

---

**Rich**

***Release 13.3.5***

**Will McGugan**

**Apr 27, 2023**



## CONTENTS:

<b>1</b>	<b>Introduction</b>	<b>1</b>
1.1	Requirements . . . . .	1
1.2	Installation . . . . .	1
1.3	Quick Start . . . . .	2
1.4	Rich in the REPL . . . . .	2
1.5	Rich Inspect . . . . .	3
<b>2</b>	<b>Console API</b>	<b>5</b>
2.1	Attributes . . . . .	5
2.2	Color systems . . . . .	5
2.3	Printing . . . . .	6
2.4	Logging . . . . .	6
2.5	Printing JSON . . . . .	6
2.6	Low level output . . . . .	7
2.7	Rules . . . . .	7
2.8	Status . . . . .	7
2.9	Justify / Alignment . . . . .	8
2.10	Overflow . . . . .	8
2.11	Console style . . . . .	9
2.12	Soft Wrapping . . . . .	9
2.13	Cropping . . . . .	9
2.14	Input . . . . .	9
2.15	Exporting . . . . .	9
2.16	Error console . . . . .	10
2.17	File output . . . . .	11
2.18	Capturing output . . . . .	11
2.19	Paging . . . . .	11
2.20	Alternate screen . . . . .	12
2.21	Terminal detection . . . . .	13
2.22	Interactive mode . . . . .	13
2.23	Environment variables . . . . .	13
<b>3</b>	<b>Styles</b>	<b>15</b>
3.1	Defining Styles . . . . .	15
3.2	Style Class . . . . .	16
3.3	Style Themes . . . . .	17
<b>4</b>	<b>Console Markup</b>	<b>19</b>
4.1	Syntax . . . . .	19
4.2	Rendering Markup . . . . .	21

4.3	Markup API	21
<b>5</b>	<b>Rich Text</b>	<b>23</b>
5.1	Text attributes	24
<b>6</b>	<b>Highlighting</b>	<b>25</b>
6.1	Custom Highlighters	25
6.2	Builtin Highlighters	26
<b>7</b>	<b>Pretty Printing</b>	<b>27</b>
7.1	pprint method	27
7.2	Pretty renderable	28
7.3	Rich Repr Protocol	28
7.4	Example	32
<b>8</b>	<b>Logging Handler</b>	<b>33</b>
8.1	Handle exceptions	33
8.2	Suppressing Frames	34
<b>9</b>	<b>Traceback</b>	<b>35</b>
9.1	Printing tracebacks	35
9.2	Traceback Handler	35
9.3	Suppressing Frames	36
9.4	Max Frames	36
<b>10</b>	<b>Prompt</b>	<b>39</b>
<b>11</b>	<b>Columns</b>	<b>41</b>
<b>12</b>	<b>Render Groups</b>	<b>43</b>
<b>13</b>	<b>Markdown</b>	<b>45</b>
<b>14</b>	<b>Padding</b>	<b>47</b>
<b>15</b>	<b>Panel</b>	<b>49</b>
<b>16</b>	<b>Progress Display</b>	<b>51</b>
16.1	Basic Usage	51
16.2	Advanced usage	51
16.3	Multiple Progress	56
16.4	Example	56
<b>17</b>	<b>Syntax</b>	<b>57</b>
17.1	Line numbers	57
17.2	Theme	57
17.3	Background color	58
17.4	Syntax CLI	58
<b>18</b>	<b>Tables</b>	<b>59</b>
18.1	Table Options	60
18.2	Border Styles	60
18.3	Lines	61
18.4	Empty Tables	61
18.5	Adding Columns	61
18.6	Column Options	62

18.7	Vertical Alignment . . . . .	62
18.8	Grids . . . . .	62
<b>19</b>	<b>Tree</b>	<b>63</b>
19.1	Tree Styles . . . . .	64
19.2	Examples . . . . .	64
<b>20</b>	<b>Live Display</b>	<b>65</b>
20.1	Basic usage . . . . .	65
20.2	Updating the renderable . . . . .	66
20.3	Alternate screen . . . . .	66
20.4	Transient display . . . . .	66
20.5	Auto refresh . . . . .	67
20.6	Vertical overflow . . . . .	67
20.7	Print / log . . . . .	67
20.8	Redirecting stdout / stderr . . . . .	68
<b>21</b>	<b>Layout</b>	<b>69</b>
21.1	Creating layouts . . . . .	69
21.2	Setting renderables . . . . .	70
21.3	Fixed size . . . . .	70
21.4	Ratio . . . . .	70
21.5	Visibility . . . . .	71
21.6	Tree . . . . .	71
21.7	Example . . . . .	71
<b>22</b>	<b>Console Protocol</b>	<b>73</b>
22.1	Console Customization . . . . .	73
22.2	Console Render . . . . .	73
<b>23</b>	<b>Reference</b>	<b>75</b>
23.1	rich.align . . . . .	75
23.2	rich.bar . . . . .	77
23.3	rich.color . . . . .	77
23.4	rich.columns . . . . .	80
23.5	rich.console . . . . .	80
23.6	rich.emoji . . . . .	101
23.7	rich.highlighter . . . . .	101
23.8	rich . . . . .	103
23.9	rich.json . . . . .	105
23.10	rich.layout . . . . .	106
23.11	rich.live . . . . .	109
23.12	rich.logging . . . . .	111
23.13	rich.markdown . . . . .	113
23.14	rich.markup . . . . .	118
23.15	rich.measure . . . . .	119
23.16	rich.padding . . . . .	121
23.17	rich.panel . . . . .	121
23.18	rich.pretty . . . . .	123
23.19	rich.progress_bar . . . . .	127
23.20	rich.progress . . . . .	128
23.21	rich.prompt . . . . .	143
23.22	rich.protocol . . . . .	147
23.23	rich.rule . . . . .	147
23.24	rich.segment . . . . .	147

23.25	<code>rich.spinner</code>	153
23.26	<code>rich.status</code>	154
23.27	<code>rich.style</code>	155
23.28	<code>rich.styled</code>	160
23.29	<code>rich.syntax</code>	160
23.30	<code>rich.table</code>	162
23.31	<code>rich.text</code>	169
23.32	<code>rich.theme</code>	178
23.33	<code>rich.traceback</code>	179
23.34	<code>rich.tree</code>	181
23.35	<code>rich.abc</code>	182
<b>24</b>	<b>Appendix</b>	<b>183</b>
24.1	Box	183
24.2	Standard Colors	183
<b>25</b>	<b>Indices and tables</b>	<b>185</b>
	<b>Python Module Index</b>	<b>187</b>
	<b>Index</b>	<b>189</b>

## INTRODUCTION

Rich is a Python library for writing *rich* text (with color and style) to the terminal, and for displaying advanced content such as tables, markdown, and syntax highlighted code.

Use Rich to make your command line applications visually appealing and present data in a more readable way. Rich can also be a useful debugging aid by pretty printing and syntax highlighting data structures.

### 1.1 Requirements

Rich works with macOS, Linux and Windows.

On Windows both the (ancient) cmd.exe terminal is supported and the new [Windows Terminal](#). The latter has much improved support for color and style.

Rich requires Python 3.7.0 and above.

---

**Note:** PyCharm users will need to enable “emulate terminal” in output console option in run/debug configuration to see styled output.

---

### 1.2 Installation

You can install Rich from PyPI with *pip* or your favorite package manager:

```
pip install rich
```

Add the `-U` switch to update to the current version, if Rich is already installed.

If you intend to use Rich with Jupyter then there are some additional dependencies which you can install with the following command:

```
pip install "rich[jupyter]"
```

## 1.3 Quick Start

The quickest way to get up and running with Rich is to import the alternative `print` function which takes the same arguments as the built-in `print` and may be used as a drop-in replacement. Here's how you would do that:

```
from rich import print
```

You can then print strings or objects to the terminal in the usual way. Rich will do some basic syntax *highlighting* and format data structures to make them easier to read.

Strings may contain *Console Markup* which can be used to insert color and styles in to the output.

The following demonstrates both console markup and pretty formatting of Python objects:

```
>>> print("[italic red>Hello[/italic red] World!", locals())
```

This writes the following output to the terminal (including all the colors and styles):

If you would rather not shadow Python's built-in `print`, you can import `rich.print` as `rprint` (for example):

```
from rich import print as rprint
```

Continue reading to learn about the more advanced features of Rich.

## 1.4 Rich in the REPL

Rich may be installed in the REPL so that Python data structures are automatically pretty printed with syntax highlighting. Here's how:

```
>>> from rich import pretty
>>> pretty.install()
>>> ["Rich and pretty", True]
```

You can also use this feature to try out Rich *renderables*. Here's an example:

```
>>> from rich.panel import Panel
>>> Panel.fit("[bold yellow]Hi, I'm a Panel", border_style="red")
```

Read on to learn more about Rich renderables.

### 1.4.1 IPython Extension

Rich also includes an IPython extension that will do this same pretty install + pretty tracebacks. Here's how to load it:

```
In [1]: %load_ext rich
```

You can also have it load by default by adding *"rich"* to the `c.InteractiveShellApp.extension` variable in *IPython Configuration*.



## 1.5 Rich Inspect

Rich has an `inspect()` function which can generate a report on any Python object. It is a fantastic debug aid, and a good example of the output that Rich can generate. Here is a simple example:

```
>>> from rich import inspect
>>> from rich.color import Color
>>> color = Color.parse("red")
>>> inspect(color, methods=True)
```



## CONSOLE API

For complete control over terminal formatting, Rich offers a `Console` class. Most applications will require a single Console instance, so you may want to create one at the module level or as an attribute of your top-level object. For example, you could add a file called “console.py” to your project:

```
from rich.console import Console
console = Console()
```

Then you can import the console from anywhere in your project like this:

```
from my_project.console import console
```

The console object handles the mechanics of generating ANSI escape sequences for color and style. It will auto-detect the capabilities of the terminal and convert colors if necessary.

### 2.1 Attributes

The console will auto-detect a number of properties required when rendering.

- `size` is the current dimensions of the terminal (which may change if you resize the window).
- `encoding` is the default encoding (typically “utf-8”).
- `is_terminal` is a boolean that indicates if the Console instance is writing to a terminal or not.
- `color_system` is a string containing the Console color system (see below).

### 2.2 Color systems

There are several “standards” for writing color to the terminal which are not all universally supported. Rich will auto-detect the appropriate color system, or you can set it manually by supplying a value for `color_system` to the `Console` constructor.

You can set `color_system` to one of the following values:

- `None` Disables color entirely.
- `"auto"` Will auto-detect the color system.
- `"standard"` Can display 8 colors, with normal and bright variations, for 16 colors in total.
- `"256"` Can display the 16 colors from “standard” plus a fixed palette of 240 colors.
- `"truecolor"` Can display 16.7 million colors, which is likely all the colors your monitor can display.

- "windows" Can display 8 colors in legacy Windows terminal. New Windows terminal can display "truecolor".

**Warning:** Be careful when setting a color system, if you set a higher color system than your terminal supports, your text may be unreadable.

## 2.3 Printing

To write rich content to the terminal use the `print()` method. Rich will convert any object to a string via its `(__str__)` method and perform some simple syntax highlighting. It will also do pretty printing of any containers, such as dicts and lists. If you print a string it will render *Console Markup*. Here are some examples:

```
console.print([1, 2, 3])
console.print("[blue underline]Looks like a link")
console.print(locals())
console.print("FOO", style="white on blue")
```

You can also use `print()` to render objects that support the *Console Protocol*, which includes Rich's built-in objects such as *Text*, *Table*, and *Syntax* – or other custom objects.

## 2.4 Logging

The `log()` method offers the same capabilities as `print`, but adds some features useful for debugging a running application. Logging writes the current time in a column to the left, and the file and line where the method was called to a column on the right. Here's an example:

```
>>> console.log("Hello, World!")
```

To help with debugging, the `log()` method has a `log_locals` parameter. If you set this to `True`, Rich will display a table of local variables where the method was called.

## 2.5 Printing JSON

The `print_json()` method will pretty print (format and style) a string containing JSON. Here's a short example:

```
console.print_json('[false, true, null, "foo"]')
```

You can also *log* json by logging a *JSON* object:

```
from rich.json import JSON
console.log(JSON('["foo", "bar"]'))
```

Because printing JSON is a common requirement, you may import `print_json` from the main namespace:

```
from rich import print_json
```

You can also pretty print JSON via the command line with the following:

```
python -m rich.json cats.json
```

## 2.6 Low level output

In addition to `print()` and `log()`, Rich has an `out()` method which provides a lower-level way of writing to the terminal. The `out()` method converts all the positional arguments to strings and won't pretty print, word wrap, or apply markup to the output, but can apply a basic style and will optionally do highlighting.

Here's an example:

```
>>> console.out("Locals", locals())
```

## 2.7 Rules

The `rule()` method will draw a horizontal line with an optional title, which is a good way of dividing your terminal output into sections.

```
>>> console.rule("[bold red]Chapter 2")
```

The `rule` method also accepts a `style` parameter to set the style of the line, and an `align` parameter to align the title ("left", "center", or "right").

## 2.8 Status

Rich can display a status message with a 'spinner' animation that won't interfere with regular console output. Run the following command for a demo of this feature:

```
python -m rich.status
```

To display a status message, call `status()` with the status message (which may be a string, `Text`, or other renderable). The result is a context manager which starts and stops the status display around a block of code. Here's an example:

```
with console.status("Working..."):
    do_work()
```

You can change the spinner animation via the `spinner` parameter:

```
with console.status("Monkeying around...", spinner="monkey"):
    do_work()
```

Run the following command to see the available choices for `spinner`:

```
python -m rich.spinner
```

## 2.9 Justify / Alignment

Both `print` and `log` support a `justify` argument which if set must be one of “default”, “left”, “right”, “center”, or “full”. If “left”, any text printed (or logged) will be left aligned, if “right” text will be aligned to the right of the terminal, if “center” the text will be centered, and if “full” the text will be lined up with both the left and right edges of the terminal (like printed text in a book).

The default for `justify` is “default” which will generally look the same as “left” but with a subtle difference. Left justify will pad the right of the text with spaces, while a default justify will not. You will only notice the difference if you set a background color with the `style` argument. The following example demonstrates the difference:

```
from rich.console import Console

console = Console(width=20)

style = "bold white on blue"
console.print("Rich", style=style)
console.print("Rich", style=style, justify="left")
console.print("Rich", style=style, justify="center")
console.print("Rich", style=style, justify="right")
```

This produces the following output:

## 2.10 Overflow

Overflow is what happens when text you print is larger than the available space. Overflow may occur if you print long ‘words’ such as URLs for instance, or if you have text inside a panel or table cell with restricted space.

You can specify how Rich should handle overflow with the `overflow` argument to `print()` which should be one of the following strings: “fold”, “crop”, “ellipsis”, or “ignore”. The default is “fold” which will put any excess characters on the following line, creating as many new lines as required to fit the text.

The “crop” method truncates the text at the end of the line, discarding any characters that would overflow.

The “ellipsis” method is similar to “crop”, but will insert an ellipsis character (“...”) at the end of any text that has been truncated.

The following code demonstrates the basic overflow methods:

```
from typing import List
from rich.console import Console, OverflowMethod

console = Console(width=14)
supercali = "supercalifragilisticexpialidocious"

overflow_methods: List[OverflowMethod] = ["fold", "crop", "ellipsis"]
for overflow in overflow_methods:
    console.rule(overflow)
    console.print(supercali, overflow=overflow, style="bold blue")
    console.print()
```

This produces the following output:

You can also set `overflow` to “ignore” which allows text to run on to the next line. In practice this will look the same as “crop” unless you also set `crop=False` when calling `print()`.

## 2.11 Console style

The Console has a `style` attribute which you can use to apply a style to everything you print. By default `style` is `None` meaning no extra style is applied, but you can set it to any valid style. Here's an example of a Console with a style attribute set:

```
from rich.console import Console
blue_console = Console(style="white on blue")
blue_console.print("I'm blue. Da ba dee da ba di.")
```

## 2.12 Soft Wrapping

Rich word wraps text you print by inserting line breaks. You can disable this behavior by setting `soft_wrap=True` when calling `print()`. With *soft wrapping* enabled any text that doesn't fit will run on to the following line(s), just like the built-in `print`.

## 2.13 Cropping

The `print()` method has a boolean `crop` argument. The default value for `crop` is `True` which tells Rich to crop any content that would otherwise run on to the next line. You generally don't need to think about cropping, as Rich will resize content to fit within the available width.

---

**Note:** Cropping is automatically disabled if you print with `soft_wrap=True`.

---

## 2.14 Input

The console class has an `input()` method which works in the same way as Python's built-in `input()` function, but can use anything that Rich can print as a prompt. For example, here's a colorful prompt with an emoji:

```
from rich.console import Console
console = Console()
console.input("What is [i]your[/i] [bold red]name[/]? :smiley: ")
```

If Python's builtin `readline` module is previously loaded, elaborate line editing and history features will be available.

## 2.15 Exporting

The Console class can export anything written to it as either text, svg, or html. To enable exporting, first set `record=True` on the constructor. This tells Rich to save a copy of any data you `print()` or `log()`. Here's an example:

```
from rich.console import Console
console = Console(record=True)
```

After you have written content, you can call `export_text()`, `export_svg()` or `export_html()` to get the console output as a string. You can also call `save_text()`, `save_svg()`, or `save_html()` to write the contents directly to disk.

For examples of the html output generated by Rich Console, see *Standard Colors*.

### 2.15.1 Exporting SVGs

When using `export_svg()` or `save_svg()`, the width of the SVG will match the width of your terminal window (in terms of characters), while the height will scale automatically to accommodate the console output.

You can open the SVG in a web browser. You can also insert it in to a webpage with an `<img>` tag or by copying the markup in to your HTML.

The image below shows an example of an SVG exported by Rich.

You can customize the theme used during SVG export by importing the desired theme from the `rich.terminal_theme` module and passing it to `export_svg()` or `save_svg()` via the `theme` parameter:

```
from rich.console import Console
from rich.terminal_theme import MONOKAI

console = Console(record=True)
console.save_svg("example.svg", theme=MONOKAI)
```

Alternatively, you can create a theme of your own by constructing a `rich.terminal_theme.TerminalTheme` instance yourself and passing that in.

---

**Note:** The SVGs reference the Fira Code font. If you embed a Rich SVG in your page, you may also want to add a link to the [Fira Code CSS](#)

---

## 2.16 Error console

The Console object will write to `sys.stdout` by default (so that you see output in the terminal). If you construct the Console with `stderr=True` Rich will write to `sys.stderr`. You may want to use this to create an *error console* so you can split error messages from regular output. Here's an example:

```
from rich.console import Console
error_console = Console(stderr=True)
```

You might also want to set the `style` parameter on the Console to make error messages visually distinct. Here's how you might do that:

```
error_console = Console(stderr=True, style="bold red")
```



## 2.17 File output

You can tell the Console object to write to a file by setting the `file` argument on the constructor – which should be a file-like object opened for writing text. You could use this to write to a file without the output ever appearing on the terminal. Here's an example:

```
import sys
from rich.console import Console
from datetime import datetime

with open("report.txt", "wt") as report_file:
    console = Console(file=report_file)
    console.rule(f"Report Generated {datetime.now().ctime()}")
```

Note that when writing to a file you may want to explicitly set the `width` argument if you don't want to wrap the output to the current console width.

## 2.18 Capturing output

There may be situations where you want to *capture* the output from a Console rather than writing it directly to the terminal. You can do this with the `capture()` method which returns a context manager. On exit from this context manager, call `get()` to return the string that would have been written to the terminal. Here's an example:

```
from rich.console import Console
console = Console()
with console.capture() as capture:
    console.print("[bold red]Hello[/] World")
str_output = capture.get()
```

An alternative way of capturing output is to set the Console file to a `io.StringIO`. This is the recommended method if you are testing console output in unit tests. Here's an example:

```
from io import StringIO
from rich.console import Console
console = Console(file=StringIO())
console.print("[bold red]Hello[/] World")
str_output = console.file.getvalue()
```

## 2.19 Paging

If you have some long output to present to the user you can use a *pager* to display it. A pager is typically an application on your operating system which will at least support pressing a key to scroll, but will often support scrolling up and down through the text and other features.

You can page output from a Console by calling `pager()` which returns a context manager. When the pager exits, anything that was printed will be sent to the pager. Here's an example:

```
from rich.__main__ import make_test_card
from rich.console import Console
```

(continues on next page)

(continued from previous page)

```
console = Console()
with console.pager():
    console.print(make_test_card())
```

Since the default pager on most platforms don't support color, Rich will strip color from the output. If you know that your pager supports color, you can set `styles=True` when calling the `pager()` method.

---

**Note:** Rich will look at `MANPAGER` then the `PAGER` environment variables (`MANPAGER` takes priority) to get the pager command. On Linux and macOS you can set one of these to `less -r` to enable paging with ANSI styles.

---

## 2.20 Alternate screen

**Warning:** This feature is currently experimental. You might want to wait before using it in production.

Terminals support an 'alternate screen' mode which is separate from the regular terminal and allows for full-screen applications that leave your stream of input and commands intact. Rich supports this mode via the `set_alt_screen()` method, although it is recommended that you use `screen()` which returns a context manager that disables alternate mode on exit.

Here's an example of an alternate screen:

```
from time import sleep
from rich.console import Console

console = Console()
with console.screen():
    console.print(locals())
    sleep(5)
```

The above code will display a pretty printed dictionary on the alternate screen before returning to the command prompt after 5 seconds.

You can also provide a renderable to `screen()` which will be displayed in the alternate screen when you call `update()`.

Here's an example:

```
from time import sleep

from rich.console import Console
from rich.align import Align
from rich.text import Text
from rich.panel import Panel

console = Console()

with console.screen(style="bold white on red") as screen:
    for count in range(5, 0, -1):
        text = Align.center(
            Text.from_markup(f"[blink]Don't Panic![/blink]\n{count}"), justify="center"),
```

(continues on next page)

(continued from previous page)

```

        vertical="middle",
    )
    screen.update(Panel(text))
    sleep(1)

```

Updating the screen with a renderable allows Rich to crop the contents to fit the screen without scrolling.

For a more powerful way of building full screen interfaces with Rich, see [Live Display](#).

---

**Note:** If you ever find yourself stuck in alternate mode after exiting Python code, type `reset` in the terminal

---

## 2.21 Terminal detection

If Rich detects that it is not writing to a terminal it will strip control codes from the output. If you want to write control codes to a regular file then set `force_terminal=True` on the constructor.

Letting Rich auto-detect terminals is useful as it will write plain text when you pipe output to a file or other application.

## 2.22 Interactive mode

Rich will remove animations such as progress bars and status indicators when not writing to a terminal as you probably don't want to write these out to a text file (for example). You can override this behavior by setting the `force_interactive` argument on the constructor. Set it to `True` to enable animations or `False` to disable them.

---

**Note:** Some CI systems support ANSI color and style but not anything that moves the cursor or selectively refreshes parts of the terminal. For these you might want to set `force_terminal` to `True` and `force_interactive` to `False`.

---

## 2.23 Environment variables

Rich respects some standard environment variables.

Setting the environment variable `TERM` to `"dumb"` or `"unknown"` will disable color/style and some features that require moving the cursor, such as progress bars.

If the environment variable `FORCE_COLOR` is set, then color/styles will be enabled regardless of the value of `TERM`. This is useful on CI systems which aren't terminals but can none-the-less display ANSI escape sequences.

If the environment variable `NO_COLOR` is set, Rich will disable all color in the output. This takes precedence over `FORCE_COLOR`. See [no\\_color](#) for details.

---

**Note:** The `NO_COLOR` environment variable removes *color* only. Styles such as dim, bold, italic, underline etc. are preserved.

---

If `width` / `height` arguments are not explicitly provided as arguments to `Console` then the environment variables `COLUMNS`/`LINES` can be used to set the console width/height. `JUPYTER_COLUMNS`/`JUPYTER_LINES` behave similarly and are used in Jupyter.



## STYLES

In various places in the Rich API you can set a “style” which defines the color of the text and various attributes such as bold, italic etc. A style may be given as a string containing a *style definition* or as an instance of a [Style](#) class.

### 3.1 Defining Styles

A style definition is a string containing one or more words to set colors and attributes.

To specify a foreground color use one of the 256 *Standard Colors*. For example, to print “Hello” in magenta:

```
console.print("Hello", style="magenta")
```

You may also use the color’s number (an integer between 0 and 255) with the syntax “color(<number>)”. The following will give the equivalent output:

```
console.print("Hello", style="color(5)")
```

Alternatively you can use a CSS-like syntax to specify a color with a “#” followed by three pairs of hex characters, or in RGB form with three decimal integers. The following two lines both print “Hello” in the same color (purple):

```
console.print("Hello", style="#af00ff")
console.print("Hello", style="rgb(175,0,255)")
```

The hex and rgb forms allow you to select from the full *truecolor* set of 16.7 million colors.

---

**Note:** Some terminals only support 256 colors. Rich will attempt to pick the closest color it can if your color isn’t available.

---

By itself, a color will change the *foreground* color. To specify a *background* color, precede the color with the word “on”. For example, the following prints text in red on a white background:

```
console.print("DANGER!", style="red on white")
```

You can also set a color with the word “default” which will reset the color to a default managed by your terminal software. This works for backgrounds as well, so the style of “default on default” is what your terminal starts with.

You can set a style attribute by adding one or more of the following words:

- “bold” or “b” for bold text.
- “blink” for text that flashes (use this one sparingly).

- "blink2" for text that flashes rapidly (not supported by most terminals).
- "conceal" for *concealed* text (not supported by most terminals).
- "italic" or "i" for italic text (not supported on Windows).
- "reverse" or "r" for text with foreground and background colors reversed.
- "strike" or "s" for text with a line through it.
- "underline" or "u" for underlined text.

Rich also supports the following styles, which are not well supported and may not display in your terminal:

- "underline2" or "uu" for doubly underlined text.
- "frame" for framed text.
- "encircle" for encircled text.
- "overline" or "o" for overlined text.

Style attributes and colors may be used in combination with each other. For example:

```
console.print("Danger, Will Robinson!", style="blink bold red underline on white")
```

Styles may be negated by prefixing the attribute with the word “not”. This can be used to turn off styles if they overlap. For example:

```
console.print("foo [not bold]bar[/not bold] baz", style="bold")
```

This will print “foo” and “baz” in bold, but “bar” will be in normal text.

Styles may also have a "link" attribute, which will turn any styled text in to a *hyperlink* (if supported by your terminal software).

To add a link to a style, the definition should contain the word "link" followed by a URL. The following example will make a clickable link:

```
console.print("Google", style="link https://google.com")
```

---

**Note:** If you are familiar with HTML you may find applying links in this way a little odd, but the terminal considers a link to be another attribute just like bold, italic etc.

---

## 3.2 Style Class

Ultimately the style definition is parsed and an instance of a `Style` class is created. If you prefer, you can use the `Style` class in place of the style definition. Here’s an example:

```
from rich.style import Style
danger_style = Style(color="red", blink=True, bold=True)
console.print("Danger, Will Robinson!", style=danger_style)
```

It is slightly quicker to construct a `Style` class like this, since a style definition takes a little time to parse – but only on the first call, as Rich will cache parsed style definitions.

Styles may be combined by adding them together, which is useful if you want to modify attributes of an existing style. Here’s an example:

```

from rich.console import Console
from rich.style import Style
console = Console()

base_style = Style.parse("cyan")
console.print("Hello, World", style = base_style + Style(underline=True))

```

You can parse a style definition explicitly with the `parse()` method, which accepts the style definition and returns a `Style` instance. For example, the following two lines are equivalent:

```

style = Style(color="magenta", bgcolor="yellow", italic=True)
style = Style.parse("italic magenta on yellow")

```

## 3.3 Style Themes

If you re-use styles it can be a maintenance headache if you ever want to modify an attribute or color – you would have to change every line where the style is used. Rich provides a `Theme` class which you can use to define custom styles that you can refer to by name. That way you only need to update your styles in one place.

Style themes can make your code more semantic, for instance a style called "warning" better expresses intent than "italic magenta underline".

To use a style theme, construct a `Theme` instance and pass it to the `Console` constructor. Here's an example:

```

from rich.console import Console
from rich.theme import Theme
custom_theme = Theme({
    "info": "dim cyan",
    "warning": "magenta",
    "danger": "bold red"
})
console = Console(theme=custom_theme)
console.print("This is information", style="info")
console.print("[warning]The pod bay doors are locked[/warning]")
console.print("Something terrible happened!", style="danger")

```

---

**Note:** style names must be lower case, start with a letter, and only contain letters or the characters ".", "-", "\_".

---

### 3.3.1 Customizing Defaults

The `Theme` class will inherit the default styles built-in to Rich. If your custom theme contains the name of an existing style, it will replace it. This allows you to customize the defaults as easily as you can create your own styles. For instance, here's how you can change how Rich highlights numbers:

```

from rich.console import Console
from rich.theme import Theme
console = Console(theme=Theme({"repr.number": "bold green blink"}))
console.print("The total is 128")

```

You can disable inheriting the default theme by setting `inherit=False` on the `rich.theme.Theme` constructor.

To see the default theme, run the following commands:

```
python -m rich.theme
python -m rich.default_styles
```

### 3.3.2 Loading Themes

If you prefer, you can write your styles in an external config file rather than in Python. Here's an example of the format:

```
[styles]
info = dim cyan
warning = magenta
danger = bold red
```

You can read these files with the `read()` method.



## CONSOLE MARKUP

Rich supports a simple markup which you can use to insert color and styles virtually everywhere Rich would accept a string (e.g. `print()` and `log()`).

Run the following command to see some examples:

```
python -m rich.markup
```

### 4.1 Syntax

Console markup uses a syntax inspired by `bbcode`. If you write the style (see *Styles*) in square brackets, e.g. `[bold red]`, that style will apply until it is *closed* with a corresponding `[/bold red]`.

Here's a simple example:

```
from rich import print
print("[bold red>alert![/bold red] Something happened")
```

If you don't close a style, it will apply until the end of the string. Which is sometimes convenient if you want to style a single line. For example:

```
print("[bold italic yellow on red blink]This text is impossible to read")
```

There is a shorthand for closing a style. If you omit the style name from the closing tag, Rich will close the last style. For example:

```
print("[bold red]Bold and red[/] not bold or red")
```

These markup tags may be use in combination with each other and don't need to be strictly nested. The following example demonstrates overlapping of markup tags:

```
print("[bold]Bold[italic] bold and italic [/bold]italic[/italic]")
```

### 4.1.1 Errors

Rich will raise `MarkupError` if the markup contains one of the following errors:

- Mismatched tags, e.g. `"[bold]Hello[/red]"`
- No matching tag for implicit close, e.g. `"no tags[/]"`

### 4.1.2 Links

Console markup can output hyperlinks with the following syntax: `[link=URL]text[/link]`. Here's an example:

```
print("Visit my [link=https://www.willmcgugan.com]blog[/link]!")
```

If your terminal software supports hyperlinks, you will be able to click the word “blog” which will typically open a browser. If your terminal doesn’t support hyperlinks, you will see the text but it won’t be clickable.

### 4.1.3 Escaping

Occasionally you may want to print something that Rich would interpret as markup. You can *escape* a tag by preceding it with a backslash. Here's an example:

```
>>> from rich import print
>>> print(r"foo\[bar]")
foo[bar]
```

Without the backslash, Rich will assume that `[bar]` is a tag and remove it from the output if there is no “bar” style.

---

**Note:** If you want to prevent the backslash from escaping the tag and output a literal backslash before a tag you can enter two backslashes.

---

The function `escape()` will handle escaping of text for you.

Escaping is important if you construct console markup dynamically, with `str.format` or f strings (for example). Without escaping it may be possible to inject tags where you don’t want them. Consider the following function:

```
def greet(name):
    console.print(f"Hello {name}!")
```

Calling `greet("Will")` will print a greeting, but if you were to call `greet("[blink]Gotcha![/blink]")` then you will also get blinking text, which may not be desirable. The solution is to escape the arguments:

```
from rich.markup import escape
def greet(name):
    console.print(f"Hello {escape(name)}!")
```

### 4.1.4 Emoji

If you add an *emoji code* to markup it will be replaced with the equivalent unicode character. An emoji code consists of the name of the emoji surrounded by colons (:). Here's an example:

```
>>> from rich import print
>>> print(":warning:")
```

Some emojis have two variants, the “emoji” variant displays in full color, and the “text” variant displays in monochrome (whatever your default colors are set to). You can specify the variant you want by adding either “-emoji” or “-text” to the emoji code. Here's an example:

```
>>> from rich import print
>>> print(":red_heart-emoji:")
>>> print(":red_heart-text:")
```

To see a list of all the emojis available, run the following command:

```
python -m rich.emoji
```

## 4.2 Rendering Markup

By default, Rich will render console markup when you explicitly pass a string to `print()` or implicitly when you embed a string in another renderable object such as [Table](#) or [Panel](#).

Console markup is convenient, but you may wish to disable it if the syntax clashes with the string you want to print. You can do this by setting `markup=False` on the `print()` method or on the [Console](#) constructor.

## 4.3 Markup API

You can convert a string to styled text by calling [from\\_markup\(\)](#), which returns a [Text](#) instance you can print or add more styles to.



## RICH TEXT

Rich has a `Text` class you can use to mark up strings with color and style attributes. You can use a `Text` instance anywhere a string is accepted, which gives you a lot of control over presentation.

You can consider this class to be like a string with marked up regions of text. Unlike a built-in `str`, a `Text` instance is mutable, and most methods operate in-place rather than returning a new instance.

One way to add a style to `Text` is the `stylize()` method which applies a style to a start and end offset. Here is an example:

```
from rich.console import Console
from rich.text import Text

console = Console()
text = Text("Hello, World!")
text.stylize("bold magenta", 0, 6)
console.print(text)
```

This will print “Hello, World!” to the terminal, with the first word in bold magenta.

Alternatively, you can construct styled text by calling `append()` to add a string and style to the end of the `Text`. Here’s an example:

```
text = Text()
text.append("Hello", style="bold magenta")
text.append(" World!")
console.print(text)
```

If you would like to use text that is already formatted with ANSI codes, call `from_ansi()` to convert it to a `Text` object:

```
text = Text.from_ansi("\033[1mHello, World!\033[0m")
console.print(text.spans)
```

Since building `Text` instances from parts is a common requirement, Rich offers `assemble()` which will combine strings or pairs of string and `Style`, and return a `Text` instance. The follow example is equivalent to the code above:

```
text = Text.assemble(("Hello", "bold magenta"), " World!")
console.print(text)
```

You can apply a style to given words in the text with `highlight_words()` or for ultimate control call `highlight_regex()` to highlight text matching a *regular expression*.

## 5.1 Text attributes

The `Text` class has a number of parameters you can set on the constructor to modify how the text is displayed.

- `justify` should be “left”, “center”, “right”, or “full”, and will override default justify behavior.
- `overflow` should be “fold”, “crop”, or “ellipsis”, and will override default overflow.
- `no_wrap` prevents wrapping if the text is longer than the available width.
- `tab_size` Sets the number of characters in a tab.

A `Text` instance may be used in place of a plain string virtually everywhere in the Rich API, which gives you a lot of control in how text renders within other Rich renderables. For instance, the following example right aligns text within a *Panel*:

```
from rich import print
from rich.panel import Panel
from rich.text import Text
panel = Panel(Text("Hello", justify="right"))
print(panel)
```

## HIGHLIGHTING

Rich will automatically highlight patterns in text, such as numbers, strings, collections, booleans, None, and a few more exotic patterns such as file paths, URLs and UUIDs.

You can disable highlighting either by setting `highlight=False` on `print()` or `log()`, or by setting `highlight=False` on the `Console` constructor which disables it everywhere. If you disable highlighting on the constructor, you can still selectively *enable* highlighting with `highlight=True` on `print / log`.

### 6.1 Custom Highlighters

If the default highlighting doesn't fit your needs, you can define a custom highlighter. The easiest way to do this is to extend the `RegexHighlighter` class which applies a style to any text matching a list of regular expressions.

Here's an example which highlights text that looks like an email address:

```
from rich.console import Console
from rich.highlighter import RegexHighlighter
from rich.theme import Theme

class EmailHighlighter(RegexHighlighter):
    """Apply style to anything that looks like an email."""

    base_style = "example."
    highlights = [r"(?P<email>[\w-]+@([\w-]+\.)+[\w-]+)"]

theme = Theme({"example.email": "bold magenta"})
console = Console(highlighter=EmailHighlighter(), theme=theme)
console.print("Send funds to money@example.org")
```

The `highlights` class variable should contain a list of regular expressions. The group names of any matching expressions are prefixed with the `base_style` attribute and used as styles for matching text. In the example above, any email addresses will have the style “example.email” applied, which we’ve defined in a custom *Theme*.

Setting the highlighter on the `Console` will apply highlighting to all text you print (if enabled). You can also use a highlighter on a more granular level by using the instance as a callable and printing the result. For example, we could use the email highlighter class like this:

```
console = Console(theme=theme)
highlight_emails = EmailHighlighter()
console.print(highlight_emails("Send funds to money@example.org"))
```

While *RegexHighlighter* is quite powerful, you can also extend its base class *Highlighter* to implement a custom scheme for highlighting. It contains a single method *highlight* which is passed the *Text* to highlight.

Here's a silly example that highlights every character with a different color:

```
from random import randint

from rich import print
from rich.highlighter import Highlighter

class RainbowHighlighter(Highlighter):
    def highlight(self, text):
        for index in range(len(text)):
            text.stylize(f"color({randint(16, 255)})", index, index + 1)

rainbow = RainbowHighlighter()
print(rainbow("I must not fear. Fear is the mind-killer."))
```

## 6.2 Builtin Highlighters

The following builtin highlighters are available.

