

# **Vivliostyle Reference**



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# Reference

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## Documentation

- [Supported CSS Features](#)
- [Core API Reference](#)
- [Awesome Vivliostyle](#)

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## Contribution Guides

Learn how to contribute to each Vivliostyle product.

- [Vivliostyle.js](#)
- [Vivliostyle CLI](#)
- [VFM](#)
- [Vivliostyle Themes](#)

# Supported CSS Features

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Vivliostyle currently supports the following CSS values, selectors, at-rules, media queries, and properties:

In addition, essentially all CSS properties and values supported by the browser are available, since Vivliostyle.js lets the browser handle CSS properties that Vivliostyle.js does not handle on its own.

# Values

- **CSS-wide keywords** (<https://www.w3.org/TR/css-values/#common-keywords>): `initial`, `inherit`, `unset`, `revert`
- **Length units** (<https://www.w3.org/TR/css-values/#lengths>): `em`, `ex`, `ch`, `rem`, `lh`, `rlh`, `vw`, `vh`, `vmin`, `vmax`, `vi`, `vb`, `cm`, `mm`, `q`, `in`, `pc`, `pt`, `px`.
- **Sizing keywords**: `min-content` (<https://www.w3.org/TR/css-sizing-3/#valdef-width-min-content>), `max-content` (<https://www.w3.org/TR/css-sizing-3/#valdef-width-max-content>), `fit-content` (<https://www.w3.org/TR/css-sizing-4/#valdef-width-fit-content>)
- **Color values**
  - **Named Colors** (<https://www.w3.org/TR/css-color/#named-colors>)
  - `transparent` color keyword (<https://www.w3.org/TR/css-color/#transparent-color>)
  - `currentColor` color keyword (<https://www.w3.org/TR/css-color/#currentcolor-color>)
  - **RGB functions**: `rgb()`, `rgba()` (<https://www.w3.org/TR/css-color/#rgb-functions>)
  - **RGB Hexadecimal Notations**: `#RRGGBB`, `#RRGGBBAA` (<https://www.w3.org/TR/css-color/#hex-notation>)
  - **HSL Colors**: `hsl()`, `hsla()` (<https://www.w3.org/TR/css-color/#the-hsl-notation>)
  - **HWB Colors**: `hwb()` (<https://www.w3.org/TR/css-color/#the-hwb-notation>)
  - **CMYK Colors**: `device-cmyk()` (<https://www.w3.org/TR/css-color-5/#the-device-cmyk-notation>)
    - Converted to `color(srgb ...)` internally for browser rendering. Enables CMYK output via post-processing with Vivliostyle CLI. See PR #1627 (<https://github.com/vivliostyle/vivliostyle.js/pull/1627>)
- **Attribute references**: `attr()` (<https://www.w3.org/TR/css-values/#attr-notation>)
  - Only supported in values of `content` property.
  - Only 'string' and 'url' types are supported.
- **Cross references**: `target-counter()`, `target-counters()` and `target-text()` (<https://www.w3.org/TR/css-content-3/#cross-references>)
  - Only supported in values of `content` property.
- `string()` function (Named Strings) (<https://www.w3.org/TR/css-content-3/#string-function>)
- `content()` function (<https://www.w3.org/TR/css-content-3/#content-function>)
- `running()` function (Running Elements) (<https://www.w3.org/TR/css-gcpm-3/#running-syntax>)
- `element()` function (Running Elements) (<https://www.w3.org/TR/css-gcpm-3/#element-syntax>)
- `leader()` function (<https://www.w3.org/TR/css-content-3/#leaders>)
- `calc()` function (<https://www.w3.org/TR/css-values/#funcdef-calc>)
- `env()` function (<https://drafts.csswg.org/css-env/>)

- Implemented only `env(pub-title)` and `env(doc-title)` that are not yet defined in the css-env draft spec but useful for making page header.
  - `env(pub-title)` : publication title = EPUB, Web publication, or primary entry page HTML title.
  - `env(doc-title)` : document title = HTML title, which may be chapter or section title in a publication composed of multiple HTML documents
- `var()` function (<https://www.w3.org/TR/css-variables/#using-variables>)
  - Supports [CSS Custom Properties for Cascading Variables](https://www.w3.org/TR/css-variables/) (<https://www.w3.org/TR/css-variables/>)

