Showybox's Manual

Updated for version 2.0.0

Colorful and customizable boxes for Typst 🏈

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1. Introduction

Showybox is a Typst package for creating colorful and customizable boxes, similar as tcolorbox for LaTeX users.

Currently, Showybox is still on developement, and all the code can be found at its GitHub repository here. New features are welcome. So, if you have an idea that would improve this package, go on and send us the code as a Pull Request.

2. Usage

To use this library through the Typst package manager (for Typst 0.6.0 or greater), write #import "@preview/showybox:2.0.0": showybox at the beginning of your Typst file.

Once imported, you can create an empty showybox by using the function showybox() and giving a default body content inside the parenthesis or outside them using the squared brackets [].

By default a showybox with these properties will be created:

- No title
- No shadow
- Not breakable
- Black borders
- White background
- 5pt of border radius
- 1pt of border thickness

```
#import "@preview/showybox:2.0.0": showybox
#showybox()[This is a simple showybox with
the properties said before :)]
```

This is a simple showybox with the properties said before :)

3. Parameters

In version 2.0.0 all the parameters that the showybox() function can receive are shown below:

```
breakable: boolean
spacing: relative-length
spacing: relative-length
above: relative-length
below: relative-length
.. body
) → body
```

The usage and posible values of all the parameters are listed below.

3.1. Title string content

When it's not empty, correponds to a **string** or a **content** used as the title of the showybox.

Default value is "" (empty string)

Hi there! I'm Mr. Title

And I'm Mrs. Body

And I'm Mrs. Body

```
1 #showybox(
2 title: "Hi there! I'm Mr. Title"
3 )[And I'm Mrs. Body]
4
5 #showybox(/*Untitled*/)[And I'm Mrs. Body]
```

3.2. Footer string content

When it's not empy, corresponds to a **string** or a **content** used as the footer of the showybox.

Default is "" (empty string).

```
1 #showybox(
2 title: "Hi there! I'm Mr. Title",
3 footer: "And finally I'm Mr. Footer"
4 )[And I'm Mrs. Body]
```

Hi there! I'm Mr. Title

And I'm Mrs. Body

And finally I'm Mr. Footer

3.3. Frame dictionary

This parameter contains all options that are useful for setting a showybox's frame properties. The frame contains the title, the body and the footer of the showybox. It even includes the showybox borders! Frame's dictionary options are listed below:

```
frame: (
  title-color: color
  body-color: color
  footer-color: color

border-color: color

radius: relative-length dictionary
  thickness: length dictionary
  dash: string
  inset: relative-length dictionary
  title-inset: relative-length dictionary
  body-inset: relative-length dictionary
  footer-inset: relative-length dictionary
  footer-inset: relative-length dictionary
),
...
```

title-color color

The color used as background where the title goes.

Default is black.

```
body-color color
```

The color that is used as background where the showybox's body goes.

Default is white.

```
footer-color color
```

The color that is used as background where the footer goes.

```
Default is luma(220)
```

```
border-color color
```

It's the color used for the frame's borders and the boxed-title borders. It's independent of title-color, body-color and footer-color, so maybe you would want to use similar colors with them.

Default is black.

```
#showybox(
     title: "Stokes' theorem",
2
3
     frame: (
       border-color: blue,
       title-color: blue.lighten(30%),
       body-color: blue.lighten(95%),
7
       footer-color: blue.lighten(80%)
     footer: "Information extracted from a well-known public encyclopedia"
9
10 )[
     Let $Sigma$ be a smooth oriented surface in $RR^3$ with boundary $diff
11
   Sigma equiv Gamma$. If a vector field \$bold(F)(x,y,z)=(F \times (x,y,z),
   F y(x,y,z), F z(x,y,z) is defined and has continuous first order
   partial derivatives in a region containing $Sigma$, then
12
     $ integral.double Sigma (bold(nabla) times bold(F)) dot bold(Sigma) =
   integral.cont (diff Sigma) bold(F) dot dif bold(Gamma) $
14
```

Stokes' theorem

Let Σ be a smooth oriented surface in \mathbb{R}^3 with boundary $\partial \Sigma \equiv \Gamma$. If a vector field $F(x,y,z) = \left(F_{x(x,y,z)}, F_{y(x,y,z)}, F_{z(x,y,z)}\right)$ is defined and has continuous first order partial derivatives in a region containing Σ , then

$$\iint_{\Sigma} (\boldsymbol{\nabla} \times \boldsymbol{F}) \cdot \boldsymbol{\Sigma} = \oint_{\partial \Sigma} \boldsymbol{F} \cdot \mathrm{d} \boldsymbol{\Gamma}$$

Information extracted from a well-known public encyclopedia

radius relative-length dictionary

Indicates how much round are the borders of the frame. It sets *all* the border radii together if a **relative-length** passed, or individually if a **dictionary** is given.