- *ISO8601Highlighter* Highlights ISO8601 date time strings.
- *JSONHighlighter* Highlights JSON formatted strings.



## PRETTY PRINTING

In addition to syntax highlighting, Rich will format (i.e. *pretty print*) containers such as lists, dicts, and sets.

Run the following command to see an example of pretty printed output:

```
python -m rich.pretty
```

Note how the output will change to fit within the terminal width.

### 7.1 pprint method

The `pprint()` method offers a few more arguments you can use to tweak how objects are pretty printed. Here's how you would import it:

```
>>> from rich.pretty import pprint
>>> pprint(locals())
```

#### 7.1.1 Indent guides

Rich can draw *indent guides* to highlight the indent level of a data structure. These can make it easier to read more deeply nested output. The `pprint` method enables indent guides by default. You can set `indent_guides=False` to disable this feature.

#### 7.1.2 Expand all

Rich is quite conservative about expanding data structures and will try to fit as much in each line as it can. If you prefer, you can tell Rich to fully expand all data structures by setting `expand_all=True`. Here's an example:

```
>>> pprint(["eggs", "ham"], expand_all=True)
```

### 7.1.3 Truncating pretty output

Very long data structures can be difficult to read and you may find yourself scrolling through multiple pages in the terminal to find the data you are interested in. Rich can truncate containers and long strings to give you an overview without swamping your terminal.

If you set the `max_length` argument to an integer, Rich will truncate containers with more than the given number of elements. If data is truncated, Rich will display an ellipsis `...` and the number of elements not shown.

Here's an example:

```
>>> pprint(locals(), max_length=2)
```

If you set the `max_string` argument to an integer, Rich will truncate strings over that length. Truncated string will be appended with the number of characters that have not been shown. Here's an example:

```
>>> pprint("Where there is a Will, there is a Way", max_string=21)
```

## 7.2 Pretty renderable

Rich offers a `Pretty` class which you can use to insert pretty printed data in to another renderable.

The following example displays pretty printed data within a simple panel:

```
from rich import print
from rich.pretty import Pretty
from rich.panel import Panel

pretty = Pretty(locals())
panel = Panel(pretty)
print(panel)
```

There are a large number of options to tweak the pretty formatting, See the `Pretty` reference for details.

## 7.3 Rich Repr Protocol

Rich is able to syntax highlight any output, but the formatting is restricted to built-in containers, dataclasses, and other objects Rich knows about, such as objects generated by the `attrs` library. To add Rich formatting capabilities to custom objects, you can implement the *rich repr protocol*.

Run the following command to see an example of what the Rich repr protocol can generate:

```
python -m rich.repr
```

First, let's look at a class that might benefit from a Rich repr:

```
class Bird:
    def __init__(self, name, eats=None, fly=True, extinct=False):
        self.name = name
        self.eats = list(eats) if eats else []
        self.fly = fly
        self.extinct = extinct
```

(continues on next page)

(continued from previous page)

```

def __repr__(self):
    return f"Bird({self.name!r}, eats={self.eats!r}, fly={self.fly!r}, extinct={self.
↪extinct!r})"

BIRDS = {
    "gull": Bird("gull", eats=["fish", "chips", "ice cream", "sausage rolls"]),
    "penguin": Bird("penguin", eats=["fish"], fly=False),
    "dodo": Bird("dodo", eats=["fruit"], fly=False, extinct=True)
}
print(BIRDS)

```

The result of this script would be:

```

{'gull': Bird('gull', eats=['fish', 'chips', 'ice cream', 'sausage rolls'], fly=True,
↪extinct=False), 'penguin': Bird('penguin', eats=['fish'], fly=False, extinct=False),
↪'dodo': Bird('dodo', eats=['fruit'], fly=False, extinct=True)}

```

The output is long enough to wrap on to the next line, which can make it hard to read. The repr strings are informative but a little verbose since they include default arguments. If we print this with Rich, things are improved somewhat:

```

{
    'gull': Bird('gull', eats=['fish', 'chips', 'ice cream', 'sausage rolls'],
fly=True, extinct=False),
    'penguin': Bird('penguin', eats=['fish'], fly=False, extinct=False),
    'dodo': Bird('dodo', eats=['fruit'], fly=False, extinct=True)
}

```

Rich knows how to format the container dict, but the repr strings are still verbose, and there is some wrapping of the output (assumes an 80 character terminal).

We can solve both these issues by adding the following `__rich_repr__` method:

```

def __rich_repr__(self):
    yield self.name
    yield "eats", self.eats
    yield "fly", self.fly, True
    yield "extinct", self.extinct, False

```

Now if we print the same object with Rich we would see the following:

```

{
    'gull': Bird(
        'gull',
        eats=['fish', 'chips', 'ice cream', 'sausage rolls']
    ),
    'penguin': Bird('penguin', eats=['fish'], fly=False),
    'dodo': Bird('dodo', eats=['fruit'], fly=False, extinct=True)
}

```

The default arguments have been omitted, and the output has been formatted nicely. The output remains readable even if we have less room in the terminal, or our objects are part of a deeply nested data structure:

```
{
    'gull': Bird(
        'gull',
        eats=[
            'fish',
            'chips',
            'ice cream',
            'sausage rolls'
        ]
    ),
    'penguin': Bird(
        'penguin',
        eats=['fish'],
        fly=False
    ),
    'dodo': Bird(
        'dodo',
        eats=['fruit'],
        fly=False,
        extinct=True
    )
}
```

You can add a `__rich_repr__` method to any class to enable the Rich formatting. This method should return an iterable of tuples. You could return a list of tuples, but it's easier to express with the `yield` keywords, making it a *generator*.

Each tuple specifies an element in the output.

- `yield value` will generate a positional argument.
- `yield name, value` will generate a keyword argument.
- `yield name, value, default` will generate a keyword argument *if* value is not equal to default.

If you use `None` as the name, then it will be treated as a positional argument as well, in order to support having tuple positional arguments.

You can also tell Rich to generate the *angular bracket* style of repr, which tend to be used where there is no easy way to recreate the object's constructor. To do this set the function attribute `"angular"` to `True` immediately after your `__rich_repr__` method. For example:

```
__rich_repr__.angular = True
```

This will change the output of the Rich repr example to the following:

```
{
    'gull': <Bird 'gull' eats=['fish', 'chips', 'ice cream', 'sausage rolls']>,
    'penguin': <Bird 'penguin' eats=['fish'] fly=False>,
    'dodo': <Bird 'dodo' eats=['fruit'] fly=False extinct=True>
}
```

Note that you can add `__rich_repr__` methods to third-party libraries *without* including Rich as a dependency. If Rich is not installed, then nothing will break. Hopefully more third-party libraries will adopt Rich repr methods in the future.

### 7.3.1 Typing

If you want to type the Rich repr method you can import and return `rich.repr.Result`, which will help catch logical errors:

```
import rich.repr

class Bird:
    def __init__(self, name, eats=None, fly=True, extinct=False):
        self.name = name
        self.eats = list(eats) if eats else []
        self.fly = fly
        self.extinct = extinct

    def __rich_repr__(self) -> rich.repr.Result:
        yield self.name
        yield "eats", self.eats
        yield "fly", self.fly, True
        yield "extinct", self.extinct, False
```

### 7.3.2 Automatic Rich Repr

Rich can generate a rich repr automatically if the parameters are named the same as your attributes.

To automatically build a rich repr, use the `auto()` class decorator. The Bird example above follows the above rule, so we don't strictly need to implement our own `__rich_repr__`. The following code would generate the same repr:

```
import rich.repr

@rich.repr.auto
class Bird:
    def __init__(self, name, eats=None, fly=True, extinct=False):
        self.name = name
        self.eats = list(eats) if eats else []
        self.fly = fly
        self.extinct = extinct

BIRDS = {
    "gull": Bird("gull", eats=["fish", "chips", "ice cream", "sausage rolls"]),
    "penguin": Bird("penguin", eats=["fish"], fly=False),
    "dodo": Bird("dodo", eats=["fruit"], fly=False, extinct=True)
}

from rich import print
print(BIRDS)
```

Note that the decorator will also create a `__repr__`, so you will get an auto-generated repr even if you don't print with Rich.

If you want to auto-generate the angular type of repr, then set `angular=True` on the decorator:

```
@rich.repr.auto(angular=True)
class Bird:
    def __init__(self, name, eats=None, fly=True, extinct=False):
        self.name = name
        self.eats = list(eats) if eats else []
        self.fly = fly
        self.extinct = extinct
```

## 7.4 Example

See [repr.py](#) for the example code used in this page.

## LOGGING HANDLER

Rich supplies a *logging handler* which will format and colorize text written by Python's logging module.

Here's an example of how to set up a rich logger:

```
import logging
from rich.logging import RichHandler

FORMAT = "%(message)s"
logging.basicConfig(
    level="NOTSET", format=FORMAT, datefmt="%X", handlers=[RichHandler()]
)

log = logging.getLogger("rich")
log.info("Hello, World!")
```

Rich logs won't render *Console Markup* in logging by default as most libraries won't be aware of the need to escape literal square brackets, but you can enable it by setting `markup=True` on the handler. Alternatively you can enable it per log message by supplying the `extra` argument as follows:

```
log.error("[bold red blink]Server is shutting down![/]", extra={"markup": True})
```

Similarly, the highlighter may be overridden per log message:

```
log.error("123 will not be highlighted", extra={"highlighter": None})
```

### 8.1 Handle exceptions

The *RichHandler* class may be configured to use Rich's *Traceback* class to format exceptions, which provides more context than a built-in exception. To get beautiful exceptions in your logs set `rich_tracebacks=True` on the handler constructor:

```
import logging
from rich.logging import RichHandler

logging.basicConfig(
    level="NOTSET",
    format="%(message)s",
    datefmt="%X",
    handlers=[RichHandler(rich_tracebacks=True)]
)
```

(continues on next page)

(continued from previous page)

```
)

log = logging.getLogger("rich")
try:
    print(1 / 0)
except Exception:
    log.exception("unable print!")
```

There are a number of other options you can use to configure logging output, see the [RichHandler](#) reference for details.

## 8.2 Suppressing Frames

If you are working with a framework (click, django etc), you may only be interested in seeing the code from your own application within the traceback. You can exclude framework code by setting the *suppress* argument on *Traceback*, *install*, and *Console.print\_exception*, which should be a list of modules or str paths.

Here's how you would exclude `click` from Rich exceptions:

```
import click
import logging
from rich.logging import RichHandler

logging.basicConfig(
    level="NOTSET",
    format="%(message)s",
    datefmt="[%X]",
    handlers=[RichHandler(rich_tracebacks=True, traceback_suppress=[click])]
)
```

Suppressed frames will show the line and file only, without any code.



## TRACEBACK

Rich can render Python tracebacks with syntax highlighting and formatting. Rich tracebacks are easier to read and show more code than standard Python tracebacks.

To see an example of a Rich traceback, running the following command:

```
python -m rich.traceback
```

### 9.1 Printing tracebacks

The `print_exception()` method will print a traceback for the current exception being handled. Here's an example:

```
from rich.console import Console
console = Console()

try:
    do_something()
except Exception:
    console.print_exception(show_locals=True)
```

The `show_locals=True` parameter causes Rich to display the value of local variables for each frame of the traceback.

See `exception.py` for a larger example.

### 9.2 Traceback Handler

Rich can be installed as the default traceback handler so that all uncaught exceptions will be rendered with highlighting. Here's how:

```
from rich.traceback import install
install(show_locals=True)
```

There are a few options to configure the traceback handler, see `install()` for details.

## 9.2.1 Automatic Traceback Handler

In some cases you may want to have the traceback handler installed automatically without having to worry about importing the code in your module. You can do that by modifying the *sitecustomize.py* in your virtual environment. Typically it would be located in your virtual environment path, underneath the *site-packages* folder, something like this:

```
./.venv/lib/python3.9/site-packages/sitecustomize.py
```

In most cases this file will not exist. If it doesn't exist, you can create it by:

```
$ touch .venv/lib/python3.9/site-packages/sitecustomize.py
```

Add the following code to the file:

```
from rich.traceback import install
install(show_locals=True)
```

At this point, the traceback will be installed for any code that is run within the virtual environment.

---

**Note:** If you plan on sharing your code, it is probably best to include the traceback install in your main entry point module.

---

## 9.3 Suppressing Frames

If you are working with a framework (click, django etc), you may only be interested in seeing the code from your own application within the traceback. You can exclude framework code by setting the *suppress* argument on *Traceback*, *install*, *Console.print\_exception*, and *RichHandler*, which should be a list of modules or str paths.

Here's how you would exclude *click* from Rich exceptions:

```
import click
from rich.traceback import install
install(suppress=[click])
```

Suppressed frames will show the line and file only, without any code.

## 9.4 Max Frames

A recursion error can generate very large tracebacks that take a while to render and contain a lot of repetitive frames. Rich guards against this with a *max\_frames* argument, which defaults to 100. If a traceback contains more than 100 frames then only the first 50, and last 50 will be shown. You can disable this feature by setting *max\_frames* to 0.

Here's an example of printing a recursive error:

```
from rich.console import Console

def foo(n):
    return bar(n)
```

(continues on next page)

(continued from previous page)

```
def bar(n):  
    return foo(n)  
  
console = Console()  
  
try:  
    foo(1)  
except Exception:  
    console.print_exception(max_frames=20)
```



## PROMPT

Rich has a number of *Prompt* classes which ask a user for input and loop until a valid response is received (they all use the *Console API* internally). Here's a simple example:

```
>>> from rich.prompt import Prompt
>>> name = Prompt.ask("Enter your name")
```

The prompt may be given as a string (which may contain *Console Markup* and emoji code) or as a *Text* instance.

You can set a default value which will be returned if the user presses return without entering any text:

```
>>> from rich.prompt import Prompt
>>> name = Prompt.ask("Enter your name", default="Paul Atreides")
```

If you supply a list of choices, the prompt will loop until the user enters one of the choices:

```
>>> from rich.prompt import Prompt
>>> name = Prompt.ask("Enter your name", choices=["Paul", "Jessica", "Duncan"], default=
↪ "Paul")
```

In addition to *Prompt* which returns strings, you can also use *IntPrompt* which asks the user for an integer, and *FloatPrompt* for floats.

The *Confirm* class is a specialized prompt which may be used to ask the user a simple yes / no question. Here's an example:

```
>>> from rich.prompt import Confirm
>>> is_rich_great = Confirm.ask("Do you like rich?")
>>> assert is_rich_great
```

The Prompt class was designed to be customizable via inheritance. See [prompt.py](#) for examples.

To see some of the prompts in action, run the following command from the command line:

```
python -m rich.prompt
```



## COLUMNS

Rich can render text or other Rich renderables in neat columns with the `Columns` class. To use, construct a `Columns` instance with an iterable of renderables and print it to the Console.

The following example is a very basic clone of the `ls` command in OSX / Linux to list directory contents:

```
import os
import sys

from rich import print
from rich.columns import Columns

if len(sys.argv) < 2:
    print("Usage: python columns.py DIRECTORY")
else:
    directory = os.listdir(sys.argv[1])
    columns = Columns(directory, equal=True, expand=True)
    print(columns)
```

See `columns.py` for an example which outputs columns containing more than just text.





## RENDER GROUPS

The `Group` class allows you to group several renderables together so they may be rendered in a context where only a single renderable may be supplied. For instance, you might want to display several renderables within a `Panel`.

To render two panels within a third panel, you would construct a `Group` with the *child* renderables as positional arguments then wrap the result in another `Panel`:

```
from rich import print
from rich.console import Group
from rich.panel import Panel

panel_group = Group(
    Panel("Hello", style="on blue"),
    Panel("World", style="on red"),
)
print(Panel(panel_group))
```

This pattern is nice when you know in advance what renderables will be in a group, but can get awkward if you have a larger number of renderables, especially if they are dynamic. Rich provides a `group()` decorator to help with these situations. The decorator builds a group from an iterator of renderables. The following is the equivalent of the previous example using the decorator:

```
from rich import print
from rich.console import group
from rich.panel import Panel

@group()
def get_panels():
    yield Panel("Hello", style="on blue")
    yield Panel("World", style="on red")

print(Panel(get_panels()))
```



## MARKDOWN

Rich can render Markdown to the console. To render markdown, construct a *Markdown* object then print it to the console. Markdown is a great way of adding rich content to your command line applications. Here's an example of use:

```
MARKDOWN = """
# This is an h1

Rich can do a pretty *decent* job of rendering markdown.

1. This is a list item
2. This is another list item
"""
from rich.console import Console
from rich.markdown import Markdown

console = Console()
md = Markdown(MARKDOWN)
console.print(md)
```

Note that code blocks are rendered with full syntax highlighting!

You can also use the Markdown class from the command line. The following example displays a readme in the terminal:

```
python -m rich.markdown README.md
```

Run the following to see the full list of arguments for the markdown command:

```
python -m rich.markdown -h
```



## PADDING

The `Padding` class may be used to add whitespace around text or other renderable. The following example will print the word “Hello” with a padding of 1 character, so there will be a blank line above and below, and a space on the left and right edges:

```
from rich import print
from rich.padding import Padding
test = Padding("Hello", 1)
print(test)
```

You can specify the padding on a more granular level by using a tuple of values rather than a single value. A tuple of 2 values sets the top/bottom and left/right padding, whereas a tuple of 4 values sets the padding for top, right, bottom, and left sides. You may recognize this scheme if you are familiar with CSS.

For example, the following displays 2 blank lines above and below the text, and a padding of 4 spaces on the left and right sides:

```
from rich import print
from rich.padding import Padding
test = Padding("Hello", (2, 4))
print(test)
```

The `Padding` class can also accept a `style` argument which applies a style to the padding and contents, and an `expand` switch which can be set to `False` to prevent the padding from extending to the full width of the terminal. Here’s an example which demonstrates both these arguments:

```
from rich import print
from rich.padding import Padding
test = Padding("Hello", (2, 4), style="on blue", expand=False)
print(test)
```

Note that, as with all Rich renderables, you can use `Padding` in any context. For instance, if you want to emphasize an item in a `Table` you could add a `Padding` object to a row with a padding of 1 and a style of “on red”.



## PANEL

To draw a border around text or other renderable, construct a *Panel* with the renderable as the first positional argument. Here's an example:

```
from rich import print
from rich.panel import Panel
print(Panel("Hello, [red]World!"))
```

You can change the style of the panel by setting the *box* argument to the *Panel* constructor. See *Box* for a list of available box styles.

Panels will extend to the full width of the terminal. You can make panel *fit* the content by setting *expand=False* on the constructor, or by creating the *Panel* with *fit()*. For example:

```
from rich import print
from rich.panel import Panel
print(Panel.fit("Hello, [red]World!"))
```

The *Panel* constructor accepts a *title* argument which will draw a title on the top of the panel, as well as a *subtitle* argument which will draw a subtitle on the bottom of the panel:

```
from rich import print
from rich.panel import Panel
print(Panel("Hello, [red]World!", title="Welcome", subtitle="Thank you"))
```

See *Panel* for details how to customize Panels.





## PROGRESS DISPLAY

Rich can display continuously updated information regarding the progress of long running tasks / file copies etc. The information displayed is configurable, the default will display a description of the 'task', a progress bar, percentage complete, and estimated time remaining.

Rich progress display supports multiple tasks, each with a bar and progress information. You can use this to track concurrent tasks where the work is happening in threads or processes.

To see how the progress display looks, try this from the command line:

```
python -m rich.progress
```

---

**Note:** Progress works with Jupyter notebooks, with the caveat that auto-refresh is disabled. You will need to explicitly call `refresh()` or set `refresh=True` when calling `update()`. Or use the `track()` function which does a refresh automatically on each loop.

---

### 16.1 Basic Usage

For basic usage call the `track()` function, which accepts a sequence (such as a list or range object) and an optional description of the job you are working on. The track function will yield values from the sequence and update the progress information on each iteration. Here's an example:

```
import time
from rich.progress import track

for i in track(range(20), description="Processing..."):
    time.sleep(1) # Simulate work being done
```

### 16.2 Advanced usage

If you require multiple tasks in the display, or wish to configure the columns in the progress display, you can work directly with the `Progress` class. Once you have constructed a Progress object, add task(s) with (`add_task()`) and update progress with `update()`.

The Progress class is designed to be used as a *context manager* which will start and stop the progress display automatically.

Here's a simple example:

```
import time

from rich.progress import Progress

with Progress() as progress:

    task1 = progress.add_task("[red]Downloading...", total=1000)
    task2 = progress.add_task("[green]Processing...", total=1000)
    task3 = progress.add_task("[cyan]Cooking...", total=1000)

    while not progress.finished:
        progress.update(task1, advance=0.5)
        progress.update(task2, advance=0.3)
        progress.update(task3, advance=0.9)
        time.sleep(0.02)
```

The total value associated with a task is the number of steps that must be completed for the progress to reach 100%. A *step* in this context is whatever makes sense for your application; it could be number of bytes of a file read, or number of images processed, etc.

### 16.2.1 Updating tasks

When you call `add_task()` you get back a *Task ID*. Use this ID to call `update()` whenever you have completed some work, or any information has changed. Typically you will need to update `completed` every time you have completed a step. You can do this by updated `completed` directly or by setting `advance` which will add to the current `completed` value.

The `update()` method collects keyword arguments which are also associated with the task. Use this to supply any additional information you would like to render in the progress display. The additional arguments are stored in `task.fields` and may be referenced in *Column classes*.

### 16.2.2 Hiding tasks

You can show or hide tasks by updating the tasks `visible` value. Tasks are visible by default, but you can also add an invisible task by calling `add_task()` with `visible=False`.

### 16.2.3 Transient progress

Normally when you exit the progress context manager (or call `stop()`) the last refreshed display remains in the terminal with the cursor on the following line. You can also make the progress display disappear on exit by setting `transient=True` on the Progress constructor. Here's an example:

```
with Progress(transient=True) as progress:
    task = progress.add_task("Working", total=100)
    do_work(task)
```

Transient progress displays are useful if you want more minimal output in the terminal when tasks are complete.

### 16.2.4 Indeterminate progress

When you add a task it is automatically *started*, which means it will show a progress bar at 0% and the time remaining will be calculated from the current time. This may not work well if there is a long delay before you can start updating progress; you may need to wait for a response from a server or count files in a directory (for example). In these cases you can call `add_task()` with `start=False` or `total=None` which will display a pulsing animation that lets the user know something is working. This is known as an *indeterminate* progress bar. When you have the number of steps you can call `start_task()` which will display the progress bar at 0%, then `update()` as normal.

### 16.2.5 Auto refresh

By default, the progress information will refresh 10 times a second. You can set the refresh rate with the `refresh_per_second` argument on the `Progress` constructor. You should set this to something lower than 10 if you know your updates will not be that frequent.

You might want to disable auto-refresh entirely if your updates are not very frequent, which you can do by setting `auto_refresh=False` on the constructor. If you disable auto-refresh you will need to call `refresh()` manually after updating your task(s).

### 16.2.6 Expand

The progress bar(s) will use only as much of the width of the terminal as required to show the task information. If you set the `expand` argument on the `Progress` constructor, then Rich will stretch the progress display to the full available width.

### 16.2.7 Columns

You may customize the columns in the progress display with the positional arguments to the `Progress` constructor. The columns are specified as either a *format string* or a `ProgressColumn` object.

Format strings will be rendered with a single value “*task*” which will be a `Task` instance. For example “`{task.description}`” would display the task description in the column, and “`{task.completed} of {task.total}`” would display how many of the total steps have been completed. Additional fields passed via keyword arguments to `~rich.progress.Progress.update` are store in `task.fields`. You can add them to a format string with the following syntax: “`extra info: {task.fields[extra]}`”.

The default columns are equivalent to the following:

```
progress = Progress(
    TextColumn("[progress.description]{task.description}"),
    BarColumn(),
    TaskProgressColumn(),
    TimeRemainingColumn(),
)
```

To create a `Progress` with your own columns in addition to the defaults, use `get_default_columns()`:

```
progress = Progress(
    SpinnerColumn(),
    *Progress.get_default_columns(),
    TimeElapsedColumn(),
)
```

The following column objects are available:

- `BarColumn` Displays the bar.
- `TextColumn` Displays text.
- `TimeElapsedColumn` Displays the time elapsed.
- `TimeRemainingColumn` Displays the estimated time remaining.
- `MofNCompleteColumn` Displays completion progress as "{task.completed}/{task.total}" (works best if completed and total are ints).
- `FileSizeColumn` Displays progress as file size (assumes the steps are bytes).
- `TotalFileSizeColumn` Displays total file size (assumes the steps are bytes).
- `DownloadColumn` Displays download progress (assumes the steps are bytes).
- `TransferSpeedColumn` Displays transfer speed (assumes the steps are bytes).
- `SpinnerColumn` Displays a “spinner” animation.
- `RenderableColumn` Displays an arbitrary Rich renderable in the column.

To implement your own columns, extend the `ProgressColumn` class and use it as you would the other columns.

## 16.2.8 Table Columns

Rich builds a `Table` for the tasks in the `Progress` instance. You can customize how the columns of this *tasks table* are created by specifying the `table_column` argument in the `Column` constructor, which should be a `Column` instance.

The following example demonstrates a progress bar where the description takes one third of the width of the terminal, and the bar takes up the remaining two thirds:

```
from time import sleep

from rich.table import Column
from rich.progress import Progress, BarColumn, TextColumn

text_column = TextColumn("{task.description}", table_column=Column(ratio=1))
bar_column = BarColumn(bar_width=None, table_column=Column(ratio=2))
progress = Progress(text_column, bar_column, expand=True)

with progress:
    for n in progress.track(range(100)):
        progress.print(n)
        sleep(0.1)
```

### 16.2.9 Print / log

The `Progress` class will create an internal `Console` object which you can access via `progress.console`. If you print or log to this console, the output will be displayed *above* the progress display. Here's an example:

```
with Progress() as progress:
    task = progress.add_task("twiddling thumbs", total=10)
    for job in range(10):
        progress.console.print(f"Working on job #{job}")
        run_job(job)
    progress.advance(task)
```

If you have another `Console` object you want to use, pass it in to the `Progress` constructor. Here's an example:

```
from my_project import my_console

with Progress(console=my_console) as progress:
    my_console.print("[bold blue]Starting work!")
    do_work(progress)
```

### 16.2.10 Redirecting stdout / stderr

To avoid breaking the progress display visuals, Rich will redirect `stdout` and `stderr` so that you can use the built-in `print` statement. This feature is enabled by default, but you can disable by setting `redirect_stdout` or `redirect_stderr` to `False`

### 16.2.11 Customizing

If the `Progress` class doesn't offer exactly what you need in terms of a progress display, you can override the `get_renderables` method. For example, the following class will render a `Panel` around the progress display:

```
from rich.panel import Panel
from rich.progress import Progress

class MyProgress(Progress):
    def get_renderables(self):
        yield Panel(self.make_tasks_table(self.tasks))
```

### 16.2.12 Reading from a file

Rich provides an easy way to generate a progress bar while reading a file. If you call `open()` it will return a context manager which displays a progress bar while you read. This is particularly useful when you can't easily modify the code that does the reading.

The following example demonstrates how we might show progress when reading a JSON file:

```
import json
import rich.progress

with rich.progress.open("data.json", "rb") as file:
```

(continues on next page)

(continued from previous page)

```
data = json.load(file)
print(data)
```

If you already have a file object, you can call `wrap_file()` which returns a context manager that wraps your file so that it displays a progress bar. If you use this function you will need to set the number of bytes or characters you expect to read.

Here's an example that reads a url from the internet:

```
from time import sleep
from urllib.request import urlopen

from rich.progress import wrap_file

response = urlopen("https://www.textualize.io")
size = int(response.headers["Content-Length"])

with wrap_file(response, size) as file:
    for line in file:
        print(line.decode("utf-8"), end="")
        sleep(0.1)
```

If you expect to be reading from multiple files, you can use `open()` or `wrap_file()` to add a file progress to an existing Progress instance.

See `cp_progress.py` <[https://github.com/willmcgugan/rich/blob/master/examples/cp\\_progress.py](https://github.com/willmcgugan/rich/blob/master/examples/cp_progress.py)> for a minimal clone of the `cp` command which shows a progress bar as the file is copied.

## 16.3 Multiple Progress

You can't have different columns per task with a single Progress instance. However, you can have as many Progress instances as you like in a *Live Display*. See `live_progress.py` and `dynamic_progress.py` for examples of using multiple Progress instances.

## 16.4 Example

See `downloader.py` for a realistic application of a progress display. This script can download multiple concurrent files with a progress bar, transfer speed and file size.

## SYNTAX

Rich can syntax highlight various programming languages with line numbers.

To syntax highlight code, construct a `Syntax` object and print it to the console. Here's an example:

```
from rich.console import Console
from rich.syntax import Syntax

console = Console()
with open("syntax.py", "rt") as code_file:
    syntax = Syntax(code_file.read(), "python")
console.print(syntax)
```

You may also use the `from_path()` alternative constructor which will load the code from disk and auto-detect the file type. The example above could be re-written as follows:

```
from rich.console import Console
from rich.syntax import Syntax

console = Console()
syntax = Syntax.from_path("syntax.py")
console.print(syntax)
```

### 17.1 Line numbers

If you set `line_numbers=True`, Rich will render a column for line numbers:

```
syntax = Syntax.from_path("syntax.py", line_numbers=True)
```

### 17.2 Theme

The `Syntax` constructor (and `from_path()`) accept a `theme` attribute which should be the name of a `Pygments` theme. It may also be one of the special case theme names “ansi\_dark” or “ansi\_light” which will use the color theme configured by the terminal.

## 17.3 Background color

You can override the background color from the theme by supplying a `background_color` argument to the constructor. This should be a string in the same format a style definition accepts, e.g. “red”, “#ff0000”, “rgb(255,0,0)” etc. You may also set the special value “default” which will use the default background color set in the terminal.

## 17.4 Syntax CLI

You can use this class from the command line. Here’s how you would syntax highlight a file called “syntax.py”:

```
python -m rich.syntax syntax.py
```

For the full list of arguments, run the following:

```
python -m rich.syntax -h
```



## TABLES

Rich's `Table` class offers a variety of ways to render tabular data to the terminal.

To render a table, construct a `Table` object, add columns with `add_column()`, and rows with `add_row()` – then print it to the console.

Here's an example:

```
from rich.console import Console
from rich.table import Table

table = Table(title="Star Wars Movies")

table.add_column("Released", justify="right", style="cyan", no_wrap=True)
table.add_column("Title", style="magenta")
table.add_column("Box Office", justify="right", style="green")

table.add_row("Dec 20, 2019", "Star Wars: The Rise of Skywalker", "$952,110,690")
table.add_row("May 25, 2018", "Solo: A Star Wars Story", "$393,151,347")
table.add_row("Dec 15, 2017", "Star Wars Ep. V111: The Last Jedi", "$1,332,539,889")
table.add_row("Dec 16, 2016", "Rogue One: A Star Wars Story", "$1,332,439,889")

console = Console()
console.print(table)
```

This produces the following output:

Rich will calculate the optimal column sizes to fit your content, and will wrap text to fit if the terminal is not wide enough to fit the contents.

---

**Note:** You are not limited to adding text in the `add_row` method. You can add anything that Rich knows how to render (including another table).

---

## 18.1 Table Options

There are a number of keyword arguments on the Table constructor you can use to define how a table should look.

- `title` Sets the title of the table (text show above the table).
- `caption` Sets the table caption (text show below the table).
- `width` Sets the desired width of the table (disables automatic width calculation).
- `min_width` Sets a minimum width for the table.
- `box` Sets one of the *Box* styles for the table grid, or `None` for no grid.
- `safe_box` Set to `True` to force the table to generate ASCII characters rather than unicode.
- `padding` An integer, or tuple of 1, 2, or 4 values to set the padding on cells.
- `collapse_padding` If `True` the padding of neighboring cells will be merged.
- `pad_edge` Set to `False` to remove padding around the edge of the table.
- `expand` Set to `True` to expand the table to the full available size.
- `show_header` Set to `True` to show a header, `False` to disable it.
- `show_footer` Set to `True` to show a footer, `False` to disable it.
- `show_edge` Set to `False` to disable the edge line around the table.
- `show_lines` Set to `True` to show lines between rows as well as header / footer.
- `leading` Additional space between rows.
- `style` A Style to apply to the entire table, e.g. “on blue”
- `row_styles` Set to a list of styles to style alternating rows. e.g. `["dim", ""]` to create *zebra stripes*
- `header_style` Set the default style for the header.
- `footer_style` Set the default style for the footer.
- `border_style` Set a style for border characters.
- `title_style` Set a style for the title.
- `caption_style` Set a style for the caption.
- `title_justify` Set the title justify method (“left”, “right”, “center”, or “full”)
- `caption_justify` Set the caption justify method (“left”, “right”, “center”, or “full”)
- `highlight` Set to `True` to enable automatic highlighting of cell contents.

## 18.2 Border Styles

You can set the border style by importing one of the preset Box objects and setting the `box` argument in the table constructor. Here’s an example that modifies the look of the Star Wars table:

```
from rich import box
table = Table(title="Star Wars Movies", box=box.MINIMAL_DOUBLE_HEAD)
```

See [Box](#) for other box styles.

You can also set `box=None` to remove borders entirely.

The [Table](#) class offers a number of configuration options to set the look and feel of the table, including how borders are rendered and the style and alignment of the columns.

## 18.3 Lines

By default, Tables will show a line under the header only. If you want to show lines between all rows add `show_lines=True` to the constructor.

You can also force a line on the next row by setting `end_section=True` on the call to [add\\_row\(\)](#), or by calling the [add\\_section\(\)](#) to add a line between the current and subsequent rows.

## 18.4 Empty Tables

Printing a table with no columns results in a blank line. If you are building a table dynamically and the data source has no columns, you might want to print something different. Here's how you might do that:

```
if table.columns:
    print(table)
else:
    print("[i]No data...[/i]")
```

## 18.5 Adding Columns

You may also add columns by specifying them in the positional arguments of the [Table](#) constructor. For example, we could construct a table with three columns like this:

```
table = Table("Released", "Title", "Box Office", title="Star Wars Movies")
```

This allows you to specify the text of the column only. If you want to set other attributes, such as width and style, you can add a [Column](#) class. Here's an example:

```
from rich.table import Column
table = Table(
    "Released",
    "Title",
    Column(header="Box Office", justify="right"),
    title="Star Wars Movies"
)
```

## 18.6 Column Options

There are a number of options you can set on a column to modify how it will look.

- `header_style` Sets the style of the header, e.g. “bold magenta”.
- `footer_style` Sets the style of the footer.
- `style` Sets a style that applies to the column. You could use this to highlight a column by setting the background with “on green” for example.
- `justify` Sets the text justify to one of “left”, “center”, “right”, or “full”.
- `vertical` Sets the vertical alignment of the cells in a column, to one of “top”, “middle”, or “bottom”.
- `width` Explicitly set the width of a row to a given number of characters (disables automatic calculation).
- `min_width` When set to an integer will prevent the column from shrinking below this amount.
- `max_width` When set to an integer will prevent the column from growing beyond this amount.
- `ratio` Defines a ratio to set the column width. For instance, if there are 3 columns with a total of 6 ratio, and `ratio=2` then the column will be a third of the available size.
- `no_wrap` Set to True to prevent this column from wrapping.

## 18.7 Vertical Alignment

You can define the vertical alignment of a column by setting the `vertical` parameter of the column. You can also do this per-cell by wrapping your text or renderable with a `Align` class:

```
table.add_row(Align("Title", vertical="middle"))
```

## 18.8 Grids

The Table class can also make a great layout tool. If you disable headers and borders you can use it to position content within the terminal. The alternative constructor `grid()` can create such a table for you.

For instance, the following code displays two pieces of text aligned to both the left and right edges of the terminal on a single line:

```
from rich import print
from rich.table import Table

grid = Table.grid(expand=True)
grid.add_column()
grid.add_column(justify="right")
grid.add_row("Raising shields", "[bold magenta]COMPLETED [green]:heavy_check_mark:")

print(grid)
```

## TREE

Rich has a `Tree` class which can generate a tree view in the terminal. A tree view is a great way of presenting the contents of a filesystem or any other hierarchical data. Each branch of the tree can have a label which may be text or any other Rich renderable.

Run the following command to see a demonstration of a Rich tree:

```
python -m rich.tree
```

The following code creates and prints a tree with a simple text label:

```
from rich.tree import Tree
from rich import print

tree = Tree("Rich Tree")
print(tree)
```

With only a single `Tree` instance this will output nothing more than the text “Rich Tree”. Things get more interesting when we call `add()` to add more branches to the `Tree`. The following code adds two more branches:

```
tree.add("foo")
tree.add("bar")
print(tree)
```

The tree will now have two branches connected to the original tree with guide lines.

When you call `add()` a new `Tree` instance is returned. You can use this instance to add more branches to, and build up a more complex tree. Let's add a few more levels to the tree:

```
baz_tree = tree.add("baz")
baz_tree.add("[red]Red").add("[green]Green").add("[blue]Blue")
print(tree)
```

## 19.1 Tree Styles

The Tree constructor and [add\(\)](#) method allows you to specify a `style` argument which sets a style for the entire branch, and `guide_style` which sets the style for the guide lines. These styles are inherited by the branches and will apply to any sub-trees as well.

If you set `guide_style` to `bold`, Rich will select the thicker variations of unicode line characters. Similarly, if you select the “`underline2`” style you will get double line style of unicode characters.

## 19.2 Examples

For a more practical demonstration, see [tree.py](#) which can generate a tree view of a directory in your hard drive.

## LIVE DISPLAY

Progress bars and status indicators use a *live* display to animate parts of the terminal. You can build custom live displays with the `Live` class.

