTable(wb, sheet = 1, x = mtcars, tableName = "mtcars", startCol = 10)

getTables(wb, sheet = "Sheet 1")
```

`insertImage` *Insert an image into a worksheet*

Description

Insert an image into a worksheet

Usage

```
insertImage(
  wb,
  sheet,
  file,
  width = 6,
  height = 3,
  startRow = 1,
  startCol = 1,
  units = "in",
  dpi = 300
)
```

Arguments

`wb`	A workbook object
`sheet`	A name or index of a worksheet
`file`	An image file. Valid file types are: jpeg, png, bmp
`width`	Width of figure.
`height`	Height of figure.
`startRow`	Row coordinate of upper left corner of the image
`startCol`	Column coordinate of upper left corner of the image
`units`	Units of width and height. Can be "in", "cm" or "px"
`dpi`	Image resolution used for conversion between units.

Author(s)

Alexander Walker

See Also

insertPlot

Examples

```
## Create a new workbook
wb <- createWorkbook("Ayanami")

## Add some worksheets
addWorksheet(wb, "Sheet 1")
addWorksheet(wb, "Sheet 2")
addWorksheet(wb, "Sheet 3")

## Insert images
img <- system.file("extdata", "einstein.jpg", package = "openxlsx")
insertImage(wb, "Sheet 1", img, startRow = 5, startCol = 3, width = 6, height = 5)
insertImage(wb, 2, img, startRow = 2, startCol = 2)
insertImage(wb, 3, img, width = 15, height = 12, startRow = 3, startCol = "G", units = "cm")

## Save workbook
## Not run:
saveWorkbook(wb, "insertImageExample.xlsx", overwrite = TRUE)

## End(Not run)
```

---

insertPlot *Insert the current plot into a worksheet*

Description

The current plot is saved to a temporary image file using dev.copy. This file is then written to the workbook using insertImage.

Usage

```
insertPlot(
  wb,
  sheet,
  width = 6,
  height = 4,
  xy = NULL,
  startRow = 1,
  startCol = 1,
  fileType = "png",
  units = "in",
  dpi = 300
)
```

Arguments

wb	A workbook object
sheet	A name or index of a worksheet
width	Width of figure. Defaults to 6in.
height	Height of figure . Defaults to 4in.
xy	Alternate way to specify startRow and startCol. A vector of length 2 of form (startcol, startRow)
startRow	Row coordinate of upper left corner of figure. xy[[2]] when xy is given.
startCol	Column coordinate of upper left corner of figure. xy[[1]] when xy is given.
fileType	File type of image
units	Units of width and height. Can be "in", "cm" or "px"
dpi	Image resolution

Author(s)

Alexander Walker

See Also

insertImage

Examples

```
## Not run:
## Create a new workbook
wb <- createWorkbook()

## Add a worksheet
addWorksheet(wb, "Sheet 1", gridLines = FALSE)

## create plot objects
require(ggplot2)
p1 <- qplot(mpg,
  data = mtcars, geom = "density",
  fill = as.factor(gear), alpha = I(.5), main = "Distribution of Gas Mileage"
)
p2 <- qplot(age, circumference,
  data = Orange, geom = c("point", "line"), colour = Tree
)

## Insert currently displayed plot to sheet 1, row 1, column 1
print(p1) # plot needs to be showing
insertPlot(wb, 1, width = 5, height = 3.5, fileType = "png", units = "in")

## Insert plot 2
print(p2)
insertPlot(wb, 1, xy = c("J", 2), width = 16, height = 10, fileType = "png", units = "cm")
```

```
## Save workbook
saveWorkbook(wb, "insertPlotExample.xlsx", overwrite = TRUE)

## End(Not run)
```

`int2col` *Convert integer to Excel column*

Description

Converts an integer to an Excel column label.

Usage

```
int2col(x)
```

Arguments

`x`	A numeric vector

Examples

```
int2col(1:10)
```

`loadWorkbook` *Load an existing .xlsx file*

Description

loadWorkbook returns a workbook object conserving styles and formatting of the original .xlsx file.

Usage

```
loadWorkbook(file, xlsxFile = NULL, isUnzipped = FALSE)
```

Arguments

`file`	A path to an existing .xlsx or .xlsm file
`xlsxFile`	alias for file
`isUnzipped`	Set to TRUE if the xlsx file is already unzipped

Value

Workbook object.

Author(s)

Alexander Walker

See Also

removeWorksheet

Examples

```
## load existing workbook from package folder
wb <- loadWorkbook(file = system.file("extdata", "loadExample.xlsx", package = "openxlsx"))
names(wb) # list worksheets
wb ## view object
## Add a worksheet
addWorksheet(wb, "A new worksheet")

## Save workbook
## Not run:
saveWorkbook(wb, "loadExample.xlsx", overwrite = TRUE)

## End(Not run)
```

---

makeHyperlinkString *create Excel hyperlink string*

Description

Wrapper to create internal hyperlink string to pass to writeFormula()

Usage

```
makeHyperlinkString(sheet, row = 1, col = 1, text = NULL, file = NULL)
```

Arguments

sheet	Name of a worksheet
row	integer row number for hyperlink to link to
col	column number of letter for hyperlink to link to
text	display text
file	Excel file name to point to. If NULL hyperlink is internal.

See Also

writeFormula

Examples

```
## Writing internal hyperlinks
wb <- createWorkbook()
addWorksheet(wb, "Sheet1")
addWorksheet(wb, "Sheet2")
addWorksheet(wb, "Sheet 3")
writeData(wb, sheet = 3, x = iris)

## External Hyperlink
x <- c("https://www.google.com", "https://www.google.com.au")
names(x) <- c("google", "google Aus")
class(x) <- "hyperlink"

writeData(wb, sheet = 1, x = x, startCol = 10)


## Internal Hyperlink - create hyperlink formula manually
writeFormula(wb, "Sheet1",
  x = '=HYPERLINK("#Sheet2!B3", "Text to Display - Link to Sheet2")',
  startCol = 3
)

## Internal - No text to display using makeHyperlinkString() function
writeFormula(wb, "Sheet1",
  startRow = 1,
  x = makeHyperlinkString(sheet = "Sheet 3", row = 1, col = 2)
)

## Internal - Text to display
writeFormula(wb, "Sheet1",
  startRow = 2,
  x = makeHyperlinkString(
    sheet = "Sheet 3", row = 1, col = 2,
    text = "Link to Sheet 3"
  )
)

## Link to file - No text to display
writeFormula(wb, "Sheet1",
  startRow = 4,
  x = makeHyperlinkString(
    sheet = "testing", row = 3, col = 10,
    file = system.file("extdata", "loadExample.xlsx", package = "openxlsx")
  )
)

## Link to file - Text to display
writeFormula(wb, "Sheet1",
  startRow = 3,
  x = makeHyperlinkString(
    sheet = "testing", row = 3, col = 10,
```

```
    file = system.file("extdata", "loadExample.xlsx", package = "openxlsx"),
    text = "Link to File."
  )
)

## Link to external file - Text to display
writeFormula(wb, "Sheet1",
  startRow = 10, startCol = 1,
  x = '=HYPERLINK(\\"[C:/Users]\\", \\"Link to an external file\\")'
)
## Not run:
saveWorkbook(wb, "internalHyperlinks.xlsx", overwrite = TRUE)

## End(Not run)
```

`mergeCells` *Merge cells within a worksheet*

Description

Merge cells within a worksheet

Usage

```
mergeCells(wb, sheet, cols, rows)
```

Arguments

`wb`	A workbook object
`sheet`	A name or index of a worksheet
`cols`	Columns to merge
`rows`	corresponding rows to merge

Details

As merged region must be rectangular, only min and max of cols and rows are used.

Author(s)

Alexander Walker

See Also

`removeCellMerge`

Examples

```
## Create a new workbook
wb <- createWorkbook()

## Add a worksheet
addWorksheet(wb, "Sheet 1")
addWorksheet(wb, "Sheet 2")

## Merge cells: Row 2 column C to F (3:6)
mergeCells(wb, "Sheet 1", cols = 2, rows = 3:6)

## Merge cells:Rows 10 to 20 columns A to J (1:10)
mergeCells(wb, 1, cols = 1:10, rows = 10:20)

## Intersecting merges
mergeCells(wb, 2, cols = 1:10, rows = 1)
mergeCells(wb, 2, cols = 5:10, rows = 2)
mergeCells(wb, 2, cols = c(1, 10), rows = 12) ## equivalent to 1:10 as only min/max are used
# mergeCells(wb, 2, cols = 1, rows = c(1,10)) # Throws error because intersects existing merge

## remove merged cells
removeCellMerge(wb, 2, cols = 1, rows = 1) # removes any intersecting merges
mergeCells(wb, 2, cols = 1, rows = 1:10) # Now this works

