🦓 Zebraw

Zebraw 是一个轻量级且快速的 Typst 包，用于显示带有行号的代码块，支持代码行高亮。*zebraw* 一词是 *zebra*（斑马）和 *raw*（原始）的组合，因为高亮显示的代码行在代码块中就像斑马纹一样。

快速开始

使用 `#import "@preview/zebraw:0.5.1": *` 导入 `zebraw` 包，然后添加 `#show: zebraw` 以最简单的方式开始使用 zebraw。

````
#import "@preview/zebraw:0.5.1": *
#show: zebraw

```typ
#grid(
  columns: (1fr, 1fr),
  [Hello], [world!],
)
```
````

```typ
#grid(
  columns: (1fr, 1fr),
  [Hello], [world!],
)
```

要手动使用 zebraw 渲染特定代码块，请使用 `#zebraw()` 函数：

````
#zebraw(
  ```typ
  #grid(
    columns: (1fr, 1fr),
    [Hello], [world!],
  )
  ```
)
````

```typ
#grid(
  columns: (1fr, 1fr),
  [Hello], [world!],
)
```

功能

`zebraw` 函数提供了多种参数来自定义代码块的外观和行为。以下部分详细描述了这些参数：

- **核心功能**
  - 显示行号（可自定义起始值）
  - 选择性显示代码行范围
  - 代码行高亮及注释
  - 代码块标题和页脚
  - 语言标签
  - 缩进指引线和悬挂缩进（含快速预览模式提升性能）
- **自定义选项**
  - 自定义背景、高亮和注释颜色
  - 各元素字体自定义
  - 自定义内边距
  - 内置主题
- **导出功能**
  - 实验性 HTML 导出

行号显示

代码块的左侧会显示行号。通过向 `numbering-offset` 参数传递一个整数来更改行号偏移量。默认值为 `0`。

```typ
#zebraw(
  // The first line number will be 2.
  numbering-offset: 1,
  ```typ
  #grid(
    columns: (1fr, 1fr),
    [Hello], [world!],
  )
  ```
)
```

```
2 #grid(
3   columns: (1fr, 1fr),
4   [Hello], [world!],
5 )
```

要禁用行号显示，可向 numbering 参数传递 false：

```typ
#zebraw(
  numbering: false,
  ```typ
  #grid(
    columns: (1fr, 1fr),
    [Hello], [world!],
  )
  ```
)
```

```
#grid(
  columns: (1fr, 1fr),
  [Hello], [world!],
)
```

行号分隔线

你可以通过设置 numbering-separator 参数为 true 来在行号和代码内容之间添加分隔线：

```typ
#zebraw(
  numbering-separator: true,
  ```typ
  #grid(
    columns: (1fr, 1fr),
    [Hello], [world!],
  )
  ```
)
```

```
1 #grid(
2   columns: (1fr, 1fr),
3   [Hello], [world!],
4 )
```

代码行切片

使用 line-range 参数可以显示代码块的特定行范围。该参数支持两种格式：

- 包含 2 个整数的数组，表示范围 $[a, b)$（b 可以是 none，此功能基于 Typst 数组切片）
- 包含 range 和 keep-offset 键的字典

当 keep-offset 为 true 时，行号保留原始值；为 false 时，行号从 1 开始重新计数。默认值为 true。

```typ
#let code = ```typ
#grid(
  columns: (1fr, 1fr),
  [Hello],
  [world!],
)
```

#zebraw(code)

#zebraw(line-range: (2, 4), code)
```

```
1 #grid(
2   columns: (1fr, 1fr),
3   [Hello],
4   [world!],
5 )
```

```
2   columns: (1fr, 1fr),
3   [Hello],
```
```

````
#zebraw(
  line-range: (range: (2, 4), keep-
offset: false),
  code
)

#zebraw(
  numbering-offset: 30,
  line-range: (range: (2, 4), keep-
offset: false),
  code
)

#zebraw(
  numbering-offset: 30,
  line-range: (range: (2, 4), keep-
offset: true),
  code
)
````

```
  columns: (1fr, 1fr),
  [Hello],
```

```
  columns: (1fr, 1fr),
  [Hello],
```

```
  columns: (1fr, 1fr),
  [Hello],
```