## Selectors

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### CSS 2 (<https://www.w3.org/TR/CSS2/>)

- Universal selector `*` (<https://www.w3.org/TR/CSS2/selector.html#universal-selector>)
- Type selectors `E` (<https://www.w3.org/TR/CSS2/selector.html#type-selectors>)
- Descendant selectors `E F` (<https://www.w3.org/TR/CSS2/selector.html#descendant-selectors>)
- Child selectors `E > F` (<https://www.w3.org/TR/CSS2/selector.html#child-selectors>)
- Adjacent sibling selectors `E + F` (<https://www.w3.org/TR/CSS2/selector.html#adjacent-selectors>)
- Attribute selectors `E[foo]`, `E[foo="bar"]`, `E[foo~="bar"]`, `E[foo|="bar"]` (<https://www.w3.org/TR/CSS2/selector.html#attribute-selectors>)
- Class selectors `E.foo` (<https://www.w3.org/TR/CSS2/selector.html#class-html>)
- ID selectors `E#foo` (<https://www.w3.org/TR/CSS2/selector.html#id-selectors>)
- `:first-child` pseudo-class (<https://www.w3.org/TR/CSS2/selector.html#first-child>)
- Link pseudo-class `E:link` (<https://www.w3.org/TR/CSS2/selector.html#link-pseudo-classes>)
- Language pseudo-class `E:lang(c)` (<https://www.w3.org/TR/CSS2/selector.html#lang>)
- `:first-line` pseudo-element (<https://www.w3.org/TR/CSS2/selector.html#first-line-pseudo>)
- `:first-letter` pseudo-element (<https://www.w3.org/TR/CSS2/selector.html#first-letter>)
- `:before` and `:after` pseudo-elements (<https://www.w3.org/TR/CSS2/selector.html#before-and-after>)

### Not supported selectors

- Link pseudo-class `E:visited` (<https://www.w3.org/TR/CSS2/selector.html#link-pseudo-classes>)
- Dynamic pseudo-classes `E:active`, `E:hover`, `E:focus` (<https://www.w3.org/TR/CSS2/selector.html#dynamic-pseudo-classes>)

## Selectors 3 (<https://www.w3.org/TR/selectors-3/>)

- Type selectors with namespaces `ns|E`, `*|E` (<https://www.w3.org/TR/selectors-3/#typenmsp>)
- Universal selector with namespaces `ns|*`, `*|*` (<https://www.w3.org/TR/selectors-3/#univnmsp>)
- Substring matching attribute selectors `[att^=val]`, `[att$=val]`, `[att*=val]` (<https://www.w3.org/TR/selectors-3/#attribute-substrings>)
- Attribute selectors with namespaces `[ns|att]`, `[|att]`, `[ns|att=val]`, `[|att=val]`, `[ns|att~=val]`, `[|att~=val]`, `[ns|att|=val]`, `[|att|=val]`, `[ns|att^=val]`, `[|att^=val]`, `[ns|att$=val]`, `[|att$=val]`, `[ns|att*=val]`, `[|att*=val]` (<https://www.w3.org/TR/selectors-3/#attrnmsp>)
- The UI element states pseudo-classes `:enabled`, `:disabled`, `:checked`, `:indeterminate` (<https://www.w3.org/TR/selectors-3/#UIstates>)
  - Note that the current implementation can use only initial states of those UI elements. Even if the actual state of the element is toggled by user interaction, the style does not change.
- `:root` pseudo-class (<https://www.w3.org/TR/selectors-3/#root-pseudo>)
- `:nth-child()` pseudo-class (<https://www.w3.org/TR/selectors-3/#nth-child-pseudo>)
- `:nth-last-child()` pseudo-class (<https://www.w3.org/TR/selectors-3/#nth-last-child-pseudo>)
- `:nth-of-type()` pseudo-class (<https://www.w3.org/TR/selectors-3/#nth-of-type-pseudo>)
- `:nth-last-of-type()` pseudo-class (<https://www.w3.org/TR/selectors-3/#nth-last-of-type-pseudo>)
- `:first-child` pseudo-class (<https://www.w3.org/TR/selectors-3/#first-child-pseudo>)
- `:last-child` pseudo-class (<https://www.w3.org/TR/selectors-3/#last-child-pseudo>)
- `:first-of-type` pseudo-class (<https://www.w3.org/TR/selectors-3/#first-of-type-pseudo>)
- `:last-of-type` pseudo-class (<https://www.w3.org/TR/selectors-3/#last-of-type-pseudo>)
- `:only-child` pseudo-class (<https://www.w3.org/TR/selectors-3/#only-child-pseudo>)
- `:only-of-type` pseudo-class (<https://www.w3.org/TR/selectors-3/#only-of-type-pseudo>)
- `:empty` pseudo-class (<https://www.w3.org/TR/selectors-3/#empty-pseudo>)
- `:not()` pseudo-class (<https://www.w3.org/TR/selectors-3/#negation>)
- `::first-line` pseudo-element (<https://www.w3.org/TR/selectors-3/#first-line>)
- `::first-letter` pseudo-element (<https://www.w3.org/TR/selectors-3/#first-letter>)
- `::before` and `::after` pseudo-elements (<https://www.w3.org/TR/selectors-3/#gen-content>)
- General sibling combinator `E ~ F` (<https://www.w3.org/TR/selectors-3/#general-sibling-combinators>)

