Package ‘rtf’

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Description

A set of R functions to output Rich Text Format (RTF) files with high resolution tables and graphics that may be edited with a standard word processor such as Microsoft Word. This is useful for compiling R results into a document for further editing or to be merged with another document.

While Sweave and odfWeave provide nicely formatted outputs, the syntax can be difficult for beginners to master. Moreover, Sweave compilation to a PDF is not editable. Other packages such as SWord and R2wd provide similar functionality but require the user to be running a Microsoft Windows OS.

This package is written in pure R and does not require leaving the R environment to write files. R data frames and table objects are converted to nicely formatted RTF tables. One important limitation of the RTF specification is that vector graphics output is limited to Windows Meta File (WMF) and Enhanced Meta File (EMF) formats. Because these formats are not supported across platforms, this package currently only supports RTF embedding of PNG plots and images. To ensure high quality reports, the resolution may be specified when writing the RTF output.

Requirements

This package depends on the R.oo package.

Usage

For usage details RTF.

Author(s)

Michael E. Schaffer

References


addHeader.RTF

Insert a header into the RTF document

Description

Insert a header into the RTF document.

Usage

## S3 method for class 'RTF'
addHeader(this, title, subtitle=NULL, font.size=NULL, TOC.level=NULL, ...)

Arguments

- **this**: An RTF object.
- **title**: Header title text.
- **subtitle**: Header subtitle text. optional.
- **font.size**: Font size in points. optional.
- **TOC.level**: Indent level for table of contents. optional.
- ...: Not used.

Author(s)

Michael E. Schaffer

See Also

For more information see RTF.

addNewLine.RTF

Insert a new line into the RTF document

Description

Insert a new line into the RTF document.

Usage

## S3 method for class 'RTF'
addNewLine(this, n=1, ...)

Arguments

- **this**: An RTF object.
- **n**: Number of lines to add. Default is 1. optional
- ...: Not used.
addPageBreak.RTF

Author(s)
Michael E. Schaffer

See Also
For more information see RTF.

---

**addPageBreak.RTF**

*Insert a page break into the RTF document optionally specifying new page settings*

---

**Description**
Insert a page break into the RTF document optionally specifying new page settings.

**Usage**

```r
## S3 method for class 'RTF'
addPageBreak(this, width=8.5, height=11, omi=c(1, 1, 1, 1), ...)
```

**Arguments**

- **this**: An RTF object.
- **width**: New page width in inches. *optional*.
- **height**: New page height in inches. *optional*.
- **omi**: A vector of page margins (bottom, left, top, right) *optional*.
- **...**: Not used.

**Author(s)**
Michael E. Schaffer

**See Also**
For more information see RTF.

**Examples**

```r
rtf<-RTF("test_addPageBreak.doc",width=8.5,height=11,font.size=10,omi=c(1,1,1,1))
addPageBreak(rtf,width=11,height=8.5,omi=c(0.5,0.5,0.5,0.5))
done(rtf)
```
**Description**

Insert a paragraph into the RTF document.

**Usage**

```r
## S3 method for class 'RTF'
addParagraph(this, ...)
```

**Arguments**

- **this**: An RTF object.
- **...**: A character *vector* of text to add.

**Author(s)**

Michael E. Schaffer

**See Also**

For more information see `RTF`.

---

**addPlot.RTF**

*Insert a plot into the RTF document*

**Description**

Insert a plot into the RTF document.

**Usage**

```r
## S3 method for class 'RTF'
addPlot(this, plot.fun=plot.fun, width=3, height=0.3, res=300, ...)
```

**Arguments**

- **this**: An RTF object.
- **plot.fun**: Plot function.
- **width**: Plot output width in inches.
- **height**: Plot output height in inches.
- **res**: Output resolution in dots per inch.
- **...**: Arguments for `plot.fun`. 
Details

Plots are added to the document as PNG objects. This function will work with all base graphics methods for plotting. For more sophisticated plots, you may need to wrap your plot code into a function, and then pass a reference to that function to this method. The parameters for the plot method would then get passed in as `...` above.

To output a ggplot2 plot, simply assign the plot to a variable. Then use 'print' as the plot function and pass in the plot variable assigned above.

Author(s)

Michael E. Schaffer

See Also

For more information see `rtf`.

