Package ‘openxlsx’

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Type Package
Title Read, Write and Edit xlsx Files
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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, rmarkdown

LinkingTo Rcpp

VignetteBuilder knitr

Encoding UTF-8

RoxygenNote 7.1.1

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'

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NeedsCompilation: yes

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**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**

```r
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.
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 worksheet
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")
)
```r
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

```r
## 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**

```r
## 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**

```r
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', 'colourScale', 'databar', 'duplicates', 'beginsWith', 'endsWith', 'contains' or 'notContains' (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, Philipp Schauberger

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, "notcontainsText")
addWorksheet(wb, "beginsWith")
addWorksheet(wb, "endsWith")
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", 

conditionalFormatting

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")

## cells not containing text
fn <- function(x) paste(sample(LETTERS, 10), collapse = "-")
writeData(wb, "notcontainsText", sapply(1:10, fn))
conditionalFormatting(wb, "notcontainsText", cols = 1, rows = 1:10, type = "notcontains", rule = "A")

## cells begins with text
fn <- function(x) paste(sample(LETTERS, 10), collapse = "-")
writeData(wb, "beginsWith", sapply(1:100, fn))
conditionalFormatting(wb, "beginsWith", cols = 1, rows = 1:100, type = "beginsWith", rule = "A")

## cells ends with text
fn <- function(x) paste(sample(LETTERS, 10), collapse = "-")
writeData(wb, "endsWith", sapply(1:100, fn))
conditionalFormatting(wb, "endsWith", cols = 1, rows = 1:100, type = "endsWith", 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
conditionalFormatting

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

## Between
# 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)

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

#########################################################################
## 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)
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
convertToDate

_convertToDateTime_

Convert from excel time number to R POSIXct type.

Description

Convert from excel time number to R POSIXct type.

Usage

```r
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

```r
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**

```r
copyWorkbook(wb)
```

**Arguments**

- `wb` A workbook object

**Value**

Workbook

**Examples**

```r
wb <- createWorkbook()
w2 <- wb  # does not create a copy
wb3 <- copyWorkbook(wb)  # wrapper for wb$copy()

addWorksheet(wb, "Sheet1") # adds worksheet to both wb and w2 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**

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

Create a named region.

Description

Create a named region

Usage

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

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 must be case-insensitive unique.

Details

Region is given by: \( \text{min}(\text{cols}):\text{max}(\text{cols}) \times \text{min}(\text{rows}):\text{max}(\text{rows}) \)

Author(s)

Alexander Walker

See Also

- getNamedRegions

Examples

```r
## 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**

```r
createStyle(
  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
createStyle

- 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

```r
border = C("top", "bottom", "left", "right")
```

- 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

```r
borderColour = C("top", "bottom", "left", "right")
```

- 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 "#"

- 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
```r
## 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

```r
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

```r
## 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

```r
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**

```r
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
## freezePane

### Description

Freeze a worksheet pane

### Usage

```r
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**

```r
## 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**

```r
getBaseFont(wb)
```

**Arguments**

- **wb**
  
  A workbook object

**Author(s)**

Alexander Walker

**Examples**

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

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

Value

- vector of creators

Author(s)

- Philipp Schauberger

Examples

```r
wb <- createWorkbook()
getCreator(wb)
```

getDescription

Get the date origin an xlsx file is using

Description

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

Usage

```r
dateOrigin(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`
getNamedRegions

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 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

```r
getSheetNames(file)
```

### Arguments

- `file`  
  An xlsx or xslm file.

### Value

Character vector of worksheet names.

### Author(s)

Alexander Walker

### Examples

```r
gsheetNames(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

```r
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")
```

---

<table>
<thead>
<tr>
<th>groupColumns</th>
<th>Group columns</th>
</tr>
</thead>
</table>

Description

Group a selection of columns

Usage

```r
groupColumns(wb, sheet, cols, hidden = FALSE)
```

Arguments

- **wb**: A workbook object.
- **sheet**: A name or index of a worksheet.
- **cols**: Indices of cols to group.
- **hidden**: Logical vector. If TRUE the grouped columns are hidden. Defaults to FALSE.

Details

Group columns together, with the option to hide them.

NOTE: `setColWidths` has a conflicting hidden parameter; changing one will update the other.

Author(s)

Joshua Sturm

See Also

- `ungroupColumns` to ungroup columns. `groupRows` for grouping rows.
**groupRows**  

*Group Rows*

**Description**

Group a selection of rows

**Usage**

```r
groupRows(wb, sheet, rows, hidden = FALSE)
```

**Arguments**

- `wb`: A workbook object
- `sheet`: A name or index of a worksheet
- `rows`: Indices of rows to group
- `hidden`: Logical vector. If TRUE the grouped columns are hidden. Defaults to FALSE

**Author(s)**

Joshua Sturm

**See Also**

- `ungroupRows` to ungroup rows. `groupColumns` for grouping columns.

---

**insertImage**  

*Insert an image into a worksheet*

**Description**

Insert an image into a worksheet

**Usage**