For a demonstration of a live display, run the following command:

```
python -m rich.live
```

---

**Note:** If you see ellipsis "...", this indicates that the terminal is not tall enough to show the full table.

---

### 20.1 Basic usage

To create a live display, construct a `Live` object with a renderable and use it as a context manager. The live display will persist for the duration of the context. You can update the renderable to update the display:

```
import time

from rich.live import Live
from rich.table import Table

table = Table()
table.add_column("Row ID")
table.add_column("Description")
table.add_column("Level")

with Live(table, refresh_per_second=4): # update 4 times a second to feel fluid
    for row in range(12):
        time.sleep(0.4) # arbitrary delay
        # update the renderable internally
        table.add_row(f"{row}", f"description {row}", "[red]ERROR")
```

## 20.2 Updating the renderable

You can also change the renderable on-the-fly by calling the `update()` method. This may be useful if the information you wish to display is too dynamic to generate by updating a single renderable. Here is an example:

```
import random
import time

from rich.live import Live
from rich.table import Table

def generate_table() -> Table:
    """Make a new table."""
    table = Table()
    table.add_column("ID")
    table.add_column("Value")
    table.add_column("Status")

    for row in range(random.randint(2, 6)):
        value = random.random() * 100
        table.add_row(
            f"{row}", f"{value:3.2f}", "[red]ERROR" if value < 50 else "[green]SUCCESS"
        )
    return table

with Live(generate_table(), refresh_per_second=4) as live:
    for _ in range(40):
        time.sleep(0.4)
        live.update(generate_table())
```

## 20.3 Alternate screen

You can opt to show a Live display in the “alternate screen” by setting `screen=True` on the constructor. This will allow your live display to go full screen and restore the command prompt on exit.

You can use this feature in combination with *Layout* to display sophisticated terminal “applications”.

## 20.4 Transient display

Normally when you exit live context manager (or call `stop()`) the last refreshed item remains in the terminal with the cursor on the following line. You can also make the live display disappear on exit by setting `transient=True` on the Live constructor.



## 20.5 Auto refresh

By default, the live display will refresh 4 times a second. You can set the refresh rate with the `refresh_per_second` argument on the `Live` constructor. You should set this to something lower than 4 if you know your updates will not be that frequent or higher for a smoother feeling.

You might want to disable auto-refresh entirely if your updates are not very frequent, which you can do by setting `auto_refresh=False` on the constructor. If you disable auto-refresh you will need to call `refresh()` manually or `update()` with `refresh=True`.

## 20.6 Vertical overflow

By default, the live display will display ellipsis if the renderable is too large for the terminal. You can adjust this by setting the `vertical_overflow` argument on the `Live` constructor.

- “crop” Show renderable up to the terminal height. The rest is hidden.
- “ellipsis” Similar to crop except last line of the terminal is replaced with “...”. This is the default behavior.
- “visible” Will allow the whole renderable to be shown. Note that the display cannot be properly cleared in this mode.

---

**Note:** Once the live display stops on a non-transient renderable, the last frame will render as **visible** since it doesn't have to be cleared.

---

## 20.7 Print / log

The Live class will create an internal Console object which you can access via `live.console`. If you print or log to this console, the output will be displayed *above* the live display. Here's an example:

```
import time

from rich.live import Live
from rich.table import Table

table = Table()
table.add_column("Row ID")
table.add_column("Description")
table.add_column("Level")

with Live(table, refresh_per_second=4) as live:  # update 4 times a second to feel fluid
    for row in range(12):
        live.console.print(f"Working on row #{row}")
        time.sleep(0.4)
        table.add_row(f"{row}", f"description {row}", "[red]ERROR")
```

If you have another Console object you want to use, pass it in to the `Live` constructor. Here's an example:

```
from my_project import my_console
```

(continues on next page)

(continued from previous page)

```
with Live(console=my_console) as live:
    my_console.print("[bold blue]Starting work!")
    ...
```

---

**Note:** If you are passing in a file console, the live display only show the last item once the live context is left.

---

## 20.8 Redirecting stdout / stderr

To avoid breaking the live display visuals, Rich will redirect `stdout` and `stderr` so that you can use the builtin `print` statement. This feature is enabled by default, but you can disable by setting `redirect_stdout` or `redirect_stderr` to `False`.

### 20.8.1 Nesting Lives

Note that only a single live context may be active at any one time. The following will raise a `LiveError` because `status` also uses `Live`:

```
with Live(table, console=console):
    with console.status("working"): # Will not work
        do_work()
```

In practice this is rarely a problem because you can display any combination of renderables in a `Live` context.

### 20.8.2 Examples

See [table\\_movie.py](#) and [top\\_lite\\_simulator.py](#) for deeper examples of live displaying.

## LAYOUT

Rich offers a *Layout* class which can be used to divide the screen area in to parts, where each part may contain independent content. It can be used with *Live Display* to create full-screen “applications” but may be used standalone.

To see an example of a Layout, run the following from the command line:

```
python -m rich.layout
```

### 21.1 Creating layouts

To define a layout, construct a Layout object and print it:

```
from rich import print
from rich.layout import Layout

layout = Layout()
print(layout)
```

This will draw a box the size of the terminal with some information regarding the layout. The box is a “placeholder” because we have yet to add any content to it. Before we do that, let’s create a more interesting layout by calling the *split\_column()* method to divide the layout in to two sub-layouts:

```
layout.split_column(
    Layout(name="upper"),
    Layout(name="lower")
)
print(layout)
```

This will divide the terminal screen in to two equal sized portions, one on top of the other. The *name* attribute is an internal identifier we can use to look up the sub-layout later. Let’s use that to create another split, this time we will call *split\_row()* to split the lower layout in to a row of two sub-layouts:

```
layout["lower"].split_row(
    Layout(name="left"),
    Layout(name="right"),
)
print(layout)
```

You should now see the screen area divided in to 3 portions; an upper half and a lower half that is split in to two quarters. You can continue to call *split()* in this way to create as many parts to the screen as you wish.

## 21.2 Setting renderables

The first position argument to `Layout` can be any Rich renderable, which will be sized to fit within the layout's area. Here's how we might divide the "right" layout in to two panels:

```
from rich.panel import Panel

layout["right"].split(
    Layout(Panel("Hello")),
    Layout(Panel("World!"))
)
```

You can also call `update()` to set or replace the current renderable:

```
layout["left"].update(
    "The mystery of life isn't a problem to solve, but a reality to experience."
)
print(layout)
```

## 21.3 Fixed size

You can set a layout to use a fixed size by setting the `size` argument on the `Layout` constructor or by setting the attribute. Here's an example:

```
layout["upper"].size = 10
print(layout)
```

This will set the upper portion to be exactly 10 rows, no matter the size of the terminal. If the parent layout is horizontal rather than vertical, then the size applies to the number of characters rather than rows.

## 21.4 Ratio

In addition to a fixed size, you can also make a flexible layout setting the `ratio` argument on the constructor or by assigning to the attribute. The ratio defines how much of the screen the layout should occupy in relation to other layouts. For example, let's reset the size and set the ratio of the upper layout to 2:

```
layout["upper"].size = None
layout["upper"].ratio = 2
print(layout)
```

This makes the top layout take up two thirds of the space. This is because the default ratio is 1, giving the upper and lower layouts a combined total of 3. As the upper layout has a ratio of 2, it takes up two thirds of the space, leaving the remaining third for the lower layout.

A layout with a ratio set may also have a minimum size to prevent it from getting too small. For instance, here's how we could set the minimum size of the lower sub-layout so that it won't shrink beyond 10 rows:

```
layout["lower"].minimum_size = 10
```

## 21.5 Visibility

You can make a layout invisible by setting the `visible` attribute to `False`. Here's an example:

```
layout["upper"].visible = False
print(layout)
```

The top layout is now invisible, and the “lower” layout will expand to fill the available space. Set `visible` to `True` to bring it back:

```
layout["upper"].visible = True
print(layout)
```

You could use this to toggle parts of your interface based on your application's configuration.

## 21.6 Tree

To help visualize complex layouts you can print the `tree` attribute which will display a summary of the layout as a tree:

```
print(layout.tree)
```

## 21.7 Example

See [fullscreen.py](#) for an example that combines *Layout* and *Live* to create a fullscreen “application”.



## CONSOLE PROTOCOL

Rich supports a simple protocol to add rich formatting capabilities to custom objects, so you can `print()` your object with color, styles and formatting.

Use this for presentation or to display additional debugging information that might be hard to parse from a typical `__repr__` string.

### 22.1 Console Customization

The easiest way to customize console output for your object is to implement a `__rich__` method. This method accepts no arguments, and should return an object that Rich knows how to render, such as a `Text` or `Table`. If you return a plain string it will be rendered as *Console Markup*. Here's an example:

```
class MyObject:
    def __rich__(self) -> str:
        return "[bold cyan]MyObject()"
```

If you were to print or log an instance of `MyObject` it would render as `MyObject()` in bold cyan. Naturally, you would want to put this to better use, perhaps by adding specialized syntax highlighting.

### 22.2 Console Render

The `__rich__` method is limited to a single renderable object. For more advanced rendering, add a `__rich_console__` method to your class.

The `__rich_console__` method should accept a `Console` and a `ConsoleOptions` instance. It should return an iterable of other renderable objects. Although that means it *could* return a container such as a list, it generally easier implemented by using the `yield` statement (making the method a generator).

Here's an example of a `__rich_console__` method:

```
from dataclasses import dataclass
from rich.console import Console, ConsoleOptions, RenderResult
from rich.table import Table

@dataclass
class Student:
    id: int
    name: str
    age: int
```

(continues on next page)

(continued from previous page)

```

def __rich_console__(self, console: Console, options: ConsoleOptions) ->
↳RenderResult:
    yield f"[b]Student:[/b] #{self.id}"
    my_table = Table("Attribute", "Value")
    my_table.add_row("name", self.name)
    my_table.add_row("age", str(self.age))
    yield my_table

```

If you were to print a `Student` instance, it would render a simple table to the terminal.

### 22.2.1 Low Level Render

For complete control over how a custom object is rendered to the terminal, you can yield `Segment` objects. A `Segment` consists of a piece of text and an optional `Style`. The following example writes multi-colored text when rendering a `MyObject` instance:

```

class MyObject:
    def __rich_console__(self, console: Console, options: ConsoleOptions) ->
↳RenderResult:
        yield Segment("My", Style(color="magenta"))
        yield Segment("Object", Style(color="green"))
        yield Segment("()", Style(color="cyan"))

```

### 22.2.2 Measuring Renderables

Sometimes Rich needs to know how many characters an object will take up when rendering. The `Table` class, for instance, will use this information to calculate the optimal dimensions for the columns. If you aren't using one of the renderable objects in the Rich module, you will need to supply a `__rich_measure__` method which accepts a `Console` and `ConsoleOptions` and returns a `Measurement` object. The `Measurement` object should contain the *minimum* and *maximum* number of characters required to render.

For example, if we are rendering a chess board, it would require a minimum of 8 characters to render. The maximum can be left as the maximum available width (assuming a centered board):

```

class ChessBoard:
    def __rich_measure__(self, console: Console, options: ConsoleOptions) -> Measurement:
        return Measurement(8, options.max_width)

```



## REFERENCE

### 23.1 rich.align

```
class rich.align.Align(renderable, align='left', style=None, *, vertical=None, pad=True, width=None, height=None)
```

Align a renderable by adding spaces if necessary.

#### Parameters

- **renderable** (*RenderableType*) – A console renderable.
- **align** (*AlignMethod*) – One of “left”, “center”, or “right”
- **style** (*StyleType*, *optional*) – An optional style to apply to the background.
- **vertical** (*Optional[VerticalAlignMethod]*, *optional*) – Optional vertical align, one of “top”, “middle”, or “bottom”. Defaults to None.
- **pad** (*bool*, *optional*) – Pad the right with spaces. Defaults to True.
- **width** (*int*, *optional*) – Restrict contents to given width, or None to use default width. Defaults to None.
- **height** (*int*, *optional*) – Set height of align renderable, or None to fit to contents. Defaults to None.

#### Raises

**ValueError** – if align is not one of the expected values.

```
classmethod center(renderable, style=None, *, vertical=None, pad=True, width=None, height=None)
```

Align a renderable to the center.

#### Parameters

- **renderable** (*RenderableType*) –
- **style** (*Optional[Union[str, Style]]*) –
- **vertical** (*Optional[typing\_extensions.Literal[top, middle, bottom]]*) –
- **pad** (*bool*) –
- **width** (*Optional[int]*) –
- **height** (*Optional[int]*) –

#### Return type

*Align*

**classmethod** **left**(*renderable*, *style=None*, \*, *vertical=None*, *pad=True*, *width=None*, *height=None*)

Align a renderable to the left.

**Parameters**

- **renderable** (*RenderableType*) –
- **style** (*Optional[Union[str, Style]]*) –
- **vertical** (*Optional[typing\_extensions.Literal[top, middle, bottom]]*) –
- **pad** (*bool*) –
- **width** (*Optional[int]*) –
- **height** (*Optional[int]*) –

**Return type**

*Align*

**classmethod** **right**(*renderable*, *style=None*, \*, *vertical=None*, *pad=True*, *width=None*, *height=None*)

Align a renderable to the right.

**Parameters**

- **renderable** (*RenderableType*) –
- **style** (*Optional[Union[str, Style]]*) –
- **vertical** (*Optional[typing\_extensions.Literal[top, middle, bottom]]*) –
- **pad** (*bool*) –
- **width** (*Optional[int]*) –
- **height** (*Optional[int]*) –

**Return type**

*Align*

**class** **rich.align.VerticalCenter**(*renderable*, *style=None*)

Vertically aligns a renderable.

**Warns**

- This class is deprecated and may be removed in a future version. Use `Align` class with ``vertical="middle"``.

**Parameters**

- **renderable** (*RenderableType*) – A renderable object.
- **style** (*Optional[Union[str, Style]]*) –

## 23.2 rich.bar

**class** rich.bar.**Bar**(size, begin, end, \*, width=None, color='default', bgcolor='default')

Renders a solid block bar.

### Parameters

- **size** (*float*) – Value for the end of the bar.
- **begin** (*float*) – Begin point (between 0 and size, inclusive).
- **end** (*float*) – End point (between 0 and size, inclusive).
- **width** (*int*, *optional*) – Width of the bar, or None for maximum width. Defaults to None.
- **color** (*Union[Color, str]*, *optional*) – Color of the bar. Defaults to “default”.
- **bgcolor** (*Union[Color, str]*, *optional*) – Color of bar background. Defaults to “default”.

## 23.3 rich.color

**class** rich.color.**Color**(name, type, number=None, triplet=None)

Terminal color definition.

### Parameters

- **name** (*str*) –
- **type** (*ColorType*) –
- **number** (*Optional[int]*) –
- **triplet** (*Optional[ColorTriplet]*) –

**classmethod** **default**()

Get a Color instance representing the default color.

### Returns

Default color.

### Return type

*Color*

**downgrade**(*system*)

Downgrade a color system to a system with fewer colors.

### Parameters

**system** (*ColorSystem*) –

### Return type

*Color*

**classmethod** **from\_ansi**(*number*)

Create a Color number from it's 8-bit ansi number.

### Parameters

**number** (*int*) – A number between 0-255 inclusive.

**Returns**

A new Color instance.

**Return type**

*Color*

**classmethod** **from\_rgb**(*red, green, blue*)

Create a truecolor from three color components in the range(0->255).

**Parameters**

- **red** (*float*) – Red component in range 0-255.
- **green** (*float*) – Green component in range 0-255.
- **blue** (*float*) – Blue component in range 0-255.

**Returns**

A new color object.

**Return type**

*Color*

**classmethod** **from\_triplet**(*triplet*)

Create a truecolor RGB color from a triplet of values.

**Parameters**

**triplet** (*ColorTriplet*) – A color triplet containing red, green and blue components.

**Returns**

A new color object.

**Return type**

*Color*

**get\_ansi\_codes**(*foreground=True*)

Get the ANSI escape codes for this color.

**Parameters**

**foreground** (*bool*) –

**Return type**

*Tuple*[*str*, ...]

**get\_truecolor**(*theme=None, foreground=True*)

Get an equivalent color triplet for this color.

**Parameters**

- **theme** (*TerminalTheme, optional*) – Optional terminal theme, or None to use default. Defaults to None.
- **foreground** (*bool, optional*) – True for a foreground color, or False for background. Defaults to True.

**Returns**

A color triplet containing RGB components.

**Return type**

*ColorTriplet*

**property is\_default:** **bool**

Check if the color is a default color.

**property** `is_system_defined`: `bool`

Check if the color is ultimately defined by the system.

**property** `name`

The name of the color (typically the input to `Color.parse`).

**property** `number`

The color number, if a standard color, or `None`.

**classmethod** `parse`(*color*)

Parse a color definition.

**Parameters**

`color` (*str*) –

**Return type**

`Color`

**property** `system`: `ColorSystem`

Get the native color system for this color.

**property** `triplet`

A triplet of color components, if an RGB color.

**property** `type`

The type of the color.

**exception** `rich.color.ColorParseError`

The color could not be parsed.

**class** `rich.color.ColorSystem`(*value*)

One of the 3 color system supported by terminals.

**class** `rich.color.ColorType`(*value*)

Type of color stored in `Color` class.

`rich.color.blend_rgb`(*color1*, *color2*, *cross\_fade*=0.5)

Blend one RGB color in to another.

**Parameters**

- `color1` (*ColorTriplet*) –
- `color2` (*ColorTriplet*) –
- `cross_fade` (*float*) –

**Return type**

*ColorTriplet*

`rich.color.parse_rgb_hex`(*hex\_color*)

Parse six hex characters in to RGB triplet.

**Parameters**

`hex_color` (*str*) –

**Return type**

*ColorTriplet*

## 23.4 rich.columns

**class** rich.columns.Columns(renderables=None, padding=(0, 1), \*, width=None, expand=False, equal=False, column\_first=False, right\_to\_left=False, align=None, title=None)

Display renderables in neat columns.

### Parameters

- **renderables** (*Iterable[RenderableType]*) – Any number of Rich renderables (including str).
- **width** (*int, optional*) – The desired width of the columns, or None to auto detect. Defaults to None.
- **padding** (*PaddingDimensions, optional*) – Optional padding around cells. Defaults to (0, 1).
- **expand** (*bool, optional*) – Expand columns to full width. Defaults to False.
- **equal** (*bool, optional*) – Arrange in to equal sized columns. Defaults to False.
- **column\_first** (*bool, optional*) – Align items from top to bottom (rather than left to right). Defaults to False.
- **right\_to\_left** (*bool, optional*) – Start column from right hand side. Defaults to False.
- **align** (*str, optional*) – Align value (“left”, “right”, or “center”) or None for default. Defaults to None.
- **title** (*TextType, optional*) – Optional title for Columns.

**add\_renderable**(renderable)

Add a renderable to the columns.

### Parameters

**renderable** (*RenderableType*) – Any renderable object.

### Return type

None

## 23.5 rich.console

**class** rich.console.Capture(console)

Context manager to capture the result of printing to the console. See [capture\(\)](#) for how to use.

### Parameters

**console** (*Console*) – A console instance to capture output.

**get()**

Get the result of the capture.

### Return type

str

**exception** rich.console.CaptureError

An error in the Capture context manager.

```
class rich.console.Console(*, color_system='auto', force_terminal=None, force_jupyter=None,
    force_interactive=None, soft_wrap=False, theme=None, stderr=False,
    file=None, quiet=False, width=None, height=None, style=None, no_color=None,
    tab_size=8, record=False, markup=True, emoji=True, emoji_variant=None,
    highlight=True, log_time=True, log_path=True, log_time_format='[%X]',
    highlighter=<rich.highlighter.ReprHighlighter object>, legacy_windows=None,
    safe_box=True, get_datetime=None, get_time=None, _environ=None)
```

A high level console interface.

#### Parameters

- **color\_system** (*str*, *optional*) – The color system supported by your terminal, either "standard", "256" or "truecolor". Leave as "auto" to autodetect.
- **force\_terminal** (*Optional[bool]*, *optional*) – Enable/disable terminal control codes, or None to auto-detect terminal. Defaults to None.
- **force\_jupyter** (*Optional[bool]*, *optional*) – Enable/disable Jupyter rendering, or None to auto-detect Jupyter. Defaults to None.
- **force\_interactive** (*Optional[bool]*, *optional*) – Enable/disable interactive mode, or None to auto detect. Defaults to None.
- **soft\_wrap** (*Optional[bool]*, *optional*) – Set soft wrap default on print method. Defaults to False.
- **theme** (*Theme*, *optional*) – An optional style theme object, or None for default theme.
- **stderr** (*bool*, *optional*) – Use stderr rather than stdout if file is not specified. Defaults to False.
- **file** (*IO*, *optional*) – A file object where the console should write to. Defaults to stdout.
- **quiet** (*bool*, *Optional*) – Boolean to suppress all output. Defaults to False.
- **width** (*int*, *optional*) – The width of the terminal. Leave as default to auto-detect width.
- **height** (*int*, *optional*) – The height of the terminal. Leave as default to auto-detect height.
- **style** (*StyleType*, *optional*) – Style to apply to all output, or None for no style. Defaults to None.
- **no\_color** (*Optional[bool]*, *optional*) – Enabled no color mode, or None to auto detect. Defaults to None.
- **tab\_size** (*int*, *optional*) – Number of spaces used to replace a tab character. Defaults to 8.
- **record** (*bool*, *optional*) – Boolean to enable recording of terminal output, required to call `export_html()`, `export_svg()`, and `export_text()`. Defaults to False.
- **markup** (*bool*, *optional*) – Boolean to enable *Console Markup*. Defaults to True.
- **emoji** (*bool*, *optional*) – Enable emoji code. Defaults to True.
- **emoji\_variant** (*str*, *optional*) – Optional emoji variant, either "text" or "emoji". Defaults to None.
- **highlight** (*bool*, *optional*) – Enable automatic highlighting. Defaults to True.
- **log\_time** (*bool*, *optional*) – Boolean to enable logging of time by `log()` methods. Defaults to True.

- **log\_path** (*bool*, *optional*) – Boolean to enable the logging of the caller by `log()`. Defaults to True.
- **log\_time\_format** (*Union[str, TimeFormatterCallable]*, *optional*) – If `log_time` is enabled, either string for strftime or callable that formats the time. Defaults to “[%X]”.
- **highlighter** (*HighlighterType*, *optional*) – Default highlighter.
- **legacy\_windows** (*bool*, *optional*) – Enable legacy Windows mode, or None to auto detect. Defaults to None.
- **safe\_box** (*bool*, *optional*) – Restrict box options that don’t render on legacy Windows.
- **get\_datetime** (*Callable[[], datetime]*, *optional*) – Callable that gets the current time as a datetime.datetime object (used by Console.log), or None for datetime.now.
- **get\_time** (*Callable[[], time]*, *optional*) – Callable that gets the current time in seconds, default uses time.monotonic.
- **\_environ** (*Mapping[str, str]*) –

**begin\_capture()**

Begin capturing console output. Call `end_capture()` to exit capture mode and return output.

**Return type**

None

**bell()**

Play a ‘bell’ sound (if supported by the terminal).

**Return type**

None

**capture()**

A context manager to *capture* the result of `print()` or `log()` in a string, rather than writing it to the console.

**Example**

```
>>> from rich.console import Console
>>> console = Console()
>>> with console.capture() as capture:
...     console.print("[bold magenta>Hello World[/]")
>>> print(capture.get())
```

**Returns**

Context manager with disables writing to the terminal.

**Return type**

*Capture*

**clear(home=True)**

Clear the screen.

**Parameters**

**home** (*bool*, *optional*) – Also move the cursor to ‘home’ position. Defaults to True.

**Return type**

None



**clear\_live()**

Clear the Live instance.

**Return type**

None

**property color\_system:** `Optional[str]`

Get color system string.

**Returns**

“standard”, “256” or “truecolor”.

**Return type**

`Optional[str]`

**control(\*control)**

Insert non-printing control codes.

**Parameters**

- **control\_codes** (`str`) – Control codes, such as those that may move the cursor.
- **control** (`Control`) –

**Return type**

None

**property encoding:** `str`

Get the encoding of the console file, e.g. “utf-8”.

**Returns**

A standard encoding string.

**Return type**

`str`

**end\_capture()**

End capture mode and return captured string.

**Returns**

Console output.

**Return type**

`str`

**export\_html(\*, theme=None, clear=True, code\_format=None, inline\_styles=False)**

Generate HTML from console contents (requires `record=True` argument in constructor).

**Parameters**

- **theme** (`TerminalTheme`, *optional*) – `TerminalTheme` object containing console colors.
- **clear** (`bool`, *optional*) – Clear record buffer after exporting. Defaults to `True`.
- **code\_format** (`str`, *optional*) – Format string to render HTML. In addition to ‘{foreground}’, ‘{background}’, and ‘{code}’, should contain ‘{stylesheet}’ if `inline_styles` is `False`.
- **inline\_styles** (`bool`, *optional*) – If `True` styles will be inlined in to spans, which makes files larger but easier to cut and paste markup. If `False`, styles will be embedded in a style tag. Defaults to `False`.

**Returns**

String containing console contents as HTML.

**Return type**

`str`

```
export_svg(*, title='Rich', theme=None, clear=True, code_format='<svg class="rich-terminal"
viewBox="0 0 {width} {height}" xmlns="http://www.w3.org/2000/svg">\n <!-- Generated with
Rich https://www.textualize.io -->\n <style>\n\n @font-face {{\n font-family: "Fira Code";\n src:
local("FiraCode-Regular"),\n
url("https://cdnjs.cloudflare.com/ajax/libs/firacode/6.2.0/woff2/FiraCode-Regular.woff2")
format("woff2"),\n
url("https://cdnjs.cloudflare.com/ajax/libs/firacode/6.2.0/woff/FiraCode-Regular.woff")
format("woff");\n font-style: normal;\n font-weight: 400;\n }}\n @font-face {{\n font-family:
"Fira Code";\n src: local("FiraCode-Bold"),\n
url("https://cdnjs.cloudflare.com/ajax/libs/firacode/6.2.0/woff2/FiraCode-Bold.woff2")
format("woff2"),\n
url("https://cdnjs.cloudflare.com/ajax/libs/firacode/6.2.0/woff/FiraCode-Bold.woff")
format("woff");\n font-style: bold;\n font-weight: 700;\n }}\n\n .{unique_id}-matrix {{\n
font-family: Fira Code, monospace;\n font-size: {char_height}px;\n line-height:
{line_height}px;\n font-variant-east-asian: full-width;\n }}\n\n .{unique_id}-title {{\n font-size:
18px;\n font-weight: bold;\n font-family: arial;\n }}\n\n {styles}\n </style>\n\n <defs>\n
<clipPath id="{unique_id}-clip-terminal">\n <rect x="0" y="0" width="{terminal_width}"
height="{terminal_height}" />\n </clipPath>\n {lines}\n </defs>\n\n {chrome}\n <g
transform="translate({terminal_x}, {terminal_y})"
clip-path="url(#{unique_id}-clip-terminal)">\n {backgrounds}\n <g
class="{unique_id}-matrix">\n {matrix}\n </g>\n </g>\n </svg>\n', font_aspect_ratio=0.61,
unique_id=None)
```

Generate an SVG from the console contents (requires `record=True` in Console constructor).

**Parameters**

- **title** (`str`, *optional*) – The title of the tab in the output image
- **theme** (`TerminalTheme`, *optional*) – The `TerminalTheme` object to use to style the terminal
- **clear** (`bool`, *optional*) – Clear record buffer after exporting. Defaults to `True`
- **code\_format** (`str`, *optional*) – Format string used to generate the SVG. Rich will inject a number of variables into the string in order to form the final SVG output. The default template used and the variables injected by Rich can be found by inspecting the `console.CONSOLE_SVG_FORMAT` variable.
- **font\_aspect\_ratio** (`float`, *optional*) – The width to height ratio of the font used in the `code_format` string. Defaults to 0.61, which is the width to height ratio of Fira Code (the default font). If you aren't specifying a different font inside `code_format`, you probably don't need this.
- **unique\_id** (`str`, *optional*) – unique id that is used as the prefix for various elements (CSS styles, node ids). If not set, this defaults to a computed value based on the recorded content.

**Return type**

`str`

```
export_text(*, clear=True, styles=False)
```

Generate text from console contents (requires `record=True` argument in constructor).

**Parameters**

- **clear** (*bool*, *optional*) – Clear record buffer after exporting. Defaults to True.
- **styles** (*bool*, *optional*) – If True, ansi escape codes will be included. False for plain text. Defaults to False.

**Returns**

String containing console contents.

**Return type**

*str*

**property file:** *IO[*str*]*

Get the file object to write to.

**get\_style**(*name*, \*, *default=None*)

Get a Style instance by its theme name or parse a definition.

**Parameters**

- **name** (*str*) – The name of a style or a style definition.
- **default** (*Optional[Union[*str*, Style]]*) –

**Returns**

A Style object.

**Return type**

*Style*

**Raises**

**MissingStyle** – If no style could be parsed from name.

**property height:** *int*

Get the height of the console.

**Returns**

The height (in lines) of the console.

**Return type**

*int*

**input**(*prompt="*\*, *markup=True*, *emoji=True*, *password=False*, *stream=None*)

Displays a prompt and waits for input from the user. The prompt may contain color / style.

It works in the same way as Python's builtin *input()* function and provides elaborate line editing and history features if Python's builtin *readline* module is previously loaded.

**Parameters**

- **prompt** (*Union[*str*, Text]*) – Text to render in the prompt.
- **markup** (*bool*, *optional*) – Enable console markup (requires a str prompt). Defaults to True.
- **emoji** (*bool*, *optional*) – Enable emoji (requires a str prompt). Defaults to True.
- **password** (*bool*) – (bool, optional): Hide typed text. Defaults to False.
- **stream** (*Optional[TextIO]*) – (TextIO, optional): Optional file to read input from (rather than stdin). Defaults to None.

**Returns**

Text read from stdin.

**Return type**`str`**property** `is_alt_screen: bool`

Check if the alt screen was enabled.

**Returns**

True if the alt screen was enabled, otherwise False.

**Return type**`bool`**property** `is_dumb_terminal: bool`

Detect dumb terminal.

**Returns**

True if writing to a dumb terminal, otherwise False.

**Return type**`bool`**property** `is_terminal: bool`

Check if the console is writing to a terminal.

**Returns**

True if the console writing to a device capable of understanding terminal codes, otherwise False.

**Return type**`bool`**line**(*count=1*)

Write new line(s).

**Parameters****count** (`int`, *optional*) – Number of new lines. Defaults to 1.**Return type**

None

**log**(\**objects*, *sep=' '*, *end='\n'*, *style=None*, *justify=None*, *emoji=None*, *markup=None*, *highlight=None*, *log\_locals=False*, *\_stack\_offset=1*)

Log rich content to the terminal.

**Parameters**

- **objects** (*positional args*) – Objects to log to the terminal.
- **sep** (`str`, *optional*) – String to write between print data. Defaults to " ".
- **end** (`str`, *optional*) – String to write at end of print data. Defaults to "\n".
- **style** (`Union[str, Style]`, *optional*) – A style to apply to output. Defaults to None.
- **justify** (`str`, *optional*) – One of "left", "right", "center", or "full". Defaults to None.
- **overflow** (`str`, *optional*) – Overflow method: "crop", "fold", or "ellipsis". Defaults to None.
- **emoji** (`Optional[bool]`, *optional*) – Enable emoji code, or None to use console default. Defaults to None.
- **markup** (`Optional[bool]`, *optional*) – Enable markup, or None to use console default. Defaults to None.

- **highlight** (*Optional[bool]*, *optional*) – Enable automatic highlighting, or *None* to use console default. Defaults to *None*.
- **log\_locals** (*bool*, *optional*) – Boolean to enable logging of locals where `log()` was called. Defaults to *False*.
- **\_stack\_offset** (*int*, *optional*) – Offset of caller from end of call stack. Defaults to 1.

**Return type**

None

**measure**(*renderable*, \*, *options=None*)

Measure a renderable. Returns a *Measurement* object which contains information regarding the number of characters required to print the renderable.

**Parameters**

- **renderable** (*RenderableType*) – Any renderable or string.
- **options** (*Optional[ConsoleOptions]*, *optional*) – Options to use when measuring, or *None* to use default options. Defaults to *None*.

**Returns**

A measurement of the renderable.

**Return type***Measurement***property options:** *ConsoleOptions*

Get default console options.

**out**(*\*objects*, *sep=' '*, *end='\n'*, *style=None*, *highlight=None*)

Output to the terminal. This is a low-level way of writing to the terminal which unlike `print()` won't pretty print, wrap text, or apply markup, but will optionally apply highlighting and a basic style.

**Parameters**

- **sep** (*str*, *optional*) – String to write between print data. Defaults to " ".
- **end** (*str*, *optional*) – String to write at end of print data. Defaults to "\n".
- **style** (*Union[str, Style]*, *optional*) – A style to apply to output. Defaults to *None*.
- **highlight** (*Optional[bool]*, *optional*) – Enable automatic highlighting, or *None* to use console default. Defaults to *None*.
- **objects** (*Any*) –

**Return type**

None

**pager**(*pager=None*, *styles=False*, *links=False*)

A context manager to display anything printed within a “pager”. The pager application is defined by the system and will typically support at least pressing a key to scroll.

**Parameters**

- **pager** (*Pager*, *optional*) – A pager object, or *None* to use *SystemPager*. Defaults to *None*.
- **styles** (*bool*, *optional*) – Show styles in pager. Defaults to *False*.
- **links** (*bool*, *optional*) – Show links in pager. Defaults to *False*.

**Return type***PagerContext***Example**

```
>>> from rich.console import Console
>>> from rich.__main__ import make_test_card
>>> console = Console()
>>> with console.pager():
>>>     console.print(make_test_card())
```

**Returns**

A context manager.

**Return type***PagerContext***Parameters**

- **pager** (*Optional*[*Pager*]) –
- **styles** (*bool*) –
- **links** (*bool*) –

**pop\_render\_hook()**

Pop the last renderhook from the stack.

**Return type**

None

**pop\_theme()**

Remove theme from top of stack, restoring previous theme.

**Return type**

None

**print**(\*objects, sep=' ', end='\n', style=None, justify=None, overflow=None, no\_wrap=None, emoji=None, markup=None, highlight=None, width=None, height=None, crop=True, soft\_wrap=None, new\_line\_start=False)

Print to the console.

**Parameters**

- **objects** (*positional args*) – Objects to log to the terminal.
- **sep** (*str*, *optional*) – String to write between print data. Defaults to “ ”.
- **end** (*str*, *optional*) – String to write at end of print data. Defaults to “\n”.
- **style** (*Union*[*str*, *Style*], *optional*) – A style to apply to output. Defaults to None.
- **justify** (*str*, *optional*) – Justify method: “default”, “left”, “right”, “center”, or “full”. Defaults to None.
- **overflow** (*str*, *optional*) – Overflow method: “ignore”, “crop”, “fold”, or “ellipsis”. Defaults to None.
- **no\_wrap** (*Optional*[*bool*], *optional*) – Disable word wrapping. Defaults to None.

- **emoji** (*Optional[bool]*, *optional*) – Enable emoji code, or None to use console default. Defaults to None.
- **markup** (*Optional[bool]*, *optional*) – Enable markup, or None to use console default. Defaults to None.
- **highlight** (*Optional[bool]*, *optional*) – Enable automatic highlighting, or None to use console default. Defaults to None.
- **width** (*Optional[int]*, *optional*) – Width of output, or None to auto-detect. Defaults to None.
- **crop** (*Optional[bool]*, *optional*) – Crop output to width of terminal. Defaults to True.
- **soft\_wrap** (*bool*, *optional*) – Enable soft wrap mode which disables word wrapping and cropping of text or None for Console default. Defaults to None.
- **new\_line\_start** (*bool*, *False*) – Insert a new line at the start if the output contains more than one line. Defaults to False.
- **height** (*Optional[int]*) –

**Return type**

None

```
print_exception(*, width=100, extra_lines=3, theme=None, word_wrap=False, show_locals=False,
                 suppress=(), max_frames=100)
```

Prints a rich render of the last exception and traceback.

**Parameters**

- **width** (*Optional[int]*, *optional*) – Number of characters used to render code. Defaults to 100.
- **extra\_lines** (*int*, *optional*) – Additional lines of code to render. Defaults to 3.
- **theme** (*str*, *optional*) – Override pygments theme used in traceback
- **word\_wrap** (*bool*, *optional*) – Enable word wrapping of long lines. Defaults to False.
- **show\_locals** (*bool*, *optional*) – Enable display of local variables. Defaults to False.
- **suppress** (*Iterable[Union[str, ModuleType]]*) – Optional sequence of modules or paths to exclude from traceback.
- **max\_frames** (*int*) – Maximum number of frames to show in a traceback, 0 for no maximum. Defaults to 100.

**Return type**

None

```
print_json(json=None, *, data=None, indent=2, highlight=True, skip_keys=False, ensure_ascii=False,
            check_circular=True, allow_nan=True, default=None, sort_keys=False)
```

Pretty prints JSON. Output will be valid JSON.

**Parameters**

- **json** (*Optional[str]*) – A string containing JSON.
- **data** (*Any*) – If json is not supplied, then encode this data.
- **indent** (*Union[None, int, str]*, *optional*) – Number of spaces to indent. Defaults to 2.

