# Package 'afcharts'

May 7, 2026

**Title** Produce Charts Following UK Government Analysis Function Guidance

**Version** 0.5.1

**Description** Colour palettes and a 'ggplot2' theme to follow the UK Government Analysis Function best practice guidance for producing data visualisations, available at <https://analysisfunction.civilservice.gov.uk/policy-store/data-visualisation-charts/>.
Includes continuous and discrete colour and fill scales, as well as a 'ggplot2' theme.

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**URL** https://github.com/best-practice-and-impact/afcharts, https://best-practice-and-impact.github.io/afcharts/

**BugReports** https://github.com/best-practice-and-impact/afcharts/issues

**Encoding** UTF-8

**LazyData** true

**RoxygenNote** 7.3.3

**Depends** R (>= 4.1.0)

**Imports** ggplot2, scales, cli, rlang, dplyr, purrr, stats

**Suggests** ggtext, knitr, rmarkdown, tibble, tidyr, glue, stringr, testthat (>= 2.1.0), plotly, gt, svglite (>= 2.1.2), ragg (>= 1.2.6), gapminder, diffviewer, vdiffr, withr

**VignetteBuilder** knitr

**NeedsCompilation** no

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**Repository** CRAN

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# Contents



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`af_colours` *Individual Analysis Function colours*

---

## Description

Quick access to individual colours from the Analysis Function colour palettes.

## Usage

```
af_dark_blue

af_orange

af_grey

af_pale_grey
```

## Format

An object of class `character` of length 1.

An object of class `character` of length 1.

An object of class `character` of length 1.

An object of class `character` of length 1.

## Source

Government Analysis Function Colours Guidance

## Examples

```
library(dplyr)
library(ggplot2)

# Example of using af_dark_blue to colour bars
iris %>%
  group_by(Species) %>%
  summarise(Petal.Width = mean(Petal.Width)) %>%
  ggplot() +
  geom_col(
    aes(Species, Petal.Width),
    fill = af_dark_blue
 ) +
  scale_y_continuous(
    expand = expansion(c(0, 0.05))
  ) +
  theme_af()
```

---

`af_colour_palettes` *Analysis Function colour palettes*

---

## Description

A list grouping colours into palettes. Note that the use of the `main`, `main2` and `main6` colour palettes is deprecated. Please use `categorical` and `categorical2` instead, which give access to the same colours.

## Usage

```
af_colour_palettes
```

## Format

A character list

## Source

Government Analysis Function Colours Guidance

## af_colour_values *Analysis Function colour names and hex codes*

### Description

A vector containing colour names and their corresponding hex code.

### Usage

```
af_colour_values
```

### Format

A character vector

### Source

Government Analysis Function Colours Guidance

## mm_to_inch *Convert millimetres to inches*

### Description

Convert millimetres to inches

### Usage

```
mm_to_inch(x)
```

### Arguments

| | |
|---|---|
| x | Numeric value in millimetres |

### Value

A numerical value in inches

### Examples

```
mm_to_inch(100)
```

save_govuk *Save a plot at the correct dimensions for publishing on GOVUK*

## Description

This is a wrapper around `ggplot2::ggsave()` with plot dimensions set for publishing on GOVUK.

## Usage

```
save_govuk(
  filename,
  plot = ggplot2::last_plot(),
  device = c("svg", "png", "jpg"),
  path = NULL,
  ...
)
```

## Arguments

| | |
|---|---|
| `filename` | File name |
| `plot` | The plot to save |
| `device` | File type to produce (svg, png or jpg). svg is preferred as it scales well without pixelating |
| `path` | Directory to save the plot in |
| `...` | Other params passed to ggplot::ggsave |

## Value

Character vector giving path to saved file

## Examples

```
library(ggplot2)
library(dplyr)
library(gapminder)

# Images on GOVUK are shrunk. We therefore recommend using font size 20 pt
# when exporting charts for GOVUK, which will appear as approximately 12 pt on
# the website.
use_afcharts(base_size = 20)

grouped_bar_data <-
  gapminder |>
  filter(year %in% c(1967, 2007) &
           country %in% c("United Kingdom", "Ireland", "France", "Belgium"))

bar_chart <- ggplot(grouped_bar_data,
```

```
      aes(x = country, y = lifeExp, fill = as.factor(year))) +
  geom_bar(stat = "identity", position = "dodge") +
  scale_y_continuous(expand = c(0, 0)) +
  scale_fill_discrete_af() +
  labs(
    x = "Country",
    y = NULL,
    fill = NULL,
    title = "Living longer",
    subtitle = "Difference in life expectancy, 1967-2007",
    caption = "Source: Gapminder"
  )

file <- tempfile(fileext = ".svg")
save_govuk(file, bar_chart, device = "svg")
unlink(file)
```

