# Package 'viridis'

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**Type** Package

**Title** Colorblind-Friendly Color Maps for R

**Version** 0.6.5

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**Description** Color maps designed to improve graph readability for readers with common forms of color blindness and/or color vision deficiency. The color maps are also perceptually-uniform, both in regular form and also when converted to black-and-white for printing. This package also contains 'ggplot2' bindings for discrete and continuous color and fill scales. A lean version of the package called 'viridisLite' that does not include the 'ggplot2' bindings can be found at <https://cran.r-project.org/package=viridisLite>.

**License** MIT + file LICENSE

**Encoding** UTF-8

**Depends** R (>= 2.10), viridisLite (>= 0.4.0)

**Imports** ggplot2 (>= 1.0.1), gridExtra

**Suggests** hexbin (>= 1.27.0), scales, MASS, knitr, dichromat, colorspace, httr, mapproj, vdiffr, svglite (>= 1.2.0), testthat, covr, rmarkdown, maps, terra

**LazyData** true

**VignetteBuilder** knitr

**URL** https://sjmgarnier.github.io/viridis/, https://github.com/sjmgarnier/viridis/

**BugReports** https://github.com/sjmgarnier/viridis/issues

**RoxygenNote** 7.3.1

**NeedsCompilation** no

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# R topics documented:

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scale_fill_viridis          *Viridis Color Scales for ggplot2*

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#### Description

Scale functions (fill and colour/color) for `ggplot2`.

For `discrete == FALSE` (the default) all other arguments are as to `scale_fill_gradientn` or `scale_color_gradientn`. Otherwise the function will return a `discrete_scale` with the plot-computed number of colors.

See `viridis` and `viridis.map` for more information on the color palettes.

#### Usage

```
scale_fill_viridis(
  ...,
  alpha = 1,
  begin = 0,
  end = 1,
  direction = 1,
  discrete = FALSE,
  option = "D",
  aesthetics = "fill"
)

scale_color_viridis(
  ...,
  alpha = 1,
  begin = 0,
  end = 1,
  direction = 1,
  discrete = FALSE,
  option = "D",
```

```
   aesthetics = "color"
)

scale_colour_viridis(
  ...,
  alpha = 1,
  begin = 0,
  end = 1,
  direction = 1,
  discrete = FALSE,
  option = "D",
  aesthetics = "color"
)
```

## Arguments

| | |
|---|---|
| ... | Parameters to [discrete_scale](#) if discrete == TRUE, or [scale_fill_gradientn](#)/[scale_color_gradientn](#) if discrete == FALSE. |
| alpha | The alpha transparency, a number in [0,1], see argument alpha in [hsv](#). |
| begin | The (corrected) hue in [0,1] at which the color map begins. |
| end | The (corrected) hue in [0,1] at which the color map ends. |
| direction | Sets the order of colors in the scale. If 1, the default, colors are as output by [viridis_pal](#). If -1, the order of colors is reversed. |
| discrete | Generate a discrete palette? (default: FALSE - generate continuous palette). |
| option | A character string indicating the color map option to use. Eight options are available: |

- "magma" (or "A")
- "inferno" (or "B")
- "plasma" (or "C")
- "viridis" (or "D")
- "cividis" (or "E")
- "rocket" (or "F")
- "mako" (or "G")
- "turbo" (or "H")

| | |
|---|---|
| aesthetics | Character string or vector of character strings listing the name(s) of the aesthetic(s) that this scale works with. This can be useful, for example, to apply colour settings to the colour and fill aesthetics at the same time, via aesthetics = c("colour", "fill"). |

## Author(s)

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## Examples

```
library(ggplot2)

# Ripped from the pages of ggplot2
p <- ggplot(mtcars, aes(wt, mpg))
p + geom_point(size = 4, aes(colour = factor(cyl))) +
    scale_color_viridis(discrete = TRUE) +
    theme_bw()

# Ripped from the pages of ggplot2
dsub <- subset(diamonds, x > 5 & x < 6 & y > 5 & y < 6)
dsub$diff <- with(dsub, sqrt(abs(x - y)) * sign(x - y))
d <- ggplot(dsub, aes(x, y, colour = diff)) + geom_point()
d + scale_color_viridis() + theme_bw()


# From the main viridis example
dat <- data.frame(x = rnorm(10000), y = rnorm(10000))

ggplot(dat, aes(x = x, y = y)) +
  geom_hex() + coord_fixed() +
  scale_fill_viridis() + theme_bw()

library(ggplot2)
library(MASS)
library(gridExtra)

data("geyser", package="MASS")

ggplot(geyser, aes(x = duration, y = waiting)) +
  xlim(0.5, 6) + ylim(40, 110) +
  stat_density2d(aes(fill = ..level..), geom = "polygon") +
  theme_bw() +
  theme(panel.grid = element_blank()) -> gg

grid.arrange(
  gg + scale_fill_viridis(option = "A") + labs(x = "Viridis A", y = NULL),
  gg + scale_fill_viridis(option = "B") + labs(x = "Viridis B", y = NULL),
  gg + scale_fill_viridis(option = "C") + labs(x = "Viridis C", y = NULL),
  gg + scale_fill_viridis(option = "D") + labs(x = "Viridis D", y = NULL),
  gg + scale_fill_viridis(option = "E") + labs(x = "Viridis E", y = NULL),
  gg + scale_fill_viridis(option = "F") + labs(x = "Viridis F", y = NULL),
  gg + scale_fill_viridis(option = "G") + labs(x = "Viridis G", y = NULL),
  gg + scale_fill_viridis(option = "H") + labs(x = "Viridis H", y = NULL),
  ncol = 4, nrow = 2
)
```

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unemp                                   *USA Unemployment in 2009*

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## Description

A data set containing the 2009 unemployment data in the USA by county.

## Usage

```
unemp
```

## Format

A data frame with 3218 rows and 8 variables:

**id** the county ID number

**state_fips** the state FIPS number

**county_fips** the county FIPS number

**name** the county name

**year** the year

**rate** the unemployment rate

**county** the county abbreviated name

**state** the state acronym

## Source

<http://datasets.flowingdata.com/unemployment09.csv>

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| viridis_pal | *Viridis Color Palettes* |
|---|---|

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## Description

A wrapper function around [viridis](viridis) to turn it into a palette function compatible with [discrete_scale](discrete_scale).

## Usage

```
viridis_pal(alpha = 1, begin = 0, end = 1, direction = 1, option = "D")
```

## Arguments

| | |
|---|---|
| alpha | The alpha transparency, a number in [0,1], see argument alpha in [hsv](hsv). |
| begin | The (corrected) hue in [0,1] at which the color map begins. |
| end | The (corrected) hue in [0,1] at which the color map ends. |
| direction | Sets the order of colors in the scale. If 1, the default, colors are ordered from darkest to lightest. If -1, the order of colors is reversed. |
| option | A character string indicating the color map option to use. Eight options are available: |

- "magma" (or "A")
- "inferno" (or "B")
- "plasma" (or "C")
- "viridis" (or "D")
- "cividis" (or "E")
- "rocket" (or "F")
- "mako" (or "G")
- "turbo" (or "H")

## Details

See [viridis](#) and [viridis.map](#) for more information on the color palettes.

## Author(s)

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## Examples

```
library(scales)
show_col(viridis_pal()(12))
```

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