- **highlight** (*bool*, *optional*) – Enable highlighting of output: Defaults to True.
- **skip\_keys** (*bool*, *optional*) – Skip keys not of a basic type. Defaults to False.
- **ensure\_ascii** (*bool*, *optional*) – Escape all non-ascii characters. Defaults to False.
- **check\_circular** (*bool*, *optional*) – Check for circular references. Defaults to True.
- **allow\_nan** (*bool*, *optional*) – Allow NaN and Infinity values. Defaults to True.
- **default** (*Callable*, *optional*) – A callable that converts values that can not be encoded in to something that can be JSON encoded. Defaults to None.
- **sort\_keys** (*bool*, *optional*) – Sort dictionary keys. Defaults to False.

**Return type**

None

**push\_render\_hook**(*hook*)

Add a new render hook to the stack.

**Parameters**

**hook** (*RenderHook*) – Render hook instance.

**Return type**

None

**push\_theme**(*theme*, \*, *inherit=True*)

Push a new theme on to the top of the stack, replacing the styles from the previous theme. Generally speaking, you should call `use_theme()` to get a context manager, rather than calling this method directly.

**Parameters**

- **theme** (*Theme*) – A theme instance.
- **inherit** (*bool*, *optional*) – Inherit existing styles. Defaults to True.

**Return type**

None

**render**(*renderable*, *options=None*)

Render an object in to an iterable of *Segment* instances.

This method contains the logic for rendering objects with the console protocol. You are unlikely to need to use it directly, unless you are extending the library.

**Parameters**

- **renderable** (*RenderableType*) – An object supporting the console protocol, or an object that may be converted to a string.
- **options** (*ConsoleOptions*, *optional*) – An options object, or None to use self.options. Defaults to None.

**Returns**

An iterable of segments that may be rendered.

**Return type**Iterable[*Segment*]**render\_lines**(*renderable*, *options=None*, \*, *style=None*, *pad=True*, *new\_lines=False*)

Render objects in to a list of lines.

The output of `render_lines` is useful when further formatting of rendered console text is required, such as the `Panel` class which draws a border around any renderable object.



**Args:**

**renderable** (*RenderableType*): Any object renderable in the console. **options** (*Optional[ConsoleOptions]*, optional): Console options, or None to use self.options. Default to None. **style** (*Style*, optional): Optional style to apply to renderables. Defaults to None. **pad** (*bool*, optional): Pad lines shorter than render width. Defaults to True. **new\_lines** (*bool*, optional): Include “

” characters at end of lines.

**Returns:**

*List[List[Segment]]*: A list of lines, where a line is a list of Segment objects.

**Parameters**

- **renderable** (*Union[ConsoleRenderable, RichCast, str]*) –
- **options** (*Optional[ConsoleOptions]*) –
- **style** (*Optional[Style]*) –
- **pad** (*bool*) –
- **new\_lines** (*bool*) –

**Return type**

*List[List[Segment]]*

**render\_str**(*text*, \*, *style=""*, *justify=None*, *overflow=None*, *emoji=None*, *markup=None*, *highlight=None*, *highlighter=None*)

Convert a string to a Text instance. This is called automatically if you print or log a string.

**Parameters**

- **text** (*str*) – Text to render.
- **style** (*Union[str, Style]*, optional) – Style to apply to rendered text.
- **justify** (*str*, optional) – Justify method: “default”, “left”, “center”, “full”, or “right”. Defaults to None.
- **overflow** (*str*, optional) – Overflow method: “crop”, “fold”, or “ellipsis”. Defaults to None.
- **emoji** (*Optional[bool]*, optional) – Enable emoji, or None to use Console default.
- **markup** (*Optional[bool]*, optional) – Enable markup, or None to use Console default.
- **highlight** (*Optional[bool]*, optional) – Enable highlighting, or None to use Console default.
- **highlighter** (*HighlighterType*, optional) – Optional highlighter to apply.

**Returns**

Renderable object.

**Return type**

*ConsoleRenderable*

**rule**(*title=""*, \*, *characters='-'*, *style='rule.line'*, *align='center'*)

Draw a line with optional centered title.

**Parameters**

- **title** (*str*, *optional*) – Text to render over the rule. Defaults to “”.
- **characters** (*str*, *optional*) – Character(s) to form the line. Defaults to “–”.
- **style** (*str*, *optional*) – Style of line. Defaults to “rule.line”.
- **align** (*str*, *optional*) – How to align the title, one of “left”, “center”, or “right”. Defaults to “center”.

**Return type**

None

```
save_html(path, *, theme=None, clear=True, code_format='<!DOCTYPE html>\n<head>\n<meta
charset="UTF-8">\n<style>\n{stylesheet}\nbody {{\n color: {foreground};\n background-color:
{background};\n}}\n</style>\n</head>\n<html>\n<body>\n <pre
style="font-family:Menlo,\DejaVu Sans Mono\',consolas,\Courier
New\',monospace"><code>{code}</code></pre>\n</body>\n</html>\n', inline_styles=False)
```

Generate HTML from console contents and write to a file (requires record=True argument in constructor).

**Parameters**

- **path** (*str*) – Path to write html file.
- **theme** (*TerminalTheme*, *optional*) – TerminalTheme object containing console colors.
- **clear** (*bool*, *optional*) – Clear record buffer after exporting. Defaults to True.
- **code\_format** (*str*, *optional*) – Format string to render HTML. In addition to ‘{foreground}’, ‘{background}’, and ‘{code}’, should contain ‘{stylesheet}’ if inline\_styles is False.
- **inline\_styles** (*bool*, *optional*) – If True styles will be inlined in to spans, which makes files larger but easier to cut and paste markup. If False, styles will be embedded in a style tag. Defaults to False.

**Return type**

None

```
save_svg(path, *, title='Rich', theme=None, clear=True, code_format='<svg class="rich-terminal"
viewBox="0 0 {width} {height}" xmlns="http://www.w3.org/2000/svg">\n <!-- Generated with
Rich https://www.textualize.io -->\n <style>\n\n @font-face {{\n font-family: "Fira Code";\n src:
local("FiraCode-Regular"),\n
url("https://cdn.jsdelivr.net/npm/firacode@6.2.0/woff2/FiraCode-Regular.woff2")
format("woff2"),\n
url("https://cdn.jsdelivr.net/npm/firacode@6.2.0/woff/FiraCode-Regular.woff")
format("woff");\n font-style: normal;\n font-weight: 400;\n }}\n @font-face {{\n font-family: "Fira
Code";\n src: local("FiraCode-Bold"),\n
url("https://cdn.jsdelivr.net/npm/firacode@6.2.0/woff2/FiraCode-Bold.woff2")
format("woff2"),\n
url("https://cdn.jsdelivr.net/npm/firacode@6.2.0/woff/FiraCode-Bold.woff")
format("woff");\n font-style: bold;\n font-weight: 700;\n }}\n\n .{unique_id}-matrix {{\n
font-family: Fira Code, monospace;\n font-size: {char_height}px;\n line-height: {line_height}px;\n
font-variant-east-asian: full-width;\n }}\n\n .{unique_id}-title {{\n font-size: 18px;\n font-weight:
bold;\n font-family: arial;\n }}\n\n {stylesheet}\n </style>\n\n <defs>\n <clipPath
id="{unique_id}-clip-terminal">\n <rect x="0" y="0" width="{terminal_width}"
height="{terminal_height}" />\n </clipPath>\n {lines}\n </defs>\n\n {chrome}\n <g
transform="translate({terminal_x}, {terminal_y})"
clip-path="url(#{unique_id}-clip-terminal)">\n {backgrounds}\n <g
class="{unique_id}-matrix">\n {matrix}\n </g>\n </g>\n </svg>\n', font_aspect_ratio=0.61,
unique_id=None)
```

Generate an SVG file from the console contents (requires `record=True` in Console constructor).

#### Parameters

- **path** (*str*) – The path to write the SVG to.
- **title** (*str*, *optional*) – The title of the tab in the output image
- **theme** (*TerminalTheme*, *optional*) – The *TerminalTheme* object to use to style the terminal
- **clear** (*bool*, *optional*) – Clear record buffer after exporting. Defaults to `True`
- **code\_format** (*str*, *optional*) – Format string used to generate the SVG. Rich will inject a number of variables into the string in order to form the final SVG output. The default template used and the variables injected by Rich can be found by inspecting the `console.CONSOLE_SVG_FORMAT` variable.
- **font\_aspect\_ratio** (*float*, *optional*) – The width to height ratio of the font used in the `code_format` string. Defaults to 0.61, which is the width to height ratio of Fira Code (the default font). If you aren't specifying a different font inside `code_format`, you probably don't need this.
- **unique\_id** (*str*, *optional*) – unique id that is used as the prefix for various elements (CSS styles, node ids). If not set, this defaults to a computed value based on the recorded content.

#### Return type

None

**save\_text**(*path*, \*, *clear=True*, *styles=False*)

Generate text from console and save to a given location (requires `record=True` argument in constructor).

#### Parameters

- **path** (*str*) – Path to write text files.
- **clear** (*bool*, *optional*) – Clear record buffer after exporting. Defaults to `True`.
- **styles** (*bool*, *optional*) – If `True`, ansi style codes will be included. `False` for plain text. Defaults to `False`.

#### Return type

None

**screen**(*hide\_cursor=True*, *style=None*)

Context manager to enable and disable 'alternative screen' mode.

#### Parameters

- **hide\_cursor** (*bool*, *optional*) – Also hide the cursor. Defaults to `False`.
- **style** (*Style*, *optional*) – Optional style for screen. Defaults to `None`.

#### Returns

Context which enables alternate screen on enter, and disables it on exit.

#### Return type

~ScreenContext

**set\_alt\_screen**(*enable=True*)

Enables alternative screen mode.

Note, if you enable this mode, you should ensure that is disabled before the application exits. See `screen()` for a context manager that handles this for you.

**Parameters**

**enable** (*bool*, *optional*) – Enable (True) or disable (False) alternate screen. Defaults to True.

**Returns**

True if the control codes were written.

**Return type**

*bool*

**set\_live**(*live*)

Set Live instance. Used by Live context manager.

**Parameters**

**live** (*Live*) – Live instance using this Console.

**Raises**

**errors.LiveError** – If this Console has a Live context currently active.

**Return type**

None

**set\_window\_title**(*title*)

Set the title of the console terminal window.

Warning: There is no means within Rich of “resetting” the window title to its previous value, meaning the title you set will persist even after your application exits.

`fish` shell resets the window title before and after each command by default, negating this issue. Windows Terminal and command prompt will also reset the title for you. Most other shells and terminals, however, do not do this.

Some terminals may require configuration changes before you can set the title. Some terminals may not support setting the title at all.

Other software (including the terminal itself, the shell, custom prompts, plugins, etc.) may also set the terminal window title. This could result in whatever value you write using this method being overwritten.

**Parameters**

**title** (*str*) – The new title of the terminal window.

**Returns**

**True if the control code to change the terminal title was**

written, otherwise False. Note that a return value of True does not guarantee that the window title has actually changed, since the feature may be unsupported/disabled in some terminals.

**Return type**

*bool*

**show\_cursor**(*show=True*)

Show or hide the cursor.

**Parameters**

**show** (*bool*, *optional*) – Set visibility of the cursor.

**Return type***bool***property size:** *ConsoleDimensions*

Get the size of the console.

**Returns**

A named tuple containing the dimensions.

**Return type***ConsoleDimensions***status**(*status*, \*, *spinner*='dots', *spinner\_style*='status.spinner', *speed*=1.0, *refresh\_per\_second*=12.5)

Display a status and spinner.

**Parameters**

- **status** (*RenderableType*) – A status renderable (str or Text typically).
- **spinner** (*str*, *optional*) – Name of spinner animation (see python -m rich.spinner). Defaults to “dots”.
- **spinner\_style** (*StyleType*, *optional*) – Style of spinner. Defaults to “status.spinner”.
- **speed** (*float*, *optional*) – Speed factor for spinner animation. Defaults to 1.0.
- **refresh\_per\_second** (*float*, *optional*) – Number of refreshes per second. Defaults to 12.5.

**Returns**

A Status object that may be used as a context manager.

**Return type***Status***update\_screen**(*renderable*, \*, *region*=None, *options*=None)

Update the screen at a given offset.

**Parameters**

- **renderable** (*RenderableType*) – A Rich renderable.
- **region** (*Region*, *optional*) – Region of screen to update, or None for entire screen. Defaults to None.
- **x** (*int*, *optional*) – x offset. Defaults to 0.
- **y** (*int*, *optional*) – y offset. Defaults to 0.
- **options** (*Optional*[*ConsoleOptions*]) –

**Raises****errors.NoAltScreen** – If the Console isn’t in alt screen mode.**Return type**

None

**update\_screen\_lines**(*lines*, *x*=0, *y*=0)

Update lines of the screen at a given offset.

**Parameters**

- **lines** (*List*[*List*[*Segment*]]) – Rendered lines (as produced by `render_lines()`).

- **x** (*int*, *optional*) – x offset (column no). Defaults to 0.
- **y** (*int*, *optional*) – y offset (column no). Defaults to 0.

**Raises**

**errors.NoAltScreen** – If the Console isn't in alt screen mode.

**Return type**

None

**use\_theme**(*theme*, \*, *inherit=True*)

Use a different theme for the duration of the context manager.

**Parameters**

- **theme** (*Theme*) – Theme instance to user.
- **inherit** (*bool*, *optional*) – Inherit existing console styles. Defaults to True.

**Returns**

[description]

**Return type**

*ThemeContext*

**property width:** *int*

Get the width of the console.

**Returns**

The width (in characters) of the console.

**Return type**

*int*

**class** rich.console.**ConsoleDimensions**(*width*, *height*)

Size of the terminal.

**Parameters**

- **width** (*int*) –
- **height** (*int*) –

**property height**

The height of the console in lines.

**property width**

The width of the console in 'cells'.

**class** rich.console.**ConsoleOptions**(*size*, *legacy\_windows*, *min\_width*, *max\_width*, *is\_terminal*, *encoding*, *max\_height*, *justify=None*, *overflow=None*, *no\_wrap=False*, *highlight=None*, *markup=None*, *height=None*)

Options for `__rich_console__` method.

**Parameters**

- **size** (*ConsoleDimensions*) –
- **legacy\_windows** (*bool*) –
- **min\_width** (*int*) –
- **max\_width** (*int*) –
- **is\_terminal** (*bool*) –

- **encoding** (*str*) –
- **max\_height** (*int*) –
- **justify** (*Optional*[*typing\_extensions.Literal*[*default*, *left*, *center*, *right*, *full*]]) –
- **overflow** (*Optional*[*typing\_extensions.Literal*[*fold*, *crop*, *ellipsis*, *ignore*]]) –
- **no\_wrap** (*Optional*[*bool*]) –
- **highlight** (*Optional*[*bool*]) –
- **markup** (*Optional*[*bool*]) –
- **height** (*Optional*[*int*]) –

**property ascii\_only:** *bool*

Check if renderables should use ascii only.

**copy()**

Return a copy of the options.

**Returns**

a copy of self.

**Return type**

*ConsoleOptions*

**encoding:** *str*

Encoding of terminal.

**highlight:** *Optional*[*bool*] = *None*

Highlight override for render\_str.

**is\_terminal:** *bool*

True if the target is a terminal, otherwise False.

**justify:** *Optional*[*typing\_extensions.Literal*[*default*, *left*, *center*, *right*, *full*]] = *None*

Justify value override for renderable.

**legacy\_windows:** *bool*

flag for legacy windows.

**Type**

legacy\_windows

**markup:** *Optional*[*bool*] = *None*

Enable markup when rendering strings.

**max\_height:** *int*

Height of container (starts as terminal)

**max\_width:** *int*

Maximum width of renderable.

**min\_width:** *int*

Minimum width of renderable.

**no\_wrap:** `Optional[bool]` = `False`

Disable wrapping for text.

**overflow:** `Optional[typing_extensions.Literal[fold, crop, ellipsis, ignore]]` = `None`

Overflow value override for renderable.

**reset\_height()**

Return a copy of the options with height set to `None`.

**Returns**

New console options instance.

**Return type**

`~ConsoleOptions`

**size:** `ConsoleDimensions`

Size of console.

**update**(\**width=<rich.console.NoChange object>*, *min\_width=<rich.console.NoChange object>*, *max\_width=<rich.console.NoChange object>*, *justify=<rich.console.NoChange object>*, *overflow=<rich.console.NoChange object>*, *no\_wrap=<rich.console.NoChange object>*, *highlight=<rich.console.NoChange object>*, *markup=<rich.console.NoChange object>*, *height=<rich.console.NoChange object>*)

Update values, return a copy.

**Parameters**

- **width** (`Union[int, NoChange]`) –
- **min\_width** (`Union[int, NoChange]`) –
- **max\_width** (`Union[int, NoChange]`) –
- **justify** (`Union[typing_extensions.Literal[default, left, center, right, full], None, NoChange]`) –
- **overflow** (`Union[typing_extensions.Literal[fold, crop, ellipsis, ignore], None, NoChange]`) –
- **no\_wrap** (`Union[bool, None, NoChange]`) –
- **highlight** (`Union[bool, None, NoChange]`) –
- **markup** (`Union[bool, None, NoChange]`) –
- **height** (`Union[int, None, NoChange]`) –

**Return type**

`ConsoleOptions`

**update\_dimensions**(*width*, *height*)

Update the width and height, and return a copy.

**Parameters**

- **width** (`int`) – New width (sets both `min_width` and `max_width`).
- **height** (`int`) – New height.

**Returns**

New console options instance.

**Return type**

`~ConsoleOptions`



**update\_height**(*height*)

Update the height, and return a copy.

**Parameters**

**height** (*int*) – New height

**Returns**

New Console options instance.

**Return type**

~ConsoleOptions

**update\_width**(*width*)

Update just the width, return a copy.

**Parameters**

**width** (*int*) – New width (sets both min\_width and max\_width)

**Returns**

New console options instance.

**Return type**

~ConsoleOptions

**class** rich.console.**ConsoleRenderable**(\*args, \*\*kws)

An object that supports the console protocol.

**class** rich.console.**ConsoleThreadLocals**(*theme\_stack*, *buffer*=<factory>, *buffer\_index*=0)

Thread local values for Console context.

**Parameters**

- **theme\_stack** (*ThemeStack*) –
- **buffer** (*List[Segment]*) –
- **buffer\_index** (*int*) –

**class** rich.console.**Group**(\*renderables, *fit*=True)

Takes a group of renderables and returns a renderable object that renders the group.

**Parameters**

- **renderables** (*Iterable[RenderableType]*) – An iterable of renderable objects.
- **fit** (*bool*, *optional*) – Fit dimension of group to contents, or fill available space. Defaults to True.

**class** rich.console.**NewLine**(*count*=1)

A renderable to generate new line(s)

**Parameters**

**count** (*int*) –

**class** rich.console.**PagerContext**(*console*, *pager*=None, *styles*=False, *links*=False)

A context manager that ‘pages’ content. See [pager\(\)](#) for usage.

**Parameters**

- **console** (*Console*) –
- **pager** (*Optional[Pager]*) –
- **styles** (*bool*) –

- **links** (*bool*) –

**class** rich.console.**RenderHook**

Provides hooks in to the render process.

**abstract** **process\_renderables**(*renderables*)

Called with a list of objects to render.

This method can return a new list of renderables, or modify and return the same list.

**Parameters**

**renderables** (*List*[[ConsoleRenderable](#)]) – A number of renderable objects.

**Returns**

A replacement list of renderables.

**Return type**

*List*[[ConsoleRenderable](#)]

**class** rich.console.**RichCast**(\*args, \*\*kws)

An object that may be ‘cast’ to a console renderable.

**class** rich.console.**ScreenContext**(*console*, *hide\_cursor*, *style=""*)

A context manager that enables an alternative screen. See [screen\(\)](#) for usage.

**Parameters**

- **console** ([Console](#)) –
- **hide\_cursor** (*bool*) –
- **style** (*Union*[*str*, *Style*]) –

**update**(\*renderables, *style=None*)

Update the screen.

**Parameters**

- **renderable** (*RenderableType*, *optional*) – Optional renderable to replace current renderable, or None for no change. Defaults to None.
- **style** (*Optional*[*Union*[*str*, *Style*]]) – (Style, optional): Replacement style, or None for no change. Defaults to None.
- **renderables** (*Union*[[ConsoleRenderable](#), [RichCast](#), *str*]) –

**Return type**

None

**class** rich.console.**ScreenUpdate**(*lines*, *x*, *y*)

Render a list of lines at a given offset.

**Parameters**

- **lines** (*List*[*List*[[Segment](#)]]) –
- **x** (*int*) –
- **y** (*int*) –

**class** rich.console.**ThemeContext**(*console*, *theme*, *inherit=True*)

A context manager to use a temporary theme. See [use\\_theme\(\)](#) for usage.

**Parameters**

- **console** (*Console*) –
- **theme** (*Theme*) –
- **inherit** (*bool*) –

`rich.console.detect_legacy_windows()`

Detect legacy Windows.

**Return type**

*bool*

`rich.console.group(fit=True)`

A decorator that turns an iterable of renderables in to a group.

**Parameters**

**fit** (*bool*, *optional*) – Fit dimension of group to contents, or fill available space. Defaults to True.

**Return type**

*Callable*[*...*], *Callable*[*...*], *Group*]

## 23.6 rich.emoji

`class rich.emoji.Emoji(name, style='none', variant=None)`

**Parameters**

- **name** (*str*) –
- **style** (*Union*[*str*, *Style*]) –
- **variant** (*Optional*[*typing\_extensions.Literal*[*emoji*, *text*]]) –

`classmethod replace(text)`

Replace emoji markup with corresponding unicode characters.

**Parameters**

**text** (*str*) – A string with emojis codes, e.g. “Hello :smiley:!”

**Returns**

A string with emoji codes replaces with actual emoji.

**Return type**

*str*

## 23.7 rich.highlighter

`class rich.highlighter.Highlighter`

Abstract base class for highlighters.

`__call__(text)`

Highlight a str or Text instance.

**Parameters**

**text** (*Union*[*str*, *~Text*]) – Text to highlight.

**Raises**

**TypeError** – If not called with text or str.

**Returns**

A test instance with highlighting applied.

**Return type**

*Text*

**abstract highlight(text)**

Apply highlighting in place to text.

**Parameters**

**text** (~Text) – A text object highlight.

**Return type**

None

**class rich.highlighter.ISO8601Highlighter**

Highlights the ISO8601 date time strings.   Regex reference: <https://www.oreilly.com/library/view/regular-expressions-cookbook/9781449327453/ch04s07.html>

**class rich.highlighter.JSONHighlighter**

Highlights JSON

**highlight(text)**

Highlight *rich.text.Text* using regular expressions.

**Parameters**

**text** (~Text) – Text to highlighted.

**Return type**

None

**class rich.highlighter.NullHighlighter**

A highlighter object that doesn't highlight.

May be used to disable highlighting entirely.

**highlight(text)**

Nothing to do

**Parameters**

**text** (Text) –

**Return type**

None

**class rich.highlighter.RegexHighlighter**

Applies highlighting from a list of regular expressions.

**highlight(text)**

Highlight *rich.text.Text* using regular expressions.

**Parameters**

**text** (~Text) – Text to highlighted.

**Return type**

None

**class rich.highlighter.ReprHighlighter**

Highlights the text typically produced from `__repr__` methods.

## 23.8 rich

Rich text and beautiful formatting in the terminal.

`rich.get_console()`

Get a global `Console` instance. This function is used when Rich requires a Console, and hasn't been explicitly given one.

### Returns

A console instance.

### Return type

`Console`

`rich.inspect(obj, *, console=None, title=None, help=False, methods=False, docs=True, private=False, dunder=False, sort=True, all=False, value=True)`

Inspect any Python object.

- `inspect(<OBJECT>)` to see summarized info.
- `inspect(<OBJECT>, methods=True)` to see methods.
- `inspect(<OBJECT>, help=True)` to see full (non-abbreviated) help.
- `inspect(<OBJECT>, private=True)` to see private attributes (single underscore).
- `inspect(<OBJECT>, dunder=True)` to see attributes beginning with double underscore.
- `inspect(<OBJECT>, all=True)` to see all attributes.

### Parameters

- **obj** (*Any*) – An object to inspect.
- **title** (*str*, *optional*) – Title to display over inspect result, or None use type. Defaults to None.
- **help** (*bool*, *optional*) – Show full help text rather than just first paragraph. Defaults to False.
- **methods** (*bool*, *optional*) – Enable inspection of callables. Defaults to False.
- **docs** (*bool*, *optional*) – Also render doc strings. Defaults to True.
- **private** (*bool*, *optional*) – Show private attributes (beginning with underscore). Defaults to False.
- **dunder** (*bool*, *optional*) – Show attributes starting with double underscore. Defaults to False.
- **sort** (*bool*, *optional*) – Sort attributes alphabetically. Defaults to True.
- **all** (*bool*, *optional*) – Show all attributes. Defaults to False.
- **value** (*bool*, *optional*) – Pretty print value. Defaults to True.
- **console** (*Optional[Console]*) –

### Return type

None

`rich.print(*objects, sep=' ', end='\n', file=None, flush=False)`

Print object(s) supplied via positional arguments. This function has an identical signature to the built-in `print`. For more advanced features, see the [Console](#) class.

#### Parameters

- **sep** (*str*, optional) – Separator between printed objects. Defaults to " ".
- **end** (*str*, optional) – Character to write at end of output. Defaults to "\n".
- **file** (*IO[str]*, optional) – File to write to, or None for stdout. Defaults to None.
- **flush** (*bool*, optional) – Has no effect as Rich always flushes output. Defaults to False.
- **objects** (*Any*) –

#### Return type

None

`rich.print_json(json=None, *, data=None, indent=2, highlight=True, skip_keys=False, ensure_ascii=False, check_circular=True, allow_nan=True, default=None, sort_keys=False)`

Pretty prints JSON. Output will be valid JSON.

#### Parameters

- **json** (*str*) – A string containing JSON.
- **data** (*Any*) – If json is not supplied, then encode this data.
- **indent** (*int*, optional) – Number of spaces to indent. Defaults to 2.
- **highlight** (*bool*, optional) – Enable highlighting of output: Defaults to True.
- **skip\_keys** (*bool*, optional) – Skip keys not of a basic type. Defaults to False.
- **ensure\_ascii** (*bool*, optional) – Escape all non-ascii characters. Defaults to False.
- **check\_circular** (*bool*, optional) – Check for circular references. Defaults to True.
- **allow\_nan** (*bool*, optional) – Allow NaN and Infinity values. Defaults to True.
- **default** (*Callable*, optional) – A callable that converts values that can not be encoded in to something that can be JSON encoded. Defaults to None.
- **sort\_keys** (*bool*, optional) – Sort dictionary keys. Defaults to False.

#### Return type

None

`rich.reconfigure(*args, **kwargs)`

Reconfigures the global console by replacing it with another.

#### Parameters

- **\*args** (*Any*) – Positional arguments for the replacement [Console](#).
- **\*\*kwargs** (*Any*) – Keyword arguments for the replacement [Console](#).

#### Return type

None

## 23.9 rich.json

```
class rich.json.JSON(json, indent=2, highlight=True, skip_keys=False, ensure_ascii=False,
                    check_circular=True, allow_nan=True, default=None, sort_keys=False)
```

A renderable which pretty prints JSON.

### Parameters

- **json** (*str*) – JSON encoded data.
- **indent** (*Union[None, int, str]*, *optional*) – Number of characters to indent by. Defaults to 2.
- **highlight** (*bool*, *optional*) – Enable highlighting. Defaults to True.
- **skip\_keys** (*bool*, *optional*) – Skip keys not of a basic type. Defaults to False.
- **ensure\_ascii** (*bool*, *optional*) – Escape all non-ascii characters. Defaults to False.
- **check\_circular** (*bool*, *optional*) – Check for circular references. Defaults to True.
- **allow\_nan** (*bool*, *optional*) – Allow NaN and Infinity values. Defaults to True.
- **default** (*Callable*, *optional*) – A callable that converts values that can not be encoded in to something that can be JSON encoded. Defaults to None.
- **sort\_keys** (*bool*, *optional*) – Sort dictionary keys. Defaults to False.

```
classmethod from_data(data, indent=2, highlight=True, skip_keys=False, ensure_ascii=False,
                    check_circular=True, allow_nan=True, default=None, sort_keys=False)
```

Encodes a JSON object from arbitrary data.

### Parameters

- **data** (*Any*) – An object that may be encoded in to JSON
- **indent** (*Union[None, int, str]*, *optional*) – Number of characters to indent by. Defaults to 2.
- **highlight** (*bool*, *optional*) – Enable highlighting. Defaults to True.
- **default** (*Callable*, *optional*) – Optional callable which will be called for objects that cannot be serialized. Defaults to None.
- **skip\_keys** (*bool*, *optional*) – Skip keys not of a basic type. Defaults to False.
- **ensure\_ascii** (*bool*, *optional*) – Escape all non-ascii characters. Defaults to False.
- **check\_circular** (*bool*, *optional*) – Check for circular references. Defaults to True.
- **allow\_nan** (*bool*, *optional*) – Allow NaN and Infinity values. Defaults to True.
- **default** – A callable that converts values that can not be encoded in to something that can be JSON encoded. Defaults to None.
- **sort\_keys** (*bool*, *optional*) – Sort dictionary keys. Defaults to False.

### Returns

New JSON object from the given data.

### Return type

*JSON*

## 23.10 rich.layout

**class** rich.layout.ColumnSplitter

Split a layout region in to columns.

**divide**(*children, region*)

Divide a region amongst several child layouts.

**Parameters**

- **children** (*Sequence(Layout)*) – A number of child layouts.
- **region** (*Region*) – A rectangular region to divide.

**Return type**

*Iterable[Tuple[Layout, Region]]*

**get\_tree\_icon**()

Get the icon (emoji) used in layout.tree

**Return type**

*str*

**class** rich.layout.Layout(*renderable=None, \*, name=None, size=None, minimum\_size=1, ratio=1, visible=True*)

A renderable to divide a fixed height in to rows or columns.

**Parameters**

- **renderable** (*RenderableType, optional*) – Renderable content, or None for placeholder. Defaults to None.
- **name** (*str, optional*) – Optional identifier for Layout. Defaults to None.
- **size** (*int, optional*) – Optional fixed size of layout. Defaults to None.
- **minimum\_size** (*int, optional*) – Minimum size of layout. Defaults to 1.
- **ratio** (*int, optional*) – Optional ratio for flexible layout. Defaults to 1.
- **visible** (*bool, optional*) – Visibility of layout. Defaults to True.

**add\_split**(\**layouts*)

Add a new layout(s) to existing split.

**Parameters**

**\*layouts** (*Union[Layout, RenderableType]*) – Positional arguments should be renderables or (sub) Layout instances.

**Return type**

*None*

**property children:** *List[Layout]*

Gets (visible) layout children.

**get**(*name*)

Get a named layout, or None if it doesn't exist.

**Parameters**

**name** (*str*) – Name of layout.

**Returns**

Layout instance or None if no layout was found.



**Return type**Optional[*Layout*]**property map:** Dict[*Layout*, *LayoutRender*]

Get a map of the last render.

**refresh\_screen**(*console*, *layout\_name*)

Refresh a sub-layout.

**Parameters**

- **console** (*Console*) – Console instance where Layout is to be rendered.
- **layout\_name** (*str*) – Name of layout.

**Return type**

None

**render**(*console*, *options*)

Render the sub\_layouts.

**Parameters**

- **console** (*Console*) – Console instance.
- **options** (*ConsoleOptions*) – Console options.

**Returns**

A dict that maps Layout on to a tuple of Region, lines

**Return type**

RenderMap

**property renderable:** Union[*ConsoleRenderable*, *RichCast*, *str*]

Layout renderable.

**split**(\**layouts*, *splitter*='column')

Split the layout in to multiple sub-layouts.

**Parameters**

- **\*layouts** (*Layout*) – Positional arguments should be (sub) Layout instances.
- **splitter** (Union[*Splitter*, *str*]) – Splitter instance or name of splitter.

**Return type**

None

**split\_column**(\**layouts*)

Split the layout in to a column (layouts stacked on top of each other).

**Parameters****\*layouts** (*Layout*) – Positional arguments should be (sub) Layout instances.**Return type**

None

**split\_row**(\**layouts*)

Split the layout in to a row (layouts side by side).

**Parameters****\*layouts** (*Layout*) – Positional arguments should be (sub) Layout instances.

**Return type**

None

**property tree:** *Tree*

Get a tree renderable to show layout structure.

**unsplit()**

Reset splits to initial state.

**Return type**

None

**update(renderable)**

Update renderable.

**Parameters****renderable** (*RenderableType*) – New renderable object.**Return type**

None

**exception rich.layout.LayoutError**

Layout related error.

**class rich.layout.LayoutRender(region, render)**

An individual layout render.

**Parameters**

- **region** (*Region*) –
- **render** (*List[List[Segment]]*) –

**property region**

Alias for field number 0

**property render**

Alias for field number 1

**exception rich.layout.NoSplitter**

Requested splitter does not exist.

**class rich.layout.RowSplitter**

Split a layout region in to rows.

**divide(children, region)**

Divide a region amongst several child layouts.

**Parameters**

- **children** (*Sequence(Layout)*) – A number of child layouts.
- **region** (*Region*) – A rectangular region to divide.

**Return type***Iterable[Tuple[Layout, Region]]***get\_tree\_icon()**

Get the icon (emoji) used in layout.tree

**Return type**

str

**class rich.layout.Splitter**

Base class for a splitter.

**abstract divide**(*children, region*)

Divide a region amongst several child layouts.

**Parameters**

- **children** (*Sequence(Layout)*) – A number of child layouts.
- **region** (*Region*) – A rectangular region to divide.

**Return type**

*Iterable[Tuple[Layout, Region]]*

**abstract get\_tree\_icon**()

Get the icon (emoji) used in layout.tree

**Return type**

*str*

## 23.11 rich.live

```
class rich.live.Live(renderable=None, *, console=None, screen=False, auto_refresh=True,
                    refresh_per_second=4, transient=False, redirect_stdout=True, redirect_stderr=True,
                    vertical_overflow='ellipsis', get_renderable=None)
```

Renders an auto-updating live display of any given renderable.

**Parameters**

- **renderable** (*RenderableType, optional*) – The renderable to live display. Defaults to displaying nothing.
- **console** (*Console, optional*) – Optional Console instance. Default will an internal Console instance writing to stdout.
- **screen** (*bool, optional*) – Enable alternate screen mode. Defaults to False.
- **auto\_refresh** (*bool, optional*) – Enable auto refresh. If disabled, you will need to call *refresh()* or *update()* with refresh flag. Defaults to True
- **refresh\_per\_second** (*float, optional*) – Number of times per second to refresh the live display. Defaults to 4.
- **transient** (*bool, optional*) – Clear the renderable on exit (has no effect when screen=True). Defaults to False.
- **redirect\_stdout** (*bool, optional*) – Enable redirection of stdout, so print may be used. Defaults to True.
- **redirect\_stderr** (*bool, optional*) – Enable redirection of stderr. Defaults to True.
- **vertical\_overflow** (*VerticalOverflowMethod, optional*) – How to handle renderable when it is too tall for the console. Defaults to “ellipsis”.
- **get\_renderable** (*Callable[[], RenderableType], optional*) – Optional callable to get renderable. Defaults to None.

**property is\_started:** *bool*

Check if live display has been started.

**process\_renderables**(*renderables*)

Process renderables to restore cursor and display progress.

**Parameters**

**renderables** (*List*[*ConsoleRenderable*]) –

**Return type**

*List*[*ConsoleRenderable*]

**refresh**()

Update the display of the Live Render.

**Return type**

None

**property renderable:** *Union*[*ConsoleRenderable*, *RichCast*, *str*]

Get the renderable that is being displayed

**Returns**

Displayed renderable.

**Return type**

*RenderableType*

**start**(*refresh=False*)

Start live rendering display.

**Parameters**

**refresh** (*bool*, *optional*) – Also refresh. Defaults to False.

**Return type**

None

**stop**()

Stop live rendering display.

**Return type**

None

**update**(*renderable*, \*, *refresh=False*)

Update the renderable that is being displayed

**Parameters**

- **renderable** (*RenderableType*) – New renderable to use.
- **refresh** (*bool*, *optional*) – Refresh the display. Defaults to False.

**Return type**

None

## 23.12 rich.logging

```
class rich.logging.RichHandler(level=0, console=None, *, show_time=True, omit_repeated_times=True,
                                show_level=True, show_path=True, enable_link_path=True,
                                highlighter=None, markup=False, rich_tracebacks=False,
                                tracebacks_width=None, tracebacks_extra_lines=3,
                                tracebacks_theme=None, tracebacks_word_wrap=True,
                                tracebacks_show_locals=False, tracebacks_suppress=(),
                                locals_max_length=10, locals_max_string=80, log_time_format='[%x
                                %X]', keywords=None)
```

A logging handler that renders output with Rich. The time / level / message and file are displayed in columns. The level is color coded, and the message is syntax highlighted.

---

**Note:** Be careful when enabling console markup in log messages if you have configured logging for libraries not under your control. If a dependency writes messages containing square brackets, it may not produce the intended output.