---

`scale_colour_continuous_af` *Continuous colour scales for Analysis Function plots*

---

## Description

Continuous colour scales for Analysis Function plots

## Usage

```
scale_colour_continuous_af(
  palette = "sequential",
  palette_type = c("af"),
  reverse = FALSE,
  na.value = afcharts::af_pale_grey,
  guide = "colourbar",
  ...
)
```

## Arguments

| | |
|---|---|
| `palette` | Name of palette to use from `af_colour_palettes`; e.g. `"categorical"`, `"sequential"`, `"focus"`. Default value is `"sequential"`. |
| `palette_type` | Currently only the Analysis Function palettes are supported. Defaults to "af". |
| `reverse` | Boolean value to indicate whether the palette should be reversed. |
| `na.value` | Colour to set for missing values. |
| `guide` | A name or function used to create guide. Default is "colourbar". |
| `...` | Additional arguments passed to scale type. |

## Value

ggplot2 continuous colour scale

## Examples

```
library(ggplot2)

ggplot(mtcars, aes(x = mpg, y = wt, colour = cyl)) +
  geom_point() +
  scale_colour_continuous_af()
```

---

# scale_colour_discrete_af

*Discrete colour scales for Analysis Function plots*

---

## Description

Discrete colour scales for Analysis Function plots

## Usage

```
scale_colour_discrete_af(
  palette = "categorical",
  palette_type = c("af"),
  reverse = FALSE,
  na.value = afcharts::af_pale_grey,
  ...
)
```

## Arguments

| | |
|---|---|
| palette | Name of palette to use from af_colour_palettes; e.g. "categorical", "sequential", "focus". Default value is "categorical". |
| palette_type | Currently only the Analysis Function palettes are supported. Defaults to "af". |
| reverse | Boolean value to indicate whether the palette should be reversed. |
| na.value | Colour to set for missing values. |
| ... | Additional arguments passed to scale type. |

## Details

If the palette is set to "categorical" or "sequential" and fewer than the maximum number of colours are required then the colours will be used in the correct order following the analysis function guidance.

E.g. If only two colours are required and the palette is set to "categorical" then the "categorical2" palette will be used instead, without warning.

## Value

ggplot2 discrete colour scale

## Examples

```
library(ggplot2)
library(dplyr)

economics_long %>%
  filter(variable %in% c("psavert", "uempmed")) %>%
  ggplot(aes(x = date, y = value, colour = variable)) +
  geom_line(linewidth = 1) +
  scale_colour_discrete_af()
```

---

# scale_fill_continuous_af

*Continuous colour fill scales for Analysis Function plots*

---

## Description

Continuous colour fill scales for Analysis Function plots

## Usage

```
scale_fill_continuous_af(
  palette = "sequential",
  palette_type = c("af"),
  reverse = FALSE,
  na.value = afcharts::af_pale_grey,
  guide = "colourbar",
  ...
)
```

## Arguments

| | |
|---|---|
| palette | Name of palette to use from af_colour_palettes; e.g. "categorical", "sequential", "focus". Default value is "sequential". |
| palette_type | Currently only the Analysis Function palettes are supported. Defaults to "af". |
| reverse | Boolean value to indicate whether the palette should be reversed. |
| na.value | Colour to set for missing values. |
| guide | A name or function used to create guide. Default is "colourbar". |
| ... | Additional arguments passed to scale type. |

## Value

ggplot2 continuous fill scale

## Examples

```
library(ggplot2)

ggplot(faithfuld, aes(x = waiting, y = eruptions, fill = density)) +
  geom_raster() +
  scale_fill_continuous_af()
```

---

`scale_fill_discrete_af` *Discrete colour fill scales for Analysis Function plots*

---

## Description

Discrete colour fill scales for Analysis Function plots

## Usage

```
scale_fill_discrete_af(
  palette = "categorical",
  palette_type = c("af"),
  reverse = FALSE,
  na.value = afcharts::af_pale_grey,
  ...
)
```

## Arguments

| | |
|---|---|
| `palette` | Name of palette to use from `af_colour_palettes`; e.g. `"categorical"`, `"sequential"`, `"focus"`. Default value is `"categorical"`. |
| `palette_type` | Currently only the Analysis Function palettes are supported. Defaults to "af". |
| `reverse` | Boolean value to indicate whether the palette should be reversed. |
| `na.value` | Colour to set for missing values. |
| `...` | Additional arguments passed to scale type. |

## Details

If the palette is set to "categorical" or "sequential" and fewer than the maximum number of colours are required then the colours will be used in the correct order following the analysis function guidance.

