

Package ‘R2SWF’

July 2, 2014

Version 0.8

Title Convert R Graphics to Flash Animations

Date 2014-02-22

Author Yixuan Qiu, Yihui Xie, Cameron Bracken and authors of included software. See file AUTHORS for details.

Maintainer Yixuan Qiu <yixuan.qiu@cos.name>

Depends sysfonts

Suggests XML, Cairo

Description This package uses the Ming library (<http://www.libming.org/>) to create Flash animations. Users can either use the SWF device `swf()` to generate SWF file directly through familiar plotting functions like `plot()`, or convert images of other formats (SVG, PNG, JPEG) into SWF.

Copyright see file COPYRIGHTS

License GPL-2

SystemRequirements zlib, libpng, FreeType

URL <https://github.com/yixuan/R2SWF>

BugReports <https://github.com/yixuan/R2SWF/issues>

NeedsCompilation yes

Repository CRAN

Date/Publication 2014-02-23 08:10:52

R topics documented:

| | |
|------------------------|---|
| <code>dev2swf</code> | 2 |
| <code>file2swf</code> | 3 |
| <code>image2swf</code> | 4 |
| <code>svg2swf</code> | 5 |
| <code>swf</code> | 6 |
| <code>swf2html</code> | 7 |

`dev2swf`*Convert R graphics to SWF using different graphics devices*

Description

Given an R expression that can produce a sequence of images, this function will record the images with the device provided (e.g. `png()` or `jpeg()`) and convert them to a Flash file.

Usage

```
dev2swf(expr, output = "movie.swf", bgColor = "white", interval = 1,  
        dev = "png", file.ext = "png", img.name = "Rplot", ...)
```

Arguments

| | |
|-----------------------|---|
| <code>expr</code> | an expression to generate a sequence of images |
| <code>output</code> | the name of the output swf file |
| <code>bgColor</code> | background color of the output SWF file |
| <code>interval</code> | the time interval between animation frames |
| <code>dev</code> | the name of the graphics device to use (e.g. 'png' or 'jpeg') |
| <code>file.ext</code> | the file extension for the images |
| <code>img.name</code> | the file name of the images without the extension |
| <code>...</code> | other arguments to be passed to the graphics device |

Details

You can also use devices which are not in the **grDevices** package by setting the `dev` argument to the name of the function that opens a device, e.g. `CairoPNG()` in the **Cairo** package. Note that the `file.ext` argument should be set accordingly.

Value

The name of the generated swf file if succeeded.

Author(s)

Yihui Xie <<http://yihui.name>>

Examples

```
olddir = setwd(tempdir())
output1 = dev2swf({
  for(i in 1:10) plot(runif(20), ylim = c(0, 1))
}, dev='png', file.ext='png', output='movie-png.swf')
swf2html(output1)

if(capabilities("cairo")) {
  output2 = dev2swf({
    for(i in 1:10) plot(runif(20), ylim = c(0, 1))
  }, dev='svg', file.ext='svg', output='movie-svg.swf')
}
swf2html(output2)

setwd(olddir)
```

file2swf

Convert image files to SWF

Description

This function converts a sequence of PNG/JPEG/SVG image files to SWF. Based on the image format, it calls [image2swf](#) or [svg2swf](#).

Usage

```
file2swf(files, output, bgColor = "white", interval = 1)
```

Arguments

| | |
|----------|--|
| files | a character vector of input filenames |
| output | the name of the output swf file |
| bgColor | background color of the output SWF file |
| interval | the time interval between animation frames |

Value

The name of the SWF file.

Author(s)

Yihui Xie <<http://yihui.name>>

`image2swf`*Convert bitmap images to SWF*

Description

Given the file names of a sequence of images, this function can convert them into a Flash file (.swf). Supported input formats are jpg/jpeg and png. The two formats are allowed to appear in the same sequence.

Usage

```
image2swf(input, output = "movie.swf", bgColor = "white", interval = 1)
```

Arguments

| | |
|-----------------------|---|
| <code>input</code> | the file names of the images to be converted |
| <code>output</code> | the name of the output SWF file |
| <code>bgColor</code> | background color of the output SWF file |
| <code>interval</code> | the time interval (in seconds) between animation frames |

Details

This function uses the Ming library (<http://www.libming.org/>) to implement the conversion. If you want to create a Flash file consisting of vector graphics, use `svg2swf()` instead.

Value

The name of the generated swf file if successful.

Author(s)

Yixuan Qiu <<yixuan.qiu@cos.name>>

Examples

```
if(capabilities("png")) {
  olddir = setwd(tempdir())
  png("Rplot%03d.png")
  for(i in 1:9) plot(runif(20), ylim = c(0, 1))
  dev.off()
  output = image2swf(sprintf("Rplot%03d.png", 1:9))
  swf2html(output)
  setwd(olddir)
}
```

`svg2swf`*Convert a sequence of SVG files to SWF file*

Description

Given the file names of a sequence of SVG files, this function could convert them into a Flash file (.swf).