Examples

```r
trf <- rtf("test_addPlot.doc", width=8.5, height=11, font.size=10, omi=c(1,1,1,1))
addPlot(rtf, plot.fun=plot, width=6, height=6, res=300, iris[,1], iris[,2])
done(rtf)
```

---

**addPng.RTF**

Insert an existing PNG image into the RTF document

Description

Insert an existing PNG image into the RTF document.

Usage

```r
## S3 method for class 'RTF'
addPng(this, file, width=3, height=0.3, ...)
```

Arguments

- **this**: An RTF object.
- **file**: Image file path.
- **width**: Plot output width in inches.
- **height**: Plot output height in inches.
- **...**: Not used.

Details

Add existing PNG file to RTF document.
Author(s)

Michael E. Schaffer

See Also

For more information see RTF.

Description

Insert session information into the RTF document.

Usage

```r
### S3 method for class 'RTF'
addSessionInfo(this, locale=TRUE, ...)
```

Arguments

- `this` An RTF object.
- `locale` Output the locale.
- `...` Not used.

Details

Exports session information to the RTF document in a similar

Author(s)

Michael E. Schaffer

See Also

For more information see RTF, sessionInfo.

Examples

```r
tf<-RTF("test_addSessionInfo.doc",width=8.5,height=11,font.size=10,omi=c(1,1,1,1))
addSessionInfo(rtf)
done(rtf)
```
Insert a table into the RTF document

Description

Insert a table into the RTF document.

Usage

```r
## S3 method for class 'RTF'
addTable(this, dat, col.widths=NULL, col.justify=NULL, header.col.justify=NULL,
font.size=NULL, row.names=FALSE, NA.string="-", space.before=NULL, space.after=NULL,
...)```

Arguments

- `this` An RTF object.
- `dat` A matrix, data frame, or table.
- `col.widths` A vector of column widths in inches. **optional**.
- `col.justify` A single value or vector of column justifications ('L', 'R', 'C', or 'J' for Left, Right, Center, and Justify, respectively). **optional**.
- `header.col.justify` A single value or vector of table header column justifications ('L', 'R', 'C', or 'J' for Left, Right, Center, and Justify, respectively). **optional**.
- `font.size` Font size in points. **optional**.
- `row.names` Boolean argument to include row names in tables. **optional**.
- `NA.string` A character string to replace NA values in the table.
- `space.before` Space before each row (in inches). **optional**.
- `space.after` Space after each row (in inches). **optional**.
- `...` Not used.

Author(s)

Michael E. Schaffer

See Also

For more information see **RTF**.
Examples

```r
code
rtf <- RTF("test_addTable.doc", width=8.5, height=11, font.size=10, omi=c(1,1,1,1))
addTable(rtf, as.data.frame(head(iris)), font.size=10, row.names=FALSE, NA.string="-",
  col.widths=rep(1,5))

tab <- table(iris$Species, floor(iris$Sepal.Length))
names(dimnames(tab)) <- c("Species", "Sepal Length")
addTable(rtf, tab, font.size=10, row.names=TRUE, NA.string="-", col.widths=c(1,rep(0.5,4))

done(rtf)
```

---

**addText.RTF**  
*Insert text into the RTF document*

**Description**

Insert text into the RTF document.

**Usage**

```r
define
## S3 method for class 'RTF'
addText(this, ..., bold=FALSE, italic=FALSE)
```

**Arguments**

- **this**: An RTF object.
- **bold**: Bold text. **optional**.
- **italic**: Italic text. **optional**.
- **...**: Any number of character strings to concatenate.

**Author(s)**

Michael E. Schaffer

**See Also**

For more information see RTF.
addToc.RTF

Insert table of contents field

Description

Insert table of contents field.

Usage

```r
## S3 method for class 'RTF'
addTOC(this, ...)
```

Arguments

- `this`: An RTF object.
- `...`: Not used.

Author(s)

Michael E. Schaffer

See Also

For more information see `RTF`.

addTrellisObject.RTF

Insert a trellis plot object into the RTF document

Description

Insert a trellis plot object into the RTF document.

Usage

