

# Package ‘canvasXpress’

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**Version** 1.59.5

**Title** Visualization Package for CanvasXpress in R

**Description** Enables creation of visualizations using the CanvasXpress framework in R. CanvasXpress is a standalone JavaScript library for reproducible research with complete tracking of data and end-user modifications stored in a single PNG image that can be played back. See <<https://www.canvasxpress.org>> for more information.

**Type** Package

**License** GPL-3

**Encoding** UTF-8

**Language** en-US

**URL** <https://github.com/neuhausi/canvasXpress>

**BugReports** <https://github.com/neuhausi/canvasXpress/issues>

**Depends** R (>= 3.6)

**Imports** htmlwidgets (>= 1.0), htmltools, httr, jsonlite, stats

**RoxygenNote** 7.3.3

**Suggests** shiny (>= 1.1.0), canvasXpress.data, dplyr, DT, glue, grid, knitr, png, readr, rlang, rmarkdown, stringr, testthat, tibble, tidy, limma, ggplot2, survminer, S7, patchwork, GGally, ggpubr, ggpattern

**VignetteBuilder** knitr

**NeedsCompilation** no

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**Repository** CRAN

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canvasXpress-package *CanvasXpress Visualization Package*

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### Description

A package to assist in creating visualizations in CanvasXpress in R.

### Details

CanvasXpress is a standalone JavaScript library for reproducible research with complete tracking of data and end-user modifications stored in a single PNG image that can be played back for an extensive set of visualizations.

### More Information

<https://www.canvasxpress.org>

`browseVignettes(package = "canvasXpress")`

### Author(s)

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### See Also

Useful links:

- <https://github.com/neuhausi/canvasXpress>
- Report bugs at <https://github.com/neuhausi/canvasXpress/issues>

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 canvasXpress

*HTML Widget Creation*


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**Description**

Custom HTML widget creation function based on widget YAML and JavaScript for use in any html-compatible context

**Usage**

```

canvasXpress(
  data = NULL,
  smpAnnot = NULL,
  varAnnot = NULL,
  graphType = "Scatter2D",
  events = NULL,
  afterRender = NULL,
  pretty = FALSE,
  digits = 4,
  width = 600,
  height = 400,
  destroy = FALSE,
  ...
)

```

**Arguments**

data	data.frame-, matrix-, list- , or ggplot- classed object
smpAnnot	additional data that applies to samples (columns)
varAnnot	additional data that applies to variables (rows)
graphType	type of graph to be plotted - default = "Scatter2D"
events	user-defined events (e.g. mousemove, mouseout, click and dblclick)
afterRender	event triggered after rendering
pretty	print tagged code (JSON/HTML) nicely - default = FALSE
digits	display digits - default = 4
width	plot width (valid CSS units) - default = 600px
height	plot height (valid CSS units) - default = 400px
destroy	used to indicate removal of a plot - default = FALSE
...	additional parameters passed to canvasXpress

**Value**

htmlwidgets object

## Piping Support

Piping is supported (both the magrittr ' canvasXpress object into data parameter. Any new parameters will be added to the original configuration of the object, any parameters with data that existed before will be replaced, and any parameters set to null will be removed. It is important to note that primary data changes are not allowed in this construct - which means that anything specified by using the data, varAnnot, or smpAnnot parameters cannot be changed from the original values.

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canvasXpress.json      *HTML Widget Creation using JSON input*

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## Description

Custom HTML widget creation function based on widget YAML and JavaScript for use in any html-compatible context using raw JSON input. Validation of data and configuration is deferred completely to the canvasXpress JavaScript library.

## Usage

```
canvasXpress.json(
  json,
  pretty = FALSE,
  digits = 4,
  width = 600,
  height = 400,
  destroy = FALSE
)
```

## Arguments

json	JSON string or object
pretty	print tagged code (JSON/HTML) nicely - default = FALSE
digits	display digits - default = 4
width	plot width (valid CSS units) - default = 600px
height	plot height (valid CSS units) - default = 400px
destroy	used to indicate removal of a plot - default = FALSE

## Details

For the formatting of the JSON input object see

**\*\*Note:\*\*** this function is intended for use by advanced users who are experimenting with or need to utilize the json-formatted input to canvasXpress and are comfortable debugging chart issues in a browser (JavaScript) context instead of in R.