Usage

```
svg2swf(input, output = "movie.swf", bgColor = "white", interval = 1)
```

Arguments

| | |
|-----------------------|---|
| <code>input</code> | the file names of the SVG files to be converted |
| <code>output</code> | the name of the output SWF file |
| <code>bgColor</code> | background color of the output SWF file |
| <code>interval</code> | the time interval (in seconds) between animation frames |

Details

This function uses the XML package in R and a subset of libsvg (<http://libsvg.sourceforge.net/>) to parse the SVG file, and uses the Ming library (<http://www.libming.org/>) to implement the conversion. Currently this function supports SVG files created by `svg()` in the `grDevices` package, and `CairoSVG()` in the `Cairo` package.

Value

The name of the generated SWF file if successful.

Author(s)

Yixuan Qiu <<yixuan.qiu@cos.name>>

Examples

```
## Not run:
if(capabilities("cairo")) {
  olddir = setwd(tempdir())
  svg("Rplot%03d.svg", onefile = FALSE)
  set.seed(123)
  x = rnorm(5)
  y = rnorm(5)
  for(i in 1:100) {
    plot(x <- x + 0.1 * rnorm(5), y <- y + 0.1 * rnorm(5),
         xlim = c(-3, 3), ylim = c(-3, 3), col = "steelblue",
         pch = 16, cex = 2, xlab = "x", ylab = "y")
  }
}
```

```

dev.off()
output = svg2swf(sprintf("Rplot%03d.svg", 1:100), interval = 0.1)
swf2html(output)
setwd(olddir)
}

## End(Not run)

```

swf

SWF graphics device

Description

This function opens a SWF device that produces Flash animation in SWF format. Every time you call a high level plotting function like `plot()`, the movie will create a new frame and draw following shapes on it.

Usage

```

swf(file = "Rplots.swf", width = 7, height = 7, bg = "white",
    fg = "black", frameRate = 12)

```

Arguments

| | |
|-----------|---|
| file | a character string giving the output SWF file |
| width | the width of the device in inches |
| height | the height of the device in inches |
| bg | the background color of the SWF file |
| fg | initial foreground color |
| frameRate | how many frames to be played in 1 second |

Author(s)

Yixuan Qiu <<http://yixuan.cos.name/>>

Examples

```

## Not run:
## A demonstration of K-means clustering, using animation package
if(require(animation)) {
  swf("kmeans.swf", frameRate = 1)
  kmeans.ani()
  dev.off()
}

## Test built-in fonts in sysfonts package
swf("fonts.swf", 8, 8)

```

```
plot(1, type = "n")

par(family = "sans", cex = 2)
text(0.7, 1.3, "Sans-R", font = 1)
text(0.7, 1.1, "Sans-B", font = 2)
text(0.7, 0.9, "Sans-I", font = 3)
text(0.7, 0.7, "Sans-BI", font = 4)

par(family = "serif")
text(1.0, 1.3, "Serif-R", font = 1)
text(1.0, 1.1, "Serif-B", font = 2)
text(1.0, 0.9, "Serif-I", font = 3)
text(1.0, 0.7, "Serif-BI", font = 4)

par(family = "mono")
text(1.3, 1.3, "Mono-R", font = 1)
text(1.3, 1.1, "Mono-B", font = 2)
text(1.3, 0.9, "Mono-I", font = 3)
text(1.3, 0.7, "Mono-BI", font = 4)

dev.off()

## End(Not run)
```

swf2html

Embed the SWF file into an HTML page

Description

This function will generate an HTML file to display the Flash animation.

Usage

```
swf2html(swf.file, output, width = 480, height = 480, fragment = FALSE)
```

Arguments

| | |
|----------|---|
| swf.file | the path of the SWF file |
| output | the output path of the HTML file; by default 'foo.swf' produces foo.html if not specified (set FALSE so that no file will be written) |
| width | width of the Flash |
| height | height of the Flash |
| fragment | whether to produce an HTML fragment only |

Value

The HTML code as a character string.

Author(s)

Yihui Xie <<http://yihui.name>>

Examples

```
output = dev2swf({
  for (i in 1:10) plot(runif(20), ylim = c(0, 1))
}, output = 'test.swf')
swf2html(output)
```


Index

CairoPNG, [2](#)
CairoSVG, [5](#)

dev2swf, [2](#)

file2swf, [3](#)

image2swf, [3, 4](#)

jpeg, [2](#)

plot, [6](#)
png, [2](#)

svg, [5](#)
svg2swf, [3, 4, 5](#)
swf, [6](#)
swf2html, [7](#)