## Selectors 4 (<https://www.w3.org/TR/selectors-4/>)

- `:is()` pseudo-class (<https://www.w3.org/TR/selectors-4/#matches>)
- `:not()` pseudo-class (<https://www.w3.org/TR/selectors-4/#negation>)
- `:where()` pseudo-class (<https://www.w3.org/TR/selectors-4/#zero-matches>)
- `:has()` pseudo-class (<https://www.w3.org/TR/selectors-4/#relational>)
- `:nth-child(An+B of S)` pseudo-class (<https://www.w3.org/TR/selectors-4/#nth-child-pseudo>)
- `:nth-last-child(An+B of S)` pseudo-class (<https://www.w3.org/TR/selectors-4/#nth-last-child-pseudo>)

## CSS Overflow 4 (<https://www.w3.org/TR/css-overflow-4/>)

- `:nth-fragment()` pseudo-element (<https://www.w3.org/TR/css-overflow-4/#fragment-pseudo-element>)

## CSS Pseudo-Elements 4 (<https://www.w3.org/TR/css-pseudo-4/>)

- `::marker` pseudo-element (<https://www.w3.org/TR/css-pseudo-4/#marker-pseudo>)

## CSS Generated Content for Paged Media (GCPM) 3 (<https://www.w3.org/TR/css-gcpm-3/>)

- `::footnote-call` pseudo-element (<https://www.w3.org/TR/css-gcpm-3/#the-footnote-call>)
- `::footnote-marker` pseudo-element (<https://www.w3.org/TR/css-gcpm-3/#the-footnote-marker>)
  - Supports `list-style-position: outside` (<https://www.w3.org/TR/css-gcpm-3/#footnote-marker-property>) for placing the marker outside the footnote body. See [PR #1706](https://github.com/vivliostyle/vivliostyle.js/pull/1706) (<https://github.com/vivliostyle/vivliostyle.js/pull/1706>)

## Not supported selectors

- Type selectors without namespaces `|E` (<https://www.w3.org/TR/selectors-3/#typenmsp>)
- Universal selector without namespaces `|*` (<https://www.w3.org/TR/selectors-3/#univnmsp>)
- Attribute selectors with universal namespace `[*|att]`, `[*|att=val]`, `[*|att~=val]`, `[*|att|=val]` (<https://www.w3.org/TR/selectors-3/#attrnmsp>)
- Target pseudo-class `:target` (<https://www.w3.org/TR/selectors-3/#target-pseudo>)

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# At-rules

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## CSS 2 (<https://www.w3.org/TR/CSS2/>)

- [@charset](https://www.w3.org/TR/CSS2/syntax.html#charset) (<https://www.w3.org/TR/CSS2/syntax.html#charset>)
- [@import](https://www.w3.org/TR/CSS2/cascade.html#at-import) (<https://www.w3.org/TR/CSS2/cascade.html#at-import>)
  - Also in [CSS Cascading and Inheritance 3](https://www.w3.org/TR/css-cascade-3/#at-import) (<https://www.w3.org/TR/css-cascade-3/#at-import>)