## Save workbook
## Not run:
saveWorkbook(wb, "mergeCellsExample.xlsx", overwrite = TRUE)

## End(Not run)
```

`modifyBaseFont` *Modify the default font*

Description

Modify the default font for this workbook

Usage

```
modifyBaseFont(wb, fontSize = 11, fontColour = "black", fontName = "Calibri")
```

Arguments

`wb`	A workbook object
`fontSize`	font size
`fontColour`	font colour
`fontName`	Name of a font

Details

The font name is not validated in anyway. Excel replaces unknown font names with Arial. Base font is black, size 11, Calibri.

Author(s)

Alexander Walker

Examples

```
## create a workbook
wb <- createWorkbook()
addWorksheet(wb, "S1")
## modify base font to size 10 Arial Narrow in red
modifyBaseFont(wb, fontSize = 10, fontColour = "#FF0000", fontName = "Arial Narrow")

writeData(wb, "S1", iris)
writeDataTable(wb, "S1", x = iris, startCol = 10) ## font colour does not affect tables
## Not run:
saveWorkbook(wb, "modifyBaseFontExample.xlsx", overwrite = TRUE)

## End(Not run)
```

---

names *get or set worksheet names*

Description

get or set worksheet names

Usage

```
## S3 method for class 'Workbook'
names(x)

## S3 replacement method for class 'Workbook'
names(x) <- value
```

Arguments

x	A Workbook object
value	a character vector the same length as wb

Examples

```
wb <- createWorkbook()
addWorksheet(wb, "S1")
addWorksheet(wb, "S2")
addWorksheet(wb, "S3")

names(wb)
names(wb)[[2]] <- "S2a"
names(wb)
names(wb) <- paste("Sheet", 1:3)
```

---

openXL *Open a Microsoft Excel file (xls/xlsx) or an openxlsx Workbook*

Description

This function tries to open a Microsoft Excel (xls/xlsx) file or an openxlsx Workbook with the proper application, in a portable manner.

In Windows (c) and Mac (c), it uses system default handlers, given the file type.

In Linux it searches (via `which`) for available xls/xlsx reader applications (unless `options('openxlsx.excelApp')` is set to the app bin path), and if it finds anything, sets `options('openxlsx.excelApp')` to the program choosen by the user via a menu (if many are present, otherwise it will set the only available). Currently searched for apps are Libreoffice/Openoffice (`soffice` bin), Gnumeric (`gnumeric`) and Calligra Sheets (`calligrasheets`).

Usage

```
openXL(file=NULL)
```

Arguments

`file`	path to the Excel (xls/xlsx) file or Workbook object.

Author(s)

Luca Braglia

Examples

```
# file example
example(writeData)
# openXL("writeDataExample.xlsx")

# (not yet saved) Workbook example
wb <- createWorkbook()
x <- mtcars[1:6, ]
addWorksheet(wb, "Cars")
```

```
writeData(wb, "Cars", x, startCol = 2, startRow = 3, rowNames = TRUE)
# openXL(wb)
```

---

openxlsx *xlsx reading, writing and editing.*

Description

openxlsx simplifies the the process of writing and styling Excel xlsx files from R and removes the dependency on Java.

Details

The openxlsx package uses global options to simplify formatting:

- `options("openxlsx.borderColour" = "black")`
- `options("openxlsx.borderStyle" = "thin")`
- `options("openxlsx.dateFormat" = "mm/dd/yyyy")`
- `options("openxlsx.datetimeFormat" = "yyyy-mm-dd hh:mm:ss")`
- `options("openxlsx.numFmt" = NULL)`
- `options("openxlsx.paperSize" = 9)` ## A4
- `options("openxlsx.orientation" = "portrait")` ## page orientation

See the Formatting vignette for examples.

Additional options

- `options("openxlsx.compressionLevel" = "9")` ## set zip compression level, default is "1".

See Also

- `vignette("Introduction",package = "openxlsx")`
- `vignette("formatting",package = "openxlsx")`
- writeData
- writeDataTable
- write.xlsx
- read.xlsx

for examples

pageBreak *add a page break to a worksheet*

Description

insert page breaks into a worksheet

Usage

```
pageBreak(wb, sheet, i, type = "row")
```

Arguments

wb	A workbook object
sheet	A name or index of a worksheet
i	row or column number to insert page break.
type	One of "row" or "column" for a row break or column break.

See Also

addWorksheet

Examples

```
wb <- createWorkbook()
addWorksheet(wb, "Sheet 1")
writeData(wb, sheet = 1, x = iris)

pageBreak(wb, sheet = 1, i = 10, type = "row")
pageBreak(wb, sheet = 1, i = 20, type = "row")
pageBreak(wb, sheet = 1, i = 2, type = "column")
## Not run:
saveWorkbook(wb, "pageBreakExample.xlsx", TRUE)

## End(Not run)
## In Excel: View tab -> Page Break Preview
```

pageSetup *Set page margins, orientation and print scaling*

Description

Set page margins, orientation and print scaling

Usage

```
pageSetup(
  wb,
  sheet,
  orientation = NULL,
  scale = 100,
  left = 0.7,
  right = 0.7,
  top = 0.75,
  bottom = 0.75,
  header = 0.3,
  footer = 0.3,
  fitToWidth = FALSE,
  fitToHeight = FALSE,
  paperSize = NULL,
  printTitleRows = NULL,
  printTitleCols = NULL
)
```

Arguments

wb	A workbook object
sheet	A name or index of a worksheet
orientation	Page orientation. One of "portrait" or "landscape"
scale	Print scaling. Numeric value between 10 and 400
left	left page margin in inches
right	right page margin in inches
top	top page margin in inches
bottom	bottom page margin in inches
header	header margin in inches
footer	footer margin in inches
fitToWidth	If TRUE, worksheet is scaled to fit to page width on printing.
fitToHeight	If TRUE, worksheet is scaled to fit to page height on printing.
paperSize	See details. Default value is 9 (A4 paper).
printTitleRows	Rows to repeat at top of page when printing. Integer vector.
printTitleCols	Columns to repeat at left when printing. Integer vector.

Details

paperSize is an integer corresponding to:

- **1** Letter paper (8.5 in. by 11 in.)
- **2** Letter small paper (8.5 in. by 11 in.)
- **3** Tabloid paper (11 in. by 17 in.)

- **4** Ledger paper (17 in. by 11 in.)
- **5** Legal paper (8.5 in. by 14 in.)
- **6** Statement paper (5.5 in. by 8.5 in.)
- **7** Executive paper (7.25 in. by 10.5 in.)
- **8** A3 paper (297 mm by 420 mm)
- **9** A4 paper (210 mm by 297 mm)
- **10** A4 small paper (210 mm by 297 mm)
- **11** A5 paper (148 mm by 210 mm)
- **12** B4 paper (250 mm by 353 mm)
- **13** B5 paper (176 mm by 250 mm)
- **14** Folio paper (8.5 in. by 13 in.)
- **15** Quarto paper (215 mm by 275 mm)
- **16** Standard paper (10 in. by 14 in.)
- **17** Standard paper (11 in. by 17 in.)
- **18** Note paper (8.5 in. by 11 in.)
- **19** #9 envelope (3.875 in. by 8.875 in.)
- **20** #10 envelope (4.125 in. by 9.5 in.)
- **21** #11 envelope (4.5 in. by 10.375 in.)
- **22** #12 envelope (4.75 in. by 11 in.)
- **23** #14 envelope (5 in. by 11.5 in.)
- **24** C paper (17 in. by 22 in.)
- **25** D paper (22 in. by 34 in.)
- **26** E paper (34 in. by 44 in.)
- **27** DL envelope (110 mm by 220 mm)
- **28** C5 envelope (162 mm by 229 mm)
- **29** C3 envelope (324 mm by 458 mm)
- **30** C4 envelope (229 mm by 324 mm)
- **31** C6 envelope (114 mm by 162 mm)
- **32** C65 envelope (114 mm by 229 mm)
- **33** B4 envelope (250 mm by 353 mm)
- **34** B5 envelope (176 mm by 250 mm)
- **35** B6 envelope (176 mm by 125 mm)
- **36** Italy envelope (110 mm by 230 mm)
- **37** Monarch envelope (3.875 in. by 7.5 in.).
- **38** 6 3/4 envelope (3.625 in. by 6.5 in.)
- **39** US standard fanfold (14.875 in. by 11 in.)
- **40** German standard fanfold (8.5 in. by 12 in.)

- **41** German legal fanfold (8.5 in. by 13 in.)
- **42** ISO B4 (250 mm by 353 mm)
- **43** Japanese double postcard (200 mm by 148 mm)
- **44** Standard paper (9 in. by 11 in.)
- **45** Standard paper (10 in. by 11 in.)
- **46** Standard paper (15 in. by 11 in.)
- **47** Invite envelope (220 mm by 220 mm)
- **50** Letter extra paper (9.275 in. by 12 in.)
- **51** Legal extra paper (9.275 in. by 15 in.)
- **52** Tabloid extra paper (11.69 in. by 18 in.)
- **53** A4 extra paper (236 mm by 322 mm)
- **54** Letter transverse paper (8.275 in. by 11 in.)
- **55** A4 transverse paper (210 mm by 297 mm)
- **56** Letter extra transverse paper (9.275 in. by 12 in.)
- **57** SuperA/SuperA/A4 paper (227 mm by 356 mm)
- **58** SuperB/SuperB/A3 paper (305 mm by 487 mm)
- **59** Letter plus paper (8.5 in. by 12.69 in.)
- **60** A4 plus paper (210 mm by 330 mm)
- **61** A5 transverse paper (148 mm by 210 mm)
- **62** JIS B5 transverse paper (182 mm by 257 mm)
- **63** A3 extra paper (322 mm by 445 mm)
- **64** A5 extra paper (174 mm by 235 mm)
- **65** ISO B5 extra paper (201 mm by 276 mm)
- **66** A2 paper (420 mm by 594 mm)
- **67** A3 transverse paper (297 mm by 420 mm)
- **68** A3 extra transverse paper (322 mm by 445 mm)

Author(s)

Alexander Walker

Examples