It excludes the boxed-title border radii (if present). Their radius is set in boxed-style dictionary inside title-style.

Default is 5pt.

thickness length dictionary

Indicates the thickness of the frame borders as a **length** or a **dictionary**. If it's a dictionary, it can specify top, bottom, left, right, x, y or rest thickness.

It excludes the thickness of any separator located inside the box (their thickness is set in sep property).

Default is 1pt.

dash string

Corresponds the frame border's style. lt to be anv kind of used for line(). For instance, style it can be "solid", "dotted", "densely-dotted", "loosely-dotted", "dashed", "densely-dashed", "loosely-dashed", "dash-dotted", "densely-dash-dotted" or "loosely-dash-dotted"

Default is "solid".

inset, title-inset, body-inset, and footer-inset relative-length dictionary

How much to pad the showybox's content. It can be a **relative-length** or a **dictionary**. If it's a dictionary, it can specify top, bottom, left, right, x, y or rest insets.

If title-inset, body-inset or footer-inset is given, this property is ignored while setting the inset of the title, the body or the footer, respectively.

Default is (x: 1em, y: 0.65em).

```
#showybox(
2
     frame: (
       border-color: red.darken(30%),
3
       title-color: red.darken(30%),
4
       radius: Opt,
5
       thickness: 2pt,
6
       body-inset: 2em,
7
       dash: "densely-dash-dotted"
8
9
     ),
     title: "Gauss's Law"
10
11 )[
     The net electric flux through any hypothetical closed surface is equal
12
   to $1/epsilon_0$ times the net electric charge enclosed within that
   closed surface. The closed surface is also referred to as Gaussian
   surface. In its integral form:
13
14
   $ Phi_E = integral.surf_S bold(E) dot dif bold(A) = Q/epsilon_0 $
15
```

Gauss's Law

The net electric flux through any hypothetical closed surface is equal to $\frac{1}{\varepsilon_0}$ times the net electric charge enclosed within that closed surface. The closed surface is also referred to as Gaussian surface. In its integral form:

3.4. Title style dictionary

This parameter contains all options that are useful for setting showybox's title properties. Despite you can set some of this properties while setting title parameter, it becomes a useful option while making several showyboxes with similar styles.

```
title-style: (
  color: color
  weight: integer string
  align: alignment 2d-alignment
  sep-thickness: length
  boxed-style: dictionary none
),
...
```

color color

Title's text color.

Default is white.

weight integer string

Title's font weight. It can be an integer between 100 and 900, or a predefined weight name ("thin", "extralight", "light", "regular", "medium", "semibold", "bold", "extrabold" and "black").

Default is "regular".

align alignment 2d-alignment

How to align title's content. It can be an unidimensional alignment or a bidimensional alignment.

Default is left.

sep-thickness length

How much is the thickness of the separator line that is between the title and the body.

Default is 1pt.

```
#showybox(
2
     title-style: (
3
       weight: 900,
       color: red.darken(40%),
       sep-thickness: Opt,
       align: center
7
     ),
8
     frame: (
       title-color: red.lighten(80%),
       border-color: red.darken(40%),
10
       thickness: (left: 1pt),
11
       radius: Opt
13
     title: "Carnot cycle's efficency"
14
15
     Inside a Carnot cycle, the efficiency $eta$ is defined to be:
16
17
     $ eta = W/Q H = frac(Q H + Q C, Q H) = 1 - T C/T H $
19
```

Carnot cycle's efficency

Inside a Carnot cycle, the efficiency η is defined to be:

$$\eta = \frac{W}{Q_H} = \frac{Q_H + Q_C}{Q_H} = 1 - \frac{T_C}{T_H}$$

boxed-style dictionary none

If it's not **none** (i.e. it's a **dictionary**), indicates that the title must be placed as a "floating box" around the top side of the showybox's body.

Further details are present in Section 3.5

Default is none.

3.5. Boxed style dictionary

```
...
title-style: (
...,
```

```
boxed-style (
   anchor: dictionary
   offset: dictionary
   radius: relative-length dictionary
),
...
),
...
```

anchor dictionary

A **dictionary** with keys x and y indicating where to place the anchor of the boxed-title. The possible values for each direction are listed below:

For x anchor:

- left: Set the anchor to the left side of the boxed-title.
- center: Set the anchor to the center of the horizontal center of the boxed-title.
- right: Set the anchor to the right side of the boxed-title.