## CSS Namespaces 3 (<https://www.w3.org/TR/css3-namespaces/>)

- [@namespace](https://www.w3.org/TR/css3-namespaces/#declaration) (<https://www.w3.org/TR/css3-namespaces/#declaration>)

## CSS Conditional Rules 3 (<https://www.w3.org/TR/css-conditional-3/>)

- [@media](https://www.w3.org/TR/css-conditional-3/#at-media) (<https://www.w3.org/TR/css-conditional-3/#at-media>)
- [@supports](https://www.w3.org/TR/css-conditional-3/#at-supports) (<https://www.w3.org/TR/css-conditional-3/#at-supports>)

## CSS Conditional Rules 4 (<https://www.w3.org/TR/css-conditional-4/>)

- [@supports selector\(\)](https://www.w3.org/TR/css-conditional-4/#at-supports-ext) (<https://www.w3.org/TR/css-conditional-4/#at-supports-ext>)

## CSS Paged Media 3 (<https://www.w3.org/TR/css-page-3/>)

- [@page](https://www.w3.org/TR/css-page-3/#at-page-rule) (<https://www.w3.org/TR/css-page-3/#at-page-rule>)
- Page-margin boxes ([@top-left-corner](https://www.w3.org/TR/css-page-3/#margin-at-rules), [@top-left](https://www.w3.org/TR/css-page-3/#margin-at-rules), [@top-center](https://www.w3.org/TR/css-page-3/#margin-at-rules), [@top-right](https://www.w3.org/TR/css-page-3/#margin-at-rules), [@top-right-corner](https://www.w3.org/TR/css-page-3/#margin-at-rules), [@left-top](https://www.w3.org/TR/css-page-3/#margin-at-rules), [@left-middle](https://www.w3.org/TR/css-page-3/#margin-at-rules), [@left-bottom](https://www.w3.org/TR/css-page-3/#margin-at-rules), [@right-top](https://www.w3.org/TR/css-page-3/#margin-at-rules), [@right-middle](https://www.w3.org/TR/css-page-3/#margin-at-rules), [@right-bottom](https://www.w3.org/TR/css-page-3/#margin-at-rules), [@bottom-left-corner](https://www.w3.org/TR/css-page-3/#margin-at-rules), [@bottom-left](https://www.w3.org/TR/css-page-3/#margin-at-rules), [@bottom-center](https://www.w3.org/TR/css-page-3/#margin-at-rules), [@bottom-right](https://www.w3.org/TR/css-page-3/#margin-at-rules), [@bottom-right-corner](https://www.w3.org/TR/css-page-3/#margin-at-rules)) (<https://www.w3.org/TR/css-page-3/#margin-at-rules>)
- Page selectors (<https://www.w3.org/TR/css-page-3/#page-selectors>)
  - [:left](https://www.w3.org/TR/css-page-3/#spread-pseudos), [:right](https://www.w3.org/TR/css-page-3/#spread-pseudos) (<https://www.w3.org/TR/css-page-3/#spread-pseudos>)
  - [:recto](https://www.w3.org/TR/css-logical-1/#page), [:verso](https://www.w3.org/TR/css-logical-1/#page) (<https://www.w3.org/TR/css-logical-1/#page>)
  - [:first](https://www.w3.org/TR/css-page-3/#first-pseudo) (<https://www.w3.org/TR/css-page-3/#first-pseudo>)
    - Note: In multi-document publications, the `:first` matches only the first page of the first document, and the `:nth(1)` matches the first page of each document. [Issue #667](https://github.com/vivliostyle/vivliostyle.js/issues/667#issuecomment-738020563) (<https://github.com/vivliostyle/vivliostyle.js/issues/667#issuecomment-738020563>)
  - [:blank](https://www.w3.org/TR/css-page-3/#blank-pseudo) (<https://www.w3.org/TR/css-page-3/#blank-pseudo>)
- Named pages (page type selector) (<https://www.w3.org/TR/css-page-3/#page-type-selector>)
- Page-based counters (page, pages) (<https://www.w3.org/TR/css-page-3/#page-based-counters>)

See also: [Properties in CSS Paged Media 3](#)