```
wb <- createWorkbook()
addWorksheet(wb, "S1")
addWorksheet(wb, "S2")
writeDataTable(wb, 1, x = iris[1:30, ])
writeDataTable(wb, 2, x = iris[1:30, ], xy = c("C", 5))

## landscape page scaled to 50%
pageSetup(wb, sheet = 1, orientation = "landscape", scale = 50)
```

```
## portrait page scales to 300% with 0.5in left and right margins
pageSetup(wb, sheet = 2, orientation = "portrait", scale = 300, left = 0.5, right = 0.5)


## print titles
addWorksheet(wb, "print_title_rows")
addWorksheet(wb, "print_title_cols")

writeData(wb, "print_title_rows", rbind(iris, iris, iris, iris))
writeData(wb, "print_title_cols", x = rbind(mtcars, mtcars, mtcars), rowNames = TRUE)

pageSetup(wb, sheet = "print_title_rows", printTitleRows = 1) ## first row
pageSetup(wb, sheet = "print_title_cols", printTitleCols = 1, printTitleRows = 1)
## Not run:
saveWorkbook(wb, "pageSetupExample.xlsx", overwrite = TRUE)

## End(Not run)
```

`protectWorkbook` *Protect a workbook from modifications*

Description

Protect or unprotect a workbook from modifications by the user in the graphical user interface. Replaces an existing protection.

Usage

```
protectWorkbook(
  wb,
  protect = TRUE,
  password = NULL,
  lockStructure = FALSE,
  lockWindows = FALSE
)
```

Arguments

`wb`	A workbook object
`protect`	Whether to protect or unprotect the sheet (default=TRUE)
`password`	(optional) password required to unprotect the workbook
`lockStructure`	Whether the workbook structure should be locked
`lockWindows`	Whether the window position of the spreadsheet should be locked

Author(s)

Reinhold Kainhofer

Examples

```
wb <- createWorkbook()
addWorksheet(wb, "S1")
protectWorkbook(wb, protect = TRUE, password = "Password", lockStructure = TRUE)
## Not run:
saveWorkbook(wb, "WorkBook_Protection.xlsx", overwrite = TRUE)

## End(Not run)
# Remove the protection
protectWorkbook(wb, protect = FALSE)
## Not run:
saveWorkbook(wb, "WorkBook_Protection_unprotected.xlsx", overwrite = TRUE)

## End(Not run)
```

---

protectWorksheet *Protect a worksheet from modifications*

Description

Protect or unprotect a worksheet from modifications by the user in the graphical user interface. Replaces an existing protection.

Usage

```
protectWorksheet(
  wb,
  sheet,
  protect = TRUE,
  password = NULL,
  lockSelectingLockedCells = NULL,
  lockSelectingUnlockedCells = NULL,
  lockFormattingCells = NULL,
  lockFormattingColumns = NULL,
  lockFormattingRows = NULL,
  lockInsertingColumns = NULL,
  lockInsertingRows = NULL,
  lockInsertingHyperlinks = NULL,
  lockDeletingColumns = NULL,
  lockDeletingRows = NULL,
  lockSorting = NULL,
  lockAutoFilter = NULL,
  lockPivotTables = NULL,
  lockObjects = NULL,
  lockScenarios = NULL
)
```

Arguments

wb	A workbook object
sheet	A name or index of a worksheet
protect	Whether to protect or unprotect the sheet (default=TRUE)
password	(optional) password required to unprotect the worksheet
lockSelectingLockedCells	Whether selecting locked cells is locked
lockSelectingUnlockedCells	Whether selecting unlocked cells is locked
lockFormattingCells	Whether formatting cells is locked
lockFormattingColumns	Whether formatting columns is locked
lockFormattingRows	Whether formatting rows is locked
lockInsertingColumns	Whether inserting columns is locked
lockInsertingRows	Whether inserting rows is locked
lockInsertingHyperlinks	Whether inserting hyperlinks is locked
lockDeletingColumns	Whether deleting columns is locked
lockDeletingRows	Whether deleting rows is locked
lockSorting	Whether sorting is locked
lockAutoFilter	Whether auto-filter is locked
lockPivotTables	Whether pivot tables are locked
lockObjects	Whether objects are locked
lockScenarios	Whether scenarios are locked

Author(s)

Reinhold Kainhofer

Examples

```
wb <- createWorkbook()
addWorksheet(wb, "S1")
writeDataTable(wb, 1, x = iris[1:30, ])
# Formatting cells / columns is allowed , but inserting / deleting columns is protected:
protectWorksheet(wb, "S1",
  protect = TRUE,
  lockFormattingCells = FALSE, lockFormattingColumns = FALSE,
```

```
  lockInsertingColumns = TRUE, lockDeletingColumns = TRUE
)

# Remove the protection
protectWorksheet(wb, "S1", protect = FALSE)
## Not run:
saveWorkbook(wb, "pageSetupExample.xlsx", overwrite = TRUE)

## End(Not run)
```

`read.xlsx` *Read from an Excel file or Workbook object*

Description

Read data from an Excel file or Workbook object into a data.frame

Usage

```
read.xlsx(
  xlsxFile,
  sheet = 1,
  startRow = 1,
  colNames = TRUE,
  rowNames = FALSE,
  detectDates = FALSE,
  skipEmptyRows = TRUE,
  skipEmptyCols = TRUE,
  rows = NULL,
  cols = NULL,
  check.names = FALSE,
  sep.names = ".",
  namedRegion = NULL,
  na.strings = "NA",
  fillMergedCells = FALSE
)
```

Arguments

`xlsxFile`	An xlsx file, Workbook object or URL to xlsx file.
`sheet`	The name or index of the sheet to read data from.
`startRow`	first row to begin looking for data. Empty rows at the top of a file are always skipped, regardless of the value of startRow.
`colNames`	If `TRUE`, the first row of data will be used as column names.
`rowNames`	If `TRUE`, first column of data will be used as row names.
`detectDates`	If `TRUE`, attempt to recognise dates and perform conversion.

skipEmptyRows	If TRUE, empty rows are skipped else empty rows after the first row containing data will return a row of NAs.
skipEmptyCols	If TRUE, empty columns are skipped.
rows	A numeric vector specifying which rows in the Excel file to read. If NULL, all rows are read.
cols	A numeric vector specifying which columns in the Excel file to read. If NULL, all columns are read.
check.names	logical. If TRUE then the names of the variables in the data frame are checked to ensure that they are syntactically valid variable names
sep.names	One character which substitutes blanks in column names. By default, "."
namedRegion	A named region in the Workbook. If not NULL startRow, rows and cols parameters are ignored.
na.strings	A character vector of strings which are to be interpreted as NA. Blank cells will be returned as NA.
fillMergedCells	If TRUE, the value in a merged cell is given to all cells within the merge.

Details

Formulae written using writeFormula to a Workbook object will not get picked up by read.xlsx(). This is because only the formula is written and left to be evaluated when the file is opened in Excel. Opening, saving and closing the file with Excel will resolve this.

Value

data.frame

Author(s)

Alexander Walker

See Also

getNamedRegions

Examples