行高亮

通过向 `zebraw` 函数传递 `highlight-lines` 参数来高亮显示代码块中的特定行。`highlight-lines` 参数可以接受单个行号或行号数组。

````
#zebraw(
  // Single line number:
  highlight-lines: 2,
  ```typ
  #grid(
    columns: (1fr, 1fr),
    [Hello], [world!],
  )
  ```
)

#zebraw(
  // Array of line numbers:
  highlight-lines: (6, 7) + range(9,
15),
  ```typ
  = Fibonacci sequence
  The Fibonacci sequence is defined
through the
  recurrence relation $F_n = F_(n-1) +
F_(n-2)$.
  It can also be expressed in _closed
form:_

  $ F_n = round(1 / sqrt(5) phi.alt^n),
quad
    phi.alt = (1 + sqrt(5)) / 2 $

  #let count = 8
  #let nums = range(1, count + 1)
  #let fib(n) = (
    if n ≤ 2 { 1 }
    else { fib(n - 1) + fib(n - 2) }
  )
````

```
#grid(
  columns: (1fr, 1fr),
  [Hello], [world!],
)
```

```
= Fibonacci sequence
The Fibonacci sequence is defined
through the
recurrence relation $F_n = F_(n-1)
+ F_(n-2)$.
It can also be expressed in
_closed form:_

$ F_n = round(1 / sqrt(5)
phi.alt^n), quad
  phi.alt = (1 + sqrt(5)) / 2 $

#let count = 8
#let nums = range(1, count + 1)
#let fib(n) = (
  if n ≤ 2 { 1 }
  else { fib(n - 1) + fib(n - 2) }
)

The first #count numbers of the
sequence are:

#align(center, table(
  columns: count,
  ..nums.map(n ⇒ $F_#n$),
```
```

````
  The first #count numbers of the
sequence are:

  #align(center, table(
    columns: count,
    ..nums.map(n => $F_#n$),
    ..nums.map(n => str(fib(n))),
  ))
  ```
)
````

```
  ..nums.map(n => str(fib(n))),
))
```

注释

通过向 `highlight-lines` 参数传递一个包含行号和注释的数组，可以为高亮显示的行添加注释。

````
#zebraw(
  highlight-lines: (
    (1, [The Fibonacci sequence is
defined through the recurrence relation
$F_n = F_(n-1) + F_(n-2)$\
    It can also be expressed in _closed
form:_ $ F_n = round(1 / sqrt(5)
phi.alt^n), quad
    phi.alt = (1 + sqrt(5)) / 2 $]),
    // Passing a range of line numbers
in the array should begin with `..`
    ..range(9, 14),
    (13, [The first \#count numbers of
the sequence.]),
  ),
  ```typ
  = Fibonacci sequence
  #let count = 8
  #let nums = range(1, count + 1)
  #let fib(n) = (
    if n <= 2 { 1 }
    else { fib(n - 1) + fib(n - 2) }
  )

  #align(center, table(
    columns: count,
    ..nums.map(n => $F_#n$),
    ..nums.map(n => str(fib(n))),
  ))
  ```
)
````

```
1  = Fibonacci sequence
   > The Fibonacci sequence is
   defined through the recurrence
   relation F_n = F_{n-1} + F_{n-2}
   It can also be expressed in closed
   form:
                F_n = ⌊1/√5 φ^n⌉,  φ = (1+√5)/2
2  #let count = 8
3  #let nums = range(1, count + 1)
4  #let fib(n) = (
5    if n <= 2 { 1 }
6    else { fib(n - 1) + fib(n - 2) }
7  )
8
9  #align(center, table(
10   columns: count,
11   ..nums.map(n => $F_#n$),
12   ..nums.map(n => str(fib(n))),
13 ))
   > The first #count numbers of the
   sequence.
```

注释默认以 `">"` 开头。你可以通过 `comment-flag` 参数更改这个标志：

````
#zebraw(
  highlight-lines: (
    // Comments can only be passed when
highlight-lines is an array, so a comma
is needed at the end of a single-element
array
    (6, [The Fibonacci sequence is
defined through the recurrence relation
````