## CSS Generated Content for Paged Media (GCPM) 3 (<https://www.w3.org/TR/css-gcpm-3/>)

- `@footnote` rule (Footnote area) (<https://www.w3.org/TR/css-gcpm-3/#footnotes>)
  - Styles footnote areas with `@page { @footnote { ... } }`
  - Supports page-selector variants: e.g., `@page :left { @footnote { ... } }`
  - `@footnote ::before` supports the `content` property and other styles for the footnote separator
  - `@page @footnote` takes precedence over top-level `@footnote`
  - See PR #1644 (<https://github.com/vivliostyle/vivliostyle.js/pull/1644>) and PR #1724 (<https://github.com/vivliostyle/vivliostyle.js/pull/1724>)
- Nth page selector `:nth(An+B [of <custom-ident>])` (<https://www.w3.org/TR/css-gcpm-3/#document-page-selectors>)
  - `:nth(An+B of <page-type>)` is page-group-aware, matching against all active page groups on the current page. See PR #1745 (<https://github.com/vivliostyle/vivliostyle.js/pull/1745>)
  - Note: In multi-document publications, the `:nth(1)` matches the first page of each document, but the `:first` matches only the first page of the first document. Issue #667 (<https://github.com/vivliostyle/vivliostyle.js/issues/667#issuecomment-738020563>)

See also:

- [Properties in CSS Generated Content for Paged Media \(GCPM\) 3](#)
- [Values - Cross references, content\(\), and string\(\) functions](#)

## CSS Fonts 3 (<https://www.w3.org/TR/css-fonts-3/>)

- `@font-face` (<https://www.w3.org/TR/css-fonts-3/#font-face-rule>)
  - `font-style`, `font-weight`, `font-stretch` descriptors (<https://www.w3.org/TR/css-fonts-3/#font-prop-desc>)
  - `unicode-range` descriptor (<https://www.w3.org/TR/css-fonts-3/#unicode-range-desc>)

See also: [Properties in CSS Fonts 3](#)

## CSS Counter Styles 3 (<https://www.w3.org/TR/css-counter-styles-3/>)

- `@counter-style` (<https://www.w3.org/TR/css-counter-styles-3/#the-counter-style-rule>)
- Extending `list-style-type`, `counter()`, and `counters()` (<https://www.w3.org/TR/css-counter-styles-3/#extending-css2>)
- [Predefined Counter Styles](#) (<https://www.w3.org/TR/css-counter-styles-3/#predefined-counters>)

## Media queries

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- Vivliostyle uses styles specified for `print` media (<https://www.w3.org/TR/CSS2/media.html#media-types>) (as well as `all` ).
  - Vivliostyle specific media type `vivliostyle` is enabled in addition to `print` media.
- Supported media features
  - `(min- |max- )width` (<https://www.w3.org/TR/css3-mediaqueries/#width>)
  - `(min- |max- )height` (<https://www.w3.org/TR/css3-mediaqueries/#height>)
  - `(min- |max- )device-width` (<https://www.w3.org/TR/css3-mediaqueries/#device-width>)
  - `(min- |max- )device-height` (<https://www.w3.org/TR/css3-mediaqueries/#device-height>)
  - `(min- |max- )color` (<https://www.w3.org/TR/css3-mediaqueries/#color>)

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# Properties

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## CSS 2 (<https://www.w3.org/TR/CSS2/>)