```
xlsxFile <- system.file("extdata", "readTest.xlsx", package = "openxlsx")
df1 <- read.xlsx(xlsxFile = xlsxFile, sheet = 1, skipEmptyRows = FALSE)
sapply(df1, class)

df2 <- read.xlsx(xlsxFile = xlsxFile, sheet = 3, skipEmptyRows = TRUE)
df2$Date <- convertToDate(df2$Date)
sapply(df2, class)
head(df2)

df2 <- read.xlsx(
```

```
  xlsxFile = xlsxFile, sheet = 3, skipEmptyRows = TRUE,
  detectDates = TRUE
)
sapply(df2, class)
head(df2)

wb <- loadWorkbook(system.file("extdata", "readTest.xlsx", package = "openxlsx"))
df3 <- read.xlsx(wb, sheet = 2, skipEmptyRows = FALSE, colNames = TRUE)
df4 <- read.xlsx(xlsxFile, sheet = 2, skipEmptyRows = FALSE, colNames = TRUE)
all.equal(df3, df4)

wb <- loadWorkbook(system.file("extdata", "readTest.xlsx", package = "openxlsx"))
df3 <- read.xlsx(wb,
  sheet = 2, skipEmptyRows = FALSE,
  cols = c(1, 4), rows = c(1, 3, 4)
)

## URL
##
## Not run:
xlsxFile <- "https://github.com/awalker89/openxlsx/raw/master/inst/readTest.xlsx"
head(read.xlsx(xlsxFile))

## End(Not run)
```

---

readWorkbook *Read from an Excel file or Workbook object*

Description

Read data from an Excel file or Workbook object into a data.frame

Usage

```
readWorkbook(
  xlsxFile,
  sheet = 1,
  startRow = 1,
  colNames = TRUE,
  rowNames = FALSE,
  detectDates = FALSE,
  skipEmptyRows = TRUE,
  skipEmptyCols = TRUE,
  rows = NULL,
  cols = NULL,
  check.names = FALSE,
  sep.names = ".",
  namedRegion = NULL,
```

```
  na.strings = "NA",
  fillMergedCells = FALSE
)
```

Arguments

xlsxFile	An xlsx file, Workbook object or URL to xlsx file.
sheet	The name or index of the sheet to read data from.
startRow	first row to begin looking for data. Empty rows at the top of a file are always skipped, regardless of the value of startRow.
colNames	If TRUE, the first row of data will be used as column names.
rowNames	If TRUE, first column of data will be used as row names.
detectDates	If TRUE, attempt to recognise dates and perform conversion.
skipEmptyRows	If TRUE, empty rows are skipped else empty rows after the first row containing data will return a row of NAs.
skipEmptyCols	If TRUE, empty columns are skipped.
rows	A numeric vector specifying which rows in the Excel file to read. If NULL, all rows are read.
cols	A numeric vector specifying which columns in the Excel file to read. If NULL, all columns are read.
check.names	logical. If TRUE then the names of the variables in the data frame are checked to ensure that they are syntactically valid variable names
sep.names	One character which substitutes blanks in column names. By default, "."
namedRegion	A named region in the Workbook. If not NULL startRow, rows and cols parameters are ignored.
na.strings	A character vector of strings which are to be interpreted as NA. Blank cells will be returned as NA.
fillMergedCells	If TRUE, the value in a merged cell is given to all cells within the merge.

Details

Creates a data.frame of all data in worksheet.

Value

data.frame

Author(s)

Alexander Walker

See Also

getNamedRegions

read.xlsx

Examples

```
xlsxFile <- system.file("extdata", "readTest.xlsx", package = "openxlsx")
df1 <- readWorkbook(xlsxFile = xlsxFile, sheet = 1)

xlsxFile <- system.file("extdata", "readTest.xlsx", package = "openxlsx")
df1 <- readWorkbook(xlsxFile = xlsxFile, sheet = 1, rows = c(1, 3, 5), cols = 1:3)
```

---

removeCellMerge *Create a new Workbook object*

Description

Unmerges any merged cells that intersect with the region specified by, min(cols):max(cols) X min(rows):max(rows)

Usage

```
removeCellMerge(wb, sheet, cols, rows)
```

Arguments

wb	A workbook object
sheet	A name or index of a worksheet
cols	vector of column indices
rows	vector of row indices

Author(s)

Alexander Walker

See Also

mergeCells

`removeColWidths` *Remove column widths from a worksheet*

Description

Remove column widths from a worksheet

Usage

```
removeColWidths(wb, sheet, cols)
```

Arguments

`wb`	A workbook object
`sheet`	A name or index of a worksheet
`cols`	Indices of columns to remove custom width (if any) from.

Author(s)

Alexander Walker

See Also

`setColWidths`

Examples

```
## Create a new workbook
wb <- loadWorkbook(file = system.file("extdata", "loadExample.xlsx", package = "openxlsx"))

## remove column widths in columns 1 to 20
removeColWidths(wb, 1, cols = 1:20)
## Not run:
saveWorkbook(wb, "removeColWidthsExample.xlsx", overwrite = TRUE)

## End(Not run)
```

removeComment *Remove a comment from a cell*

Description

Remove a cell comment from a worksheet

Usage

```
removeComment(wb, sheet, cols, rows, gridExpand = TRUE)
```

Arguments

wb	A workbook object
sheet	A vector of names or indices of worksheets
cols	Columns to delete comments from
rows	Rows to delete comments from
gridExpand	If TRUE, all data in rectangle min(rows):max(rows) X min(cols):max(cols) will be removed.

See Also

createComment

writeComment

removeFilter *Remove a worksheet filter*

Description

Removes filters from addFilter() and writeData()

Usage

```
removeFilter(wb, sheet)
```

Arguments

wb	A workbook object
sheet	A vector of names or indices of worksheets

Examples

```
wb <- createWorkbook()
addWorksheet(wb, "Sheet 1")
addWorksheet(wb, "Sheet 2")
addWorksheet(wb, "Sheet 3")

writeData(wb, 1, iris)
addFilter(wb, 1, row = 1, cols = 1:ncol(iris))

## Equivalently
writeData(wb, 2, x = iris, withFilter = TRUE)

## Similarly
writeDataTable(wb, 3, iris)

## remove filters
removeFilter(wb, 1:2) ## remove filters
removeFilter(wb, 3) ## Does not affect tables!
## Not run:
saveWorkbook(wb, file = "removeFilterExample.xlsx", overwrite = TRUE)

## End(Not run)
```

---

removeRowHeights *Remove custom row heights from a worksheet*

Description

Remove row heights from a worksheet

Usage

```
removeRowHeights(wb, sheet, rows)
```

Arguments

wb	A workbook object
sheet	A name or index of a worksheet
rows	Indices of rows to remove custom height (if any) from.

Author(s)

Alexander Walker

See Also

setRowHeights

Examples

```
## Create a new workbook
wb <- loadWorkbook(file = system.file("extdata", "loadExample.xlsx", package = "openxlsx"))

## remove any custom row heights in rows 1 to 10
removeRowHeights(wb, 1, rows = 1:10)
## Not run:
saveWorkbook(wb, "removeRowHeightsExample.xlsx", overwrite = TRUE)

## End(Not run)
```

`removeTable` *Remove an Excel table in a workbook*

Description

List Excel tables in a workbook

Usage

```
removeTable(wb, sheet, table)
```

Arguments

`wb`	A workbook object
`sheet`	A name or index of a worksheet
`table`	Name of table to remove. See `getTables`

Value

character vector of table names on the specified sheet

Examples

```
wb <- createWorkbook()
addWorksheet(wb, sheetName = "Sheet 1")
addWorksheet(wb, sheetName = "Sheet 2")
writeDataTable(wb, sheet = "Sheet 1", x = iris, tableName = "iris")
writeDataTable(wb, sheet = 1, x = mtcars, tableName = "mtcars", startCol = 10)


removeWorksheet(wb, sheet = 1) ## delete worksheet removes table objects

writeDataTable(wb, sheet = 1, x = iris, tableName = "iris")
writeDataTable(wb, sheet = 1, x = mtcars, tableName = "mtcars", startCol = 10)

## removeTable() deletes table object and all data
getTables(wb, sheet = 1)
```

```
removeTable(wb = wb, sheet = 1, table = "iris")
writeDataTable(wb, sheet = 1, x = iris, tableName = "iris", startCol = 1)

getTables(wb, sheet = 1)
removeTable(wb = wb, sheet = 1, table = "iris")
writeDataTable(wb, sheet = 1, x = iris, tableName = "iris", startCol = 1)
## Not run:
saveWorkbook(wb = wb, file = "removeTableExample.xlsx", overwrite = TRUE)

## End(Not run)
```

`removeWorksheet` *Remove a worksheet from a workbook*

Description

Remove a worksheet from a Workbook object

Remove a worksheet from a workbook

Usage

```
removeWorksheet(wb, sheet)
```

Arguments

`wb`	A workbook object
`sheet`	A name or index of a worksheet

Author(s)

Alexander Walker

Examples

```
## load a workbook
wb <- loadWorkbook(file = system.file("extdata", "loadExample.xlsx", package = "openxlsx"))