```
1  = Fibonacci sequence
2  #let count = 8
3  #let nums = range(1, count + 1)
4  #let fib(n) = (
5    if n <= 2 { 1 }
6    else { fib(n - 1) + fib(n - 2) }
```
```

```
$F_n = F_(n-1) + F_(n-2)$]),
  ),
  comment-flag: "⟿",
  ```typ
  = Fibonacci sequence
  #let count = 8
  #let nums = range(1, count + 1)
  #let fib(n) = (
    if n ⩽ 2 { 1 }
    else { fib(n - 1) + fib(n - 2) }
  )

  #align(center, table(
    columns: count,
    ..nums.map(n ⇒ $F_#n$),
    ..nums.map(n ⇒ str(fib(n))),
  ))
  ```
)
```

```
    ⟿ The Fibonacci sequence is
  defined through the recurrence
  relation F_n = F_(n-1) + F_(n-2)
7 )
8
9 #align(center, table(
10   columns: count,
11   ..nums.map(n ⇒ $F_#n$),
12   ..nums.map(n ⇒ str(fib(n))),
13 ))
```

要完全移除注释标志，可以将 `comment-flag` 参数设为空字符串 `""`（这也会同时禁用注释缩进）：

```
#zebraw(
  highlight-lines: (
    (6, [The Fibonacci sequence is
defined through the recurrence relation
$F_n = F_(n-1) + F_(n-2)$]),
  ),
  comment-flag: "",
  ```typ
  = Fibonacci sequence
  #let count = 8
  #let nums = range(1, count + 1)
  #let fib(n) = (
    if n ⩽ 2 { 1 }
    else { fib(n - 1) + fib(n - 2) }
  )

  #align(center, table(
    columns: count,
    ..nums.map(n ⇒ $F_#n$),
    ..nums.map(n ⇒ str(fib(n))),
  ))
  ```
)
```

```
1 = Fibonacci sequence
2 #let count = 8
3 #let nums = range(1, count + 1)
4 #let fib(n) = (
5   if n ⩽ 2 { 1 }
6   else { fib(n - 1) + fib(n - 2) }
  The Fibonacci sequence is defined
  through the recurrence relation
  F_n = F_(n-1) + F_(n-2)
7 )
8
9 #align(center, table(
10   columns: count,
11   ..nums.map(n ⇒ $F_#n$),
12   ..nums.map(n ⇒ str(fib(n))),
13 ))
```

标题和页脚

你可以为代码块添加标题和页脚。可以通过在 `highlight-lines` 参数中传入键为 `header` 或 `footer` 的字典来实现。

```
#zebraw(
  highlight-lines: (
    (header: [*Fibonacci sequence*]),
    ..range(8, 13),
    // Numbers can be passed as strings
in the dictionary, though this approach
```

Fibonacci sequence

```
1 #let count = 8
2 #let nums = range(1, count + 1)
3 #let fib(n) = (
4   if n ⩽ 2 { 1 }
```

````
is less elegant
    ("12": [The first \#count numbers of
the sequence.]),
    (footer: [The fibonacci sequence is
defined through the recurrence relation
$F_n = F_(n-1) + F_(n-2)$]),
  ),
  ```typ
  #let count = 8
  #let nums = range(1, count + 1)
  #let fib(n) = (
    if n ⩽ 2 { 1 }
    else { fib(n - 1) + fib(n - 2) }
  )

  #align(center, table(
    columns: count,
    ..nums.map(n ⇒ $F_#n$),
    ..nums.map(n ⇒ str(fib(n))),
  ))
  ```
)
````

```
  else { fib(n - 1) + fib(n - 2) }
)

#align(center, table(
  columns: count,
  ..nums.map(n ⇒ $F_#n$),
  ..nums.map(n ⇒ str(fib(n))),
))
```

> The first #count numbers of the sequence.