---

### Parameters

- **level** (*Union[int, str]*, optional) – Log level. Defaults to logging.NOTSET.
- **console** (*Console*, optional) – Optional console instance to write logs. Default will use a global console instance writing to stdout.
- **show\_time** (*bool*, optional) – Show a column for the time. Defaults to True.
- **omit\_repeated\_times** (*bool*, optional) – Omit repetition of the same time. Defaults to True.
- **show\_level** (*bool*, optional) – Show a column for the level. Defaults to True.
- **show\_path** (*bool*, optional) – Show the path to the original log call. Defaults to True.
- **enable\_link\_path** (*bool*, optional) – Enable terminal link of path column to file. Defaults to True.
- **highlighter** (*Highlighter*, optional) – Highlighter to style log messages, or None to use ReprHighlighter. Defaults to None.
- **markup** (*bool*, optional) – Enable console markup in log messages. Defaults to False.
- **rich\_tracebacks** (*bool*, optional) – Enable rich tracebacks with syntax highlighting and formatting. Defaults to False.
- **tracebacks\_width** (*Optional[int]*, optional) – Number of characters used to render tracebacks, or None for full width. Defaults to None.
- **tracebacks\_extra\_lines** (*int*, optional) – Additional lines of code to render tracebacks, or None for full width. Defaults to None.
- **tracebacks\_theme** (*str*, optional) – Override pygments theme used in traceback.
- **tracebacks\_word\_wrap** (*bool*, optional) – Enable word wrapping of long tracebacks lines. Defaults to True.
- **tracebacks\_show\_locals** (*bool*, optional) – Enable display of locals in tracebacks. Defaults to False.

- **tracebacks\_suppress** (*Sequence[Union[[str](#), *ModuleType*]]*) – Optional sequence of modules or paths to exclude from traceback.
- **locals\_max\_length** (*int, optional*) – Maximum length of containers before abbreviating, or None for no abbreviation. Defaults to 10.
- **locals\_max\_string** (*int, optional*) – Maximum length of string before truncating, or None to disable. Defaults to 80.
- **log\_time\_format** (*Union[[str](#), *TimeFormatterCallable*], optional*) – If `log_time` is enabled, either string for strftime or callable that formats the time. Defaults to “[%x %X]”.
- **keywords** (*List[[str](#)], optional*) – List of words to highlight instead of `RichHandler`. KEYWORDS.

**HIGHLIGHTER\_CLASS**

alias of [ReprHighlighter](#)

**emit**(*record*)

Invoked by logging.

**Parameters**

**record** ([LogRecord](#)) –

**Return type**

None

**get\_level\_text**(*record*)

Get the level name from the record.

**Parameters**

**record** ([LogRecord](#)) – [LogRecord](#) instance.

**Returns**

A tuple of the style and level name.

**Return type**

[Text](#)

**render**(*\*, record, traceback, message\_renderable*)

Render log for display.

**Parameters**

- **record** ([LogRecord](#)) – logging Record.
- **traceback** (*Optional[[Traceback](#)]*) – Traceback instance or None for no Traceback.
- **message\_renderable** ([ConsoleRenderable](#)) – Renderable (typically [Text](#)) containing log message contents.

**Returns**

Renderable to display log.

**Return type**

[ConsoleRenderable](#)

**render\_message**(*record, message*)

Render message text in to [Text](#).

**Parameters**

- **record** (*LogRecord*) – logging Record.
- **message** (*str*) – String containing log message.

**Returns**

Renderable to display log message.

**Return type**

*ConsoleRenderable*

## 23.13 rich.markdown

**class** rich.markdown.**BlockQuote**

A block quote.

**on\_child\_close**(*context*, *child*)

Called when a child element is closed.

This method allows a parent element to take over rendering of its children.

**Parameters**

- **context** (*MarkdownContext*) – The markdown context.
- **child** (*MarkdownElement*) – The child markdown element.

**Returns**

Return True to render the element, or False to not render the element.

**Return type**

*bool*

**class** rich.markdown.**CodeBlock**(*lexer\_name*, *theme*)

A code block with syntax highlighting.

**Parameters**

- **lexer\_name** (*str*) –
- **theme** (*str*) –

**classmethod** **create**(*markdown*, *token*)

Factory to create markdown element,

**Parameters**

- **markdown** (*Markdown*) – The parent Markdown object.
- **token** (*Token*) – A node from markdown-it.

**Returns**

A new markdown element

**Return type**

*MarkdownElement*

**class** rich.markdown.**Heading**(*tag*)

A heading.

**Parameters**

**tag** (*str*) –

**classmethod** `create(markdown, token)`

Factory to create markdown element,

**Parameters**

- **markdown** ([Markdown](#)) – The parent Markdown object.
- **token** ([Token](#)) – A node from markdown-it.

**Returns**

A new markdown element

**Return type**

MarkdownElement

**on\_enter**(*context*)

Called when the node is entered.

**Parameters**

**context** ([MarkdownContext](#)) – The markdown context.

**Return type**

None

**class** `rich.markdown.HorizontalRule`

A horizontal rule to divide sections.

**class** `rich.markdown.ImageItem(destination, hyperlinks)`

Renders a placeholder for an image.

**Parameters**

- **destination** (*str*) –
- **hyperlinks** (*bool*) –

**classmethod** `create(markdown, token)`

Factory to create markdown element,

**Parameters**

- **markdown** ([Markdown](#)) – The parent Markdown object.
- **token** (*Any*) – A token from markdown-it.

**Returns**

A new markdown element

**Return type**

MarkdownElement

**on\_enter**(*context*)

Called when the node is entered.

**Parameters**

**context** ([MarkdownContext](#)) – The markdown context.

**Return type**

None

**class** `rich.markdown.Link(text, href)`

**Parameters**

- **text** (*str*) –



- **href** (*str*) –

**classmethod create**(*markdown*, *token*)

Factory to create markdown element,

**Parameters**

- **markdown** (*Markdown*) – The parent Markdown object.
- **token** (*Token*) – A node from markdown-it.

**Returns**

A new markdown element

**Return type**

MarkdownElement

**class** rich.markdown.**ListElement**(*list\_type*, *list\_start*)

A list element.

**Parameters**

- **list\_type** (*str*) –
- **list\_start** (*int* | *None*) –

**classmethod create**(*markdown*, *token*)

Factory to create markdown element,

**Parameters**

- **markdown** (*Markdown*) – The parent Markdown object.
- **token** (*Token*) – A node from markdown-it.

**Returns**

A new markdown element

**Return type**

MarkdownElement

**on\_child\_close**(*context*, *child*)

Called when a child element is closed.

This method allows a parent element to take over rendering of its children.

**Parameters**

- **context** (*MarkdownContext*) – The markdown context.
- **child** (*MarkdownElement*) – The child markdown element.

**Returns**

Return True to render the element, or False to not render the element.

**Return type**

*bool*

**class** rich.markdown.**ListItem**

An item in a list.

**on\_child\_close**(*context*, *child*)

Called when a child element is closed.

This method allows a parent element to take over rendering of its children.

**Parameters**

- **context** (*MarkdownContext*) – The markdown context.
- **child** (*MarkdownElement*) – The child markdown element.

**Returns**

Return True to render the element, or False to not render the element.

**Return type**

*bool*

```
class rich.markdown.Markdown(markup, code_theme='monokai', justify=None, style='none', hyperlinks=True,
                              inline_code_lexer=None, inline_code_theme=None)
```

A Markdown renderable.

**Parameters**

- **markup** (*str*) – A string containing markdown.
- **code\_theme** (*str*, *optional*) – Pygments theme for code blocks. Defaults to “monokai”.
- **justify** (*JustifyMethod*, *optional*) – Justify value for paragraphs. Defaults to None.
- **style** (*Union[str, Style]*, *optional*) – Optional style to apply to markdown.
- **hyperlinks** (*bool*, *optional*) – Enable hyperlinks. Defaults to True.
- **inline\_code\_lexer** (*Optional[str]*) – (str, optional): Lexer to use if inline code highlighting is enabled. Defaults to None.
- **inline\_code\_theme** (*Optional[str]*) – (Optional[str], optional): Pygments theme for inline code highlighting, or None for no highlighting. Defaults to None.

```
class rich.markdown.MarkdownContext(console, options, style, inline_code_lexer=None,
                                    inline_code_theme='monokai')
```

Manages the console render state.

**Parameters**

- **console** (*Console*) –
- **options** (*ConsoleOptions*) –
- **style** (*Style*) –
- **inline\_code\_lexer** (*Optional[str]*) –
- **inline\_code\_theme** (*str*) –

**property current\_style:** *Style*

Current style which is the product of all styles on the stack.

**enter\_style**(*style\_name*)

Enter a style context.

**Parameters**

- **style\_name** (*Union[str, Style]*) –

**Return type**

*Style*

**leave\_style()**

Leave a style context.

**Return type**

Style

**on\_text(text, node\_type)**

Called when the parser visits text.

**Parameters**

- **text** (*str*) –
- **node\_type** (*str*) –

**Return type**

None

**class rich.markdown.Paragraph(justify)**

A Paragraph.

**Parameters**

**justify** (*typing\_extensions.Literal[default, left, center, right, full]*) –

**classmethod create(markdown, token)**

Factory to create markdown element,

**Parameters**

- **markdown** (*Markdown*) – The parent Markdown object.
- **token** (*Token*) – A node from markdown-it.

**Returns**

A new markdown element

**Return type**

MarkdownElement

**class rich.markdown.TextElement**

Base class for elements that render text.

**on\_enter(context)**

Called when the node is entered.

**Parameters**

**context** (*MarkdownContext*) – The markdown context.

**Return type**

None

**on\_leave(context)**

Called when the parser leaves the element.

**Parameters**

**context** (*MarkdownContext*) – [description]

**Return type**

None

**on\_text(context, text)**

Called when text is parsed.

**Parameters**

- **context** (`MarkdownContext`) – The markdown context.
- **text** (`Union[str, Text]`) –

**Return type**

None

**class** rich.markdown.**UnknownElement**

An unknown element.

Hopefully there will be no unknown elements, and we will have a `MarkdownElement` for everything in the document.

## 23.14 rich.markup

**class** rich.markup.**Tag**(*name, parameters*)

A tag in console markup.

**Parameters**

- **name** (*str*) –
- **parameters** (`Optional[str]`) –

**property** **markup**: *str*

Get the string representation of this tag.

**property** **name**

The tag name. e.g. 'bold'.

**property** **parameters**

Any additional parameters after the name.

**rich.markup.escape**(*markup, \_escape=<built-in method sub of re.Pattern object>*)

Escapes text so that it won't be interpreted as markup.

**Parameters**

- **markup** (*str*) – Content to be inserted in to markup.
- **\_escape** (`Callable[[Callable[[Match[str]], str], str], str]`) –

**Returns**

Markup with square brackets escaped.

**Return type***str***rich.markup.render**(*markup, style="", emoji=True, emoji\_variant=None*)Render console markup in to a `Text` instance.**Parameters**

- **markup** (*str*) – A string containing console markup.
- **emoji** (*bool, optional*) – Also render emoji code. Defaults to `True`.
- **style** (`Union[str, Style]`) –
- **emoji\_variant** (`Optional[typing_extensions.Literal[emoji, text]]`) –

**Raises**

**MarkupError** – If there is a syntax error in the markup.

**Returns**

A test instance.

**Return type**

*Text*

## 23.15 rich.measure

**class** rich.measure.**Measurement**(*minimum, maximum*)

Stores the minimum and maximum widths (in characters) required to render an object.

**Parameters**

- **minimum** (*int*) –
- **maximum** (*int*) –

**clamp**(*min\_width=None, max\_width=None*)

Clamp a measurement within the specified range.

**Parameters**

- **min\_width** (*int*) – Minimum desired width, or *None* for no minimum. Defaults to *None*.
- **max\_width** (*int*) – Maximum desired width, or *None* for no maximum. Defaults to *None*.

**Returns**

New Measurement object.

**Return type**

*Measurement*

**classmethod** **get**(*console, options, renderable*)

Get a measurement for a renderable.

**Parameters**

- **console** (*Console*) – Console instance.
- **options** (*ConsoleOptions*) – Console options.
- **renderable** (*RenderableType*) – An object that may be rendered with Rich.

**Raises**

**errors.NotRenderableError** – If the object is not renderable.

**Returns**

Measurement object containing range of character widths required to render the object.

**Return type**

*Measurement*

**property** **maximum**

Maximum number of cells required to render.

**property** **minimum**

Minimum number of cells required to render.

**normalize()**

Get measurement that ensures that minimum  $\leq$  maximum and minimum  $\geq 0$

**Returns**

A normalized measurement.

**Return type**

*Measurement*

**property span: `int`**

Get difference between maximum and minimum.

**with\_maximum(*width*)**

Get a `RenderableWith` where the widths are  $\leq$  width.

**Parameters**

**width** (*int*) – Maximum desired width.

**Returns**

New `Measurement` object.

**Return type**

*Measurement*

**with\_minimum(*width*)**

Get a `RenderableWith` where the widths are  $\geq$  width.

**Parameters**

**width** (*int*) – Minimum desired width.

**Returns**

New `Measurement` object.

**Return type**

*Measurement*

**rich.measure.measure\_renderables(*console*, *options*, *renderables*)**

Get a measurement that would fit a number of renderables.

**Parameters**

- **console** (*Console*) – Console instance.
- **options** (*ConsoleOptions*) – Console options.
- **renderables** (*Iterable[RenderableType]*) – One or more renderable objects.

**Returns**

**Measurement object containing range of character widths required to contain all given renderables.**

**Return type**

*Measurement*

## 23.16 rich.padding

**class** rich.padding.**Padding**(renderable, pad=(0, 0, 0, 0), \*, style='none', expand=True)

Draw space around content.

### Example

```
>>> print(Padding("Hello", (2, 4), style="on blue"))
```

#### Parameters

- **renderable** (*RenderableType*) – String or other renderable.
- **pad** (*Union[int, Tuple[int]]*) – Padding for top, right, bottom, and left borders. May be specified with 1, 2, or 4 integers (CSS style).
- **style** (*Union[str, Style]*, *optional*) – Style for padding characters. Defaults to “none”.
- **expand** (*bool*, *optional*) – Expand padding to fit available width. Defaults to True.

**classmethod** **indent**(renderable, level)

Make padding instance to render an indent.

#### Parameters

- **renderable** (*RenderableType*) – String or other renderable.
- **level** (*int*) – Number of characters to indent.

#### Returns

A Padding instance.

#### Return type

*Padding*

**static** **unpack**(pad)

Unpack padding specified in CSS style.

#### Parameters

**pad** (*Union[int, Tuple[int], Tuple[int, int], Tuple[int, int, int, int]]*) –

#### Return type

*Tuple[int, int, int, int]*

## 23.17 rich.panel

**class** rich.panel.**Panel**(renderable, box=Box(...), \*, title=None, title\_align='center', subtitle=None, subtitle\_align='center', safe\_box=None, expand=True, style='none', border\_style='none', width=None, height=None, padding=(0, 1), highlight=False)

A console renderable that draws a border around its contents.

## Example

```
>>> console.print(Panel("Hello, World!"))
```

### Parameters

- **renderable** (*RenderableType*) – A console renderable object.
- **box** (*Box*, *optional*) – A *Box* instance that defines the look of the border (see *Box*. Defaults to *box.ROUNDED*).
- **safe\_box** (*bool*, *optional*) – Disable box characters that don't display on windows legacy terminal with *raster* fonts. Defaults to *True*.
- **expand** (*bool*, *optional*) – If *True* the panel will stretch to fill the console width, otherwise it will be sized to fit the contents. Defaults to *True*.
- **style** (*str*, *optional*) – The style of the panel (border and contents). Defaults to “none”.
- **border\_style** (*str*, *optional*) – The style of the border. Defaults to “none”.
- **width** (*Optional[int]*, *optional*) – Optional width of panel. Defaults to *None* to auto-detect.
- **height** (*Optional[int]*, *optional*) – Optional height of panel. Defaults to *None* to auto-detect.
- **padding** (*Optional[PaddingDimensions]*) – Optional padding around renderable. Defaults to *0*.
- **highlight** (*bool*, *optional*) – Enable automatic highlighting of panel title (if *str*). Defaults to *False*.
- **title** (*Optional[Union[str, Text]]*) –
- **title\_align** (*typing\_extensions.Literal[left, center, right]*) –
- **subtitle** (*Optional[Union[str, Text]]*) –
- **subtitle\_align** (*typing\_extensions.Literal[left, center, right]*) –

```
classmethod fit(renderable, box=Box(...), *, title=None, title_align='center', subtitle=None,
               subtitle_align='center', safe_box=None, style='none', border_style='none', width=None,
               padding=(0, 1))
```

An alternative constructor that sets *expand=False*.

### Parameters

- **renderable** (*RenderableType*) –
- **box** (*Box*) –
- **title** (*Optional[Union[str, Text]]*) –
- **title\_align** (*typing\_extensions.Literal[left, center, right]*) –
- **subtitle** (*Optional[Union[str, Text]]*) –
- **subtitle\_align** (*typing\_extensions.Literal[left, center, right]*) –
- **safe\_box** (*Optional[bool]*) –
- **style** (*Union[str, Style]*) –
- **border\_style** (*Union[str, Style]*) –



- **width** (*Optional*[*int*]) –
- **padding** (*Union*[*int*, *Tuple*[*int*], *Tuple*[*int*, *int*], *Tuple*[*int*, *int*, *int*, *int*]]) –

**Return type**

*Panel*

## 23.18 rich.pretty

```
class rich.pretty.Node(key_repr="", value_repr="", open_brace="", close_brace="", empty="", last=False,
                       is_tuple=False, is_namedtuple=False, children=None, key_separator=': ',
                       separator=', ')
```

A node in a repr tree. May be atomic or a container.

**Parameters**

- **key\_repr** (*str*) –
- **value\_repr** (*str*) –
- **open\_brace** (*str*) –
- **close\_brace** (*str*) –
- **empty** (*str*) –
- **last** (*bool*) –
- **is\_tuple** (*bool*) –
- **is\_namedtuple** (*bool*) –
- **children** (*Optional*[*List*[*Node*]]) –
- **key\_separator** (*str*) –
- **separator** (*str*) –

```
check_length(start_length, max_length)
```

Check the length fits within a limit.

**Parameters**

- **start\_length** (*int*) – Starting length of the line (indent, prefix, suffix).
- **max\_length** (*int*) – Maximum length.

**Returns**

True if the node can be rendered within max length, otherwise False.

**Return type**

*bool*

```
iter_tokens()
```

Generate tokens for this node.

**Return type**

*Iterable*[*str*]

**render**(*max\_width=80, indent\_size=4, expand\_all=False*)

Render the node to a pretty repr.

#### Parameters

- **max\_width** (*int, optional*) – Maximum width of the repr. Defaults to 80.
- **indent\_size** (*int, optional*) – Size of indents. Defaults to 4.
- **expand\_all** (*bool, optional*) – Expand all levels. Defaults to False.

#### Returns

A repr string of the original object.

#### Return type

`str`

```
class rich.pretty.Pretty(_object, highlighter=None, *, indent_size=4, justify=None, overflow=None,
                          no_wrap=False, indent_guides=False, max_length=None, max_string=None,
                          max_depth=None, expand_all=False, margin=0, insert_line=False)
```

A rich renderable that pretty prints an object.

#### Parameters

- **\_object** (*Any*) – An object to pretty print.
- **highlighter** (*HighlighterType, optional*) – Highlighter object to apply to result, or None for ReprHighlighter. Defaults to None.
- **indent\_size** (*int, optional*) – Number of spaces in indent. Defaults to 4.
- **justify** (*JustifyMethod, optional*) – Justify method, or None for default. Defaults to None.
- **overflow** (*OverflowMethod, optional*) – Overflow method, or None for default. Defaults to None.
- **no\_wrap** (*Optional[bool], optional*) – Disable word wrapping. Defaults to False.
- **indent\_guides** (*bool, optional*) – Enable indentation guides. Defaults to False.
- **max\_length** (*int, optional*) – Maximum length of containers before abbreviating, or None for no abbreviation. Defaults to None.
- **max\_string** (*int, optional*) – Maximum length of string before truncating, or None to disable. Defaults to None.
- **max\_depth** (*int, optional*) – Maximum depth of nested data structures, or None for no maximum. Defaults to None.
- **expand\_all** (*bool, optional*) – Expand all containers. Defaults to False.
- **margin** (*int, optional*) – Subtract a margin from width to force containers to expand earlier. Defaults to 0.
- **insert\_line** (*bool, optional*) – Insert a new line if the output has multiple new lines. Defaults to False.

```
rich.pretty.install(console=None, overflow='ignore', crop=False, indent_guides=False, max_length=None,
                    max_string=None, max_depth=None, expand_all=False)
```

Install automatic pretty printing in the Python REPL.

#### Parameters

- **console** (*Console*, *optional*) – Console instance or None to use global console. Defaults to None.
- **overflow** (*Optional[OverflowMethod]*, *optional*) – Overflow method. Defaults to “ignore”.
- **crop** (*Optional[bool]*, *optional*) – Enable cropping of long lines. Defaults to False.
- **indent\_guides** (*bool*, *optional*) – Enable indentation guides. Defaults to False.
- **max\_length** (*int*, *optional*) – Maximum length of containers before abbreviating, or None for no abbreviation. Defaults to None.
- **max\_string** (*int*, *optional*) – Maximum length of string before truncating, or None to disable. Defaults to None.
- **max\_depth** (*int*, *optional*) – Maximum depth of nested data structures, or None for no maximum. Defaults to None.
- **expand\_all** (*bool*, *optional*) – Expand all containers. Defaults to False.
- **max\_frames** (*int*) – Maximum number of frames to show in a traceback, 0 for no maximum. Defaults to 100.

**Return type**

None

`rich.pretty.is_expandable(obj)`

Check if an object may be expanded by pretty print.

**Parameters****obj** (*Any*) –**Return type***bool*`rich.pretty.pprint(_object, *, console=None, indent_guides=True, max_length=None, max_string=None, max_depth=None, expand_all=False)`

A convenience function for pretty printing.

**Parameters**

- **\_object** (*Any*) – Object to pretty print.
- **console** (*Console*, *optional*) – Console instance, or None to use default. Defaults to None.
- **max\_length** (*int*, *optional*) – Maximum length of containers before abbreviating, or None for no abbreviation. Defaults to None.
- **max\_string** (*int*, *optional*) – Maximum length of strings before truncating, or None to disable. Defaults to None.
- **max\_depth** (*int*, *optional*) – Maximum depth for nested data structures, or None for unlimited depth. Defaults to None.
- **indent\_guides** (*bool*, *optional*) – Enable indentation guides. Defaults to True.
- **expand\_all** (*bool*, *optional*) – Expand all containers. Defaults to False.

**Return type**

None

```
rich.pretty.pretty_repr(_object, *, max_width=80, indent_size=4, max_length=None, max_string=None,
                        max_depth=None, expand_all=False)
```

Prettify repr string by expanding on to new lines to fit within a given width.

#### Parameters

- **\_object** (*Any*) – Object to repr.
- **max\_width** (*int*, *optional*) – Desired maximum width of repr string. Defaults to 80.
- **indent\_size** (*int*, *optional*) – Number of spaces to indent. Defaults to 4.
- **max\_length** (*int*, *optional*) – Maximum length of containers before abbreviating, or None for no abbreviation. Defaults to None.
- **max\_string** (*int*, *optional*) – Maximum length of string before truncating, or None to disable truncating. Defaults to None.
- **max\_depth** (*int*, *optional*) – Maximum depth of nested data structure, or None for no depth. Defaults to None.
- **expand\_all** (*bool*, *optional*) – Expand all containers regardless of available width. Defaults to False.

#### Returns

A possibly multi-line representation of the object.

#### Return type

*str*

```
rich.pretty.traverse(_object, max_length=None, max_string=None, max_depth=None)
```

Traverse object and generate a tree.

#### Parameters

- **\_object** (*Any*) – Object to be traversed.
- **max\_length** (*int*, *optional*) – Maximum length of containers before abbreviating, or None for no abbreviation. Defaults to None.
- **max\_string** (*int*, *optional*) – Maximum length of string before truncating, or None to disable truncating. Defaults to None.
- **max\_depth** (*int*, *optional*) – Maximum depth of data structures, or None for no maximum. Defaults to None.

#### Returns

The root of a tree structure which can be used to render a pretty repr.

#### Return type

*Node*

## 23.19 rich.progress\_bar

```
class rich.progress_bar.ProgressBar(total=100.0, completed=0, width=None, pulse=False,
                                     style='bar.back', complete_style='bar.complete',
                                     finished_style='bar.finished', pulse_style='bar.pulse',
                                     animation_time=None)
```

Renders a (progress) bar. Used by rich.progress.

### Parameters

- **total** (*float*, *optional*) – Number of steps in the bar. Defaults to 100. Set to None to render a pulsing animation.
- **completed** (*float*, *optional*) – Number of steps completed. Defaults to 0.
- **width** (*int*, *optional*) – Width of the bar, or None for maximum width. Defaults to None.
- **pulse** (*bool*, *optional*) – Enable pulse effect. Defaults to False. Will pulse if a None total was passed.
- **style** (*StyleType*, *optional*) – Style for the bar background. Defaults to “bar.back”.
- **complete\_style** (*StyleType*, *optional*) – Style for the completed bar. Defaults to “bar.complete”.
- **finished\_style** (*StyleType*, *optional*) – Style for a finished bar. Defaults to “bar.finished”.
- **pulse\_style** (*StyleType*, *optional*) – Style for pulsing bars. Defaults to “bar.pulse”.
- **animation\_time** (*Optional[float]*, *optional*) – Time in seconds to use for animation, or None to use system time.

**property percentage\_completed:** *Optional[float]*

Calculate percentage complete.

**update**(*completed*, *total=None*)

Update progress with new values.

### Parameters

- **completed** (*float*) – Number of steps completed.
- **total** (*float*, *optional*) – Total number of steps, or None to not change. Defaults to None.

### Return type

None

## 23.20 rich.progress

```
class rich.progress.BarColumn(bar_width=40, style='bar.back', complete_style='bar.complete',  
                             finished_style='bar.finished', pulse_style='bar.pulse', table_column=None)
```

Renders a visual progress bar.

### Parameters

- **bar\_width** (*Optional*[*int*], *optional*) – Width of bar or None for full width. Defaults to 40.
- **style** (*StyleType*, *optional*) – Style for the bar background. Defaults to “bar.back”.
- **complete\_style** (*StyleType*, *optional*) – Style for the completed bar. Defaults to “bar.complete”.
- **finished\_style** (*StyleType*, *optional*) – Style for a finished bar. Defaults to “bar.finished”.
- **pulse\_style** (*StyleType*, *optional*) – Style for pulsing bars. Defaults to “bar.pulse”.
- **table\_column** (*Optional*[*Column*]) –

**render**(*task*)

Gets a progress bar widget for a task.

### Parameters

**task** (*Task*) –

### Return type

*ProgressBar*

```
class rich.progress.DownloadColumn(binary_units=False, table_column=None)
```

Renders file size downloaded and total, e.g. ‘0.5/2.3 GB’.

### Parameters

- **binary\_units** (*bool*, *optional*) – Use binary units, KiB, MiB etc. Defaults to False.
- **table\_column** (*Optional*[*Column*]) –

**render**(*task*)

Calculate common unit for completed and total.

### Parameters

**task** (*Task*) –

### Return type

*Text*

```
class rich.progress.FileSizeColumn(table_column=None)
```

Renders completed filesize.

### Parameters

**table\_column** (*Optional*[*Column*]) –

**render**(*task*)

Show data completed.

### Parameters

**task** (*Task*) –

**Return type**

Text

**class** rich.progress.MofNCompleteColumn(*separator='/'*, *table\_column=None*)

Renders completed count/total, e.g. ' 10/1000'.

Best for bounded tasks with int quantities.

Space pads the completed count so that progress length does not change as task progresses past powers of 10.

**Parameters**

- **separator** (*str*, *optional*) – Text to separate completed and total values. Defaults to `"/"`.
- **table\_column** (*Optional*[*Column*]) –

**render**(*task*)

Show completed/total.

**Parameters**

**task** (*Task*) –

**Return type**

Text

**class** rich.progress.Progress(*\*columns*, *console=None*, *auto\_refresh=True*, *refresh\_per\_second=10*, *speed\_estimate\_period=30.0*, *transient=False*, *redirect\_stdout=True*, *redirect\_stderr=True*, *get\_time=None*, *disable=False*, *expand=False*)

Renders an auto-updating progress bar(s).

**Parameters**

- **console** (*Console*, *optional*) – Optional Console instance. Default will an internal Console instance writing to stdout.
- **auto\_refresh** (*bool*, *optional*) – Enable auto refresh. If disabled, you will need to call `refresh()`.
- **refresh\_per\_second** (*Optional*[*float*], *optional*) – Number of times per second to refresh the progress information or None to use default (10). Defaults to None.
- **speed\_estimate\_period** (*float*) – (float, optional): Period (in seconds) used to calculate the speed estimate. Defaults to 30.
- **transient** (*bool*) – (bool, optional): Clear the progress on exit. Defaults to False.
- **redirect\_stdout** (*bool*) – (bool, optional): Enable redirection of stdout, so `print` may be used. Defaults to True.
- **redirect\_stderr** (*bool*) – (bool, optional): Enable redirection of stderr. Defaults to True.
- **get\_time** (*Optional*[*Callable*[[], *float*]]) – (Callable, optional): A callable that gets the current time, or None to use `Console.get_time`. Defaults to None.
- **disable** (*bool*, *optional*) – Disable progress display. Defaults to False
- **expand** (*bool*, *optional*) – Expand tasks table to fit width. Defaults to False.
- **columns** (*Union*[*str*, *ProgressColumn*]) –

**add\_task**(*description*, *start=True*, *total=100.0*, *completed=0*, *visible=True*, *\*\*fields*)

Add a new 'task' to the Progress display.

**Parameters**

- **description** (*str*) – A description of the task.
- **start** (*bool*, *optional*) – Start the task immediately (to calculate elapsed time). If set to False, you will need to call *start* manually. Defaults to True.
- **total** (*float*, *optional*) – Number of total steps in the progress if known. Set to None to render a pulsing animation. Defaults to 100.
- **completed** (*int*, *optional*) – Number of steps completed so far. Defaults to 0.
- **visible** (*bool*, *optional*) – Enable display of the task. Defaults to True.
- **\*\*fields** (*str*) – Additional data fields required for rendering.

**Returns**

An ID you can use when calling *update*.

**Return type**

TaskID

**advance**(*task\_id*, *advance=1*)

Advance task by a number of steps.

**Parameters**

- **task\_id** (*TaskID*) – ID of task.
- **advance** (*float*) – Number of steps to advance. Default is 1.

**Return type**

None

**property finished:** *bool*

Check if all tasks have been completed.

**classmethod get\_default\_columns()**

**Get the default columns used for a new Progress instance:**

- a text column for the description (TextColumn)
- the bar itself (BarColumn)
- a text column showing completion percentage (TextColumn)
- an estimated-time-remaining column (TimeRemainingColumn)

If the Progress instance is created without passing a columns argument, the default columns defined here will be used.

You can also create a Progress instance using custom columns before and/or after the defaults, as in this example:

```
progress = Progress(
    SpinnerColumn(), *Progress.default_columns(), "Elapsed:", TimeElapsedColumn(),
)
```

This code shows the creation of a Progress display, containing a spinner to the left, the default columns, and a labeled elapsed time column.

**Return type**

*Tuple*[ProgressColumn, ...]



**get\_renderable()**

Get a renderable for the progress display.

**Return type**

*Union*[*ConsoleRenderable*, *RichCast*, *str*]

**get\_renderables()**

Get a number of renderables for the progress display.

**Return type**

*Iterable*[*Union*[*ConsoleRenderable*, *RichCast*, *str*]]

**make\_tasks\_table(tasks)**

Get a table to render the Progress display.

**Parameters**

**tasks** (*Iterable*[*Task*]) – An iterable of Task instances, one per row of the table.

**Returns**

A table instance.

**Return type**

*Table*

**open**(*file*: *Union*[*str*, *PathLike*[*str*], *bytes*], *mode*: *typing\_extensions.Literal*[*rb*], *buffering*: *int* = -1, *encoding*: *Optional*[*str*] = None, *errors*: *Optional*[*str*] = None, *newline*: *Optional*[*str*] = None, \*, *total*: *Optional*[*int*] = None, *task\_id*: *Optional*[*TaskID*] = None, *description*: *str* = 'Reading...') → *BinaryIO*

**open**(*file*: *Union*[*str*, *PathLike*[*str*], *bytes*], *mode*: *Union*[*typing\_extensions.Literal*[*r*], *typing\_extensions.Literal*[*rt*]], *buffering*: *int* = -1, *encoding*: *Optional*[*str*] = None, *errors*: *Optional*[*str*] = None, *newline*: *Optional*[*str*] = None, \*, *total*: *Optional*[*int*] = None, *task\_id*: *Optional*[*TaskID*] = None, *description*: *str* = 'Reading...') → *TextIO*

Track progress while reading from a binary file.

**Parameters**

- **path** (*Union*[*str*, *PathLike*[*str*]]) – The path to the file to read.
- **mode** (*str*) – The mode to use to open the file. Only supports “r”, “rb” or “rt”.
- **buffering** (*int*) – The buffering strategy to use, see *io.open()*.
- **encoding** (*str*, *optional*) – The encoding to use when reading in text mode, see *io.open()*.
- **errors** (*str*, *optional*) – The error handling strategy for decoding errors, see *io.open()*.
- **newline** (*str*, *optional*) – The strategy for handling newlines in text mode, see *io.open()*.
- **total** (*int*, *optional*) – Total number of bytes to read. If none given, *os.stat(path).st\_size* is used.
- **task\_id** (*TaskID*) – Task to track. Default is new task.
- **description** (*str*, *optional*) – Description of task, if new task is created.

**Returns**

A readable file-like object in binary mode.

**Return type**

*BinaryIO*

**Raises**

**ValueError** – When an invalid mode is given.

**refresh()**

Refresh (render) the progress information.

**Return type**

None

**remove\_task(task\_id)**

Delete a task if it exists.

**Parameters**

**task\_id** (*TaskID*) – A task ID.

**Return type**

None

**reset(task\_id, \*, start=True, total=None, completed=0, visible=None, description=None, \*\*fields)**

Reset a task so completed is 0 and the clock is reset.

**Parameters**

- **task\_id** (*TaskID*) – ID of task.
- **start** (*bool*, *optional*) – Start the task after reset. Defaults to True.
- **total** (*float*, *optional*) – New total steps in task, or None to use current total. Defaults to None.
- **completed** (*int*, *optional*) – Number of steps completed. Defaults to 0.
- **visible** (*bool*, *optional*) – Enable display of the task. Defaults to True.
- **description** (*str*, *optional*) – Change task description if not None. Defaults to None.
- **\*\*fields** (*str*) – Additional data fields required for rendering.

**Return type**

None

**start()**

Start the progress display.

**Return type**

None

**start\_task(task\_id)**

Start a task.

Starts a task (used when calculating elapsed time). You may need to call this manually, if you called `add_task` with `start=False`.

**Parameters**

**task\_id** (*TaskID*) – ID of task.

**Return type**

None

**stop()**

Stop the progress display.

**Return type**

None

**stop\_task**(*task\_id*)

Stop a task.

This will freeze the elapsed time on the task.

**Parameters**

**task\_id** (*TaskID*) – ID of task.

**Return type**

None

**property task\_ids:** `List[TaskID]`

A list of task IDs.

**property tasks:** `List[Task]`

Get a list of Task instances.

**track**(*sequence*, *total=None*, *task\_id=None*, *description='Working...'*, *update\_period=0.1*)

Track progress by iterating over a sequence.

**Parameters**

- **sequence** (*Sequence[ProgressType]*) – A sequence of values you want to iterate over and track progress.
- **total** (*Optional[float]*) – (float, optional): Total number of steps. Default is len(sequence).
- **task\_id** (*Optional[TaskID]*) – (TaskID): Task to track. Default is new task.
- **description** (*str*) – (str, optional): Description of task, if new task is created.
- **update\_period** (*float, optional*) – Minimum time (in seconds) between calls to update(). Defaults to 0.1.

**Returns**

An iterable of values taken from the provided sequence.

**Return type**

Iterable[ProgressType]

**update**(*task\_id*, \*, *total=None*, *completed=None*, *advance=None*, *description=None*, *visible=None*, *refresh=False*, *\*\*fields*)

Update information associated with a task.

**Parameters**

- **task\_id** (*TaskID*) – Task id (returned by add\_task).
- **total** (*float, optional*) – Updates task.total if not None.
- **completed** (*float, optional*) – Updates task.completed if not None.
- **advance** (*float, optional*) – Add a value to task.completed if not None.
- **description** (*str, optional*) – Change task description if not None.
- **visible** (*bool, optional*) – Set visible flag if not None.
- **refresh** (*bool*) – Force a refresh of progress information. Default is False.
- **\*\*fields** (*Any*) – Additional data fields required for rendering.

**Return type**

None

**wrap\_file**(*file*, *total=None*, \*, *task\_id=None*, *description='Reading...'*)

Track progress file reading from a binary file.

**Parameters**

- **file** (*BinaryIO*) – A file-like object opened in binary mode.
- **total** (*int*, *optional*) – Total number of bytes to read. This must be provided unless a task with a total is also given.
- **task\_id** (*TaskID*) – Task to track. Default is new task.
- **description** (*str*, *optional*) – Description of task, if new task is created.

**Returns**

A readable file-like object in binary mode.

**Return type**

*BinaryIO*

**Raises**

**ValueError** – When no total value can be extracted from the arguments or the task.

**class** rich.progress.**ProgressColumn**(*table\_column=None*)

Base class for a widget to use in progress display.

**Parameters**

**table\_column** (*Optional* [*Column*]) –

**get\_table\_column**()

Get a table column, used to build tasks table.

**Return type**

*Column*

**abstract render**(*task*)

Should return a renderable object.

**Parameters**

**task** (*Task*) –

**Return type**

*Union*[*ConsoleRenderable*, *RichCast*, *str*]

**class** rich.progress.**ProgressSample**(*timestamp*, *completed*)

Sample of progress for a given time.

**Parameters**

- **timestamp** (*float*) –
- **completed** (*float*) –

**property completed**

Number of steps completed.

**property timestamp**

Timestamp of sample.