E.g. If only two colours are required and the palette is set to `"categorical"` then the `"categorical2"` palette will be used instead, without warning.

## Value

ggplot2 discrete fill scale

## Examples

```
library(ggplot2)

d <- subset(mpg, manufacturer == "ford")

ggplot(d, aes(x = class, fill = class)) +
 geom_bar() +
 scale_fill_discrete_af()


# The Analysis Function guidance recommends using a dark blue outline on
# barcharts with a sequential colour palette

d2 <- data.frame(
  age = c("<25", "25-44", "45-54", "55-64", "65 plus"),
  score = c(20, 34, 44, 88, 90)
)

ggplot(d2, aes(x = age, y = score, fill = age)) +
  geom_col(colour = af_dark_blue) +
  scale_fill_discrete_af(palette = "sequential")
```

---

# theme_af *Analysis Function theme for ggplot2 charts.*

---

## Description

ggplot2 theme for Analysis Function plots.

## Usage

```
theme_af(
  base_size = getOption("afcharts.base_size", 14),
  base_line_size = getOption("afcharts.base_line_size", base_size/24),
  base_rect_size = getOption("afcharts.base_rect_size", base_size/24),
  grid = getOption("afcharts.grid", "y"),
  axis = getOption("afcharts.axis", "x"),
  ticks = getOption("afcharts.ticks", "xy"),
  legend = getOption("afcharts.legend", "right"),
  axis_text = getOption("afcharts.axis_text", "xy"),
  axis_title = getOption("afcharts.axis_title", "xy"),
  legend_title = getOption("afcharts.legend_title", "show")
)
```

## Arguments

| | |
|---|---|
| base_size | base font size, given in pts. |
| base_line_size | base size for line elements. |

`base_rect_size` base size for rect elements.

`grid`, `axis`, `ticks`
: 'x', 'y', 'xy' or 'none' to determine for which axes the attribute should be drawn. Grid defaults to 'y', axis to 'x', and ticks to 'xy'.

`legend`
: 'right', 'left', 'top', 'bottom' or 'none' to determine the position of the legend. This can also be followed by a justification along that side (top, bottom, left, right or centre) e.g. 'top-left', 'left-bottom', 'right-centre'. Defaults to 'right'.

`axis_text`, `axis_title`
: 'x', 'y', 'xy' or 'none' to determine whether axis text and/or axis titles should be displayed. Text defaults to 'xy', as does title. Note that axis text refers to the 'labels' under the tick marks.

`legend_title` Set to 'none' to suppress legend titles. Defaults to 'show'.

## Value

ggplot2 plot theme

## Examples

```
library(ggplot2)

p <- ggplot(mpg, aes(x = class)) + geom_bar()

p
p + theme_af()
```

---

`use_afcharts` *Use afcharts defaults.*

---

## Description

Set afcharts theme, colour palette and geom aesthetic defaults for ggplot2 charts.

## Usage

```
use_afcharts(
  default_colour = afcharts::af_colour_values["dark-blue"],
  ...,
  reset = FALSE
)
```

## Arguments

`default_colour` Default colour/fill for geoms. Default value is 'blue' from `af_colour_values`.

`...` Arguments passed to `theme_af()`.

`reset` Logical. Turn off use_afcharts. This aims to reset the default chart setting to their status when `use_afcharts` was first called.

## Value

NULL. Function is used for side effects of setting ggplot2 plot theme, colour palette and geom aesthetic defaults.

## Examples

```
library(ggplot2)

d <- subset(mpg, manufacturer == "ford")

ggplot(d, aes(x = model)) + geom_bar()
ggplot(d, aes(x = model, fill = class)) + geom_bar()

use_afcharts()

ggplot(d, aes(x = model)) + geom_bar()
ggplot(d, aes(x = model, fill = class, colour = class)) + geom_bar()
```

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