## Remove sheet 2
removeWorksheet(wb, 2)

## save the modified workbook
## Not run:
saveWorkbook(wb, "removeWorksheetExample.xlsx", overwrite = TRUE)

## End(Not run)
```

renameWorksheet *Rename a worksheet*

Description

Rename a worksheet

Usage

```
renameWorksheet(wb, sheet, newName)
```

Arguments

wb	A Workbook object containing a worksheet
sheet	The name or index of the worksheet to rename
newName	The new name of the worksheet. No longer than 31 chars.

Details

DEPRECATED. Use names

Author(s)

Alexander Walker

Examples

```
## Create a new workbook
wb <- createWorkbook("CREATOR")

## Add 3 worksheets
addWorksheet(wb, "Worksheet Name")
addWorksheet(wb, "This is worksheet 2")
addWorksheet(wb, "Not the best name")

#' ## rename all worksheets
names(wb) <- c("A", "B", "C")


## Rename worksheet 1 & 3
renameWorksheet(wb, 1, "New name for sheet 1")
names(wb)[[1]] <- "New name for sheet 1"
names(wb)[[3]] <- "A better name"

## Save workbook
## Not run:
saveWorkbook(wb, "renameWorksheetExample.xlsx", overwrite = TRUE)

## End(Not run)
```

`replaceStyle` *Replace an existing cell style*

Description

Replace an existing cell style

Replace a style object

Usage

```
replaceStyle(wb, index, newStyle)
```

Arguments

`wb`	A workbook object
`index`	Index of style object to replace
`newStyle`	A style to replace the existing style as position index

Author(s)

Alexander Walker

See Also

`getStyles`

Examples

```
## load a workbook
wb <- loadWorkbook(file = system.file("extdata", "loadExample.xlsx", package = "openxlsx"))

## create a new style and replace style 2

newStyle <- createStyle(fgFill = "#00FF00")

## replace style 2
getStyles(wb)[1:3] ## prints styles
replaceStyle(wb, 2, newStyle = newStyle)

## Save workbook
## Not run:
saveWorkbook(wb, "replaceStyleExample.xlsx", overwrite = TRUE)

## End(Not run)
```

saveWorkbook *save Workbook to file*

Description

save a Workbook object to file

Usage

```
saveWorkbook(wb, file, overwrite = FALSE)
```

Arguments

wb	A Workbook object to write to file
file	A character string naming an xlsx file
overwrite	If TRUE, overwrite any existing file.

Author(s)

Alexander Walker

See Also

createWorkbook

addWorksheet

loadWorkbook

writeData

writeDataTable

Examples

```
## Create a new workbook and add a worksheet
wb <- createWorkbook("Creator of workbook")
addWorksheet(wb, sheetName = "My first worksheet")

## Save workbook to working directory
## Not run:
saveWorkbook(wb, file = "saveWorkbookExample.xlsx", overwrite = TRUE)

## End(Not run)
```

`setColWidths` *Set worksheet column widths*

Description

Set worksheet column widths to specific width or "auto".

Usage

```
setColWidths(
  wb,
  sheet,
  cols,
  widths = 8.43,
  hidden = rep(FALSE, length(cols)),
  ignoreMergedCells = FALSE
)
```

Arguments

`wb`	A workbook object
`sheet`	A name or index of a worksheet
`cols`	Indices of cols to set width
`widths`	widths to set cols to specified in Excel column width units or "auto" for automatic sizing. The widths argument is recycled to the length of cols.
`hidden`	Logical vector. If TRUE the column is hidden.
`ignoreMergedCells`	Ignore any cells that have been merged with other cells in the calculation of "auto" column widths.

Details

The global min and max column width for "auto" columns is set by (default values show):

- options("openxlsx.minWidth" = 3)
- options("openxlsx.maxWidth" = 250) ## This is the maximum width allowed in Excel

NOTE: The calculation of column widths can be slow for large worksheets.

Author(s)

Alexander Walker

See Also

`removeColWidths`

Examples

```
## Create a new workbook
wb <- createWorkbook()

## Add a worksheet
addWorksheet(wb, "Sheet 1")


## set col widths
setColWidths(wb, 1, cols = c(1, 4, 6, 7, 9), widths = c(16, 15, 12, 18, 33))

## auto columns
addWorksheet(wb, "Sheet 2")
writeData(wb, sheet = 2, x = iris)
setColWidths(wb, sheet = 2, cols = 1:5, widths = "auto")

## Save workbook
## Not run:
saveWorkbook(wb, "setColWidthsExample.xlsx", overwrite = TRUE)

## End(Not run)
```

`setFooter` *Set footer for all worksheets*

Description

DEPRECATED

Usage

```
setFooter(wb, text, position = "center")
```

Arguments

`wb`	A workbook object
`text`	footer text. A character vector of length 1.
`position`	Position of text in footer. One of "left", "center" or "right"

Author(s)

Alexander Walker

Examples

```
## Not run:
wb <- createWorkbook("Edgar Anderson")
addWorksheet(wb, "S1")
writeDataTable(wb, "S1", x = iris[1:30, ], xy = c("C", 5))

## set all headers
setHeader(wb, "This is a header", position = "center")
setHeader(wb, "To the left", position = "left")
setHeader(wb, "On the right", position = "right")

## set all footers
setFooter(wb, "Center Footer Here", position = "center")
setFooter(wb, "Bottom left", position = "left")
setFooter(wb, Sys.Date(), position = "right")

saveWorkbook(wb, "headerFooterExample.xlsx", overwrite = TRUE)

## End(Not run)
```

---

setHeader *Set header for all worksheets*

Description

DEPRECATED

Usage

```
setHeader(wb, text, position = "center")
```

Arguments

wb	A workbook object
text	header text. A character vector of length 1.
position	Position of text in header. One of "left", "center" or "right"

Author(s)

Alexander Walker

Examples

```
## Not run:
wb <- createWorkbook("Edgar Anderson")
addWorksheet(wb, "S1")
writeDataTable(wb, "S1", x = iris[1:30, ], xy = c("C", 5))
```

```
## set all headers
setHeader(wb, "This is a header", position = "center")
setHeader(wb, "To the left", position = "left")
setHeader(wb, "On the right", position = "right")

## set all footers
setFooter(wb, "Center Footer Here", position = "center")
setFooter(wb, "Bottom left", position = "left")
setFooter(wb, Sys.Date(), position = "right")

saveWorkbook(wb, "headerHeaderExample.xlsx", overwrite = TRUE)

## End(Not run)
```

`setHeaderFooter` *Set document headers and footers*

Description

Set document headers and footers

Usage

```
setHeaderFooter(
  wb,
  sheet,
  header = NULL,
  footer = NULL,
  evenHeader = NULL,
  evenFooter = NULL,
  firstHeader = NULL,
  firstFooter = NULL
)
```

Arguments

`wb`	A workbook object
`sheet`	A name or index of a worksheet
`header`	document header. Character vector of length 3 corresponding to positions left, center, right. Use NA to skip a position.
`footer`	document footer. Character vector of length 3 corresponding to positions left, center, right. Use NA to skip a position.
`evenHeader`	document header for even pages.
`evenFooter`	document footer for even pages.
`firstHeader`	document header for first page only.
`firstFooter`	document footer for first page only.

Details

Headers and footers can contain special tags

- **&[Page]** Page number
- **&[Pages]** Number of pages
- **&[Date]** Current date
- **&[Time]** Current time
- **&[Path]** File path
- **&[File]** File name
- **&[Tab]** Worksheet name

Author(s)

Alexander Walker

See Also

addWorksheet to set headers and footers when adding a worksheet

Examples

```
wb <- createWorkbook()

addWorksheet(wb, "S1")
addWorksheet(wb, "S2")
addWorksheet(wb, "S3")
addWorksheet(wb, "S4")

writeData(wb, 1, 1:400)
writeData(wb, 2, 1:400)
writeData(wb, 3, 3:400)
writeData(wb, 4, 3:400)

setHeaderFooter(wb,
  sheet = "S1",
  header = c("ODD HEAD LEFT", "ODD HEAD CENTER", "ODD HEAD RIGHT"),
  footer = c("ODD FOOT RIGHT", "ODD FOOT CENTER", "ODD FOOT RIGHT"),
  evenHeader = c("EVEN HEAD LEFT", "EVEN HEAD CENTER", "EVEN HEAD RIGHT"),
  evenFooter = c("EVEN FOOT RIGHT", "EVEN FOOT CENTER", "EVEN FOOT RIGHT"),
  firstHeader = c("TOP", "OF FIRST", "PAGE"),
  firstFooter = c("BOTTOM", "OF FIRST", "PAGE")
)

setHeaderFooter(wb,
  sheet = 2,
  header = c("&[Date]", "ALL HEAD CENTER 2", "&[Page] / &[Pages]"),
  footer = c("&[Path]&[File]", NA, "&[Tab]"),
  firstHeader = c(NA, "Center Header of First Page", NA),
  firstFooter = c(NA, "Center Footer of First Page", NA)
)
```