```r
## S3 method for class 'RTF'
addTrellisObject(this, trellis.object, width=3, height=0.3, res=300, rotate=NULL, ...)
```

Arguments

- `this`: An RTF object.
- `trellis.object`: The trellis plot object.
- `width`: Plot output width in inches.
- `height`: Plot output height in inches.
- `res`: Output resolution in dots per inch.
- `rotate`: Object rotation in degrees. **optional**.
- `...`: Not used.
Details

Plots are added to the document as PNG objects. Multi-page trellis objects are automatically split across multiple pages in the RTF output file. To rotate the object to landscape orientation within the RTF output, use rotate=90. When using rotation, width and height still refer to the unrotated plot dimensions and not the rotated output dimensions on the RTF page. An alternative to rotating the plot is to rotate the entire page using a call to addPageBreak with suitable page width and height dimensions.

Author(s)

Michael E. Schaffer

See Also

For more information see rtf.

Examples

## Not run:
rtf<-RTF("test_addTrellisObject.doc",width=8.5,height=11,font.size=10,omi=c(1,1,1,1))
if(require(lattice) & require(grid)) {
  # multipage trellis object
  p2<-xyplot(uptake ~ conc | Plant, CO2, layout = c(2,2))
  addTrellisObject(rtf,trellis.object=p2,width=8,height=4,res=300, rotate=90)
}
done(rtf)

## End(Not run)

decreaseIndent.RTF Decrease RTF document indent

Description

Decrease RTF document indent.

Usage

## S3 method for class 'RTF'
decreaseIndent(this, ...)

Arguments

this An RTF object.
... Not used.
**Author(s)**

Michael E. Schaffer

**See Also**

For more information see RTF.

---

### done.RTF

*Write and close the RTF output*

**Description**

Write and close the RTF output.

**Usage**

```r
## S3 method for class 'RTF'
done(this, ...)
```

**Arguments**

- `this` An RTF object.
- `...` Not used.

**Author(s)**

Michael E. Schaffer

**See Also**

For more information see RTF.

---

### endParagraph.RTF

*End a paragraph in the RTF document*

**Description**

End a paragraph in the RTF document.

**Usage**

```r
## S3 method for class 'RTF'
endParagraph(this, ...)
```
increaseIndent.RTF

Arguments

  this  An RTF object.
  ...  Not used.

Author(s)

  Michael E. Schaffer

See Also

  For more information see RTF.

Description

  Increase RTF document indent.

Usage

  ## S3 method for class 'RTF'
  increaseIndent(this, ...)

Arguments

  this  An RTF object.
  ...  Not used.

Author(s)

  Michael E. Schaffer

See Also

  For more information see RTF.
The RTF class

Description

This is the class representing an RTF file output.

Package: rtf
Class RTF

```
Object
~~|
~~+--RTF
```

Directly known subclasses:

```
public static class RTF
extends Object
```

Usage

```
RTF(file="", width=8.5, height=11, omi=c(1, 1, 1, 1), font.size=10)
```

Arguments

- **file**: The path of the output file.
- **width**: The width of the output page.
- **height**: The width of the output page.
- **omi**: A vector representing the outer margins in inches (bottom, left, top, right).
- **font.size**: Default font size for the document in points.
- **...**: Not used.

Fields and Methods

Methods:

- **addHeader**: Insert a header into the RTF document.
- **addNewLine**: Insert a new line into the RTF document.
- **addPageBreak**: Insert a page break into the RTF document optionally specifying new page settings.
- **addParagraph**: Insert a paragraph into the RTF document.
- **addPlot**: Insert a plot into the RTF document.
- **addPng**: Insert an existing PNG image into the RTF document.
- **addSessionInfo**: Insert session information into the RTF document.
addTOC Insert table of contents field.
addTable Insert a table into the RTF document.
addText Insert text into the RTF document.
addTrellisObject Insert a trellis plot object into the RTF document.
decreaseIndent Decrease RTF document indent.
done Write and close the RTF output.
endParagraph End a paragraph in the RTF document.
increaseIndent Increase RTF document indent.
setFontSize Set RTF document font size.
startParagraph Start a new paragraph in the RTF document.
view View encoded RTF.

Methods inherited from Object:
S, S<-, [], [[]<-, as.character, attach, attachLocally, clearCache, clearLookupCache, clone, detach, equals, extend, finalize, gc, getEnvironment, getFieldModifier, getFieldModifiers, getFields, getInstantiationTime, getStaticInstance, hasField, hashCode, ll, load, objectSize, print, save

Author(s)
Michael E. Schaffer

See Also
For more information see rtf.

Examples