For y anchor:

- top: Set the anchor to the top of the boxed-title.
- horizon: Set the anchor to the vertical center of the boxed-title.
- bottom: Set the anchor to the bottom of the boxed-title.

```
Default is (x: left, y: horizon).
```

offset dictionary

A **dictionary** with keys x and y indicating how much to offset the boxed-title in x and y directions.

```
Default is (x: Opt, y: Opt).
```

Observation

By default, the boxed-title has a <u>lem</u> "invisible-offset" (it's not set via <u>offset</u> property) at both left and right sides. This is made for aesthetic purposes, so the boxed-title will look nicer by default.

Additionally, the boxed-title **never** will have the full width of the showybox's main container, because otherwise it'll look like a "strange" version of default titles, loosing the "floating" illusion.

radius relative-length dictionary

Radius of the boxed-title. It is applied to all corners simultaneously if a **relative-length** is given, or it's applied individually to each of them according to a **dictionary** keys.

Default is 5pt.

```
#showybox(
     title-style: (
2
3
       boxed-style: (
         anchor: (
           x: center,
           y: horizon
         ),
         radius: (top-left: 10pt, bottom-right: 10pt, rest: 0pt),
       )
10
     ),
11
     frame: (
       title-color: green.darken(40%),
12
13
       body-color: green.lighten(80%),
       footer-color: green.lighten(60%),
       border-color: green.darken(60%),
15
       radius: (top-left: 10pt, bottom-right: 10pt, rest: 0pt)
16
17
     title: "Clairaut's theorem",
18
     footer: text(size: 10pt, weight: 600, emph("This will be useful every
   time you want to interchange partial derivatives in the future."))
20
     Let $f: A arrow RR$ with $A subset RR^n$ an open set such that its
21
   cross derivatives of any order exist and are continuous in $A$. Then for
   any point (a_1, a_2, \ldots, a_n) in A$ it is true that
     frac(diff^n f, diff x_i ... diff x_j)(a_1, a_2, ..., a_n) =
   frac(diff^n f, diff x j ... diff x i)(a 1, a 2, ..., a n) $
24
```

Clairaut's theorem

Let $f:A\to\mathbb{R}$ with $A\subset\mathbb{R}^n$ an open set such that its cross derivatives of any order exist and are continuous in A. Then for any point $(a_1,a_2,...,a_n)\in A$ it is true that

$$\frac{\partial^n f}{\partial x_i...\partial x_i}(a_1,a_2,...,a_n) = \frac{\partial^n f}{\partial x_i...\partial x_i}(a_1,a_2,...,a_n)$$

This will be useful every time you want to interchange partial derivatives in the future.

3.6. Body style dictionary

This parameter contains all options that are useful for setting general-style properties for the showybox's body.

```
""
body-style: (
  color: color
  align: alignment 2d-alignment
),
  ...
```

color color

Body's text color.

Default is black.

align alignment 2d-alignment

How to align body's content. It can be an unidimensional alignement or a bidimensional alignement.

Default is left.

```
#showybox(
2
     body-style: (
       align: center,
3
       color: red.darken(20%)
4
5
6
     frame: (
       body-color: yellow.lighten(60%),
7
       title-color: red.darken(20%),
9
       thickness: Opt,
       body-inset: (y: lem)
10
11
     ),
     title-style: (
12
       sep-thickness: Opt,
13
       color: yellow.lighten(80%),
14
15
       align: center
16
     ),
17
     width: 70%,
18
     align: center,
19
     title: "That is the question"
20
     To be, or not to be, that is the question: \
21
     Whether 'tis nobler in the mind to suffer \
22
     The slings and arrows of outrageous fortune, \
23
24
     Or to take Arms against a Sea of troubles, \
     And by opposing end them: to die, to sleep \
25
     No more; and by a sleep, to say we end \
26
     The heart-ache, and the thousand natural shocks \
27
```

```
That Flesh is heir to? 'Tis a consummation \
Devoutly to be wished. To die, to sleep, \
To sleep, perchance to Dream...

1 ]
```

That is the question

To be, or not to be, that is the question:
Whether 'tis nobler in the mind to suffer
The slings and arrows of outrageous fortune,
Or to take Arms against a Sea of troubles,
And by opposing end them: to die, to sleep
No more; and by a sleep, to say we end
The heart-ache, and the thousand natural shocks
That Flesh is heir to? 'Tis a consummation
Devoutly to be wished. To die, to sleep,
To sleep, perchance to Dream...