- [background](https://www.w3.org/TR/CSS2/colors.html#propdef-background) (<https://www.w3.org/TR/CSS2/colors.html#propdef-background>)
  - Supports [CSS Backgrounds 3 syntax](https://www.w3.org/TR/css3-background/#propdef-background) (<https://www.w3.org/TR/css3-background/#propdef-background>)
- [background-attachment](https://www.w3.org/TR/CSS2/colors.html#propdef-background-attachment) (<https://www.w3.org/TR/CSS2/colors.html#propdef-background-attachment>)
  - Supports [CSS Backgrounds 3 syntax](https://www.w3.org/TR/css3-background/#propdef-background-attachment) (<https://www.w3.org/TR/css3-background/#propdef-background-attachment>)
- [background-color](https://www.w3.org/TR/CSS2/colors.html#propdef-background-color) (<https://www.w3.org/TR/CSS2/colors.html#propdef-background-color>)
  - Supports [CSS Backgrounds 3 syntax](https://www.w3.org/TR/css3-background/#propdef-background-color) (<https://www.w3.org/TR/css3-background/#propdef-background-color>)
- [background-image](https://www.w3.org/TR/CSS2/colors.html#propdef-background-image) (<https://www.w3.org/TR/CSS2/colors.html#propdef-background-image>)
  - Supports [CSS Backgrounds 3 syntax](https://www.w3.org/TR/css3-background/#propdef-background-image) (<https://www.w3.org/TR/css3-background/#propdef-background-image>)
- [background-position](https://www.w3.org/TR/CSS2/colors.html#propdef-background-position) (<https://www.w3.org/TR/CSS2/colors.html#propdef-background-position>)
  - Supports [CSS Backgrounds 3 syntax](https://www.w3.org/TR/css3-background/#propdef-background-position) (<https://www.w3.org/TR/css3-background/#propdef-background-position>)
- [background-repeat](https://www.w3.org/TR/CSS2/colors.html#propdef-background-repeat) (<https://www.w3.org/TR/CSS2/colors.html#propdef-background-repeat>)
  - Supports [CSS Backgrounds 3 syntax](https://www.w3.org/TR/css3-background/#propdef-background-repeat) (<https://www.w3.org/TR/css3-background/#propdef-background-repeat>)
- [border](https://www.w3.org/TR/CSS2/box.html#propdef-border) (<https://www.w3.org/TR/CSS2/box.html#propdef-border>)
- [border-bottom](https://www.w3.org/TR/CSS2/box.html#propdef-border-bottom) (<https://www.w3.org/TR/CSS2/box.html#propdef-border-bottom>)
- [border-bottom-color](https://www.w3.org/TR/CSS2/box.html#propdef-border-bottom-color) (<https://www.w3.org/TR/CSS2/box.html#propdef-border-bottom-color>)
- [border-bottom-style](https://www.w3.org/TR/CSS2/box.html#propdef-border-bottom-style) (<https://www.w3.org/TR/CSS2/box.html#propdef-border-bottom-style>)
- [border-bottom-width](https://www.w3.org/TR/CSS2/box.html#propdef-border-bottom-width) (<https://www.w3.org/TR/CSS2/box.html#propdef-border-bottom-width>)
- [border-collapse](https://www.w3.org/TR/CSS2/tables.html#propdef-border-collapse) (<https://www.w3.org/TR/CSS2/tables.html#propdef-border-collapse>)
- [border-color](https://www.w3.org/TR/CSS2/box.html#propdef-border-color) (<https://www.w3.org/TR/CSS2/box.html#propdef-border-color>)
- [border-left](https://www.w3.org/TR/CSS2/box.html#propdef-border-left) (<https://www.w3.org/TR/CSS2/box.html#propdef-border-left>)
- [border-left-color](https://www.w3.org/TR/CSS2/box.html#propdef-border-left-color) (<https://www.w3.org/TR/CSS2/box.html#propdef-border-left-color>)
- [border-left-style](https://www.w3.org/TR/CSS2/box.html#propdef-border-left-style) (<https://www.w3.org/TR/CSS2/box.html#propdef-border-left-style>)
- [border-left-width](https://www.w3.org/TR/CSS2/box.html#propdef-border-left-width) (<https://www.w3.org/TR/CSS2/box.html#propdef-border-left-width>)
- [border-right](https://www.w3.org/TR/CSS2/box.html#propdef-border-right) (<https://www.w3.org/TR/CSS2/box.html#propdef-border-right>)
- [border-right-color](https://www.w3.org/TR/CSS2/box.html#propdef-border-right-color) (<https://www.w3.org/TR/CSS2/box.html#propdef-border-right-color>)
- [border-right-style](https://www.w3.org/TR/CSS2/box.html#propdef-border-right-style) (<https://www.w3.org/TR/CSS2/box.html#propdef-border-right-style>)
- [border-right-width](https://www.w3.org/TR/CSS2/box.html#propdef-border-right-width) (<https://www.w3.org/TR/CSS2/box.html#propdef-border-right-width>)
- [border-spacing](https://www.w3.org/TR/CSS2/tables.html#propdef-border-spacing) (<https://www.w3.org/TR/CSS2/tables.html#propdef-border-spacing>)
- [border-style](https://www.w3.org/TR/CSS2/box.html#propdef-border-style) (<https://www.w3.org/TR/CSS2/box.html#propdef-border-style>)