```
setHeaderFooter(wb,
  sheet = 3,
  header = c("ALL HEAD LEFT 2", "ALL HEAD CENTER 2", "ALL HEAD RIGHT 2"),
  footer = c("ALL FOOT RIGHT 2", "ALL FOOT CENTER 2", "ALL FOOT RIGHT 2")
)

setHeaderFooter(wb,
  sheet = 4,
  firstHeader = c("FIRST ONLY L", NA, "FIRST ONLY R"),
  firstFooter = c("FIRST ONLY L", NA, "FIRST ONLY R")
)
## Not run:
saveWorkbook(wb, "setHeaderFooterExample.xlsx", overwrite = TRUE)

## End(Not run)
```

`setLastModifiedBy` *Add another author to the meta data of the file.*

Description

Just a wrapper of wb$changeLastModifiedBy()

Usage

```
setLastModifiedBy(wb, LastModifiedBy)
```

Arguments

`wb`	A workbook object
`LastModifiedBy`	A string object with the name of the LastModifiedBy-User

Author(s)

Philipp Schauberger

Examples

```
wb <- createWorkbook()
setLastModifiedBy(wb, "test")
```

setRowHeights *Set worksheet row heights*

Description

Set worksheet row heights

Usage

```
setRowHeights(wb, sheet, rows, heights)
```

Arguments

wb	A workbook object
sheet	A name or index of a worksheet
rows	Indices of rows to set height
heights	Heights to set rows to specified in Excel column height units.

Author(s)

Alexander Walker

See Also

removeRowHeights

Examples

```
## Create a new workbook
wb <- createWorkbook()

## Add a worksheet
addWorksheet(wb, "Sheet 1")

## set row heights
setRowHeights(wb, 1, rows = c(1, 4, 22, 2, 19), heights = c(24, 28, 32, 42, 33))

## overwrite row 1 height
setRowHeights(wb, 1, rows = 1, heights = 40)

## Save workbook
## Not run:
saveWorkbook(wb, "setRowHeightsExample.xlsx", overwrite = TRUE)

## End(Not run)
```

sheets *Returns names of worksheets.*

Description

DEPRECATED. Use names().

Usage

```
sheets(wb)
```

Arguments

wb	A workbook object

Details

DEPRECATED. Use names

Value

Name of worksheet(s) for a given index

Author(s)

Alexander Walker

See Also

names to rename a worksheet in a Workbook

Examples

```
## Create a new workbook
wb <- createWorkbook()

## Add some worksheets
addWorksheet(wb, "Worksheet Name")
addWorksheet(wb, "This is worksheet 2")
addWorksheet(wb, "The third worksheet")

## Return names of sheets, can not be used for assignment.
names(wb)
# openXL(wb)

names(wb) <- c("A", "B", "C")
names(wb)
# openXL(wb)
```

sheetVisibility *Get/set worksheet visible state*

Description

Get and set worksheet visible state

Usage

```
sheetVisibility(wb)

sheetVisibility(wb) <- value
```

Arguments

wb	A workbook object
value	a logical/character vector the same length as sheetVisibility(wb)

Value

Character vector of worksheet names.

Vector of "hidden", "visible", "veryHidden"

Examples

```
wb <- createWorkbook()
addWorksheet(wb, sheetName = "S1", visible = FALSE)
addWorksheet(wb, sheetName = "S2", visible = TRUE)
addWorksheet(wb, sheetName = "S3", visible = FALSE)

sheetVisibility(wb)
sheetVisibility(wb)[1] <- TRUE ## show sheet 1
sheetVisibility(wb)[2] <- FALSE ## hide sheet 2
sheetVisibility(wb)[3] <- "hidden" ## hide sheet 3
sheetVisibility(wb)[3] <- "veryHidden" ## hide sheet 3 from UI
```

sheetVisible *Get worksheet visible state.*

Description

DEPRECATED - Use function 'sheetVisibility()

Usage

```
sheetVisible(wb)

sheetVisible(wb) <- value
```

Arguments

wb	A workbook object
value	a logical vector the same length as sheetVisible(wb)

Value

Character vector of worksheet names.

TRUE if sheet is visible, FALSE if sheet is hidden

Author(s)

Alexander Walker

Examples

```
wb <- createWorkbook()
addWorksheet(wb, sheetName = "S1", visible = FALSE)
addWorksheet(wb, sheetName = "S2", visible = TRUE)
addWorksheet(wb, sheetName = "S3", visible = FALSE)

sheetVisible(wb)
sheetVisible(wb)[1] <- TRUE ## show sheet 1
sheetVisible(wb)[2] <- FALSE ## hide sheet 2
```

---

showGridLines *Set worksheet gridlines to show or hide.*

Description

Set worksheet gridlines to show or hide.

Usage

```
showGridLines(wb, sheet, showGridLines = FALSE)
```

Arguments

wb	A workbook object
sheet	A name or index of a worksheet
showGridLines	A logical. If TRUE, grid lines are hidden.

Author(s)

Alexander Walker

Examples

```
wb <- loadWorkbook(file = system.file("extdata", "loadExample.xlsx", package = "openxlsx"))
names(wb) ## list worksheets in workbook
showGridLines(wb, 1, showGridLines = FALSE)
showGridLines(wb, "testing", showGridLines = FALSE)
## Not run:
saveWorkbook(wb, "showGridLinesExample.xlsx", overwrite = TRUE)

## End(Not run)
```

---

worksheetOrder *Order of worksheets in xlsx file*

Description

Get/set order of worksheets in a Workbook object

Usage

```
worksheetOrder(wb)

worksheetOrder(wb) <- value
```

Arguments

wb	A workbook object
value	Vector specifying order to write worksheets to file

Details

This function does not reorder the worksheets within the workbook object, it simply shuffles the order when writing to file.

Examples

```
## setup a workbook with 3 worksheets
wb <- createWorkbook()
addWorksheet(wb = wb, sheetName = "Sheet 1", gridLines = FALSE)
writeDataTable(wb = wb, sheet = 1, x = iris)

addWorksheet(wb = wb, sheetName = "mtcars (Sheet 2)", gridLines = FALSE)
writeData(wb = wb, sheet = 2, x = mtcars)

addWorksheet(wb = wb, sheetName = "Sheet 3", gridLines = FALSE)
```

```
writeData(wb = wb, sheet = 3, x = Formaldehyde)

worksheetOrder(wb)
names(wb)
worksheetOrder(wb) <- c(1, 3, 2) # switch position of sheets 2 & 3
writeData(wb, 2, 'This is still the "mtcars" worksheet', startCol = 15)
worksheetOrder(wb)
names(wb) ## ordering within workbook is not changed
## Not run:
saveWorkbook(wb, "worksheetOrderExample.xlsx", overwrite = TRUE)

## End(Not run)
worksheetOrder(wb) <- c(3, 2, 1)
## Not run:
saveWorkbook(wb, "worksheetOrderExample2.xlsx", overwrite = TRUE)

## End(Not run)
```

`write.xlsx` *write data to an xlsx file*

Description

write a data.frame or list of data.frames to an xlsx file

Usage

```
write.xlsx(x, file, asTable = FALSE, ...)
```

Arguments

`x`	object or a list of objects that can be handled by `writeData` to write to file
`file`	xlsx file name
`asTable`	write using writeDataTable as opposed to writeData
`...`	optional parameters to pass to functions: • createWorkbook • addWorksheet • writeData • freezePane • saveWorkbook see details.

Details

Optional parameters are:

createWorkbook Parameters

- **creator** A string specifying the workbook author

addWorksheet Parameters

- **sheetName** Name of the worksheet
- **gridLines** A logical. If FALSE, the worksheet grid lines will be hidden.
- **tabColour** Colour of the worksheet tab. A valid colour (belonging to colours()) or a valid hex colour beginning with "#".
- **zoom** A numeric between 10 and 400. Worksheet zoom level as a percentage.

writeData/writeDataTable Parameters

- **startCol** A vector specifying the starting column(s) to write df
- **startRow** A vector specifying the starting row(s) to write df
- **xy** An alternative to specifying startCol and startRow individually. A vector of the form c(startCol, startRow)
- **colNames or col.names** If TRUE, column names of x are written.
- **rowNames or row.names** If TRUE, row names of x are written.
- **headerStyle** Custom style to apply to column names.
- **borders** Either "surrounding", "columns" or "rows" or NULL. If "surrounding", a border is drawn around the data. If "rows", a surrounding border is drawn a border around each row. If "columns", a surrounding border is drawn with a border between each column. If "all" all cell borders are drawn.
- **borderColour** Colour of cell border
- **borderStyle** Border line style.
- **keepNA** If TRUE, NA values are converted to #N/A (or na.string, if not NULL) in Excel, else NA cells will be empty. Defaults to FALSE.
- **na.string** If not NULL, and if keepNA is TRUE, NA values are converted to this string in Excel. Defaults to NULL.

freezePane Parameters

- **firstActiveRow** Top row of active region to freeze pane.
- **firstActiveCol** Furthest left column of active region to freeze pane.
- **firstRow** If TRUE, freezes the first row (equivalent to firstActiveRow = 2)
- **firstCol** If TRUE, freezes the first column (equivalent to firstActiveCol = 2)

colWidths Parameters

- **colWidths** Must be value "auto". Sets all columns containing data to auto width.

saveWorkbook Parameters

- **overwrite** Overwrite existing file (Defaults to TRUE as with write.table)

columns of x with class Date or POSIXt are automatically styled as dates and datetimes respectively.

Value

A workbook object

Author(s)

Alexander Walker

See Also

addWorksheet

writeData

createStyle for style parameters

Examples