## Value

htmlwidgets object

**More Information**

<https://www.canvasxpress.org>

**Examples**

```
my_json <- '{ "data": {"y": { "vars": ["Performance"],
                             "smps": ["January"],
                             "data": [[85]] }},
             "config": { "graphType": "Meter",
                         "meterType": "gauge" } }'
```

```
canvasXpress.json(my_json)
```

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canvasXpressOutput      *Shiny UI function*

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**Description**

Output creation function for canvasXpressOutput in Shiny applications and interactive Rmd documents

**Usage**

```
canvasXpressOutput(outputId, width = "100%", height = "400px")
```

**Arguments**

outputId	shiny unique ID
width	width of the element - default = 100%
height	height of the element - default = 400px

**Value**

Output function that enables the use of the widget in applications

**See Also**

[renderCanvasXpress](#)

[cxShinyExample](#)

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`cxHtmlPage`*Stand-Alone HTML Page Creation*

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**Description**

This function creates and returns a stand-alone HTML page containing the given `canvasXpress` object. Width and height can be inferred from the `canvasXpress` object (default) or overridden for the page output.

**Usage**

```
cxHtmlPage(chartObject, width = NULL, height = NULL)
```

**Arguments**

<code>chartObject</code>	a <code>canvasXpress</code> plot object
<code>width</code>	plot width override for the HTML page (valid CSS units) - default = NULL
<code>height</code>	plot height override for the HTML page (valid CSS units) - default = NULL

**Value**

a character string containing a self-contained html page

**Examples**

```
## Not run:
my_chart <- canvasXpress(data      = data.frame(Sample1 = c(33, 48),
                                                Sample2 = c(44, 59),
                                                Sample3 = c(55, 6)),
                        graphType = "Bar",
                        title     = "Example Bar Chart",
                        width     = "600px")

# create a page using the chart dimensions on my_chart
html_page <- cxHtmlPage(my_chart)

# or change the chart width/height for this page:
html_page <- cxHtmlPage(my_chart, width = "100%", height = "70vh")

# save page for viewing/sharing
writeLines(html_page, tempfile(fileext = ".html"))

## End(Not run)
```

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cxShinyExample	<i>Create Shiny Example Application</i>
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**Description**

This function runs one of the available shiny example applications. To see the list of available example applications run the function with no inputs

**Usage**

```
cxShinyExample(example = NULL)
```

**Arguments**

example            character name of a valid example application.

**Value**

Launches a running shiny example application

**See Also**

[canvasXpressOutput](#)

[renderCanvasXpress](#)

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ggplot.as.list	<i>Converts a ggplot object to a list that can be used by CanvasXpress.</i>
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**Description**

Converts a ggplot object to a list that can be used by CanvasXpress.

**Usage**

```
ggplot.as.list(o, ...)
```

**Arguments**

o                    the ggplot object

...                  additional parameters to the function

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renderCanvasXpress     *Shiny Render function*

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**Description**

Render function for canvasXpressOutput in Shiny applications and interactive Rmd documents

**Usage**

```
renderCanvasXpress(expr, env = parent.frame(), quoted = FALSE)
```

**Arguments**

expr	expression used to render the canvasXpressOutput
env	environment to use - default = parent.frame()
quoted	whether the expression is quoted - default = FALSE

**Value**

Render function that enables the use of the widget in applications

**Destroy**

When there exists a need to visually remove a plot from a Shiny application when it is not being immediately replaced with a new plot use the destroy option as in:

```
renderCanvasXpress({canvasXpress(destroy = TRUE)})
```

**See Also**

[canvasXpressOutput](#)

[cxShinyExample](#)

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