The fibonacci sequence is defined through the recurrence relation $F_n = F_{n-1} + F_{n-2}$

或者，可以使用专门的 `header` 和 `footer` 参数使代码更简洁：

````
#zebraw(
  highlight-lines: (
    ..range(8, 13),
    (12, [The first \#count numbers of
the sequence.]),
  ),
  header: [*Fibonacci sequence*],
  ```typ
  #let count = 8
  #let nums = range(1, count + 1)
  #let fib(n) = (
    if n ⩽ 2 { 1 }
    else { fib(n - 1) + fib(n - 2) }
  )

  #align(center, table(
    columns: count,
    ..nums.map(n ⇒ $F_#n$),
    ..nums.map(n ⇒ str(fib(n))),
  ))
  ```,
  footer: [The fibonacci sequence is
defined through the recurrence relation
$F_n = F_(n-1) + F_(n-2)$],
)
````

Fibonacci sequence

```
#let count = 8
#let nums = range(1, count + 1)
#let fib(n) = (
  if n ⩽ 2 { 1 }
  else { fib(n - 1) + fib(n - 2) }
)

#align(center, table(
  columns: count,
  ..nums.map(n ⇒ $F_#n$),
  ..nums.map(n ⇒ str(fib(n))),
))
```

> The first #count numbers of the sequence.

The fibonacci sequence is defined through the recurrence relation $F_n = F_{n-1} + F_{n-2}$

语言标签

通过设置 `lang` 参数为 `true`，可以在代码块的右上角显示一个浮动的语言标签：

````
#zebraw(
  lang: true,
  ```typst
  #grid(
````

typst

```
#grid(
  columns: (1fr, 1fr),
  [Hello], [world!],
```
```

```
    columns: (1fr, 1fr),
    [Hello], [world!],
  )
  ```
)
```

```
4 )
```

通过向 `lang` 参数传递字符串或内容来自定义显示的语言：

```
#zebraw(
  lang: strong[Typst],
  ```typst
  #grid(
    columns: (1fr, 1fr),
    [Hello], [world!],
  )
  ```
)
```

Typst

```
1 #grid(
2   columns: (1fr, 1fr),
3   [Hello], [world!],
4 )
```

缩进指引线、悬挂缩进和快速预览

通过向 `indentation` 参数传递一个正整数来显示缩进指引线，该整数表示每个缩进级别的空格数：

```
#zebraw(
  indentation: 2,
  ```typ
  #let forecast(day) = block[
    #box(square(
      width: 2cm,
      inset: 8pt,
      fill: if day.weather == "sunny" {
        yellow
      } else {
        aqua
      },
      align(
        bottom + right,
        strong(day.weather),
      ),
    ))
    #h(6pt)
    #set text(22pt, baseline: -8pt)
    #day.temperature °#day.unit
  ]
  ```
)
```

```
1 #let forecast(day) = block[
2   #box(square(
3     width: 2cm,
4     inset: 8pt,
5     fill: if day.weather ==
  "sunny" {
6       yellow
7     } else {
8       aqua
9     },
10    align(
11      bottom + right,
12      strong(day.weather),
13    ),
14  ))
15  #h(6pt)
16  #set text(22pt, baseline: -8pt)
17  #day.temperature °#day.unit
18 ]
```

要启用悬挂缩进，只需将 `hanging-indent` 设置为 `true`：

```
#zebraw(
  hanging-indent: true,
  ```typ
  #let forecast(day) = block[
    #box(square(
      width: 2cm,
      inset: 8pt,
      fill: if day.weather == "sunny" {
        yellow
```

```
1 #let forecast(day) = block[
2   #box(square(
3     width: 2cm,
4     inset: 8pt,
5     fill: if day.weather ==
      "sunny" {
6       yellow
```

```
      } else {
        aqua
      },
      align(
        bottom + right,
        strong(day.weather),
      ),
    ))
    #h(6pt)
    #set text(22pt, baseline: -8pt)
    #day.temperature °#day.unit
  ]
  ```
)
```

```
 7     } else {
 8       aqua
 9     },
10     align(
11       bottom + right,
12       strong(day.weather),
13     ),
14   ))
15   #h(6pt)
16   #set text(22pt, baseline: -8pt)
17   #day.temperature °#day.unit
18 ]
```

缩进线可能会降低预览性能。为了加快预览速度，可以通过在 `zebraw-init` 中将 `fast-preview` 参数设置为 `true`，或在 typst-cli 中传入 `zebraw-fast-preview`。这会将缩进线渲染为简单的 | 字符：