```
## write to working directory
options("openxlsx.borderColour" = "#4F80BD") ## set default border colour
## Not run:
write.xlsx(iris, file = "writeXLSX1.xlsx", colNames = TRUE, borders = "columns")
write.xlsx(iris, file = "writeXLSX2.xlsx", colNames = TRUE, borders = "surrounding")

## End(Not run)


hs <- createStyle(
  textDecoration = "BOLD", fontColour = "#FFFFFF", fontSize = 12,
  fontName = "Arial Narrow", fgFill = "#4F80BD"
)
## Not run:
write.xlsx(iris,
  file = "writeXLSX3.xlsx",
  colNames = TRUE, borders = "rows", headerStyle = hs
)

## End(Not run)

## Lists elements are written to individual worksheets, using list names as sheet names if available
l <- list("IRIS" = iris, "MTCATS" = mtcars, matrix(runif(1000), ncol = 5))
## Not run:
write.xlsx(l, "writeList1.xlsx", colWidths = c(NA, "auto", "auto"))

## End(Not run)

## different sheets can be given different parameters
## Not run:
write.xlsx(l, "writeList2.xlsx",
  startCol = c(1, 2, 3), startRow = 2,
  asTable = c(TRUE, TRUE, FALSE), withFilter = c(TRUE, FALSE, FALSE)
)
```

```
## End(Not run)
```

---

writeComment *write a cell comment*

Description

Write a Comment object to a worksheet

Usage

```
writeComment(wb, sheet, col, row, comment, xy = NULL)
```

Arguments

wb	A workbook object
sheet	A vector of names or indices of worksheets
col	Column a column number of letter
row	A row number.
comment	A Comment object. See createComment.
xy	An alternative to specifying col and row individually. A vector of the form c(col,row).

See Also

createComment

Examples

```
wb <- createWorkbook()
addWorksheet(wb, "Sheet 1")

c1 <- createComment(comment = "this is comment")
writeComment(wb, 1, col = "B", row = 10, comment = c1)

s1 <- createStyle(fontSize = 12, fontColour = "red", textDecoration = c("BOLD"))
s2 <- createStyle(fontSize = 9, fontColour = "black")

c2 <- createComment(comment = c("This Part Bold red\n\n", "This part black"), style = c(s1, s2))
c2

writeComment(wb, 1, col = 6, row = 3, comment = c2)
## Not run:
saveWorkbook(wb, file = "writeCommentExample.xlsx", overwrite = TRUE)

## End(Not run)
```

writeData *Write an object to a worksheet*

Description

Write an object to worksheet with optional styling.

Usage

```
writeData(
  wb,
  sheet,
  x,
  startCol = 1,
  startRow = 1,
  xy = NULL,
  colNames = TRUE,
  rowNames = FALSE,
  headerStyle = NULL,
  borders = c("none", "surrounding", "rows", "columns", "all"),
  borderColour = getOption("openxlsx.borderColour", "black"),
  borderStyle = getOption("openxlsx.borderStyle", "thin"),
  withFilter = FALSE,
  keepNA = FALSE,
  na.string = NULL,
  name = NULL,
  sep = ", "
)
```

Arguments

wb	A Workbook object containing a worksheet.
sheet	The worksheet to write to. Can be the worksheet index or name.
x	Object to be written. For classes supported look at the examples.
startCol	A vector specifying the starting column to write to.
startRow	A vector specifying the starting row to write to.
xy	An alternative to specifying `startCol` and `startRow` individually. A vector of the form `c(startCol,startRow)`.
colNames	If `TRUE`, column names of x are written.
rowNames	If `TRUE`, data.frame row names of x are written.
headerStyle	Custom style to apply to column names.
borders	Either "none" (default), "surrounding", "columns", "rows" or *respective abbreviations*. If "surrounding", a border is drawn around the data. If "rows", a surrounding border is drawn with a border around each row. If "columns", a surrounding border is drawn with a border between each column. If "all" all cell borders are drawn.

`borderColour` Colour of cell border. A valid colour (belonging to `colours()` or a hex colour code, eg see here).

`borderStyle` Border line style

- **none** no border
- **thin** thin border
- **medium** medium border
- **dashed** dashed border
- **dotted** dotted border
- **thick** thick border
- **double** double line border
- **hair** hairline border
- **mediumDashed** medium weight dashed border
- **dashDot** dash-dot border
- **mediumDashDot** medium weight dash-dot border
- **dashDotDot** dash-dot-dot border
- **mediumDashDotDot** medium weight dash-dot-dot border
- **slantDashDot** slanted dash-dot border

`withFilter` If `TRUE`, add filters to the column name row. NOTE can only have one filter per worksheet.

`keepNA` If `TRUE`, NA values are converted to #N/A (or `na.string`, if not NULL) in Excel, else NA cells will be empty.

`na.string` If not NULL, and if `keepNA` is `TRUE`, NA values are converted to this string in Excel.

`name` If not NULL, a named region is defined.

`sep` Only applies to list columns. The separator used to collapse list columns to a character vector e.g. sapply(x$list_column, paste, collapse = sep).

Details

Formulae written using writeFormula to a Workbook object will not get picked up by read.xlsx(). This is because only the formula is written and left to Excel to evaluate the formula when the file is opened in Excel.

Value

invisible(0)

Author(s)

Alexander Walker

See Also

`writeDataTable`

Examples

```
## See formatting vignette for further examples.

## Options for default styling (These are the defaults)
options("openxlsx.borderColour" = "black")
options("openxlsx.borderStyle" = "thin")
options("openxlsx.dateFormat" = "mm/dd/yyyy")
options("openxlsx.datetimeFormat" = "yyyy-mm-dd hh:mm:ss")
options("openxlsx.numFmt" = NULL)

## Change the default border colour to #4F81BD
options("openxlsx.borderColour" = "#4F81BD")


################################################################################
## Create Workbook object and add worksheets
wb <- createWorkbook()

## Add worksheets
addWorksheet(wb, "Cars")
addWorksheet(wb, "Formula")


x <- mtcars[1:6, ]
writeData(wb, "Cars", x, startCol = 2, startRow = 3, rowNames = TRUE)

################################################################################
## Bordering

writeData(wb, "Cars", x,
  rowNames = TRUE, startCol = "O", startRow = 3,
  borders = "surrounding", borderColour = "black"
) ## black border

writeData(wb, "Cars", x,
  rowNames = TRUE,
  startCol = 2, startRow = 12, borders = "columns"
)

writeData(wb, "Cars", x,
  rowNames = TRUE,
  startCol = "O", startRow = 12, borders = "rows"
)


################################################################################
## Header Styles

hs1 <- createStyle(
  fgFill = "#DCE6F1", halign = "CENTER", textDecoration = "italic",
  border = "Bottom"
```

```
)

writeData(wb, "Cars", x,
  colNames = TRUE, rowNames = TRUE, startCol = "B",
  startRow = 23, borders = "rows", headerStyle = hs1, borderStyle = "dashed"
)


hs2 <- createStyle(
  fontColour = "#ffffff", fgFill = "#4F80BD",
  halign = "center", valign = "center", textDecoration = "bold",
  border = "TopBottomLeftRight"
)

writeData(wb, "Cars", x,
  colNames = TRUE, rowNames = TRUE,
  startCol = "O", startRow = 23, borders = "columns", headerStyle = hs2
)




################################################################################
## Hyperlinks
## - vectors/columns with class 'hyperlink' are written as hyperlinks'

v <- rep("https://CRAN.R-project.org/", 4)
names(v) <- paste0("Hyperlink", 1:4) # Optional: names will be used as display text
class(v) <- "hyperlink"
writeData(wb, "Cars", x = v, xy = c("B", 32))


################################################################################
## Formulas
## - vectors/columns with class 'formula' are written as formulas'

df <- data.frame(
  x = 1:3, y = 1:3,
  z = paste0(paste0("A", 1:3 + 1L), paste0("B", 1:3 + 1L), sep = " + "),
  stringsAsFactors = FALSE
)

class(df$z) <- c(class(df$z), "formula")

writeData(wb, sheet = "Formula", x = df)