```r
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

```r
## 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**

```r
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

```r
## 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

```r
## 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

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

## External Hyperlink
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
```

mergeCells

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 = '/quotesingle.Var=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
mergeCells

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)
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

```r
## 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 chosen 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`).
openxlsx

Usage

openXL(file=NULL)

Arguments

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

Author(s)

Luca Braglia

Examples

# file example
eexample(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 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

```r
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

```r
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

```r
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**

```r
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**

```r
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)
```

---

**Description**

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

**Usage**

```r
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

```r
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

```r
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

```r
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**

```r
readWorkbook(
  xlsxFile,
```
sheet = 1,
startRow = 1,
colNames = TRUE,
rowNames = FALSE,
detectDates = FALSE,
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.
removeCellMerge

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

```r
## 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**

```r
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**

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

**Arguments**

- `wb`: A workbook object
- `sheet`: A vector of names or indices of worksheets
Examples

```r
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**  
```r
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`
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)
```
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

```r
## 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 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

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>wb</td>
<td>A workbook object</td>
</tr>
<tr>
<td>index</td>
<td>Index of style object to replace</td>
</tr>
<tr>
<td>newStyle</td>
<td>A style to replace the existing style as position index</td>
</tr>
</tbody>
</table>

Author(s)
Alexander Walker

See Also
getStyles

Examples

```r
## 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

**Description**

save a Workbook object to file

**Usage**

```r
saveWorkbook(wb, file, overwrite = FALSE, returnValue = 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.
- `returnValue`: If TRUE, returns TRUE in case of a success, else FALSE. If flag is FALSE, then no return value is returned.

**Author(s)**

Alexander Walker, Philipp Schauburger

**See Also**

- `createWorkbook`
- `addWorksheet`
- `loadWorkbook`
- `writeData`
- `writeDataTable`

**Examples**

```r
## 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**

```r
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.

NOTE: The hidden parameter may conflict with the one set in `groupColumns`; changing one will update the other.

**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

```r
## Not run:
w <- 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**

```r
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**

```r
## Not run:
w <- 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

### Description

Set document headers and footers

### Usage

```r
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

```r
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)
)
setLastModifiedBy

Add another author to the meta data of the file.

Description

Just a wrapper of \texttt{wb$changeLastModifiedBy()}

Usage

\texttt{setLastModifiedBy(wb, LastModifiedBy)}

Arguments

- \texttt{wb} A workbook object
- \texttt{LastModifiedBy} A string object with the name of the \texttt{LastModifiedBy}-User

Author(s)

Philipp Schauburger

Examples

\begin{verbatim}
wb <- createWorkbook()
setLastModifiedBy(wb, "test")
\end{verbatim}
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
```r
## 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**

```r
## 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)
```
**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**

```r
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
```

---

**Description**

DEPRECATED - Use function 'sheetVisibility()
showGridLines

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.

Description

Set worksheet gridlines to show or hide.

Examples

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

showGridLines(wb)
showGridLines(wb, sheet = 1, showGridLines = FALSE)
showGridLines(wb, sheet = 2, showGridLines = TRUE)

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

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
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)
```

Description

Ungroup a selection of columns

Usage

```
ungenbColumns(wb, sheet, cols)
```

Arguments

- **wb**: A workbook object
- **sheet**: A name or index of a worksheet
- **cols**: Indices of columns to ungroup

Details

If column was previously hidden, it will now be shown

Author(s)

Joshua Sturm

See Also

- `ungenbRows` To ungroup rows
**ungroupRows**

**Ungroup Rows**

**Description**

Ungroup a selection of rows

**Usage**

`ungroupRows(wb, sheet, rows)`

**Arguments**

- **wb**: A workbook object
- **sheet**: A name or index of a worksheet
- **rows**: Indices of rows to ungroup

**Details**

If row was previously hidden, it will now be shown

**Author(s)**

Joshua Sturm

**See Also**

- **ungroupColumns**

---

**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

```r
## 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)

## 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

```r
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
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 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
write.xlsx

- **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**

```r
## 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 = "#FF00FF", fontSize = 12,
  fontName = "Arial Narrow", fgFill = "#4F80BD"
)
## Not run:
write.xlsx(iris,
  file = "writeXLSX3.xlsx",
  colNames = TRUE, borders = "rows", headerStyle = hs)
```


writeComment

## 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(wb, sheet, col, row, comment, xy = NULL)

### 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. An integer or a character.
- **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

```r
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)
```

```r
## 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

```r
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 ab-
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 dashed-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,
```r
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:

- **Header Row**
- **First Column**
- **Filter Button**
- **Total Row**
- **Last Column**
- **Banded Rows**
- **Banded Columns**

- **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

```r
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

```r
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

```r
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

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

class(v2) <- c(class(v2), "formula")

```r
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

```r
wb <- createWorkbook()
```
```r
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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