```
#zebraw(
  hanging-indent: true,
  ```typ
  #let forecast(day) = block[
    #box(square(
      width: 2cm,
      inset: 8pt,
      fill: if day.weather == "sunny" {
        yellow
      } else {
        aqua
      },
      align(
        bottom + right,
        strong(day.weather),
      ),
    ))
    #h(6pt)
    #set text(22pt, baseline: -8pt)
    #day.temperature °#day.unit
  ]
  ```
)
```

typ

```
 1 #let forecast(day) = block[
 2 | #box(square(
 3 | | width: 2cm,
 4 | | inset: 8pt,
 5 | | fill: if day.weather ==
       "sunny" {
 6 | | | yellow
 7 | | } else {
 8 | | | aqua
 9 | | },
10 | | align(
11 | | | bottom + right,
12 | | | strong(day.weather),
13 | | ),
14 | ))
15 | #h(6pt)
16 | #set text(22pt, baseline: -8pt)
17 | #day.temperature °#day.unit
18 ]
```

主题

Zebraw 包含内置主题。欢迎提交 PR 添加更多主题！

```
#show: zebraw.with(..zebraw-
themes.zebra)

```rust
pub fn fibonacci_reccursive(n: i32) →
u64 {
    if n < 0 {
        panic!("{} is negative!", n);
    }
    match n {
        0 ⇒ panic!("zero is not a right
```

```
1 pub fn fibonacci_reccursive(n:
  i32) → u64 {
2     if n < 0 {
3         panic!("{} is negative!",
  n);
4     }
5     match n {
6         0 ⇒ panic!("zero is not a
  right argument to
  fibonacci_reccursive()!"),
```

````
argument to fibonacci_reccursive()!"),
        1 | 2 ⇒ 1,
        3 ⇒ 2,
        _ ⇒ fibonacci_reccursive(n - 1)
+ fibonacci_reccursive(n - 2),
    }
}
```
````

```
        1 | 2 ⇒ 1,
        3 ⇒ 2,
        _ ⇒
fibonacci_reccursive(n - 1) +
fibonacci_reccursive(n - 2),
    }
}
```

````
#show: zebraw.with(..zebraw-
themes.zebra-reverse)

```rust
pub fn fibonacci_reccursive(n: i32) →
u64 {
    if n < 0 {
        panic!("{} is negative!", n);
    }
    match n {
        0 ⇒ panic!("zero is not a right
argument to fibonacci_reccursive()!"),
        1 | 2 ⇒ 1,
        3 ⇒ 2,
        _ ⇒ fibonacci_reccursive(n - 1)
+ fibonacci_reccursive(n - 2),
    }
}
```
````

```
pub fn fibonacci_reccursive(n:
i32) → u64 {
    if n < 0 {
        panic!("{} is negative!",
n);
    }
    match n {
        0 ⇒ panic!("zero is not a
right argument to
fibonacci_reccursive()!"),
        1 | 2 ⇒ 1,
        3 ⇒ 2,
        _ ⇒
fibonacci_reccursive(n - 1) +
fibonacci_reccursive(n - 2),
    }
}
```

（实验性） HTML 导出

查看 example-html.typ 或 GitHub Pages 获取更多信息。

自定义

文档中的代码块有三种自定义方式：

1. **单块自定义**：使用 `#zebraw()` 函数及参数为特定代码块设置样式。
2. **局部自定义**：通过 `#show: zebraw.with()` 为之后的所有原始代码块应用样式。这会影响该规则后的所有原始代码块，但**不包括**使用 `#zebraw()` 手动创建的代码块。
3. **全局自定义**：使用 `#show: zebraw-init.with()` 影响之后的**所有**代码块，**包括**通过 `#zebraw()` 创建的代码块。使用不带参数的 `zebraw-init` 可恢复默认设置。

内边距

通过向 `inset` 参数传递一个字典来自定义每行代码周围的内边距（行号不受影响）：

````
#zebraw(
  inset: (top: 6pt, bottom: 6pt),
  ```typ
  #grid(
    columns: (1fr, 1fr),
    [Hello], [world!],
  )
  ```
)
````