```r
# Not run:
output=""test_RTF-class.doc"
png.res<-300

rtf<-RTF(output,width=8.5,height=11,font.size=10,omi=c(1,1,1,1))
addHeader(rtf,title="Test",subtitle="2011-08-15\n")
addPlot(rtf,plot.fun=plot,width=6,height=6,res=300, iris[,1],iris[,2])

# Try trellis plots
if(require(lattice) & require(grid)) {
  # single page trellis objects
  addPageBreak(rtf, width=11,height=8.5,omi=c(0.5,0.5,0.5,0.5))

  p <- histogram(~ height | voice.part, data = singer, xlab="Height")
  addTrellisObject(rtf,trellis.object=p,width=10,height=7.5,res=png.res)

  p <- densityplot(~ height | voice.part, data = singer, xlab = "Height")
  addTrellisObject(rtf,trellis.object=p,width=10,height=7.5,res=png.res)

  # multipage trellis object
  p2<-xypplot(uptake ~ conc | Plant, CO2, layout = c(2,2))
  addTrellisObject(rtf,trellis.object=p2,width=6,height=6,res=png.res)
```
Get an RTF encoded forest plot.

Usage

```r
rtf.forest.plot(x=1.25, min=0.5, max=2, xlim=c(0.1, 12), width=3, height=0.3, cex=1, lwd=0.75, res=300)
```

Arguments

- **x**: x (e.g. hazard ratio).
- **min**: Minimum whisker (e.g. lower bound of 95% hazard ratio CI).
- **max**: Maximum whisker (e.g. upper bound of 95% hazard ratio CI).
- **xlim**: A vector specifying the x limits.
- **width**: Plot width in inches.
- **height**: Plot height in inches.
- **cex**: A numerical value giving the amount by which plotting text and symbols should be magnified relative to the default.
- **lwd**: Line width.
- **res**: Output resolution in dots per inch.

Details

Create a forest plot and convert PNG to RTF code. This is useful for embedding into a data frame of hazard ratios and then writing an RTF output file. See the example below for usage.
setFontSize.RTF

Examples

## Not run:

tab <- data.frame(
  Label = c("Test1", "Test2", "Test3"),
  HR = c(1, 2, 0.45),
  Lower.CI = c(0.5, 1.1, 0.25),
  Upper.CI = c(2, 3.5, 0.9),
  stringsAsFactors = FALSE,
  check.names = FALSE)

# create forest plots by row
forest.plot.args <- list(xlim = c(0.1, 1.5), width = 3, height = 0.3, cex = 1, lwd = 0.75, res = 300)
tab$"HR Plot (log scale)" <- mapply(rtf.forest.plot, tab$HR, tab$Lower.CI, tab$Upper.CI, 
  MoreArgs = forest.plot.args)

# rbind the x-scale to the table in the plot column
xscale <- rtf.forest.plot.xscale(xlim = c(0.1, 1.5), width = 3, height = 0.3, cex = 1, lwd = 0.75, res = 300)

  tab <- data.frame(lapply(tab, as.character),
  stringsAsFactors = FALSE,
  check.names = FALSE)

  tab <- rbind(tab, list("","","","", xscale))

# write the RTF output
rtf <- RTF("test_rtf.forest.plot.doc", width = 8.5, height = 11, font.size = 10, omi = c(1,1,1))
addTable(rtf, tab, col.widths = c(0.75, 0.75, 0.75, 0.75, 3))

done(rtf)

## End(Not run)

setFontSize.RTF  Set RTF document font size

Description

Set RTF document font size.

Usage

## S3 method for class 'RTF'
setFontSize(this, font.size, ...)

Arguments

  this        An RTF object.
  font.size   New default font size in points.
  ...         Not used.
Author(s)

Michael E. Schaffer

See Also

For more information see RTF.

---

**startParagraph.RTF**  
*Start a new paragraph in the RTF document*

---

**Description**

Start a new paragraph in the RTF document.

**Usage**

```r
## S3 method for class 'RTF'
startParagraph(this, ...)
```

**Arguments**

- `this`  
  An RTF object.

- `...`  
  Not used.

Author(s)

Michael E. Schaffer

See Also

For more information see RTF.

---

**view.RTF**  
*View encoded RTF*

---

**Description**

View encoded RTF.

**Usage**

```r
## S3 method for class 'RTF'
view(this, ...)
```
Arguments

this  An RTF object.
...

Value

Output the content of the object as RTF code.

Author(s)

Michael E. Schaffer

See Also

For more information see RTF.
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