- [border-top](https://www.w3.org/TR/CSS2/box.html#propdef-border-top) (https://www.w3.org/TR/CSS2/box.html#propdef-border-top)
- [border-top-color](https://www.w3.org/TR/CSS2/box.html#propdef-border-top-color) (https://www.w3.org/TR/CSS2/box.html#propdef-border-top-color)
- [border-top-style](https://www.w3.org/TR/CSS2/box.html#propdef-border-top-style) (https://www.w3.org/TR/CSS2/box.html#propdef-border-top-style)
- [border-top-width](https://www.w3.org/TR/CSS2/box.html#propdef-border-top-width) (https://www.w3.org/TR/CSS2/box.html#propdef-border-top-width)
- [border-width](https://www.w3.org/TR/CSS2/box.html#propdef-border-width) (https://www.w3.org/TR/CSS2/box.html#propdef-border-width)
- [bottom](https://www.w3.org/TR/CSS2/visuren.html#propdef-bottom) (https://www.w3.org/TR/CSS2/visuren.html#propdef-bottom)
- [caption-side](https://www.w3.org/TR/CSS2/tables.html#propdef-caption-side) (https://www.w3.org/TR/CSS2/tables.html#propdef-caption-side)
- [clear](https://www.w3.org/TR/CSS2/visuren.html#propdef-clear) (https://www.w3.org/TR/CSS2/visuren.html#propdef-clear)
  - See also [CSS Page Floats](#)
- [clip](https://www.w3.org/TR/CSS2/visufx.html#propdef-clip) (https://www.w3.org/TR/CSS2/visufx.html#propdef-clip)
- [color](https://www.w3.org/TR/CSS2/colors.html#propdef-color) (https://www.w3.org/TR/CSS2/colors.html#propdef-color)
- [content](https://www.w3.org/TR/CSS2/generate.html#propdef-content) (https://www.w3.org/TR/CSS2/generate.html#propdef-content)
- [counter-increment](https://www.w3.org/TR/CSS2/generate.html#propdef-counter-increment) (https://www.w3.org/TR/CSS2/generate.html#propdef-counter-increment)
- [counter-reset](https://www.w3.org/TR/CSS2/generate.html#propdef-counter-reset) (https://www.w3.org/TR/CSS2/generate.html#propdef-counter-reset)
- [counter-set](https://www.w3.org/TR/css-lists-3/#propdef-counter-set) (https://www.w3.org/TR/css-lists-3/#propdef-counter-set)
- [cursor](https://www.w3.org/TR/CSS2/ui.html#propdef-cursor) (https://www.w3.org/TR/CSS2/ui.html#propdef-cursor)
- [direction](https://www.w3.org/TR/CSS2/visuren.html#propdef-direction) (https://www.w3.org/TR/CSS2/visuren.html#propdef-direction)
- [display](https://www.w3.org/TR/CSS2/visuren.html#propdef-display) (https://www.w3.org/TR/CSS2/visuren.html#propdef-display)
  - Supports `flex`, `inline-flex` (https://www.w3.org/TR/css-flexbox-1/#flex-containers), `ruby`, `ruby-base`, `ruby-text`, `ruby-base-container` and `ruby-text-container` (https://www.w3.org/TR/css-ruby-1/#propdef-display) values.
- [empty-cells](https://www.w3.org/TR/CSS2/tables.html#propdef-empty-cells) (https://www.w3.org/TR/CSS2/tables.html#propdef-empty-cells)
- [float](https://www.w3.org/TR/CSS2/visuren.html#propdef-float) (https://www.w3.org/TR/CSS2/visuren.html#propdef-float)
  - See also [CSS Page Floats](#)
- [font](https://www.w3.org/TR/CSS2/fonts.html#propdef-font) (https://www.w3.org/TR/CSS2/fonts.html#propdef-font)
- [font-family](https://www.w3.org/TR/CSS2/fonts.html#propdef-font-family) (https://www.w3.org/TR/CSS2/fonts.html#propdef-font-family)
- [font-size](https://www.w3.org/TR/CSS2/fonts.html#propdef-font-size) (https://www.w3.org/TR/CSS2/fonts.html#propdef-font-size)
- [font-style](https://www.w3.org/TR/CSS2/fonts.html#propdef-font-style) (https://www.w3.org/TR/CSS2/fonts.html#propdef-font-style)
- [font-variant](https://www.w3.org/TR/CSS2/fonts.html#propdef-font-variant) (https://www.w3.org/TR/CSS2/fonts.html#propdef-font-variant)
  - Supports [CSS Fonts 3 font-variant](#) (https://www.w3.org/TR/css-fonts-3/#propdef-font-variant)
- [font-weight](https://www.w3.org/TR/CSS2/fonts.html#propdef-font-weight) (https://www.w3.org/TR/CSS2/fonts.html#propdef-font-weight)
- [height](https://www.w3.org/TR/CSS2/visudet.html#propdef-height) (https://www.w3.org/TR/CSS2/visudet.html#propdef-height)
- [left](https://www.w3.org/TR/CSS2/visuren.html#propdef-left) (https://www.w3.org/TR/CSS2/visuren.html#propdef-left)