################################################################################
## Save workbook
## Open in excel without saving file: openXL(wb)
## Not run:
saveWorkbook(wb, "writeDataExample.xlsx", overwrite = TRUE)
```

```
## End(Not run)
```

`writeDataTable` *Write to a worksheet as an Excel table*

Description

Write to a worksheet and format as an Excel table

Usage

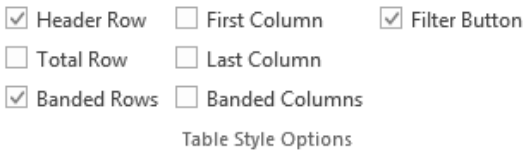
```
writeDataTable(
  wb,
  sheet,
  x,
  startCol = 1,
  startRow = 1,
  xy = NULL,
  colNames = TRUE,
  rowNames = FALSE,
  tableStyle = "TableStyleLight9",
  tableName = NULL,
  headerStyle = NULL,
  withFilter = TRUE,
  keepNA = FALSE,
  na.string = NULL,
  sep = ", ",
  stack = FALSE,
  firstColumn = FALSE,
  lastColumn = FALSE,
  bandedRows = TRUE,
  bandedCols = FALSE
)
```

Arguments

`wb`	A Workbook object containing a worksheet.
`sheet`	The worksheet to write to. Can be the worksheet index or name.
`x`	A dataframe.
`startCol`	A vector specifying the starting column to write df
`startRow`	A vector specifying the starting row to write df
`xy`	An alternative to specifying startCol and startRow individually. A vector of the form c(startCol, startRow)
`colNames`	If `TRUE`, column names of x are written.
`rowNames`	If `TRUE`, row names of x are written.

tableStyle	Any excel table style name or "none" (see "formatting" vignette).
tableName	name of table in workbook. The table name must be unique.
headerStyle	Custom style to apply to column names.
withFilter	If TRUE, columns with have filters in the first row.
keepNA	If TRUE, NA values are converted to #N/A (or na.string, if not NULL) in Excel, else NA cells will be empty.
na.string	If not NULL, and if keepNA is TRUE, NA values are converted to this string in Excel.
sep	Only applies to list columns. The separator used to collapse list columns to a character vector e.g. sapply(x$list_column, paste, collapse = sep).
stack	If TRUE the new style is merged with any existing cell styles. If FALSE, any existing style is replaced by the new style.

The below options correspond to Excel table options:



firstColumn	logical. If TRUE, the first column is bold
lastColumn	logical. If TRUE, the last column is bold
bandedRows	logical. If TRUE, rows are colour banded
bandedCols	logical. If TRUE, the columns are colour banded

Details

columns of x with class Date/POSIXt, currency, accounting, hyperlink, percentage are automatically styled as dates, currency, accounting, hyperlinks, percentages respectively.

See Also

addWorksheet

writeData

removeTable

getTables

Examples

```
## see package vignettes for further examples.

################################################################################
## Create Workbook object and add worksheets
wb <- createWorkbook()
```

```
addWorksheet(wb, "S1")
addWorksheet(wb, "S2")
addWorksheet(wb, "S3")


################################################################################
## -- write data.frame as an Excel table with column filters
## -- default table style is "TableStyleMedium2"

writeDataTable(wb, "S1", x = iris)

writeDataTable(wb, "S2",
  x = mtcars, xy = c("B", 3), rowNames = TRUE,
  tableStyle = "TableStyleLight9"
)

df <- data.frame(
  "Date" = Sys.Date() - 0:19,
  "T" = TRUE, "F" = FALSE,
  "Time" = Sys.time() - 0:19 * 60 * 60,
  "Cash" = paste("$", 1:20), "Cash2" = 31:50,
  "hLink" = "https://CRAN.R-project.org/",
  "Percentage" = seq(0, 1, length.out = 20),
  "TinyNumbers" = runif(20) / 1E9, stringsAsFactors = FALSE
)

## openxlsx will apply default Excel styling for these classes
class(df$Cash) <- c(class(df$Cash), "currency")
class(df$Cash2) <- c(class(df$Cash2), "accounting")
class(df$hLink) <- "hyperlink"
class(df$Percentage) <- c(class(df$Percentage), "percentage")
class(df$TinyNumbers) <- c(class(df$TinyNumbers), "scientific")

writeDataTable(wb, "S3", x = df, startRow = 4, rowNames = TRUE, tableStyle = "TableStyleMedium9")

################################################################################
## Additional Header Styling and remove column filters

writeDataTable(wb,
  sheet = 1, x = iris, startCol = 7, headerStyle = createStyle(textRotation = 45),
  withFilter = FALSE
)


################################################################################
## Save workbook
## Open in excel without saving file: openXL(wb)
## Not run:
saveWorkbook(wb, "writeDataTableExample.xlsx", overwrite = TRUE)

## End(Not run)
```

```
################################################################################
## Pre-defined table styles gallery

wb <- createWorkbook(paste0("tableStylesGallery.xlsx"))
addWorksheet(wb, "Style Samples")
for (i in 1:21) {
  style <- paste0("TableStyleLight", i)
  writeDataTable(wb,
    x = data.frame(style), sheet = 1,
    tableStyle = style, startRow = 1, startCol = i * 3 - 2
  )
}

for (i in 1:28) {
  style <- paste0("TableStyleMedium", i)
  writeDataTable(wb,
    x = data.frame(style), sheet = 1,
    tableStyle = style, startRow = 4, startCol = i * 3 - 2
  )
}

for (i in 1:11) {
  style <- paste0("TableStyleDark", i)
  writeDataTable(wb,
    x = data.frame(style), sheet = 1,
    tableStyle = style, startRow = 7, startCol = i * 3 - 2
  )
}

## openXL(wb)
## Not run:
saveWorkbook(wb, file = "tableStylesGallery.xlsx", overwrite = TRUE)

## End(Not run)
```

`writeFormula` *Write a character vector as an Excel Formula*

Description

Write a a character vector containing Excel formula to a worksheet.

Usage

```
writeFormula(wb, sheet, x, startCol = 1, startRow = 1, xy = NULL)
```

Arguments

wb	A Workbook object containing a worksheet.
sheet	The worksheet to write to. Can be the worksheet index or name.
x	A character vector.
startCol	A vector specifying the starting column to write to.
startRow	A vector specifying the starting row to write to.
xy	An alternative to specifying `startCol` and `startRow` individually. A vector of the form `c(startCol,startRow)`.

Details

Currently only the english version of functions are supported. Please don't use the local translation. The examples below show a small list of possible formulas:

- SUM(B2:B4)
- AVERAGE(B2:B4)
- MIN(B2:B4)
- MAX(B2:B4)
- ...

Author(s)

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See Also

writeData

Examples

```
## There are 3 ways to write a formula

wb <- createWorkbook()
addWorksheet(wb, "Sheet 1")
writeData(wb, "Sheet 1", x = iris)

## SEE int2col() to convert int to Excel column label

## 1. -  As a character vector using writeFormula

v <- c("SUM(A2:A151)", "AVERAGE(B2:B151)") ## skip header row
writeFormula(wb, sheet = 1, x = v, startCol = 10, startRow = 2)
writeFormula(wb, 1, x = "A2 + B2", startCol = 10, startRow = 10)


## 2. - As a data.frame column with class "formula" using writeData
```

```
df <- data.frame(
  x = 1:3,
  y = 1:3,
  z = paste(paste0("A", 1:3 + 1L), paste0("B", 1:3 + 1L), sep = " + "),
  z2 = sprintf("ADDRESS(1,%s)", 1:3),
  stringsAsFactors = FALSE
)

class(df$z) <- c(class(df$z), "formula")
class(df$z2) <- c(class(df$z2), "formula")

addWorksheet(wb, "Sheet 2")
writeData(wb, sheet = 2, x = df)



## 3. - As a vector with class "formula" using writeData

v2 <- c("SUM(A2:A4)", "AVERAGE(B2:B4)", "MEDIAN(C2:C4)")
class(v2) <- c(class(v2), "formula")

writeData(wb, sheet = 2, x = v2, startCol = 10, startRow = 2)

## Save workbook
## Not run:
saveWorkbook(wb, "writeFormulaExample.xlsx", overwrite = TRUE)

## End(Not run)


## 4. - Writing internal hyperlinks

wb <- createWorkbook()
addWorksheet(wb, "Sheet1")
addWorksheet(wb, "Sheet2")
writeFormula(wb, "Sheet1", x = '=HYPERLINK("#Sheet2!B3", "Text to Display - Link to Sheet2")')

## Save workbook
## Not run:
saveWorkbook(wb, "writeFormulaHyperlinkExample.xlsx", overwrite = TRUE)

## End(Not run)
```

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