**class** rich.progress.**RenderableColumn**(*renderable=""*, \*, *table\_column=None*)

A column to insert an arbitrary column.

**Parameters**

- **renderable** (*RenderableType*, *optional*) – Any renderable. Defaults to empty string.
- **table\_column** (*Optional* [*Column*]) –

**render**(*task*)

Should return a renderable object.

**Parameters**

**task** (*Task*) –

**Return type**

*Union*[*ConsoleRenderable*, *RichCast*, *str*]

```
class rich.progress.SpinnerColumn(spinner_name='dots', style='progress.spinner', speed=1.0,
                                  finished_text=' ', table_column=None)
```

A column with a ‘spinner’ animation.

**Parameters**

- **spinner\_name** (*str*, *optional*) – Name of spinner animation. Defaults to “dots”.
- **style** (*StyleType*, *optional*) – Style of spinner. Defaults to “progress.spinner”.
- **speed** (*float*, *optional*) – Speed factor of spinner. Defaults to 1.0.
- **finished\_text** (*TextType*, *optional*) – Text used when task is finished. Defaults to “.”
- **table\_column** (*Optional* [*Column*]) –

**render**(*task*)

Should return a renderable object.

**Parameters**

**task** (*Task*) –

**Return type**

*Union*[*ConsoleRenderable*, *RichCast*, *str*]

```
set_spinner(spinner_name, spinner_style='progress.spinner', speed=1.0)
```

Set a new spinner.

**Parameters**

- **spinner\_name** (*str*) – Spinner name, see `python -m rich.spinner`.
- **spinner\_style** (*Optional* [*StyleType*], *optional*) – Spinner style. Defaults to “progress.spinner”.
- **speed** (*float*, *optional*) – Speed factor of spinner. Defaults to 1.0.

**Return type**

*None*

```
class rich.progress.Task(id, description, total, completed, _get_time, finished_time=None, visible=True,
                        fields=<factory>, finished_speed=None, _lock=<factory>)
```

Information regarding a progress task.

This object should be considered read-only outside of the *Progress* class.

**Parameters**

- **id** (*TaskID*) –
- **description** (*str*) –

- **total** (*Optional[float]*) –
- **completed** (*float*) –
- **\_get\_time** (*Callable[[], float]*) –
- **finished\_time** (*Optional[float]*) –
- **visible** (*bool*) –
- **fields** (*Dict[str, Any]*) –
- **finished\_speed** (*Optional[float]*) –
- **\_lock** (*RLock*) –

**completed:** *float*

Number of steps completed

**Type**

*float*

**description:** *str*

Description of the task.

**Type**

*str*

**property elapsed:** *Optional[float]*

Time elapsed since task was started, or None if the task hasn't started.

**Type**

*Optional[float]*

**fields:** *Dict[str, Any]*

Arbitrary fields passed in via Progress.update.

**Type**

*dict*

**property finished:** *bool*

Check if the task has finished.

**finished\_speed:** *Optional[float] = None*

The last speed for a finished task.

**Type**

*Optional[float]*

**finished\_time:** *Optional[float] = None*

Time task was finished.

**Type**

*float*

**get\_time()**

*float*: Get the current time, in seconds.

**Return type**

*float*

**id:** *TaskID*

Task ID associated with this task (used in Progress methods).

**property percentage:** `float`

Get progress of task as a percentage. If a None total was set, returns 0

**Type**  
`float`

**property remaining:** `Optional[float]`

Get the number of steps remaining, if a non-None total was set.

**Type**  
`Optional[float]`

**property speed:** `Optional[float]`

Get the estimated speed in steps per second.

**Type**  
`Optional[float]`

**start\_time:** `Optional[float] = None`

Time this task was started, or None if not started.

**Type**  
`Optional[float]`

**property started:** `bool`

Check if the task as started.

**Type**  
`bool`

**stop\_time:** `Optional[float] = None`

Time this task was stopped, or None if not stopped.

**Type**  
`Optional[float]`

**property time\_remaining:** `Optional[float]`

Get estimated time to completion, or None if no data.

**Type**  
`Optional[float]`

**total:** `Optional[float]`

Total number of steps in this task.

**Type**  
`Optional[float]`

**visible:** `bool = True`

Indicates if this task is visible in the progress display.

**Type**  
`bool`

```
class rich.progress.TaskProgressColumn(text_format='[progress.percentage]{task.percentage:>3.0f}%',
                                     text_format_no_percentage='', style='none', justify='left',
                                     markup=True, highlighter=None, table_column=None,
                                     show_speed=False)
```

Show task progress as a percentage.

**Parameters**

- **text\_format** (*str*, *optional*) – Format for percentage display. Defaults to “[progress.percentage]{task.percentage:>3.0f}%”.
- **text\_format\_no\_percentage** (*str*, *optional*) – Format if percentage is unknown. Defaults to “”.
- **style** (*StyleType*, *optional*) – Style of output. Defaults to “none”.
- **justify** (*JustifyMethod*, *optional*) – Text justification. Defaults to “left”.
- **markup** (*bool*, *optional*) – Enable markup. Defaults to True.
- **highlighter** (*Optional*[*Highlighter*], *optional*) – Highlighter to apply to output. Defaults to None.
- **table\_column** (*Optional*[*Column*], *optional*) – Table Column to use. Defaults to None.
- **show\_speed** (*bool*, *optional*) – Show speed if total is unknown. Defaults to False.

**render**(*task*)

Should return a renderable object.

**Parameters**

**task** (*Task*) –

**Return type**

*Text*

**classmethod render\_speed**(*speed*)

Render the speed in iterations per second.

**Parameters**

- **task** (*Task*) – A Task object.
- **speed** (*Optional*[*float*]) –

**Returns**

Text object containing the task speed.

**Return type**

*Text*

**class rich.progress.TextColumn**(*text\_format*, *style*='none', *justify*='left', *markup*=True, *highlighter*=None, *table\_column*=None)

A column containing text.

**Parameters**

- **text\_format** (*str*) –
- **style** (*Union*[*str*, *Style*]) –
- **justify** (*typing\_extensions.Literal*[*default*, *left*, *center*, *right*, *full*]) –
- **markup** (*bool*) –
- **highlighter** (*Optional*[*Highlighter*]) –
- **table\_column** (*Optional*[*Column*]) –



**render**(*task*)

Should return a renderable object.

**Parameters**

**task** (*Task*) –

**Return type**

*Text*

**class** rich.progress.**TimeElapsedColumn**(*table\_column=None*)

Renders time elapsed.

**Parameters**

**table\_column** (*Optional* [*Column*]) –

**render**(*task*)

Show time elapsed.

**Parameters**

**task** (*Task*) –

**Return type**

*Text*

**class** rich.progress.**TimeRemainingColumn**(*compact=False, elapsed\_when\_finished=False, table\_column=None*)

Renders estimated time remaining.

**Parameters**

- **compact** (*bool, optional*) – Render MM:SS when time remaining is less than an hour. Defaults to False.
- **elapsed\_when\_finished** (*bool, optional*) – Render time elapsed when the task is finished. Defaults to False.
- **table\_column** (*Optional* [*Column*]) –

**render**(*task*)

Show time remaining.

**Parameters**

**task** (*Task*) –

**Return type**

*Text*

**class** rich.progress.**TotalFileSizeColumn**(*table\_column=None*)

Renders total filesize.

**Parameters**

**table\_column** (*Optional* [*Column*]) –

**render**(*task*)

Show data completed.

**Parameters**

**task** (*Task*) –

**Return type**

*Text*

**class** rich.progress.**TransferSpeedColumn**(table\_column=None)

Renders human readable transfer speed.

**Parameters**

**table\_column** (*Optional*[*Column*]) –

**render**(task)

Show data transfer speed.

**Parameters**

**task** (*Task*) –

**Return type**

*Text*

rich.progress.**open**(file: *Union*[*str*, *PathLike*[*str*], *bytes*], mode: *Union*[*typing\_extensions.Literal*[*rt*], *typing\_extensions.Literal*[*r*]], buffering: *int* = -1, encoding: *Optional*[*str*] = None, errors: *Optional*[*str*] = None, newline: *Optional*[*str*] = None, \*, total: *Optional*[*int*] = None, description: *str* = 'Reading...', auto\_refresh: *bool* = True, console: *Optional*[*Console*] = None, transient: *bool* = False, get\_time: *Optional*[*Callable*[[], *float*]] = None, refresh\_per\_second: *float* = 10, style: *Union*[*str*, *Style*] = 'bar.back', complete\_style: *Union*[*str*, *Style*] = 'bar.complete', finished\_style: *Union*[*str*, *Style*] = 'bar.finished', pulse\_style: *Union*[*str*, *Style*] = 'bar.pulse', disable: *bool* = False) → *AbstractContextManager*[*TextIO*]

rich.progress.**open**(file: *Union*[*str*, *PathLike*[*str*], *bytes*], mode: *typing\_extensions.Literal*[*rb*], buffering: *int* = -1, encoding: *Optional*[*str*] = None, errors: *Optional*[*str*] = None, newline: *Optional*[*str*] = None, \*, total: *Optional*[*int*] = None, description: *str* = 'Reading...', auto\_refresh: *bool* = True, console: *Optional*[*Console*] = None, transient: *bool* = False, get\_time: *Optional*[*Callable*[[], *float*]] = None, refresh\_per\_second: *float* = 10, style: *Union*[*str*, *Style*] = 'bar.back', complete\_style: *Union*[*str*, *Style*] = 'bar.complete', finished\_style: *Union*[*str*, *Style*] = 'bar.finished', pulse\_style: *Union*[*str*, *Style*] = 'bar.pulse', disable: *bool* = False) → *AbstractContextManager*[*BinaryIO*]

Read bytes from a file while tracking progress.

**Parameters**

- **path** (*Union*[*str*, *PathLike*[*str*], *BinaryIO*]) – The path to the file to read, or a file-like object in binary mode.
- **mode** (*str*) – The mode to use to open the file. Only supports “r”, “rb” or “rt”.
- **buffering** (*int*) – The buffering strategy to use, see *io.open()*.
- **encoding** (*str*, *optional*) – The encoding to use when reading in text mode, see *io.open()*.
- **errors** (*str*, *optional*) – The error handling strategy for decoding errors, see *io.open()*.
- **newline** (*str*, *optional*) – The strategy for handling newlines in text mode, see *io.open()*.
- **total** – (*int*, *optional*): Total number of bytes to read. Must be provided if reading from a file handle. Default for a path is *os.stat(file).st\_size*.
- **description** (*str*, *optional*) – Description of task show next to progress bar. Defaults to “Reading”.
- **auto\_refresh** (*bool*, *optional*) – Automatic refresh, disable to force a refresh after each iteration. Default is True.

- **transient** – (bool, optional): Clear the progress on exit. Defaults to False.
- **console** (*Console*, optional) – Console to write to. Default creates internal Console instance.
- **refresh\_per\_second** (*float*) – Number of times per second to refresh the progress information. Defaults to 10.
- **style** (*StyleType*, optional) – Style for the bar background. Defaults to “bar.back”.
- **complete\_style** (*StyleType*, optional) – Style for the completed bar. Defaults to “bar.complete”.
- **finished\_style** (*StyleType*, optional) – Style for a finished bar. Defaults to “bar.finished”.
- **pulse\_style** (*StyleType*, optional) – Style for pulsing bars. Defaults to “bar.pulse”.
- **disable** (*bool*, optional) – Disable display of progress.
- **encoding** – The encoding to use when reading in text mode.

**Returns**

A context manager yielding a progress reader.

**Return type**

ContextManager[BinaryIO]

```
rich.progress.track(sequence, description='Working...', total=None, auto_refresh=True, console=None,
                    transient=False, get_time=None, refresh_per_second=10, style='bar.back',
                    complete_style='bar.complete', finished_style='bar.finished', pulse_style='bar.pulse',
                    update_period=0.1, disable=False, show_speed=True)
```

Track progress by iterating over a sequence.

**Parameters**

- **sequence** (*Iterable[ProgressType]*) – A sequence (must support “len”) you wish to iterate over.
- **description** (*str*, optional) – Description of task show next to progress bar. Defaults to “Working”.
- **total** (*Optional[float]*) – (float, optional): Total number of steps. Default is len(sequence).
- **auto\_refresh** (*bool*, optional) – Automatic refresh, disable to force a refresh after each iteration. Default is True.
- **transient** (*bool*) – (bool, optional): Clear the progress on exit. Defaults to False.
- **console** (*Console*, optional) – Console to write to. Default creates internal Console instance.
- **refresh\_per\_second** (*float*) – Number of times per second to refresh the progress information. Defaults to 10.
- **style** (*StyleType*, optional) – Style for the bar background. Defaults to “bar.back”.
- **complete\_style** (*StyleType*, optional) – Style for the completed bar. Defaults to “bar.complete”.
- **finished\_style** (*StyleType*, optional) – Style for a finished bar. Defaults to “bar.finished”.
- **pulse\_style** (*StyleType*, optional) – Style for pulsing bars. Defaults to “bar.pulse”.

- **update\_period** (*float*, *optional*) – Minimum time (in seconds) between calls to `update()`. Defaults to 0.1.
- **disable** (*bool*, *optional*) – Disable display of progress.
- **show\_speed** (*bool*, *optional*) – Show speed if total isn't known. Defaults to True.
- **get\_time** (*Optional*[*Callable*[[], *float*]]) –

**Returns**

An iterable of the values in the sequence.

**Return type**

`Iterable`[`ProgressType`]

```
rich.progress.wrap_file(file, total, *, description='Reading...', auto_refresh=True, console=None,
                        transient=False, get_time=None, refresh_per_second=10, style='bar.back',
                        complete_style='bar.complete', finished_style='bar.finished', pulse_style='bar.pulse',
                        disable=False)
```

Read bytes from a file while tracking progress.

**Parameters**

- **file** (*Union*[*str*, *PathLike*[*str*], *BinaryIO*]) – The path to the file to read, or a file-like object in binary mode.
- **total** (*int*) – Total number of bytes to read.
- **description** (*str*, *optional*) – Description of task show next to progress bar. Defaults to “Reading”.
- **auto\_refresh** (*bool*, *optional*) – Automatic refresh, disable to force a refresh after each iteration. Default is True.
- **transient** (*bool*) – (bool, optional): Clear the progress on exit. Defaults to False.
- **console** (*Console*, *optional*) – Console to write to. Default creates internal `Console` instance.
- **refresh\_per\_second** (*float*) – Number of times per second to refresh the progress information. Defaults to 10.
- **style** (*StyleType*, *optional*) – Style for the bar background. Defaults to “bar.back”.
- **complete\_style** (*StyleType*, *optional*) – Style for the completed bar. Defaults to “bar.complete”.
- **finished\_style** (*StyleType*, *optional*) – Style for a finished bar. Defaults to “bar.finished”.
- **pulse\_style** (*StyleType*, *optional*) – Style for pulsing bars. Defaults to “bar.pulse”.
- **disable** (*bool*, *optional*) – Disable display of progress.
- **get\_time** (*Optional*[*Callable*[[], *float*]]) –

**Returns**

A context manager yielding a progress reader.

**Return type**

`ContextManager`[`BinaryIO`]

## 23.21 rich.prompt

```
class rich.prompt.Confirm(prompt=" ", *, console=None, password=False, choices=None, show_default=True,
                          show_choices=True)
```

A yes / no confirmation prompt.

### Example

```
>>> if Confirm.ask("Continue"):
    run_job()
```

```
process_response(value)
```

Convert choices to a bool.

**Parameters**

**value** (*str*) –

**Return type**

bool

```
render_default(default)
```

Render the default as (y) or (n) rather than True/False.

**Parameters**

**default** (*DefaultType*) –

**Return type**

Text

```
response_type
```

alias of bool

```
class rich.prompt.FloatPrompt(prompt=" ", *, console=None, password=False, choices=None,
                              show_default=True, show_choices=True)
```

A prompt that returns a float.

### Example

```
>>> temperature = FloatPrompt.ask("Enter desired temperature")
```

```
response_type
```

alias of float

```
class rich.prompt.IntPrompt(prompt=" ", *, console=None, password=False, choices=None,
                             show_default=True, show_choices=True)
```

A prompt that returns an integer.

### Example

```
>>> burrito_count = IntPrompt.ask("How many burritos do you want to order")
```

**response\_type**

alias of `int`

**exception** `rich.prompt.InvalidResponse(message)`

Exception to indicate a response was invalid. Raise this within `process_response()` to indicate an error and provide an error message.

**Parameters**

**message** (`Union[str, Text]`) – Error message.

**Return type**

`None`

**class** `rich.prompt.Prompt(prompt=" ", *, console=None, password=False, choices=None, show_default=True, show_choices=True)`

A prompt that returns a `str`.

### Example

```
>>> name = Prompt.ask("Enter your name")
```

**response\_type**

alias of `str`

**class** `rich.prompt.PromptBase(prompt=" ", *, console=None, password=False, choices=None, show_default=True, show_choices=True)`

Ask the user for input until a valid response is received. This is the base class, see one of the concrete classes for examples.

**Parameters**

- **prompt** (`TextType`, *optional*) – Prompt text. Defaults to `""`.
- **console** (`Console`, *optional*) – A `Console` instance or `None` to use global console. Defaults to `None`.
- **password** (`bool`, *optional*) – Enable password input. Defaults to `False`.
- **choices** (`List[str]`, *optional*) – A list of valid choices. Defaults to `None`.
- **show\_default** (`bool`, *optional*) – Show default in prompt. Defaults to `True`.
- **show\_choices** (`bool`, *optional*) – Show choices in prompt. Defaults to `True`.

**classmethod** `ask(prompt: Union[str, Text] = " ", *, console: Optional[Console] = None, password: bool = False, choices: Optional[List[str]] = None, show_default: bool = True, show_choices: bool = True, default: DefaultType, stream: Optional[TextIO] = None) → Union[DefaultType, PromptType]`

**classmethod** `ask(prompt: Union[str, Text] = " ", *, console: Optional[Console] = None, password: bool = False, choices: Optional[List[str]] = None, show_default: bool = True, show_choices: bool = True, stream: Optional[TextIO] = None) → PromptType`

Shortcut to construct and run a prompt loop and return the result.

## Example

```
>>> filename = Prompt.ask("Enter a filename")
```

### Parameters

- **prompt** (*TextType*, *optional*) – Prompt text. Defaults to “”.
- **console** (*Console*, *optional*) – A Console instance or None to use global console. Defaults to None.
- **password** (*bool*, *optional*) – Enable password input. Defaults to False.
- **choices** (*List[str]*, *optional*) – A list of valid choices. Defaults to None.
- **show\_default** (*bool*, *optional*) – Show default in prompt. Defaults to True.
- **show\_choices** (*bool*, *optional*) – Show choices in prompt. Defaults to True.
- **stream** (*TextIO*, *optional*) – Optional text file open for reading to get input. Defaults to None.

### check\_choice(value)

Check value is in the list of valid choices.

#### Parameters

**value** (*str*) – Value entered by user.

#### Returns

True if choice was valid, otherwise False.

#### Return type

*bool*

### classmethod get\_input(console, prompt, password, stream=None)

Get input from user.

#### Parameters

- **console** (*Console*) – Console instance.
- **prompt** (*TextType*) – Prompt text.
- **password** (*bool*) – Enable password entry.
- **stream** (*Optional[TextIO]*) –

#### Returns

String from user.

#### Return type

*str*

### make\_prompt(default)

Make prompt text.

#### Parameters

**default** (*DefaultType*) – Default value.

#### Returns

Text to display in prompt.

**Return type***Text***on\_validate\_error**(*value*, *error*)

Called to handle validation error.

**Parameters**

- **value** (*str*) – String entered by user.
- **error** (*InvalidResponse*) – Exception instance the initiated the error.

**Return type**

None

**pre\_prompt**()

Hook to display something before the prompt.

**Return type**

None

**process\_response**(*value*)

Process response from user, convert to prompt type.

**Parameters****value** (*str*) – String typed by user.**Raises***InvalidResponse* – If value is invalid.**Returns**

The value to be returned from ask method.

**Return type**

PromptType

**render\_default**(*default*)

Turn the supplied default in to a Text instance.

**Parameters****default** (*DefaultType*) – Default value.**Returns**

Text containing rendering of default value.

**Return type***Text***response\_type**alias of *str***exception** `rich.prompt.PromptError`

Exception base class for prompt related errors.



## 23.22 rich.protocol

`rich.protocol.is_renderable(check_object)`

Check if an object may be rendered by Rich.

**Parameters**

**check\_object** (*Any*) –

**Return type**

*bool*

`rich.protocol.rich_cast(renderable)`

Cast an object to a renderable by calling `__rich__` if present.

**Parameters**

**renderable** (*object*) – A potentially renderable object

**Returns**

The result of recursively calling `__rich__`.

**Return type**

*object*

## 23.23 rich.rule

`class rich.rule.Rule(title='', *, characters='-', style='rule.line', end='\n', align='center')`

A console renderable to draw a horizontal rule (line).

**Parameters**

- **title** (*Union[str, Text]*, *optional*) – Text to render in the rule. Defaults to “”.
- **characters** (*str*, *optional*) – Character(s) used to draw the line. Defaults to “-”.
- **style** (*StyleType*, *optional*) – Style of Rule. Defaults to “rule.line”.
- **end** (*str*, *optional*) – Character at end of Rule. defaults to “\n”
- **align** (*str*, *optional*) – How to align the title, one of “left”, “center”, or “right”. Defaults to “center”.

## 23.24 rich.segment

`class rich.segment.ControlType(value)`

Non-printable control codes which typically translate to ANSI codes.

`class rich.segment.Segment(text, style=None, control=None)`

A piece of text with associated style. Segments are produced by the Console render process and are ultimately converted in to strings to be written to the terminal.

**Parameters**

- **text** (*str*) – A piece of text.
- **style** (*Style*, *optional*) – An optional style to apply to the text.
- **control** (*Tuple[ControlCode]*, *optional*) – Optional sequence of control codes.

**cell\_length**

The cell length of this Segment.

**Type**

`int`

**classmethod adjust\_line\_length**(*line, length, style=None, pad=True*)

Adjust a line to a given width (cropping or padding as required).

**Parameters**

- **segments** (*Iterable*[`Segment`]) – A list of segments in a single line.
- **length** (*int*) – The desired width of the line.
- **style** (*Style*, *optional*) – The style of padding if used (space on the end). Defaults to `None`.
- **pad** (*bool*, *optional*) – Pad lines with spaces if they are shorter than *length*. Defaults to `True`.
- **line** (*List*[`Segment`]) –

**Returns**

A line of segments with the desired length.

**Return type**

`List`[`Segment`]

**classmethod align\_bottom**(*lines, width, height, style, new\_lines=False*)

Aligns render to bottom (adds extra lines above as required).

**Args:**

*lines* (`List`[`List`[`Segment`]]): A list of lines. *width* (*int*): Desired width. *height* (*int*, *optional*): Desired height or `None` for no change. *style* (*Style*): Style of any padding added. Defaults to `None`. *new\_lines* (*bool*, *optional*): Padded lines should include “

“. Defaults to `False`.

**Returns:**

`List`[`List`[`Segment`]]: New list of lines.

**Parameters**

- **lines** (*List*[*List*[`Segment`]]) –
- **width** (*int*) –
- **height** (*int*) –
- **style** (*Style*) –
- **new\_lines** (*bool*) –

**Return type**

`List`[*List*[`Segment`]]

**classmethod align\_middle**(*lines, width, height, style, new\_lines=False*)

Aligns lines to middle (adds extra lines to above and below as required).

**Args:**

*lines* (`List`[`List`[`Segment`]]): A list of lines. *width* (*int*): Desired width. *height* (*int*, *optional*): Desired height or `None` for no change. *style* (*Style*): Style of any padding added. *new\_lines* (*bool*, *optional*): Padded lines should include “

“. Defaults to False.

**Returns:**

List[List[Segment]]: New list of lines.

**Parameters**

- **lines** (List[List[Segment]]) –
- **width** (int) –
- **height** (int) –
- **style** (Style) –
- **new\_lines** (bool) –

**Return type**

List[List[Segment]]

**classmethod align\_top**(lines, width, height, style, new\_lines=False)

Aligns lines to top (adds extra lines to bottom as required).

**Args:**

lines (List[List[Segment]]): A list of lines. width (int): Desired width. height (int, optional): Desired height or None for no change. style (Style): Style of any padding added. new\_lines (bool, optional): Padded lines should include “

“. Defaults to False.

**Returns:**

List[List[Segment]]: New list of lines.

**Parameters**

- **lines** (List[List[Segment]]) –
- **width** (int) –
- **height** (int) –
- **style** (Style) –
- **new\_lines** (bool) –

**Return type**

List[List[Segment]]

**classmethod apply\_style**(segments, style=None, post\_style=None)

Apply style(s) to an iterable of segments.

Returns an iterable of segments where the style is replaced by style + segment.style + post\_style.

**Parameters**

- **segments** (Iterable[Segment]) – Segments to process.
- **style** (Style, optional) – Base style. Defaults to None.
- **post\_style** (Style, optional) – Style to apply on top of segment style. Defaults to None.

**Returns**

A new iterable of segments (possibly the same iterable).

**Return type**Iterable[*Segments*]**property cell\_length:** *int*

The number of terminal cells required to display self.text.

**Returns**

A number of cells.

**Return type***int***property control**

Alias for field number 2

**classmethod divide**(*segments, cuts*)

Divides an iterable of segments in to portions.

**Parameters**

- **cuts** (*Iterable*[*int*]) – Cell positions where to divide.
- **segments** (*Iterable*[*Segment*]) –

**Yields***[Iterable[List[Segment]]]* – An iterable of Segments in List.**Return type***Iterable[List[Segment]]***classmethod filter\_control**(*segments, is\_control=False*)Filter segments by *is\_control* attribute.**Parameters**

- **segments** (*Iterable*[*Segment*]) – An iterable of Segment instances.
- **is\_control** (*bool*, *optional*) – *is\_control* flag to match in search.

**Returns**

And iterable of Segment instances.

**Return type**Iterable[*Segment*]**classmethod get\_line\_length**(*line*)

Get the length of list of segments.

**Parameters****line** (*List*[*Segment*]) – A line encoded as a list of Segments (assumes no ‘\n’ characters),**Returns**

The length of the line.

**Return type***int***classmethod get\_shape**(*lines*)

Get the shape (enclosing rectangle) of a list of lines.

**Parameters****lines** (*List*[*List*[*Segment*]]) – A list of lines (no ‘\n’ characters).

**Returns**

Width and height in characters.

**Return type**

Tuple[int, int]

**property is\_control:** bool

Check if the segment contains control codes.

**classmethod line()**

Make a new line segment.

**Return type**

Segment

**classmethod remove\_color(segments)**

Remove all color from an iterable of segments.

**Parameters**

**segments** (Iterable[Segment]) – An iterable segments.

**Yields**

Segment – Segments with colorless style.

**Return type**

Iterable[Segment]

**classmethod set\_shape(lines, width, height=None, style=None, new\_lines=False)**

Set the shape of a list of lines (enclosing rectangle).

**Args:**

lines (List[List[Segment]]): A list of lines. width (int): Desired width. height (int, optional): Desired height or None for no change. style (Style, optional): Style of any padding added. new\_lines (bool, optional): Padded lines should include “

“. Defaults to False.

**Returns:**

List[List[Segment]]: New list of lines.

**Parameters**

- **lines** (List[List[Segment]]) –
- **width** (int) –
- **height** (Optional[int]) –
- **style** (Optional[Style]) –
- **new\_lines** (bool) –

**Return type**

List[List[Segment]]

**classmethod simplify(segments)**

Simplify an iterable of segments by combining contiguous segments with the same style.

**Parameters**

**segments** (Iterable[Segment]) – An iterable of segments.

**Returns**

A possibly smaller iterable of segments that will render the same way.

**Return type**Iterable[[Segment](#)]**classmethod** **split\_and\_crop\_lines**(*segments*, *length*, *style=None*, *pad=True*, *include\_new\_lines=True*)

Split segments in to lines, and crop lines greater than a given length.

**Parameters**

- **segments** ([Iterable\[Segment\]](#)) – An iterable of segments, probably generated from `console.render`.
- **length** ([int](#)) – Desired line length.
- **style** ([Style](#), *optional*) – Style to use for any padding.
- **pad** ([bool](#)) – Enable padding of lines that are less than *length*.
- **include\_new\_lines** ([bool](#)) –

**Returns**

An iterable of lines of segments.

**Return type**Iterable[List[[Segment](#)]]**split\_cells**(*cut*)

Split segment in to two segments at the specified column.

If the cut point falls in the middle of a 2-cell wide character then it is replaced by two spaces, to preserve the display width of the parent segment.

**Returns**

Two segments.

**Return type**Tuple[[Segment](#), [Segment](#)]**Parameters****cut** ([int](#)) –**classmethod** **split\_lines**(*segments*)

Split a sequence of segments in to a list of lines.

**Parameters****segments** ([Iterable\[Segment\]](#)) – Segments potentially containing line feeds.**Yields**[Iterable\[List\[Segment\]\]](#) – Iterable of segment lists, one per line.**Return type**[Iterable\[List\[Segment\]\]](#)**classmethod** **strip\_links**(*segments*)

Remove all links from an iterable of styles.

**Parameters****segments** ([Iterable\[Segment\]](#)) – An iterable segments.**Yields**[Segment](#) – Segments with link removed.**Return type**[Iterable\[Segment\]](#)

**classmethod** `strip_styles(segments)`

Remove all styles from an iterable of segments.

**Parameters**

**segments** (*Iterable[Segment]*) – An iterable segments.

**Yields**

*Segment* – Segments with styles replace with None

**Return type**

*Iterable[Segment]*

**property** `style`

Alias for field number 1

**property** `text`

Alias for field number 0

**class** `rich.segment.Segments(segments, new_lines=False)`

A simple renderable to render an iterable of segments. This class may be useful if you want to print segments outside of a `__rich_console__` method.

**Parameters**

- **segments** (*Iterable[Segment]*) – An iterable of segments.
- **new\_lines** (*bool, optional*) – Add new lines between segments. Defaults to False.

## 23.25 rich.spinner

**class** `rich.spinner.Spinner(name, text="", *, style=None, speed=1.0)`

A spinner animation.

**Parameters**

- **name** (*str*) – Name of spinner (run `python -m rich.spinner`).
- **text** (*RenderableType, optional*) – A renderable to display at the right of the spinner (str or Text typically). Defaults to "".
- **style** (*StyleType, optional*) – Style for spinner animation. Defaults to None.
- **speed** (*float, optional*) – Speed factor for animation. Defaults to 1.0.

**Raises**

**KeyError** – If name isn't one of the supported spinner animations.

**render** (*time*)

Render the spinner for a given time.

**Parameters**

**time** (*float*) – Time in seconds.

**Returns**

A renderable containing animation frame.

**Return type**

*RenderableType*

**update**(\*, text="", style=None, speed=None)

Updates attributes of a spinner after it has been started.

**Parameters**

- **text** (*RenderableType*, *optional*) – A renderable to display at the right of the spinner (str or Text typically). Defaults to "".
- **style** (*StyleType*, *optional*) – Style for spinner animation. Defaults to None.
- **speed** (*float*, *optional*) – Speed factor for animation. Defaults to None.

**Return type**

None

## 23.26 rich.status

**class** rich.status.**Status**(status, \*, console=None, spinner='dots', spinner\_style='status.spinner', speed=1.0, refresh\_per\_second=12.5)

Displays a status indicator with a ‘spinner’ animation.

**Parameters**

- **status** (*RenderableType*) – A status renderable (str or Text typically).
- **console** (*Console*, *optional*) – Console instance to use, or None for global console. Defaults to None.
- **spinner** (*str*, *optional*) – Name of spinner animation (see python -m rich.spinner). Defaults to “dots”.
- **spinner\_style** (*StyleType*, *optional*) – Style of spinner. Defaults to “status.spinner”.
- **speed** (*float*, *optional*) – Speed factor for spinner animation. Defaults to 1.0.
- **refresh\_per\_second** (*float*, *optional*) – Number of refreshes per second. Defaults to 12.5.

**property console:** *Console*

Get the Console used by the Status objects.

**start**()

Start the status animation.

**Return type**

None

**stop**()

Stop the spinner animation.

**Return type**

None

**update**(status=None, \*, spinner=None, spinner\_style=None, speed=None)

Update status.

**Parameters**

- **status** (*Optional[RenderableType]*, *optional*) – New status renderable or None for no change. Defaults to None.



- **spinner** (*Optional*[*str*], *optional*) – New spinner or None for no change. Defaults to None.
- **spinner\_style** (*Optional*[*StyleType*], *optional*) – New spinner style or None for no change. Defaults to None.
- **speed** (*Optional*[*float*], *optional*) – Speed factor for spinner animation or None for no change. Defaults to None.

**Return type**

None

## 23.27 rich.style

```
class rich.style.Style(*, color=None, bgcolor=None, bold=None, dim=None, italic=None, underline=None,
    blink=None, blink2=None, reverse=None, conceal=None, strike=None,
    underline2=None, frame=None, encircle=None, overline=None, link=None,
    meta=None)
```

A terminal style.

A terminal style consists of a color (*color*), a background color (*bgcolor*), and a number of attributes, such as bold, italic etc. The attributes have 3 states: they can either be on (True), off (False), or not set (None).

**Parameters**

- **color** (*Union*[*Color*, *str*], *optional*) – Color of terminal text. Defaults to None.
- **bgcolor** (*Union*[*Color*, *str*], *optional*) – Color of terminal background. Defaults to None.
- **bold** (*bool*, *optional*) – Enable bold text. Defaults to None.
- **dim** (*bool*, *optional*) – Enable dim text. Defaults to None.
- **italic** (*bool*, *optional*) – Enable italic text. Defaults to None.
- **underline** (*bool*, *optional*) – Enable underlined text. Defaults to None.
- **blink** (*bool*, *optional*) – Enabled blinking text. Defaults to None.
- **blink2** (*bool*, *optional*) – Enable fast blinking text. Defaults to None.
- **reverse** (*bool*, *optional*) – Enabled reverse text. Defaults to None.
- **conceal** (*bool*, *optional*) – Enable concealed text. Defaults to None.
- **strike** (*bool*, *optional*) – Enable strikethrough text. Defaults to None.
- **underline2** (*bool*, *optional*) – Enable doubly underlined text. Defaults to None.
- **frame** (*bool*, *optional*) – Enable framed text. Defaults to None.
- **encircle** (*bool*, *optional*) – Enable encircled text. Defaults to None.
- **overline** (*bool*, *optional*) – Enable overlined text. Defaults to None.
- **link** (*str*, *link*) – Link URL. Defaults to None.
- **meta** (*Optional*[*Dict*[*str*, *Any*]]) –

**property background\_style:** *Style*

A Style with background only.

**property bgcolor:** `Optional[Color]`

The background color or None if it is not set.

**classmethod chain**(\*styles)

Combine styles from positional argument in to a single style.

**Parameters**

**\*styles** (`Iterable[Style]`) – Styles to combine.

**Returns**

A new style instance.

**Return type**

`Style`

**clear\_meta\_and\_links**()

Get a copy of this style with link and meta information removed.

**Returns**

New style object.

**Return type**

`Style`

**property color:** `Optional[Color]`

The foreground color or None if it is not set.

**classmethod combine**(styles)

Combine styles and get result.

**Parameters**

**styles** (`Iterable[Style]`) – Styles to combine.

**Returns**

A new style instance.

**Return type**

`Style`

**copy**()

Get a copy of this style.

**Returns**

A new Style instance with identical attributes.

**Return type**

`Style`

**classmethod from\_color**(color=None, bgcolor=None)

Create a new style with colors and no attributes.

**Returns**

A (foreground) color, or None for no color. Defaults to None. bgcolor (`Optional[Color]`): A (background) color, or None for no color. Defaults to None.

**Return type**

color (`Optional[Color]`)

**Parameters**

- **color** (`Optional[Color]`) –
- **bgcolor** (`Optional[Color]`) –

**classmethod** `from_meta(meta)`

Create a new style with meta data.

**Returns**

A dictionary of meta data. Defaults to None.

**Return type**

meta (Optional[Dict[str, Any]])

**Parameters**

**meta** (Optional[Dict[str, Any]]) –

**get\_html\_style(theme=None)**

Get a CSS style rule.

**Parameters**

**theme** (Optional[TerminalTheme]) –

**Return type**

str

**property link:** Optional[str]

Link text, if set.

**property link\_id:** str

Get a link id, used in ansi code for links.

**property meta:** Dict[str, Any]

Get meta information (can not be changed after construction).

**classmethod** `normalize(style)`

Normalize a style definition so that styles with the same effect have the same string representation.

**Parameters**

**style** (str) – A style definition.

**Returns**

Normal form of style definition.

**Return type**

str

**classmethod** `null()`

Create an ‘null’ style, equivalent to Style(), but more performant.

**Return type**

Style

**classmethod** `on(meta=None, **handlers)`

Create a blank style with meta information.

### Example

```
style = Style.on(click=self.on_click)
```

#### Parameters

- **meta** (*Optional*[*Dict*[*str*, *Any*]], *optional*) – An optional dict of meta information.
- **\*\*handlers** (*Any*) – Keyword arguments are translated in to handlers.

#### Returns

A Style with meta information attached.

#### Return type

*Style*

```
classmethod parse(style_definition)
```

Parse a style definition.

#### Parameters

**style\_definition** (*str*) – A string containing a style.

#### Raises

**errors.StyleSyntaxError** – If the style definition syntax is invalid.

#### Returns

A Style instance.

#### Return type

*Style*

```
classmethod pick_first(*values)
```

Pick first non-None style.