3.7. Footer style dictionary

This parameter contains all options that are useful for setting showybox's footer properties. Despite you can set some of this properties while setting footer parameter, it becomes a useful option while making several showyboxes with similar styles.

```
footer-style: (
  color: color
  weight: integer string
  align: alignment 2d-alignment
  sep-thickness: length
),
...
```

```
color color
```

Footer's text color.

Default is luma (85).

```
weight integer string
```

Footer's font weight. It can be an integer between 100 and 900, or a predefined weight name ("thin", "extralight", "light", "regular", "medium", "semibold", "bold", "extrabold" and "black").

Default is "regular".

align alignment 2d-alignment

How to align footer's content. It can be an unidimensional alignment or a bidimensional alignment.

Default is left.

sep-thickness length

How much is the thickness of the separator line that is between the footer and the body.

Default is 1pt .

```
#showybox(
     footer-style: (
2
3
       sep-thickness: Opt,
       align: right,
4
5
       color: black
  ),
  title: "Divergence theorem",
7
8 footer: [
       In the case of $n=3$, $V$ represents a volumne in three-dimensional
   space, and $diff V = S$ its surface
10
   - 1
11 )[
     Suppose $V$ is a subset of $RR^n$ which is compact and has a piecewise
12
   smooth boundary S$ (also indicated with diff V = S). If d(F)$ is a
   continuously differentiable vector field defined on a neighborhood of
   $V$, then:
13
    sintegral.triple V (bold(nabla) dot bold(F)) dif V = integral.surf S
   (bold(F) dot bold(hat(n))) dif S $
15
```

Divergence theorem

Suppose V is a subset of \mathbb{R}^n which is compact and has a piecewise smooth boundary S (also indicated with $\partial V = S$). If F is a continuously differentiable vector field defined on a neighborhood of V, then:

$$\iiint_V (\nabla \cdot \mathbf{F}) \, dV = \oiint_S (\mathbf{F} \cdot \hat{\mathbf{n}}) \, dS$$

In the case of n=3, V represents a volumne in three-dimensional space, and $\partial V=S$ its surface

3.8. Separator properties (sep) dictionary

This parameter contains all options that are used for setting all the separator's styles of your showybox. To learn more about how to use separators, see Section 4.

```
"
sep: (
  thickness: length
  dash: string
  gutter: relative-length
),
""
```

thickness length

Corresponds to the separator thickness.

Default is 1pt.

gutter relative-length

The size of the gutter space above and below the separator.

Default is 0.65em.

dash string

```
lt′s
      the
                                                                     kind
            separator's
                         dash
                                 pattern.
                                            lt
                                                 can
                                                        be
                                                              any
of
     style
             used
                     for
                            line().
                                       For
                                              instance,
                                                          it
                                                                      be
                                                               can
                       "densely-dotted", "loosely-dotted",
"solid", "dotted",
"densely-dashed", "loosely-dashed", "dash-dotted", "densely-dash-dotted" or
"loosely-dash-dotted"
```

Default is "solid".

```
#showybox(
2
     sep: (
       thickness: 0.5pt,
3
       dash: "loosely-dashed"
4
5
     title: "Coordinate systems"
6
7 )[
     *Cartesian coordinate system*
     A Cartesian coordinate system for a three-dimensional space consists of
   an ordered triplet of lines (the axes) that go through a common point
   (the origin), and are pair-wise perpendicular.
11
```

```
A way to represent a point $r$ is using the unit vectors ($bold(i)$,
   $bold(j)$, and $bold(k)$) is:
13
     bold(r) = x bold(i) + y bold(j) + z bold(k) 
15
  ][
     *Spherical coordinate system*
16
17
     A spherical coordinate system is a coordinate system for three-
18
   dimensional space where the position of a point is specified by three
   numbers: the radial distance of that point from a fixed origin ($r$); its
   polar angle measured from a fixed polar axis or zenith direction
   ($theta$); and the azimuthal angle of its orthogonal projection on a
   reference plane that passes through the origin and is orthogonal to the
   fixed axis, measured from another fixed reference direction on that plane
19
   ($phi$).
     The position of a point or particle (although better written as a
21 triple $(r, theta, phi)$ can be written as:
     $ bold(r) = r bold(hat(r)) $
23
   ]
```

Coordinate systems

Cartesian coordinate system

A Cartesian coordinate system for a three-dimensional space consists of an ordered triplet of lines (the axes) that go through a common point (the origin), and are pair-wise perpendicular.