```
#grid(
  columns: (1fr, 1fr),
  [Hello], [world!],
)
```
```

颜色

通过 `background-color` 参数设置代码块背景色，可以是单一颜色或一个颜色数组（会循环使用各个颜色）：

````
#zebraw(
  background-color: luma(250),
  ```typ
  #grid(
    columns: (1fr, 1fr),
    [Hello], [world!],
  )
  ```,
)

#zebraw(
  background-color: (luma(235), luma(245), luma(255), luma(245)),
  ```typ
  #grid(
    columns: (1fr, 1fr),
    [Hello], [world!],
  )
  ```,
)
````

```
1 #grid(
2   columns: (1fr, 1fr),
3   [Hello], [world!],
4 )
```

```
1 #grid(
2   columns: (1fr, 1fr),
3   [Hello], [world!],
4 )
```

通过 `highlight-color` 参数设置高亮行的背景颜色：

````
#zebraw(
  highlight-lines: 1,
  highlight-color: blue.lighten(90%),
  ```text
  I'm so blue!
               -- George III
  ```,
)
````

```
1 I'm so blue!
2                -- George III
```

通过 `comment-color` 参数更改注释行背景颜色：

````
#zebraw(
  highlight-lines: (
    (2, "auto indent!"),
  ),
  comment-color: yellow.lighten(90%),
  ```text
  I'm so blue!
               -- George III
  I'm not.
               -- Hamilton
  ```,
)
````

```
1 I'm so blue!
2                -- George III
                 > auto indent!
3 I'm not.
4                -- Hamilton
```

通过 `lang-color` 参数设置语言标签的背景颜色：

````
#zebraw(
  lang: true,
  lang-color: teal,
  ```typst
````

typst

```
1 #grid(
2   columns: (1fr, 1fr),
3   [Hello], [world!],
```
```

```
  #grid(
    columns: (1fr, 1fr),
    [Hello], [world!],
  )
  ```
)
```

```
4 )
```

字体

通过向 `comment-font-args`、`lang-font-args` 或 `numbering-font-args` 参数传递字典来自定义注释、语言标签和行号的字体属性。

如果没有提供自定义的 `lang-font-args`，语言标签会继承注释字体的样式：

```
#zebraw(
  highlight-lines: (
    (2, "columns ... "),
  ),
  lang: true,
  comment-color: white,
  comment-font-args: (
    font: "IBM Plex Sans",
    style: "italic"
  ),
  ```typst
  #grid(
    columns: (1fr, 1fr),
    [Hello], [world!],
  )
  ```
)
```

typst

```
1 #grid(
2   columns: (1fr, 1fr),
      > columns...
3   [Hello], [world!],
4 )
```

比如自定义语言标签样式：

```
#zebraw(
  highlight-lines: (
    (2, "columns ... "),
  ),
  lang: true,
  lang-color: eastern,
  lang-font-args: (
    font: "Buenard",
    weight: "bold",
    fill: white,
  ),
  comment-font-args: (
    font: "IBM Plex Sans",
    style: "italic"
  ),
  ```typst
  #grid(
    columns: (1fr, 1fr),
    [Hello], [world!],
  )
  ```
)
```

typst

```
1 #grid(
2   columns: (1fr, 1fr),
      > columns...
3   [Hello], [world!],
4)
```
```

延展

垂直方向延展默认为启用。当存在标题或页脚时，它会自动禁用。

```
#zebraw(
  extend: false,
  ```typst
  #grid(
    columns: (1fr, 1fr),
    [Hello], [world!],
  )
  ```
)
```

```typst
#grid(
  columns: (1fr, 1fr),
  [Hello], [world!],
)
```

示例

```rust
Calculate Fibonacci number using reccursive function
pub fn fibonacci_reccursive(n: i32) -> u64 {
    if n < 0 {
        panic!("{} is negative!", n);
        > to avoid negative numbers
    }
    match n {
        0 => panic!("zero is not a right argument to fibonacci_reccursive()!"),
        1 | 2 => 1,
        3 => 2,
        _ => fibonacci_reccursive(n - 1) + fibonacci_reccursive(n - 2),
        > 50 => 12586269025
    }
}
```