#### Parameters

**values** (*Optional*[*Union*[*str*, *Style*]]) –

#### Return type

*Union*[*str*, *Style*]

```
render(text="", *, color_system=ColorSystem.TRUECOLOR, legacy_windows=False)
```

Render the ANSI codes for the style.

#### Parameters

- **text** (*str*, *optional*) – A string to style. Defaults to “”.
- **color\_system** (*Optional*[*ColorSystem*], *optional*) – Color system to render to. Defaults to *ColorSystem.TRUECOLOR*.
- **legacy\_windows** (*bool*) –

#### Returns

A string containing ANSI style codes.

#### Return type

*str*

```
test(text=None)
```

Write text with style directly to terminal.

This method is for testing purposes only.

**Parameters**

**text** (*Optional*[*str*], *optional*) – Text to style or None for style name.

**Return type**

None

**property transparent\_background:** *bool*

Check if the style specified a transparent background.

**update\_link**(*link=None*)

Get a copy with a different value for link.

**Parameters**

**link** (*str*, *optional*) – New value for link. Defaults to None.

**Returns**

A new Style instance.

**Return type**

*Style*

**property without\_color:** *Style*

Get a copy of the style with color removed.

**class rich.style.StyleStack**(*default\_style*)

A stack of styles.

**Parameters**

**default\_style** (*Style*) –

**property current:** *Style*

Get the Style at the top of the stack.

**pop()**

Pop last style and discard.

**Returns**

New current style (also available as `stack.current`)

**Return type**

*Style*

**push**(*style*)

Push a new style on to the stack.

**Parameters**

**style** (*Style*) – New style to combine with current style.

**Return type**

None

## 23.28 rich.styled

**class** rich.styled.Styled(renderable, style)

Apply a style to a renderable.

### Parameters

- **renderable** (*RenderableType*) – Any renderable.
- **style** (*StyleType*) – A style to apply across the entire renderable.

## 23.29 rich.syntax

**class** rich.syntax.Syntax(code, lexer, \*, theme='monokai', dedent=False, line\_numbers=False, start\_line=1, line\_range=None, highlight\_lines=None, code\_width=None, tab\_size=4, word\_wrap=False, background\_color=None, indent\_guides=False, padding=0)

Construct a Syntax object to render syntax highlighted code.

### Parameters

- **code** (*str*) – Code to highlight.
- **lexer** (*Lexer* | *str*) – Lexer to use (see <https://pygments.org/docs/lexers/>)
- **theme** (*str*, *optional*) – Color theme, aka Pygments style (see <https://pygments.org/docs/styles/#getting-a-list-of-available-styles>). Defaults to “monokai”.
- **dedent** (*bool*, *optional*) – Enable stripping of initial whitespace. Defaults to False.
- **line\_numbers** (*bool*, *optional*) – Enable rendering of line numbers. Defaults to False.
- **start\_line** (*int*, *optional*) – Starting number for line numbers. Defaults to 1.
- **line\_range** (*Tuple[int | None, int | None]*, *optional*) – If given should be a tuple of the start and end line to render. A value of None in the tuple indicates the range is open in that direction.
- **highlight\_lines** (*Set[int]*) – A set of line numbers to highlight.
- **code\_width** (*Optional[int]*) – Width of code to render (not including line numbers), or None to use all available width.
- **tab\_size** (*int*, *optional*) – Size of tabs. Defaults to 4.
- **word\_wrap** (*bool*, *optional*) – Enable word wrapping.
- **background\_color** (*str*, *optional*) – Optional background color, or None to use theme color. Defaults to None.
- **indent\_guides** (*bool*, *optional*) – Show indent guides. Defaults to False.
- **padding** (*PaddingDimensions*) – Padding to apply around the syntax. Defaults to 0 (no padding).

**classmethod** from\_path(path, encoding='utf-8', lexer=None, theme='monokai', dedent=False, line\_numbers=False, line\_range=None, start\_line=1, highlight\_lines=None, code\_width=None, tab\_size=4, word\_wrap=False, background\_color=None, indent\_guides=False, padding=0)

Construct a Syntax object from a file.

**Parameters**

- **path** (*str*) – Path to file to highlight.
- **encoding** (*str*) – Encoding of file.
- **lexer** (*str* | *Lexer*, *optional*) – Lexer to use. If None, lexer will be auto-detected from path/file content.
- **theme** (*str*, *optional*) – Color theme, aka Pygments style (see <https://pygments.org/docs/styles/#getting-a-list-of-available-styles>). Defaults to “emacs”.
- **dedent** (*bool*, *optional*) – Enable stripping of initial whitespace. Defaults to True.
- **line\_numbers** (*bool*, *optional*) – Enable rendering of line numbers. Defaults to False.
- **start\_line** (*int*, *optional*) – Starting number for line numbers. Defaults to 1.
- **line\_range** (*Tuple[int, int]*, *optional*) – If given should be a tuple of the start and end line to render.
- **highlight\_lines** (*Set[int]*) – A set of line numbers to highlight.
- **code\_width** (*Optional[int]*) – Width of code to render (not including line numbers), or None to use all available width.
- **tab\_size** (*int*, *optional*) – Size of tabs. Defaults to 4.
- **word\_wrap** (*bool*, *optional*) – Enable word wrapping of code.
- **background\_color** (*str*, *optional*) – Optional background color, or None to use theme color. Defaults to None.
- **indent\_guides** (*bool*, *optional*) – Show indent guides. Defaults to False.
- **padding** (*PaddingDimensions*) – Padding to apply around the syntax. Defaults to 0 (no padding).

**Returns**

A Syntax object that may be printed to the console

**Return type**

[*Syntax*]

**classmethod** **get\_theme**(*name*)

Get a syntax theme instance.

**Parameters**

**name** (*Union[str, SyntaxTheme]*) –

**Return type**

*SyntaxTheme*

**classmethod** **guess\_lexer**(*path*, *code=None*)

Guess the alias of the Pygments lexer to use based on a path and an optional string of code. If code is supplied, it will use a combination of the code and the filename to determine the best lexer to use. For example, if the file is `index.html` and the file contains Django templating syntax, then “html+django” will be returned. If the file is `index.html`, and no templating language is used, the “html” lexer will be used. If no string of code is supplied, the lexer will be chosen based on the file extension..

**Parameters**

- **path** (*AnyStr*) – The path to the file containing the code you wish to know the lexer for.

- **code** (*str*, *optional*) – Optional string of code that will be used as a fallback if no lexer is found for the supplied path.

**Returns**

The name of the Pygments lexer that best matches the supplied path/code.

**Return type**

*str*

**highlight** (*code*, *line\_range=None*)

Highlight code and return a Text instance.

**Parameters**

- **code** (*str*) – Code to highlight.
- **line\_range** (*Tuple[int, int]*, *optional*) – Optional line range to highlight.

**Returns**

A text instance containing highlighted syntax.

**Return type**

*Text*

**property lexer:** *Optional[Lexer]*

The lexer for this syntax, or None if no lexer was found.

Tries to find the lexer by name if a string was passed to the constructor.

**stylize\_range** (*style*, *start*, *end*)

Adds a custom style on a part of the code, that will be applied to the syntax display when it's rendered. Line numbers are 1-based, while column indexes are 0-based.

**Parameters**

- **style** (*StyleType*) – The style to apply.
- **start** (*Tuple[int, int]*) – The start of the range, in the form [*line number*, *column index*].
- **end** (*Tuple[int, int]*) – The end of the range, in the form [*line number*, *column index*].

**Return type**

None

## 23.30 rich.table

```
class rich.table.Column(header="", footer="", header_style="", footer_style="", style="", justify='left',
                        vertical='top', overflow='ellipsis', width=None, min_width=None, max_width=None,
                        ratio=None, no_wrap=False, _index=0, _cells=<factory>)
```

Defines a column within a ~Table.

**Parameters**

- **title** (*Union[str, Text]*, *optional*) – The title of the table rendered at the top. Defaults to None.
- **caption** (*Union[str, Text]*, *optional*) – The table caption rendered below. Defaults to None.



- **width** (*int*, *optional*) – The width in characters of the table, or None to automatically fit. Defaults to None.
- **min\_width** (*Optional[int]*, *optional*) – The minimum width of the table, or None for no minimum. Defaults to None.
- **box** (*box.Box*, *optional*) – One of the constants in box.py used to draw the edges (see *Box*), or None for no box lines. Defaults to box.HEAVY\_HEAD.
- **safe\_box** (*Optional[bool]*, *optional*) – Disable box characters that don't display on windows legacy terminal with *raster* fonts. Defaults to True.
- **padding** (*PaddingDimensions*, *optional*) – Padding for cells (top, right, bottom, left). Defaults to (0, 1).
- **collapse\_padding** (*bool*, *optional*) – Enable collapsing of padding around cells. Defaults to False.
- **pad\_edge** (*bool*, *optional*) – Enable padding of edge cells. Defaults to True.
- **expand** (*bool*, *optional*) – Expand the table to fit the available space if True, otherwise the table width will be auto-calculated. Defaults to False.
- **show\_header** (*bool*, *optional*) – Show a header row. Defaults to True.
- **show\_footer** (*bool*, *optional*) – Show a footer row. Defaults to False.
- **show\_edge** (*bool*, *optional*) – Draw a box around the outside of the table. Defaults to True.
- **show\_lines** (*bool*, *optional*) – Draw lines between every row. Defaults to False.
- **leading** (*bool*, *optional*) – Number of blank lines between rows (precludes show\_lines). Defaults to 0.
- **style** (*Union[str, Style]*, *optional*) – Default style for the table. Defaults to “none”.
- **row\_styles** (*List[Union, str]*, *optional*) – Optional list of row styles, if more than one style is given then the styles will alternate. Defaults to None.
- **header\_style** (*Union[str, Style]*, *optional*) – Style of the header. Defaults to “table.header”.
- **footer\_style** (*Union[str, Style]*, *optional*) – Style of the footer. Defaults to “table.footer”.
- **border\_style** (*Union[str, Style]*, *optional*) – Style of the border. Defaults to None.
- **title\_style** (*Union[str, Style]*, *optional*) – Style of the title. Defaults to None.
- **caption\_style** (*Union[str, Style]*, *optional*) – Style of the caption. Defaults to None.
- **title\_justify** (*str*, *optional*) – Justify method for title. Defaults to “center”.
- **caption\_justify** (*str*, *optional*) – Justify method for caption. Defaults to “center”.
- **highlight** (*bool*, *optional*) – Highlight cell contents (if str). Defaults to False.
- **header** (*RenderableType*) –
- **footer** (*RenderableType*) –
- **justify** (*JustifyMethod*) –

- **vertical** (*VerticalAlignMethod*) –
- **overflow** (*OverflowMethod*) –
- **max\_width** (*Optional[int]*) –
- **ratio** (*Optional[int]*) –
- **no\_wrap** (*bool*) –
- **\_index** (*int*) –
- **\_cells** (*List[RenderableType]*) –

**property cells:** *Iterable[RenderableType]*

Get all cells in the column, not including header.

**copy()**

Return a copy of this Column.

**Return type**

*Column*

**property flexible:** *bool*

Check if this column is flexible.

**footer:** *RenderableType* = ''

Renderable for the footer (typically a string)

**Type**

*RenderableType*

**footer\_style:** *Union[str, Style]* = ''

The style of the footer.

**Type**

*StyleType*

**header:** *RenderableType* = ''

Renderable for the header (typically a string)

**Type**

*RenderableType*

**header\_style:** *Union[str, Style]* = ''

The style of the header.

**Type**

*StyleType*

**justify:** *JustifyMethod* = 'left'

How to justify text within the column (“left”, “center”, “right”, or “full”)

**Type**

*str*

**max\_width:** *Optional[int]* = None

Maximum width of column, or None for no maximum. Defaults to None.

**Type**

*Optional[int]*

**min\_width:** `Optional[int] = None`

Minimum width of column, or None for no minimum. Defaults to None.

**Type**

`Optional[int]`

**no\_wrap:** `bool = False`

Prevent wrapping of text within the column. Defaults to False.

**Type**

`bool`

**overflow:** `OverflowMethod = 'ellipsis'`

Overflow method.

**Type**

`str`

**ratio:** `Optional[int] = None`

Ratio to use when calculating column width, or None (default) to adapt to column contents.

**Type**

`Optional[int]`

**style:** `Union[str, Style] = ''`

The style of the column.

**Type**

`StyleType`

**vertical:** `VerticalAlignMethod = 'top'`

How to vertically align content (“top”, “middle”, or “bottom”)

**Type**

`str`

**width:** `Optional[int] = None`

Width of the column, or None (default) to auto calculate width.

**Type**

`Optional[int]`

**class** `rich.table.Row(style=None, end_section=False)`

Information regarding a row.

**Parameters**

- **style** (`Optional[Union[str, Style]]`) –
- **end\_section** (`bool`) –

**end\_section:** `bool = False`

Indicated end of section, which will force a line beneath the row.

**style:** `Optional[Union[str, Style]] = None`

Style to apply to row.

```
class rich.table.Table(*headers, title=None, caption=None, width=None, min_width=None, box=Box(...),
    safe_box=None, padding=(0, 1), collapse_padding=False, pad_edge=True,
    expand=False, show_header=True, show_footer=False, show_edge=True,
    show_lines=False, leading=0, style='none', row_styles=None,
    header_style='table.header', footer_style='table.footer', border_style=None,
    title_style=None, caption_style=None, title_justify='center', caption_justify='center',
    highlight=False)
```

A console renderable to draw a table.

#### Parameters

- **\*headers** (*Union*[*Column*, *str*]) – Column headers, either as a string, or *Column* instance.
- **title** (*Union*[*str*, *Text*], *optional*) – The title of the table rendered at the top. Defaults to None.
- **caption** (*Union*[*str*, *Text*], *optional*) – The table caption rendered below. Defaults to None.
- **width** (*int*, *optional*) – The width in characters of the table, or None to automatically fit. Defaults to None.
- **min\_width** (*Optional*[*int*], *optional*) – The minimum width of the table, or None for no minimum. Defaults to None.
- **box** (*box.Box*, *optional*) – One of the constants in box.py used to draw the edges (see *Box*), or None for no box lines. Defaults to box.HEAVY\_HEAD.
- **safe\_box** (*Optional*[*bool*], *optional*) – Disable box characters that don't display on windows legacy terminal with *raster* fonts. Defaults to True.
- **padding** (*PaddingDimensions*, *optional*) – Padding for cells (top, right, bottom, left). Defaults to (0, 1).
- **collapse\_padding** (*bool*, *optional*) – Enable collapsing of padding around cells. Defaults to False.
- **pad\_edge** (*bool*, *optional*) – Enable padding of edge cells. Defaults to True.
- **expand** (*bool*, *optional*) – Expand the table to fit the available space if True, otherwise the table width will be auto-calculated. Defaults to False.
- **show\_header** (*bool*, *optional*) – Show a header row. Defaults to True.
- **show\_footer** (*bool*, *optional*) – Show a footer row. Defaults to False.
- **show\_edge** (*bool*, *optional*) – Draw a box around the outside of the table. Defaults to True.
- **show\_lines** (*bool*, *optional*) – Draw lines between every row. Defaults to False.
- **leading** (*bool*, *optional*) – Number of blank lines between rows (precludes show\_lines). Defaults to 0.
- **style** (*Union*[*str*, *Style*], *optional*) – Default style for the table. Defaults to “none”.
- **row\_styles** (*List*[*Union*, *str*], *optional*) – Optional list of row styles, if more than one style is given then the styles will alternate. Defaults to None.
- **header\_style** (*Union*[*str*, *Style*], *optional*) – Style of the header. Defaults to “table.header”.

- **footer\_style** (*Union[str, Style], optional*) – Style of the footer. Defaults to “table.footer”.
- **border\_style** (*Union[str, Style], optional*) – Style of the border. Defaults to None.
- **title\_style** (*Union[str, Style], optional*) – Style of the title. Defaults to None.
- **caption\_style** (*Union[str, Style], optional*) – Style of the caption. Defaults to None.
- **title\_justify** (*str, optional*) – Justify method for title. Defaults to “center”.
- **caption\_justify** (*str, optional*) – Justify method for caption. Defaults to “center”.
- **highlight** (*bool, optional*) – Highlight cell contents (if str). Defaults to False.

**add\_column**(*header="", footer="", \*, header\_style=None, footer\_style=None, style=None, justify='left', vertical='top', overflow='ellipsis', width=None, min\_width=None, max\_width=None, ratio=None, no\_wrap=False*)

Add a column to the table.

#### Parameters

- **header** (*RenderableType, optional*) – Text or renderable for the header. Defaults to “”.
- **footer** (*RenderableType, optional*) – Text or renderable for the footer. Defaults to “”.
- **header\_style** (*Union[str, Style], optional*) – Style for the header, or None for default. Defaults to None.
- **footer\_style** (*Union[str, Style], optional*) – Style for the footer, or None for default. Defaults to None.
- **style** (*Union[str, Style], optional*) – Style for the column cells, or None for default. Defaults to None.
- **justify** (*JustifyMethod, optional*) – Alignment for cells. Defaults to “left”.
- **vertical** (*VerticalAlignMethod, optional*) – Vertical alignment, one of “top”, “middle”, or “bottom”. Defaults to “top”.
- **overflow** (*OverflowMethod*) – Overflow method: “crop”, “fold”, “ellipsis”. Defaults to “ellipsis”.
- **width** (*int, optional*) – Desired width of column in characters, or None to fit to contents. Defaults to None.
- **min\_width** (*Optional[int], optional*) – Minimum width of column, or None for no minimum. Defaults to None.
- **max\_width** (*Optional[int], optional*) – Maximum width of column, or None for no maximum. Defaults to None.
- **ratio** (*int, optional*) – Flexible ratio for the column (requires Table.expand or Table.width). Defaults to None.
- **no\_wrap** (*bool, optional*) – Set to True to disable wrapping of this column.

#### Return type

None

**add\_row**(\*renderables, style=None, end\_section=False)

Add a row of renderables.

**Parameters**

- **\*renderables** (*None or renderable*) – Each cell in a row must be a renderable object (including str), or None for a blank cell.
- **style** (*StyleType, optional*) – An optional style to apply to the entire row. Defaults to None.
- **end\_section** (*bool, optional*) – End a section and draw a line. Defaults to False.

**Raises**

**errors.NotRenderableError** – If you add something that can't be rendered.

**Return type**

None

**add\_section**()

Add a new section (draw a line after current row).

**Return type**

None

**property expand:** *bool*

Setting a non-None self.width implies expand.

**get\_row\_style**(console, index)

Get the current row style.

**Parameters**

- **console** (*Console*) –
- **index** (*int*) –

**Return type**

*Union[str, Style]*

**classmethod grid**(\*headers, padding=0, collapse\_padding=True, pad\_edge=False, expand=False)

Get a table with no lines, headers, or footer.

**Parameters**

- **\*headers** (*Union[Column, str]*) – Column headers, either as a string, or *Column* instance.
- **padding** (*PaddingDimensions, optional*) – Get padding around cells. Defaults to 0.
- **collapse\_padding** (*bool, optional*) – Enable collapsing of padding around cells. Defaults to True.
- **pad\_edge** (*bool, optional*) – Enable padding around edges of table. Defaults to False.
- **expand** (*bool, optional*) – Expand the table to fit the available space if True, otherwise the table width will be auto-calculated. Defaults to False.

**Returns**

A table instance.

**Return type**

*Table*

**property padding:** `Tuple[int, int, int, int]`

Get cell padding.

**property row\_count:** `int`

Get the current number of rows.

## 23.31 rich.text

```
class rich.text.Text(text="", style="", *, justify=None, overflow=None, no_wrap=None, end='\n', tab_size=8,
                    spans=None)
```

Text with color / style.

### Parameters

- **text** (`str`, *optional*) – Default unstyled text. Defaults to “”.
- **style** (`Union[str, Style]`, *optional*) – Base style for text. Defaults to “”.
- **justify** (`str`, *optional*) – Justify method: “left”, “center”, “full”, “right”. Defaults to None.
- **overflow** (`str`, *optional*) – Overflow method: “crop”, “fold”, “ellipsis”. Defaults to None.
- **no\_wrap** (`bool`, *optional*) – Disable text wrapping, or None for default. Defaults to None.
- **end** (`str`, *optional*) – Character to end text with. Defaults to “\n”.
- **tab\_size** (`int`) – Number of spaces per tab, or None to use `console.tab_size`. Defaults to 8.
- **spans** (`List[Span]`, *optional*) –

```
align(align, width, character='')
```

Align text to a given width.

### Parameters

- **align** (`AlignMethod`) – One of “left”, “center”, or “right”.
- **width** (`int`) – Desired width.
- **character** (`str`, *optional*) – Character to pad with. Defaults to “ ”.

### Return type

None

```
append(text, style=None)
```

Add text with an optional style.

### Parameters

- **text** (`Union[Text, str]`) – A str or Text to append.
- **style** (`str`, *optional*) – A style name. Defaults to None.

### Returns

Returns self for chaining.

### Return type

`Text`

**append\_text**(*text*)

Append another Text instance. This method is more performant than Text.append, but only works for Text.

**Returns**

Returns self for chaining.

**Return type**

*Text*

**Parameters**

**text** (*Text*) –

**append\_tokens**(*tokens*)

Append iterable of str and style. Style may be a Style instance or a str style definition.

**Parameters**

- **pairs** (*Iterable[Tuple[str, Optional[StyleType]]]*) – An iterable of tuples containing str content and style.
- **tokens** (*Iterable[Tuple[str, Optional[Union[str, Style]]]]*) –

**Returns**

Returns self for chaining.

**Return type**

*Text*

**apply\_meta**(*meta*, *start=0*, *end=None*)

Apply meta data to the text, or a portion of the text.

**Parameters**

- **meta** (*Dict[str, Any]*) – A dict of meta information.
- **start** (*int*) – Start offset (negative indexing is supported). Defaults to 0.
- **end** (*Optional[int]*, *optional*) – End offset (negative indexing is supported), or None for end of text. Defaults to None.

**Return type**

None

**classmethod assemble**(*\*parts*, *style=""*, *justify=None*, *overflow=None*, *no\_wrap=None*, *end='\n'*, *tab\_size=8*, *meta=None*)

Construct a text instance by combining a sequence of strings with optional styles. The positional arguments should be either strings, or a tuple of string + style.

**Parameters**

- **style** (*Union[str, Style]*, *optional*) – Base style for text. Defaults to "".
- **justify** (*str*, *optional*) – Justify method: “left”, “center”, “full”, “right”. Defaults to None.
- **overflow** (*str*, *optional*) – Overflow method: “crop”, “fold”, “ellipsis”. Defaults to None.
- **end** (*str*, *optional*) – Character to end text with. Defaults to “\n”.
- **tab\_size** (*int*) – Number of spaces per tab, or None to use `console.tab_size`. Defaults to 8.
- **meta** (*Dict[str, Any]*, *optional*) –



- **parts** (*Union*[*str*, *Text*, *Tuple*[*str*, *Union*[*str*, *Style*]]]) –
- **no\_wrap** (*Optional*[*bool*]) –

**Returns**

A new text instance.

**Return type**

*Text*

**blank\_copy**(*plain=""*)

Return a new Text instance with copied meta data (but not the string or spans).

**Parameters**

**plain** (*str*) –

**Return type**

*Text*

**property cell\_len:** *int*

Get the number of cells required to render this text.

**copy**()

Return a copy of this instance.

**Return type**

*Text*

**copy\_styles**(*text*)

Copy styles from another Text instance.

**Parameters**

**text** (*Text*) – A Text instance to copy styles from, must be the same length.

**Return type**

None

**detect\_indentation**()

Auto-detect indentation of code.

**Returns**

Number of spaces used to indent code.

**Return type**

*int*

**divide**(*offsets*)

Divide text in to a number of lines at given offsets.

**Parameters**

**offsets** (*Iterable*[*int*]) – Offsets used to divide text.

**Returns**

New RichText instances between offsets.

**Return type**

*Lines*

**expand\_tabs**(*tab\_size=None*)

Converts tabs to spaces.

**Parameters**

**tab\_size** (*int*, *optional*) – Size of tabs. Defaults to 8.

**Return type**

None

**fit**(width)

Fit the text in to given width by chopping in to lines.

**Parameters**

**width** (*int*) – Maximum characters in a line.

**Returns**

Lines container.

**Return type**

Lines

**classmethod** **from\_ansi**(text, \*, style="", justify=None, overflow=None, no\_wrap=None, end='\n', tab\_size=8)

Create a Text object from a string containing ANSI escape codes.

**Parameters**

- **text** (*str*) – A string containing escape codes.
- **style** (*Union[str, Style]*, *optional*) – Base style for text. Defaults to "".
- **justify** (*str*, *optional*) – Justify method: “left”, “center”, “full”, “right”. Defaults to None.
- **overflow** (*str*, *optional*) – Overflow method: “crop”, “fold”, “ellipsis”. Defaults to None.
- **no\_wrap** (*bool*, *optional*) – Disable text wrapping, or None for default. Defaults to None.
- **end** (*str*, *optional*) – Character to end text with. Defaults to “\n”.
- **tab\_size** (*int*) – Number of spaces per tab, or None to use `console.tab_size`. Defaults to 8.

**Return type***Text*

**classmethod** **from\_markup**(text, \*, style="", emoji=True, emoji\_variant=None, justify=None, overflow=None, end='\n')

Create Text instance from markup.

**Parameters**

- **text** (*str*) – A string containing console markup.
- **emoji** (*bool*, *optional*) – Also render emoji code. Defaults to True.
- **justify** (*str*, *optional*) – Justify method: “left”, “center”, “full”, “right”. Defaults to None.
- **overflow** (*str*, *optional*) – Overflow method: “crop”, “fold”, “ellipsis”. Defaults to None.
- **end** (*str*, *optional*) – Character to end text with. Defaults to “\n”.
- **style** (*Union[str, Style]*) –
- **emoji\_variant** (*Optional[typing\_extensions.Literal[emoji, text]]*) –

**Returns**

A Text instance with markup rendered.

**Return type**

*Text*

**get\_style\_at\_offset**(*console*, *offset*)

Get the style of a character at give offset.

**Parameters**

- **console** (*~Console*) – Console where text will be rendered.
- **offset** (*int*) – Offset in to text (negative indexing supported)

**Returns**

A Style instance.

**Return type**

*Style*

**highlight\_regex**(*re\_highlight*, *style=None*, \*, *style\_prefix=""*)

Highlight text with a regular expression, where group names are translated to styles.

**Parameters**

- **re\_highlight** (*str*) – A regular expression.
- **style** (*Union[GetStyleCallable, StyleType]*) – Optional style to apply to whole match, or a callable which accepts the matched text and returns a style. Defaults to None.
- **style\_prefix** (*str*, *optional*) – Optional prefix to add to style group names.

**Returns**

Number of regex matches

**Return type**

*int*

**highlight\_words**(*words*, *style*, \*, *case\_sensitive=True*)

Highlight words with a style.

**Parameters**

- **words** (*Iterable[str]*) – Worlds to highlight.
- **style** (*Union[str, Style]*) – Style to apply.
- **case\_sensitive** (*bool*, *optional*) – Enable case sensitive matchings. Defaults to True.

**Returns**

Number of words highlighted.

**Return type**

*int*

**join**(*lines*)

Join text together with this instance as the separator.

**Parameters**

**lines** (*Iterable[Text]*) – An iterable of Text instances to join.

**Returns**

A new text instance containing join text.

**Return type***Text***property markup:** *str*

Get console markup to render this Text.

**Returns**

A string potentially creating markup tags.

**Return type***str***on**(*meta=None*, *\*\*handlers*)

Apply event handlers (used by Textual project).

**Example**

```
>>> from rich.text import Text
>>> text = Text("hello world")
>>> text.on(click="view.toggle('world')")
```

**Parameters**

- **meta** (*Dict*[*str*, *Any*]) – Mapping of meta information.
- **\*\*handlers** – Keyword args are prefixed with “@” to defined handlers.

**Returns**

Self is returned to method may be chained.

**Return type***Text***pad**(*count*, *character=' '*)

Pad left and right with a given number of characters.

**Parameters**

- **count** (*int*) – Width of padding.
- **character** (*str*) –

**Return type**

None

**pad\_left**(*count*, *character=' '*)

Pad the left with a given character.

**Parameters**

- **count** (*int*) – Number of characters to pad.
- **character** (*str*, *optional*) – Character to pad with. Defaults to “ ”.

**Return type**

None

**pad\_right**(*count*, *character=' '*)

Pad the right with a given character.

**Parameters**

- **count** (*int*) – Number of characters to pad.
- **character** (*str*, *optional*) – Character to pad with. Defaults to " ".

**Return type**

None

**property plain:** *str*

Get the text as a single string.

**remove\_suffix**(*suffix*)

Remove a suffix if it exists.

**Parameters****suffix** (*str*) – Suffix to remove.**Return type**

None

**render**(*console*, *end=""*)

Render the text as Segments.

**Parameters**

- **console** (*Console*) – Console instance.
- **end** (*Optional[str]*, *optional*) – Optional end character.

**Returns**

Result of render that may be written to the console.

**Return type**Iterable[*Segment*]**right\_crop**(*amount=1*)

Remove a number of characters from the end of the text.

**Parameters****amount** (*int*) –**Return type**

None

**rstrip**()

Strip whitespace from end of text.

**Return type**

None

**rstrip\_end**(*size*)

Remove whitespace beyond a certain width at the end of the text.

**Parameters****size** (*int*) – The desired size of the text.**Return type**

None

**set\_length**(*new\_length*)

Set new length of the text, clipping or padding is required.

**Parameters****new\_length** (*int*) –

**Return type**

None

**property spans:** `List[Span]`

Get a reference to the internal list of spans.

**split**(*separator*='\n', \*, *include\_separator*=False, *allow\_blank*=False)

Split rich text in to lines, preserving styles.

**Parameters**

- **separator** (*str*, *optional*) – String to split on. Defaults to “\n”.
- **include\_separator** (*bool*, *optional*) – Include the separator in the lines. Defaults to False.
- **allow\_blank** (*bool*, *optional*) – Return a blank line if the text ends with a separator. Defaults to False.

**Returns**

A list of rich text, one per line of the original.

**Return type**`List[RichText]`**classmethod styled**(*text*, *style*='', \*, *justify*=None, *overflow*=None)

Construct a Text instance with a pre-applied styled. A style applied in this way won't be used to pad the text when it is justified.

**Parameters**

- **text** (*str*) – A string containing console markup.
- **style** (*Union[str, Style]*) – Style to apply to the text. Defaults to “”.
- **justify** (*str*, *optional*) – Justify method: “left”, “center”, “full”, “right”. Defaults to None.
- **overflow** (*str*, *optional*) – Overflow method: “crop”, “fold”, “ellipsis”. Defaults to None.

**Returns**

A text instance with a style applied to the entire string.

**Return type**`Text`**stylize**(*style*, *start*=0, *end*=None)

Apply a style to the text, or a portion of the text.

**Parameters**

- **style** (*Union[str, Style]*) – Style instance or style definition to apply.
- **start** (*int*) – Start offset (negative indexing is supported). Defaults to 0.
- **end** (*Optional[int]*, *optional*) – End offset (negative indexing is supported), or None for end of text. Defaults to None.

**Return type**

None

**stylize\_before**(*style*, *start*=0, *end*=None)

Apply a style to the text, or a portion of the text. Styles will be applied before other styles already present.

**Parameters**

- **style** (*Union*[*str*, *Style*]) – Style instance or style definition to apply.
- **start** (*int*) – Start offset (negative indexing is supported). Defaults to 0.
- **end** (*Optional*[*int*], *optional*) – End offset (negative indexing is supported), or None for end of text. Defaults to None.

**Return type**

None

**truncate**(*max\_width*, \*, *overflow*=None, *pad*=False)

Truncate text if it is longer than a given width.

**Parameters**

- **max\_width** (*int*) – Maximum number of characters in text.
- **overflow** (*str*, *optional*) – Overflow method: “crop”, “fold”, or “ellipsis”. Defaults to None, to use self.overflow.
- **pad** (*bool*, *optional*) – Pad with spaces if the length is less than max\_width. Defaults to False.

**Return type**

None

**with\_indent\_guides**(*indent\_size*=None, \*, *character*='|', *style*='dim green')

Adds indent guide lines to text.

**Parameters**

- **indent\_size** (*Optional*[*int*]) – Size of indentation, or None to auto detect. Defaults to None.
- **character** (*str*, *optional*) – Character to use for indentation. Defaults to “|”.
- **style** (*Union*[*Style*, *str*], *optional*) – Style of indent guides.

**Returns**

New text with indentation guides.

**Return type**

*Text*

**wrap**(*console*, *width*, \*, *justify*=None, *overflow*=None, *tab\_size*=8, *no\_wrap*=None)

Word wrap the text.

**Parameters**

- **console** (*Console*) – Console instance.
- **width** (*int*) – Number of characters per line.
- **emoji** (*bool*, *optional*) – Also render emoji code. Defaults to True.
- **justify** (*str*, *optional*) – Justify method: “default”, “left”, “center”, “full”, “right”. Defaults to “default”.
- **overflow** (*str*, *optional*) – Overflow method: “crop”, “fold”, or “ellipsis”. Defaults to None.

- **tab\_size** (*int*, *optional*) – Default tab size. Defaults to 8.
- **no\_wrap** (*bool*, *optional*) – Disable wrapping, Defaults to False.

**Returns**

Number of lines.

**Return type**

Lines

## 23.32 rich.theme

**class** rich.theme.Theme(*styles=None, inherit=True*)

A container for style information, used by [Console](#).

**Parameters**

- **styles** (*Dict[str, Style]*, *optional*) – A mapping of style names on to styles. Defaults to None for a theme with no styles.
- **inherit** (*bool*, *optional*) – Inherit default styles. Defaults to True.

**property config:** *str*

Get contents of a config file for this theme.

**classmethod from\_file**(*config\_file, source=None, inherit=True*)

Load a theme from a text mode file.

**Parameters**

- **config\_file** (*IO[str]*) – An open conf file.
- **source** (*str*, *optional*) – The filename of the open file. Defaults to None.
- **inherit** (*bool*, *optional*) – Inherit default styles. Defaults to True.

**Returns**

A New theme instance.

**Return type**

[Theme](#)

**classmethod read**(*path, inherit=True, encoding=None*)

Read a theme from a path.

**Parameters**

- **path** (*str*) – Path to a config file readable by Python configparser module.
- **inherit** (*bool*, *optional*) – Inherit default styles. Defaults to True.
- **encoding** (*str*, *optional*) – Encoding of the config file. Defaults to None.

**Returns**

A new theme instance.

**Return type**

[Theme](#)



## 23.33 rich.traceback

```
class rich.traceback.Traceback(trace=None, *, width=100, extra_lines=3, theme=None, word_wrap=False,
                               show_locals=False, locals_max_length=10, locals_max_string=80,
                               locals_hide_dunder=True, locals_hide_sunder=False, indent_guides=True,
                               suppress=(), max_frames=100)
```

A Console renderable that renders a traceback.

### Parameters

- **trace** (*Trace*, *optional*) – A *Trace* object produced from *extract*. Defaults to None, which uses the last exception.
- **width** (*Optional[int]*, *optional*) – Number of characters used to traceback. Defaults to 100.
- **extra\_lines** (*int*, *optional*) – Additional lines of code to render. Defaults to 3.
- **theme** (*str*, *optional*) – Override pygments theme used in traceback.
- **word\_wrap** (*bool*, *optional*) – Enable word wrapping of long lines. Defaults to False.
- **show\_locals** (*bool*, *optional*) – Enable display of local variables. Defaults to False.
- **indent\_guides** (*bool*, *optional*) – Enable indent guides in code and locals. Defaults to True.
- **locals\_max\_length** (*int*, *optional*) – Maximum length of containers before abbreviating, or None for no abbreviation. Defaults to 10.
- **locals\_max\_string** (*int*, *optional*) – Maximum length of string before truncating, or None to disable. Defaults to 80.
- **locals\_hide\_dunder** (*bool*, *optional*) – Hide locals prefixed with double underscore. Defaults to True.
- **locals\_hide\_sunder** (*bool*, *optional*) – Hide locals prefixed with single underscore. Defaults to False.
- **suppress** (*Sequence[Union[str, ModuleType]]*) – Optional sequence of modules or paths to exclude from traceback.
- **max\_frames** (*int*) – Maximum number of frames to show in a traceback, 0 for no maximum. Defaults to 100.

```
classmethod extract(exc_type, exc_value, traceback, *, show_locals=False, locals_max_length=10,
                    locals_max_string=80, locals_hide_dunder=True, locals_hide_sunder=False)
```

Extract traceback information.

### Parameters

- **exc\_type** (*Type[BaseException]*) – Exception type.
- **exc\_value** (*BaseException*) – Exception value.
- **traceback** (*TracebackType*) – Python Traceback object.
- **show\_locals** (*bool*, *optional*) – Enable display of local variables. Defaults to False.
- **locals\_max\_length** (*int*, *optional*) – Maximum length of containers before abbreviating, or None for no abbreviation. Defaults to 10.
- **locals\_max\_string** (*int*, *optional*) – Maximum length of string before truncating, or None to disable. Defaults to 80.

- **locals\_hide\_dunder** (*bool*, *optional*) – Hide locals prefixed with double underscore. Defaults to True.
- **locals\_hide\_sunder** (*bool*, *optional*) – Hide locals prefixed with single underscore. Defaults to False.

**Returns**

A Trace instance which you can use to construct a *Traceback*.