A way to represent a point r is using the unit vectors (i, j, and k) is:

$$r = xi + yj + zk$$

Spherical coordinate system

A spherical coordinate system is a coordinate system for three-dimensional space where the position of a point is specified by three numbers: the radial distance of that point from a fixed origin (r); its polar angle measured from a fixed polar axis or zenith direction (θ) ; and the azimuthal angle of its orthogonal projection on a reference plane that passes through the origin and is orthogonal to the fixed axis, measured from another fixed reference direction on that plane (φ) .

The position of a point or particle (although better written as a triple (r, θ, φ) can be written as:

$$r = r\hat{r}$$

3.9. Shadow properties dictionary

The given **dictionary** contains all properties that are used for showing a showybox with a shadow. When this property is absent (i.e. it's not set or set as **none**), the showybox has no shadow.

```
""
shadow: (
  color: color
  offset: relative-length dictionary
),
""
```

color color

Shadow's color.

Default is luma(128).

offset relative-length dictionary

How much to offset the shadow in x and y direction either as a relative-length or a dictionary with keys x and y.

Default is 4pt.

```
#showybox(
     shadow: (
2
       color: yellow.lighten(55%),
3
4
       offset: 3pt
5
     ),
     frame: (
6
       title-color: red.darken(30%),
7
       border-color: red.darken(30%),
8
       body-color: red.lighten(80%)
10
     title: "Coulomb's law"
11
12 )[
     Coulomb's law in vector form states that the electrostatic force
   $bold(F)$ experienced by a charge $q 1$ at position $bold(r)$ in the
   vecinity of another charge $q 2$ at position $bold(r')$, in a vacuum is
14 equal to
     bold(F) = frac(q_1 q_2, 4 pi epsilon_0) frac(bold(r) - bold(r'),
16 bar.v bold(r) - bold(r') bar.v^3) $
   ]
```

Coulomb's law

Coulomb's law in vector form states that the electrostatic force F experienced by a charge q_1 at position r in the vecinity of another charge q_2 at position r', in a vacuum is equal to

$$oldsymbol{F} = rac{q_1q_2}{4\piarepsilon_0}rac{oldsymbol{r}-oldsymbol{r}'}{\midoldsymbol{r}-oldsymbol{r}'\mid^3}$$

3.10. Width relative-length

This parameter sets the showybox's width.

Default is 100%.

3.11. Align alignment

How to align showybox inside it's container (useful for showyboxes with width < 100%).

Default is left.

3.12. Breakable boolean

This parameter indicates whether a showybox can or cannot break if it reaches an end of page or the end of its container.

Default is false

3.13. Spacing, above, and below relative-length

spacing sets how much space to insert above and below the showybox, unless above or below are given.

By default it's the block 's default spacing in your document.

```
1 #block(
2
     height: 4.5cm,
3
     inset: 1em,
     fill: luma(250),
     stroke: luma(200),
     columns(2)[
6
7
       #showybox(
         title-style: (
8
            boxed-style: (
              anchor: (x: center, y: horizon)
11
            )
         ),
12
13
         breakable: true,
14
         width: 90%,
         align: center,
15
         title: "Newton's second law"
```

Newton's second law

If a body of mass m experiments an acceleration a due to a net force $\sum F$, this acceleration is related to the mass and

force by the following equation:

$$a = \frac{\sum F}{m}$$

4. Separators

Sometimes you would wish to split a content into two or more sections inside the same showybox. The showybox() function allows you to do that by putting several content elements separated by commas inside the parenthesis () of the function. Each individual content element will be a separated section inside the showybox.

Alternatively, you can put adjacent **content** elements one after another next to the closing parenthesis of the function. Both cases generates the same outcome.

5. Encapsulation

Showyboxes can be put inside another showyboxes! As you may think, it's easy to do it: just put a showybox inside the body of another, and ta-da!

```
#showybox(
     title: "Parent container",
2
3
     lorem(10),
     columns(2)[
4
       #showybox(
5
          title-style: (boxed-style: (:)),
7
          title: "Child 1",
8
          lorem(10)
       )
10
       #colbreak()
       #showybox(
11
          title-style: (boxed-style: (:)),
12
13
          title: "Child 2",
```

```
14 | lorem(10)
16 | 1
17 |
```

Parent container

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do.

Child 1

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do.

Child 2

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do.