**Return type**

Trace

```
classmethod from_exception(exc_type, exc_value, traceback, *, width=100, extra_lines=3, theme=None,
                           word_wrap=False, show_locals=False, locals_max_length=10,
                           locals_max_string=80, locals_hide_dunder=True,
                           locals_hide_sunder=False, indent_guides=True, suppress=(),
                           max_frames=100)
```

Create a traceback from exception info

**Parameters**

- **exc\_type** (*Type*[*BaseException*]) – Exception type.
- **exc\_value** (*BaseException*) – Exception value.
- **traceback** (*TracebackType*) – Python Traceback object.
- **width** (*Optional*[*int*], *optional*) – Number of characters used to traceback. Defaults to 100.
- **extra\_lines** (*int*, *optional*) – Additional lines of code to render. Defaults to 3.
- **theme** (*str*, *optional*) – Override pygments theme used in traceback.
- **word\_wrap** (*bool*, *optional*) – Enable word wrapping of long lines. Defaults to False.
- **show\_locals** (*bool*, *optional*) – Enable display of local variables. Defaults to False.
- **indent\_guides** (*bool*, *optional*) – Enable indent guides in code and locals. Defaults to True.
- **locals\_max\_length** (*int*, *optional*) – Maximum length of containers before abbreviating, or None for no abbreviation. Defaults to 10.
- **locals\_max\_string** (*int*, *optional*) – Maximum length of string before truncating, or None to disable. Defaults to 80.
- **locals\_hide\_dunder** (*bool*, *optional*) – Hide locals prefixed with double underscore. Defaults to True.
- **locals\_hide\_sunder** (*bool*, *optional*) – Hide locals prefixed with single underscore. Defaults to False.
- **suppress** (*Iterable*[*Union*[*str*, *ModuleType*]]) – Optional sequence of modules or paths to exclude from traceback.
- **max\_frames** (*int*) – Maximum number of frames to show in a traceback, 0 for no maximum. Defaults to 100.

**Returns**

A Traceback instance that may be printed.

**Return type**

*Traceback*

```
rich.traceback.install(*, console=None, width=100, extra_lines=3, theme=None, word_wrap=False,
                        show_locals=False, locals_max_length=10, locals_max_string=80,
                        locals_hide_dunder=True, locals_hide_sunder=None, indent_guides=True,
                        suppress=(), max_frames=100)
```

Install a rich traceback handler.

Once installed, any tracebacks will be printed with syntax highlighting and rich formatting.

#### Parameters

- **console** (*Optional[Console]*, *optional*) – Console to write exception to. Default uses internal Console instance.
- **width** (*Optional[int]*, *optional*) – Width (in characters) of traceback. Defaults to 100.
- **extra\_lines** (*int*, *optional*) – Extra lines of code. Defaults to 3.
- **theme** (*Optional[str]*, *optional*) – Pygments theme to use in traceback. Defaults to None which will pick a theme appropriate for the platform.
- **word\_wrap** (*bool*, *optional*) – Enable word wrapping of long lines. Defaults to False.
- **show\_locals** (*bool*, *optional*) – Enable display of local variables. Defaults to False.
- **locals\_max\_length** (*int*, *optional*) – Maximum length of containers before abbreviating, or None for no abbreviation. Defaults to 10.
- **locals\_max\_string** (*int*, *optional*) – Maximum length of string before truncating, or None to disable. Defaults to 80.
- **locals\_hide\_dunder** (*bool*, *optional*) – Hide locals prefixed with double underscore. Defaults to True.
- **locals\_hide\_sunder** (*bool*, *optional*) – Hide locals prefixed with single underscore. Defaults to False.
- **indent\_guides** (*bool*, *optional*) – Enable indent guides in code and locals. Defaults to True.
- **suppress** (*Sequence[Union[str, ModuleType]]*) – Optional sequence of modules or paths to exclude from traceback.
- **max\_frames** (*int*) –

#### Returns

The previous exception handler that was replaced.

#### Return type

Callable

## 23.34 rich.tree

```
class rich.tree.Tree(label, *, style='tree', guide_style='tree.line', expanded=True, highlight=False,
                     hide_root=False)
```

A renderable for a tree structure.

#### Parameters

- **label** (*RenderableType*) – The renderable or str for the tree label.

- **style** (*StyleType*, *optional*) – Style of this tree. Defaults to “tree”.
- **guide\_style** (*StyleType*, *optional*) – Style of the guide lines. Defaults to “tree.line”.
- **expanded** (*bool*, *optional*) – Also display children. Defaults to True.
- **highlight** (*bool*, *optional*) – Highlight renderable (if str). Defaults to False.
- **hide\_root** (*bool*) –

**add**(*label*, \*, *style=None*, *guide\_style=None*, *expanded=True*, *highlight=False*)

Add a child tree.

#### Parameters

- **label** (*RenderableType*) – The renderable or str for the tree label.
- **style** (*StyleType*, *optional*) – Style of this tree. Defaults to “tree”.
- **guide\_style** (*StyleType*, *optional*) – Style of the guide lines. Defaults to “tree.line”.
- **expanded** (*bool*, *optional*) – Also display children. Defaults to True.
- **highlight** (*Optional[bool]*, *optional*) – Highlight renderable (if str). Defaults to False.

#### Returns

A new child Tree, which may be further modified.

#### Return type

*Tree*

## 23.35 rich.abc

### **class** rich.abc.RichRenderable

An abstract base class for Rich renderables.

Note that there is no need to extend this class, the intended use is to check if an object supports the Rich renderable protocol. For example:

```
if isinstance(my_object, RichRenderable):
    console.print(my_object)
```

## 24.1 Box

Rich has a number of constants that set the box characters used to draw tables and panels. To select a box style import one of the constants below from `rich.box`. For example:

```
from rich import box
table = Table(box=box.SQUARE)
```

---

**Note:** Some of the box drawing characters will not display correctly on Windows legacy terminal (`cmd.exe`) with *raster* fonts, and are disabled by default. If you want the full range of box options on Windows legacy terminal, use a *truetype* font and set the `safe_box` parameter on the `Table` class to `False`.

---

The following table is generated with this command:

```
python -m rich.box
```

## 24.2 Standard Colors

The following is a list of the standard 8-bit colors supported in terminals.

Note that the first 16 colors are generally defined by the system or your terminal software, and may not display exactly as rendered here.



## INDICES AND TABLES

- `genindex`
- `modindex`
- `search`





## PYTHON MODULE INDEX

### r

- [rich](#), 103
- [rich.abc](#), 182
- [rich.align](#), 75
- [rich.bar](#), 77
- [rich.color](#), 77
- [rich.columns](#), 80
- [rich.console](#), 80
- [rich.emoji](#), 101
- [rich.highlighter](#), 101
- [rich.json](#), 105
- [rich.layout](#), 106
- [rich.live](#), 109
- [rich.logging](#), 111
- [rich.markdown](#), 113
- [rich.markup](#), 118
- [rich.measure](#), 119
- [rich.padding](#), 121
- [rich.panel](#), 121
- [rich.pretty](#), 123
- [rich.progress](#), 128
- [rich.progress\\_bar](#), 127
- [rich.prompt](#), 143
- [rich.protocol](#), 147
- [rich.rule](#), 147
- [rich.segment](#), 147
- [rich.spinner](#), 153
- [rich.status](#), 154
- [rich.style](#), 155
- [rich.styled](#), 160
- [rich.syntax](#), 160
- [rich.table](#), 162
- [rich.text](#), 169
- [rich.theme](#), 178
- [rich.traceback](#), 179
- [rich.tree](#), 181



## Symbols

`__call__()` (*rich.highlighter.Highlighter* method), 101

## A

`add()` (*rich.tree.Tree* method), 182  
`add_column()` (*rich.table.Table* method), 167  
`add_renderable()` (*rich.columns.Columns* method), 80  
`add_row()` (*rich.table.Table* method), 167  
`add_section()` (*rich.table.Table* method), 168  
`add_split()` (*rich.layout.Layout* method), 106  
`add_task()` (*rich.progress.Progress* method), 129  
`adjust_line_length()` (*rich.segment.Segment* class method), 148  
`advance()` (*rich.progress.Progress* method), 130  
`Align` (class in *rich.align*), 75  
`align()` (*rich.text.Text* method), 169  
`align_bottom()` (*rich.segment.Segment* class method), 148  
`align_middle()` (*rich.segment.Segment* class method), 148  
`align_top()` (*rich.segment.Segment* class method), 149  
`append()` (*rich.text.Text* method), 169  
`append_text()` (*rich.text.Text* method), 169  
`append_tokens()` (*rich.text.Text* method), 170  
`apply_meta()` (*rich.text.Text* method), 170  
`apply_style()` (*rich.segment.Segment* class method), 149  
`ascii_only` (*rich.console.ConsoleOptions* property), 97  
`ask()` (*rich.prompt.PromptBase* class method), 144  
`assemble()` (*rich.text.Text* class method), 170

## B

`background_style` (*rich.style.Style* property), 155  
`Bar` (class in *rich.bar*), 77  
`BarColumn` (class in *rich.progress*), 128  
`begin_capture()` (*rich.console.Console* method), 82  
`bell()` (*rich.console.Console* method), 82  
`bgcolor` (*rich.style.Style* property), 155  
`blank_copy()` (*rich.text.Text* method), 171  
`blend_rgb()` (in module *rich.color*), 79  
`BlockQuote` (class in *rich.markdown*), 113

## C

`Capture` (class in *rich.console*), 80  
`capture()` (*rich.console.Console* method), 82  
`CaptureError`, 80  
`cell_len` (*rich.text.Text* property), 171  
`cell_length` (*rich.segment.Segment* attribute), 147  
`cell_length` (*rich.segment.Segment* property), 150  
`cells` (*rich.table.Column* property), 164  
`center()` (*rich.align.Align* class method), 75  
`chain()` (*rich.style.Style* class method), 156  
`check_choice()` (*rich.prompt.PromptBase* method), 145  
`check_length()` (*rich.pretty.Node* method), 123  
`children` (*rich.layout.Layout* property), 106  
`clamp()` (*rich.measure.Measurement* method), 119  
`clear()` (*rich.console.Console* method), 82  
`clear_live()` (*rich.console.Console* method), 82  
`clear_meta_and_links()` (*rich.style.Style* method), 156  
`CodeBlock` (class in *rich.markdown*), 113  
`Color` (class in *rich.color*), 77  
`color` (*rich.style.Style* property), 156  
`color_system` (*rich.console.Console* property), 83  
`ColorParseError`, 79  
`ColorSystem` (class in *rich.color*), 79  
`ColorType` (class in *rich.color*), 79  
`Column` (class in *rich.table*), 162  
`Columns` (class in *rich.columns*), 80  
`ColumnSplitter` (class in *rich.layout*), 106  
`combine()` (*rich.style.Style* class method), 156  
`completed` (*rich.progress.ProgressSample* property), 134  
`completed` (*rich.progress.Task* attribute), 136  
`config` (*rich.theme.Theme* property), 178  
`Confirm` (class in *rich.prompt*), 143  
`Console` (class in *rich.console*), 80  
`console` (*rich.status.Status* property), 154  
`ConsoleDimensions` (class in *rich.console*), 96  
`ConsoleOptions` (class in *rich.console*), 96  
`ConsoleRenderable` (class in *rich.console*), 99  
`ConsoleThreadLocals` (class in *rich.console*), 99  
`control` (*rich.segment.Segment* property), 150

`control()` (*rich.console.Console* method), 83  
`ControlType` (class in *rich.segment*), 147  
`copy()` (*rich.console.ConsoleOptions* method), 97  
`copy()` (*rich.style.Style* method), 156  
`copy()` (*rich.table.Column* method), 164  
`copy()` (*rich.text.Text* method), 171  
`copy_styles()` (*rich.text.Text* method), 171  
`create()` (*rich.markdown.CodeBlock* class method), 113  
`create()` (*rich.markdown.Heading* class method), 114  
`create()` (*rich.markdown.ImageItem* class method), 114  
`create()` (*rich.markdown.Link* class method), 115  
`create()` (*rich.markdown.ListElement* class method), 115  
`create()` (*rich.markdown.Paragraph* class method), 117  
`current` (*rich.style.StyleStack* property), 159  
`current_style` (*rich.markdown.MarkdownContext* property), 116

## D

`default()` (*rich.color.Color* class method), 77  
`description` (*rich.progress.Task* attribute), 136  
`detect_indentation()` (*rich.text.Text* method), 171  
`detect_legacy_windows()` (in module *rich.console*), 101  
`divide()` (*rich.layout.ColumnSplitter* method), 106  
`divide()` (*rich.layout.RowSplitter* method), 108  
`divide()` (*rich.layout.Splitter* method), 109  
`divide()` (*rich.segment.Segment* class method), 150  
`divide()` (*rich.text.Text* method), 171  
`downgrade()` (*rich.color.Color* method), 77  
`DownloadColumn` (class in *rich.progress*), 128

## E

`elapsed` (*rich.progress.Task* property), 136  
`emit()` (*rich.logging.RichHandler* method), 112  
`Emoji` (class in *rich.emoji*), 101  
`encoding` (*rich.console.Console* property), 83  
`encoding` (*rich.console.ConsoleOptions* attribute), 97  
`end_capture()` (*rich.console.Console* method), 83  
`end_section` (*rich.table.Row* attribute), 165  
`enter_style()` (*rich.markdown.MarkdownContext* method), 116  
`escape()` (in module *rich.markup*), 118  
`expand` (*rich.table.Table* property), 168  
`expand_tabs()` (*rich.text.Text* method), 171  
`export_html()` (*rich.console.Console* method), 83  
`export_svg()` (*rich.console.Console* method), 84  
`export_text()` (*rich.console.Console* method), 84  
`extract()` (*rich.traceback.Traceback* class method), 179

## F

`fields` (*rich.progress.Task* attribute), 136  
`file` (*rich.console.Console* property), 85  
`FileSizeColumn` (class in *rich.progress*), 128

`filter_control()` (*rich.segment.Segment* class method), 150  
`finished` (*rich.progress.Progress* property), 130  
`finished` (*rich.progress.Task* property), 136  
`finished_speed` (*rich.progress.Task* attribute), 136  
`finished_time` (*rich.progress.Task* attribute), 136  
`fit()` (*rich.panel.Panel* class method), 122  
`fit()` (*rich.text.Text* method), 172  
`flexible` (*rich.table.Column* property), 164  
`FloatPrompt` (class in *rich.prompt*), 143  
`footer` (*rich.table.Column* attribute), 164  
`footer_style` (*rich.table.Column* attribute), 164  
`from_ansi()` (*rich.color.Color* class method), 77  
`from_ansi()` (*rich.text.Text* class method), 172  
`from_color()` (*rich.style.Style* class method), 156  
`from_data()` (*rich.json.JSON* class method), 105  
`from_exception()` (*rich.traceback.Traceback* class method), 180  
`from_file()` (*rich.theme.Theme* class method), 178  
`from_markup()` (*rich.text.Text* class method), 172  
`from_meta()` (*rich.style.Style* class method), 156  
`from_path()` (*rich.syntax.Syntax* class method), 160  
`from_rgb()` (*rich.color.Color* class method), 78  
`from_triplet()` (*rich.color.Color* class method), 78

## G

`get()` (*rich.console.Capture* method), 80  
`get()` (*rich.layout.Layout* method), 106  
`get()` (*rich.measure.Measurement* class method), 119  
`get_ansi_codes()` (*rich.color.Color* method), 78  
`get_console()` (in module *rich*), 103  
`get_default_columns()` (*rich.progress.Progress* class method), 130  
`get_html_style()` (*rich.style.Style* method), 157  
`get_input()` (*rich.prompt.PromptBase* class method), 145  
`get_level_text()` (*rich.logging.RichHandler* method), 112  
`get_line_length()` (*rich.segment.Segment* class method), 150  
`get_renderable()` (*rich.progress.Progress* method), 130  
`get_renderables()` (*rich.progress.Progress* method), 131  
`get_row_style()` (*rich.table.Table* method), 168  
`get_shape()` (*rich.segment.Segment* class method), 150  
`get_style()` (*rich.console.Console* method), 85  
`get_style_at_offset()` (*rich.text.Text* method), 173  
`get_table_column()` (*rich.progress.ProgressColumn* method), 134  
`get_theme()` (*rich.syntax.Syntax* class method), 161  
`get_time()` (*rich.progress.Task* method), 136  
`get_tree_icon()` (*rich.layout.ColumnSplitter* method), 106

`get_tree_icon()` (*rich.layout.RowSplitter* method), 108  
`get_tree_icon()` (*rich.layout.Splitter* method), 109  
`get_truecolor()` (*rich.color.Color* method), 78  
`grid()` (*rich.table.Table* class method), 168  
`Group` (class in *rich.console*), 99  
`group()` (in module *rich.console*), 101  
`guess_lexer()` (*rich.syntax.Syntax* class method), 161

## H

`header` (*rich.table.Column* attribute), 164  
`header_style` (*rich.table.Column* attribute), 164  
`Heading` (class in *rich.markdown*), 113  
`height` (*rich.console.Console* property), 85  
`height` (*rich.console.ConsoleDimensions* property), 96  
`highlight` (*rich.console.ConsoleOptions* attribute), 97  
`highlight()` (*rich.highlighter.Highlighter* method), 102  
`highlight()` (*rich.highlighter.JSONHighlighter* method), 102  
`highlight()` (*rich.highlighter.NullHighlighter* method), 102  
`highlight()` (*rich.highlighter.RegexHighlighter* method), 102  
`highlight()` (*rich.syntax.Syntax* method), 162  
`highlight_regex()` (*rich.text.Text* method), 173  
`highlight_words()` (*rich.text.Text* method), 173  
`Highlighter` (class in *rich.highlighter*), 101  
`HIGHLIGHTER_CLASS` (*rich.logging.RichHandler* attribute), 112  
`HorizontalRule` (class in *rich.markdown*), 114

## I

`id` (*rich.progress.Task* attribute), 136  
`ImageItem` (class in *rich.markdown*), 114  
`indent()` (*rich.padding.Padding* class method), 121  
`input()` (*rich.console.Console* method), 85  
`inspect()` (in module *rich*), 103  
`install()` (in module *rich.pretty*), 124  
`install()` (in module *rich.traceback*), 180  
`IntPrompt` (class in *rich.prompt*), 143  
`InvalidResponse`, 144  
`is_alt_screen` (*rich.console.Console* property), 86  
`is_control` (*rich.segment.Segment* property), 151  
`is_default` (*rich.color.Color* property), 78  
`is_dumb_terminal` (*rich.console.Console* property), 86  
`is_expandable()` (in module *rich.pretty*), 125  
`is_renderable()` (in module *rich.protocol*), 147  
`is_started` (*rich.live.Live* property), 109  
`is_system_defined` (*rich.color.Color* property), 78  
`is_terminal` (*rich.console.Console* property), 86  
`is_terminal` (*rich.console.ConsoleOptions* attribute), 97  
`ISO8601Highlighter` (class in *rich.highlighter*), 102  
`iter_tokens()` (*rich.pretty.Node* method), 123

## J

`join()` (*rich.text.Text* method), 173  
`JSON` (class in *rich.json*), 105  
`JSONHighlighter` (class in *rich.highlighter*), 102  
`justify` (*rich.console.ConsoleOptions* attribute), 97  
`justify` (*rich.table.Column* attribute), 164

## L

`Layout` (class in *rich.layout*), 106  
`LayoutError`, 108  
`LayoutRender` (class in *rich.layout*), 108  
`leave_style()` (*rich.markdown.MarkdownContext* method), 117  
`left()` (*rich.align.Align* class method), 75  
`legacy_windows` (*rich.console.ConsoleOptions* attribute), 97  
`lexer` (*rich.syntax.Syntax* property), 162  
`line()` (*rich.console.Console* method), 86  
`line()` (*rich.segment.Segment* class method), 151  
`Link` (class in *rich.markdown*), 114  
`link` (*rich.style.Style* property), 157  
`link_id` (*rich.style.Style* property), 157  
`ListElement` (class in *rich.markdown*), 115  
`ListItem` (class in *rich.markdown*), 115  
`Live` (class in *rich.live*), 109  
`log()` (*rich.console.Console* method), 86

## M

`make_prompt()` (*rich.prompt.PromptBase* method), 145  
`make_tasks_table()` (*rich.progress.Progress* method), 131  
`map` (*rich.layout.Layout* property), 107  
`Markdown` (class in *rich.markdown*), 116  
`MarkdownContext` (class in *rich.markdown*), 116  
`markup` (*rich.console.ConsoleOptions* attribute), 97  
`markup` (*rich.markup.Tag* property), 118  
`markup` (*rich.text.Text* property), 174  
`max_height` (*rich.console.ConsoleOptions* attribute), 97  
`max_width` (*rich.console.ConsoleOptions* attribute), 97  
`max_width` (*rich.table.Column* attribute), 164  
`maximum` (*rich.measure.Measurement* property), 119  
`measure()` (*rich.console.Console* method), 87  
`measure_renderables()` (in module *rich.measure*), 120  
`Measurement` (class in *rich.measure*), 119  
`meta` (*rich.style.Style* property), 157  
`min_width` (*rich.console.ConsoleOptions* attribute), 97  
`min_width` (*rich.table.Column* attribute), 164  
`minimum` (*rich.measure.Measurement* property), 119  
`module`  
     *rich*, 103  
     *rich.abc*, 182  
     *rich.align*, 75

`rich.bar`, 77  
`rich.color`, 77  
`rich.columns`, 80  
`rich.console`, 80  
`rich.emoji`, 101  
`rich.highlighter`, 101  
`rich.json`, 105  
`rich.layout`, 106  
`rich.live`, 109  
`rich.logging`, 111  
`rich.markdown`, 113  
`rich.markup`, 118  
`rich.measure`, 119  
`rich.padding`, 121  
`rich.panel`, 121  
`rich.pretty`, 123  
`rich.progress`, 128  
`rich.progress_bar`, 127  
`rich.prompt`, 143  
`rich.protocol`, 147  
`rich.rule`, 147  
`rich.segment`, 147  
`rich.spinner`, 153  
`rich.status`, 154  
`rich.style`, 155  
`rich.styled`, 160  
`rich.syntax`, 160  
`rich.table`, 162  
`rich.text`, 169  
`rich.theme`, 178  
`rich.traceback`, 179  
`rich.tree`, 181

`MofNCompleteColumn` (class in `rich.progress`), 129

## N

`name` (`rich.color.Color` property), 79  
`name` (`rich.markup.Tag` property), 118  
`NewLine` (class in `rich.console`), 99  
`no_wrap` (`rich.console.ConsoleOptions` attribute), 97  
`no_wrap` (`rich.table.Column` attribute), 165  
`Node` (class in `rich.pretty`), 123  
`normalize()` (`rich.measure.Measurement` method), 119  
`normalize()` (`rich.style.Style` class method), 157  
`NoSplitter`, 108  
`null()` (`rich.style.Style` class method), 157  
`NullHighlighter` (class in `rich.highlighter`), 102  
`number` (`rich.color.Color` property), 79

## O

`on()` (`rich.style.Style` class method), 157  
`on()` (`rich.text.Text` method), 174  
`on_child_close()` (`rich.markdown.BlockQuote` method), 113

`on_child_close()` (`rich.markdown.ListElement` method), 115  
`on_child_close()` (`rich.markdown.ListItem` method), 115  
`on_enter()` (`rich.markdown.Heading` method), 114  
`on_enter()` (`rich.markdown.ImageItem` method), 114  
`on_enter()` (`rich.markdown.TextElement` method), 117  
`on_leave()` (`rich.markdown.TextElement` method), 117  
`on_text()` (`rich.markdown.MarkdownContext` method), 117  
`on_text()` (`rich.markdown.TextElement` method), 117  
`on_validate_error()` (`rich.prompt.PromptBase` method), 146  
`open()` (in module `rich.progress`), 140  
`open()` (`rich.progress.Progress` method), 131  
`options` (`rich.console.Console` property), 87  
`out()` (`rich.console.Console` method), 87  
`overflow` (`rich.console.ConsoleOptions` attribute), 98  
`overflow` (`rich.table.Column` attribute), 165

## P

`pad()` (`rich.text.Text` method), 174  
`pad_left()` (`rich.text.Text` method), 174  
`pad_right()` (`rich.text.Text` method), 174  
`Padding` (class in `rich.padding`), 121  
`padding` (`rich.table.Table` property), 168  
`pager()` (`rich.console.Console` method), 87  
`PagerContext` (class in `rich.console`), 99  
`Panel` (class in `rich.panel`), 121  
`Paragraph` (class in `rich.markdown`), 117  
`parameters` (`rich.markup.Tag` property), 118  
`parse()` (`rich.color.Color` class method), 79  
`parse()` (`rich.style.Style` class method), 158  
`parse_rgb_hex()` (in module `rich.color`), 79  
`percentage` (`rich.progress.Task` property), 136  
`percentage_completed` (`rich.progress_bar.ProgressBar` property), 127  
`pick_first()` (`rich.style.Style` class method), 158  
`plain` (`rich.text.Text` property), 175  
`pop()` (`rich.style.StyleStack` method), 159  
`pop_render_hook()` (`rich.console.Console` method), 88  
`pop_theme()` (`rich.console.Console` method), 88  
`pprint()` (in module `rich.pretty`), 125  
`pre_prompt()` (`rich.prompt.PromptBase` method), 146  
`Pretty` (class in `rich.pretty`), 124  
`pretty_repr()` (in module `rich.pretty`), 125  
`print()` (in module `rich`), 103  
`print()` (`rich.console.Console` method), 88  
`print_exception()` (`rich.console.Console` method), 89  
`print_json()` (in module `rich`), 104  
`print_json()` (`rich.console.Console` method), 89  
`process_renderables()` (`rich.console.RenderHook` method), 100



- process\_renderables() (*rich.live.Live* method), 109  
 process\_response() (*rich.prompt.Confirm* method), 143  
 process\_response() (*rich.prompt.PromptBase* method), 146  
 Progress (class in *rich.progress*), 129  
 ProgressBar (class in *rich.progress\_bar*), 127  
 ProgressColumn (class in *rich.progress*), 134  
 ProgressSample (class in *rich.progress*), 134  
 Prompt (class in *rich.prompt*), 144  
 PromptBase (class in *rich.prompt*), 144  
 PromptError, 146  
 push() (*rich.style.StyleStack* method), 159  
 push\_render\_hook() (*rich.console.Console* method), 90  
 push\_theme() (*rich.console.Console* method), 90
- ## R
- ratio (*rich.table.Column* attribute), 165  
 read() (*rich.theme.Theme* class method), 178  
 reconfigure() (in module *rich*), 104  
 refresh() (*rich.live.Live* method), 110  
 refresh() (*rich.progress.Progress* method), 132  
 refresh\_screen() (*rich.layout.Layout* method), 107  
 RegexHighlighter (class in *rich.highlighter*), 102  
 region (*rich.layout.LayoutRender* property), 108  
 remaining (*rich.progress.Task* property), 137  
 remove\_color() (*rich.segment.Segment* class method), 151  
 remove\_suffix() (*rich.text.Text* method), 175  
 remove\_task() (*rich.progress.Progress* method), 132  
 render (*rich.layout.LayoutRender* property), 108  
 render() (in module *rich.markup*), 118  
 render() (*rich.console.Console* method), 90  
 render() (*rich.layout.Layout* method), 107  
 render() (*rich.logging.RichHandler* method), 112  
 render() (*rich.pretty.Node* method), 123  
 render() (*rich.progress.BarColumn* method), 128  
 render() (*rich.progress.DownloadColumn* method), 128  
 render() (*rich.progress.FileSizeColumn* method), 128  
 render() (*rich.progress.MofNCompleteColumn* method), 129  
 render() (*rich.progress.ProgressColumn* method), 134  
 render() (*rich.progress.RenderableColumn* method), 135  
 render() (*rich.progress.SpinnerColumn* method), 135  
 render() (*rich.progress.TaskProgressColumn* method), 138  
 render() (*rich.progress.TextColumn* method), 138  
 render() (*rich.progress.TimeElapsedColumn* method), 139  
 render() (*rich.progress.TimeRemainingColumn* method), 139  
 render() (*rich.progress.TotalFileSizeColumn* method), 139  
 render() (*rich.progress.TransferSpeedColumn* method), 140  
 render() (*rich.spinner.Spinner* method), 153  
 render() (*rich.style.Style* method), 158  
 render() (*rich.text.Text* method), 175  
 render\_default() (*rich.prompt.Confirm* method), 143  
 render\_default() (*rich.prompt.PromptBase* method), 146  
 render\_lines() (*rich.console.Console* method), 90  
 render\_message() (*rich.logging.RichHandler* method), 112  
 render\_speed() (*rich.progress.TaskProgressColumn* class method), 138  
 render\_str() (*rich.console.Console* method), 91  
 renderable (*rich.layout.Layout* property), 107  
 renderable (*rich.live.Live* property), 110  
 RenderableColumn (class in *rich.progress*), 134  
 RenderHook (class in *rich.console*), 100  
 replace() (*rich.emoji.Emoji* class method), 101  
 ReprHighlighter (class in *rich.highlighter*), 102  
 reset() (*rich.progress.Progress* method), 132  
 reset\_height() (*rich.console.ConsoleOptions* method), 98  
 response\_type (*rich.prompt.Confirm* attribute), 143  
 response\_type (*rich.prompt.FloatPrompt* attribute), 143  
 response\_type (*rich.prompt.IntPrompt* attribute), 144  
 response\_type (*rich.prompt.Prompt* attribute), 144  
 response\_type (*rich.prompt.PromptBase* attribute), 146  
 rich  
     module, 103  
 rich.abc  
     module, 182  
 rich.align  
     module, 75  
 rich.bar  
     module, 77  
 rich.color  
     module, 77  
 rich.columns  
     module, 80  
 rich.console  
     module, 80  
 rich.emoji  
     module, 101  
 rich.highlighter  
     module, 101  
 rich.json  
     module, 105  
 rich.layout  
     module, 106

`rich.live`  
    module, 109  
`rich.logging`  
    module, 111  
`rich.markdown`  
    module, 113  
`rich.markup`  
    module, 118  
`rich.measure`  
    module, 119  
`rich.padding`  
    module, 121  
`rich.panel`  
    module, 121  
`rich.pretty`  
    module, 123  
`rich.progress`  
    module, 128  
`rich.progress_bar`  
    module, 127  
`rich.prompt`  
    module, 143  
`rich.protocol`  
    module, 147  
`rich.rule`  
    module, 147  
`rich.segment`  
    module, 147  
`rich.spinner`  
    module, 153  
`rich.status`  
    module, 154  
`rich.style`  
    module, 155  
`rich.styled`  
    module, 160  
`rich.syntax`  
    module, 160  
`rich.table`  
    module, 162  
`rich.text`  
    module, 169  
`rich.theme`  
    module, 178  
`rich.traceback`  
    module, 179  
`rich.tree`  
    module, 181  
`rich_cast()` (in module `rich.protocol`), 147  
`RichCast` (class in `rich.console`), 100  
`RichHandler` (class in `rich.logging`), 111  
`RichRenderable` (class in `rich.abc`), 182  
`right()` (`rich.align.Align` class method), 76  
`right_crop()` (`rich.text.Text` method), 175

`Row` (class in `rich.table`), 165  
`row_count` (`rich.table.Table` property), 169  
`RowSplitter` (class in `rich.layout`), 108  
`rstrip()` (`rich.text.Text` method), 175  
`rstrip_end()` (`rich.text.Text` method), 175  
`Rule` (class in `rich.rule`), 147  
`rule()` (`rich.console.Console` method), 91

## S

`save_html()` (`rich.console.Console` method), 92  
`save_svg()` (`rich.console.Console` method), 92  
`save_text()` (`rich.console.Console` method), 93  
`screen()` (`rich.console.Console` method), 93  
`ScreenContext` (class in `rich.console`), 100  
`ScreenUpdate` (class in `rich.console`), 100  
`Segment` (class in `rich.segment`), 147  
`Segments` (class in `rich.segment`), 153  
`set_alt_screen()` (`rich.console.Console` method), 93  
`set_length()` (`rich.text.Text` method), 175  
`set_live()` (`rich.console.Console` method), 94  
`set_shape()` (`rich.segment.Segment` class method), 151  
`set_spinner()` (`rich.progress.SpinnerColumn` method), 135  
`set_window_title()` (`rich.console.Console` method), 94  
`show_cursor()` (`rich.console.Console` method), 94  
`simplify()` (`rich.segment.Segment` class method), 151  
`size` (`rich.console.Console` property), 95  
`size` (`rich.console.ConsoleOptions` attribute), 98  
`span` (`rich.measure.Measurement` property), 120  
`spans` (`rich.text.Text` property), 176  
`speed` (`rich.progress.Task` property), 137  
`Spinner` (class in `rich.spinner`), 153  
`SpinnerColumn` (class in `rich.progress`), 135  
`split()` (`rich.layout.Layout` method), 107  
`split()` (`rich.text.Text` method), 176  
`split_and_crop_lines()` (`rich.segment.Segment` class method), 152  
`split_cells()` (`rich.segment.Segment` method), 152  
`split_column()` (`rich.layout.Layout` method), 107  
`split_lines()` (`rich.segment.Segment` class method), 152  
`split_row()` (`rich.layout.Layout` method), 107  
`Splitter` (class in `rich.layout`), 108  
`start()` (`rich.live.Live` method), 110  
`start()` (`rich.progress.Progress` method), 132  
`start()` (`rich.status.Status` method), 154  
`start_task()` (`rich.progress.Progress` method), 132  
`start_time` (`rich.progress.Task` attribute), 137  
`started` (`rich.progress.Task` property), 137  
`Status` (class in `rich.status`), 154  
`status()` (`rich.console.Console` method), 95  
`stop()` (`rich.live.Live` method), 110  
`stop()` (`rich.progress.Progress` method), 132



stop() (*rich.status.Status method*), 154  
 stop\_task() (*rich.progress.Progress method*), 132  
 stop\_time (*rich.progress.Task attribute*), 137  
 strip\_links() (*rich.segment.Segment class method*), 152  
 strip\_styles() (*rich.segment.Segment class method*), 152  
 Style (*class in rich.style*), 155  
 style (*rich.segment.Segment property*), 153  
 style (*rich.table.Column attribute*), 165  
 style (*rich.table.Row attribute*), 165  
 Styled (*class in rich.styled*), 160  
 styled() (*rich.text.Text class method*), 176  
 StyleStack (*class in rich.style*), 159  
 stylize() (*rich.text.Text method*), 176  
 stylize\_before() (*rich.text.Text method*), 176  
 stylize\_range() (*rich.syntax.Syntax method*), 162  
 Syntax (*class in rich.syntax*), 160  
 system (*rich.color.Color property*), 79

## T

Table (*class in rich.table*), 165  
 Tag (*class in rich.markup*), 118  
 Task (*class in rich.progress*), 135  
 task\_ids (*rich.progress.Progress property*), 133  
 TaskProgressColumn (*class in rich.progress*), 137  
 tasks (*rich.progress.Progress property*), 133  
 test() (*rich.style.Style method*), 158  
 Text (*class in rich.text*), 169  
 text (*rich.segment.Segment property*), 153  
 TextColumn (*class in rich.progress*), 138  
 TextElement (*class in rich.markdown*), 117  
 Theme (*class in rich.theme*), 178  
 ThemeContext (*class in rich.console*), 100  
 time\_remaining (*rich.progress.Task property*), 137  
 TimeElapsedColumn (*class in rich.progress*), 139  
 TimeRemainingColumn (*class in rich.progress*), 139  
 timestamp (*rich.progress.ProgressSample property*), 134  
 total (*rich.progress.Task attribute*), 137  
 TotalFileSizeColumn (*class in rich.progress*), 139  
 Traceback (*class in rich.traceback*), 179  
 track() (*in module rich.progress*), 141  
 track() (*rich.progress.Progress method*), 133  
 TransferSpeedColumn (*class in rich.progress*), 139  
 transparent\_background (*rich.style.Style property*), 159  
 traverse() (*in module rich.pretty*), 126  
 Tree (*class in rich.tree*), 181  
 tree (*rich.layout.Layout property*), 108  
 triplet (*rich.color.Color property*), 79  
 truncate() (*rich.text.Text method*), 177  
 type (*rich.color.Color property*), 79

## U

UnknownElement (*class in rich.markdown*), 118  
 unpack() (*rich.padding.Padding static method*), 121  
 unsplit() (*rich.layout.Layout method*), 108  
 update() (*rich.console.ConsoleOptions method*), 98  
 update() (*rich.console.ScreenContext method*), 100  
 update() (*rich.layout.Layout method*), 108  
 update() (*rich.live.Live method*), 110  
 update() (*rich.progress.Progress method*), 133  
 update() (*rich.progress\_bar.ProgressBar method*), 127  
 update() (*rich.spinner.Spinner method*), 153  
 update() (*rich.status.Status method*), 154  
 update\_dimensions() (*rich.console.ConsoleOptions method*), 98  
 update\_height() (*rich.console.ConsoleOptions method*), 98  
 update\_link() (*rich.style.Style method*), 159  
 update\_screen() (*rich.console.Console method*), 95  
 update\_screen\_lines() (*rich.console.Console method*), 95  
 update\_width() (*rich.console.ConsoleOptions method*), 99  
 use\_theme() (*rich.console.Console method*), 96

## V

vertical (*rich.table.Column attribute*), 165  
 VerticalCenter (*class in rich.align*), 76  
 visible (*rich.progress.Task attribute*), 137

## W

width (*rich.console.Console property*), 96  
 width (*rich.console.ConsoleDimensions property*), 96  
 width (*rich.table.Column attribute*), 165  
 with\_indent\_guides() (*rich.text.Text method*), 177  
 with\_maximum() (*rich.measure.Measurement method*), 120  
 with\_minimum() (*rich.measure.Measurement method*), 120  
 without\_color (*rich.style.Style property*), 159  
 wrap() (*rich.text.Text method*), 177  
 wrap\_file() (*in module rich.progress*), 142  
 wrap\_file() (*rich.progress.Progress method*), 133