- **letter-spacing** (<https://www.w3.org/TR/CSS2/text.html#propdef-letter-spacing>)
- **line-height** (<https://www.w3.org/TR/CSS2/visudet.html#propdef-line-height>)
- **list-style** (<https://www.w3.org/TR/CSS2/generate.html#propdef-list-style>)
- **list-style-image** (<https://www.w3.org/TR/CSS2/generate.html#propdef-list-style-image>)
- **list-style-position** (<https://www.w3.org/TR/CSS2/generate.html#propdef-list-style-position>)
- **list-style-type** (<https://www.w3.org/TR/CSS2/generate.html#propdef-list-style-type>)
- **margin** (<https://www.w3.org/TR/CSS2/box.html#propdef-margin>)
- **margin-bottom** (<https://www.w3.org/TR/CSS2/box.html#propdef-margin-bottom>)
- **margin-left** (<https://www.w3.org/TR/CSS2/box.html#propdef-margin-left>)
- **margin-right** (<https://www.w3.org/TR/CSS2/box.html#propdef-margin-right>)
- **margin-top** (<https://www.w3.org/TR/CSS2/box.html#propdef-margin-top>)
- **max-height** (<https://www.w3.org/TR/CSS2/visudet.html#propdef-max-height>)
- **max-width** (<https://www.w3.org/TR/CSS2/visudet.html#propdef-max-width>)
- **min-height** (<https://www.w3.org/TR/CSS2/visudet.html#propdef-min-height>)
- **min-width** (<https://www.w3.org/TR/CSS2/visudet.html#propdef-min-width>)
- **orphans** (<https://www.w3.org/TR/CSS2/page.html#propdef-orphans>)
- **outline** (<https://www.w3.org/TR/CSS2/ui.html#propdef-outline>)
- **outline-color** (<https://www.w3.org/TR/CSS2/ui.html#propdef-outline-color>)
- **outline-offset** (<https://www.w3.org/TR/css3-ui/#propdef-outline-offset>)
- **outline-style** (<https://www.w3.org/TR/CSS2/ui.html#propdef-outline-style>)
- **outline-width** (<https://www.w3.org/TR/CSS2/ui.html#propdef-outline-width>)
- **overflow** (<https://www.w3.org/TR/CSS2/visufx.html#propdef-overflow>)
- **padding** (<https://www.w3.org/TR/CSS2/box.html#propdef-padding>)
- **padding-bottom** (<https://www.w3.org/TR/CSS2/box.html#propdef-padding-bottom>)
- **padding-left** (<https://www.w3.org/TR/CSS2/box.html#propdef-padding-left>)
- **padding-right** (<https://www.w3.org/TR/CSS2/box.html#propdef-padding-right>)
- **padding-top** (<https://www.w3.org/TR/CSS2/box.html#propdef-padding-top>)
- **page-break-after** (<https://www.w3.org/TR/CSS2/page.html#propdef-page-break-after>)
- **page-break-before** (<https://www.w3.org/TR/CSS2/page.html#propdef-page-break-before>)
- **page-break-inside** (<https://www.w3.org/TR/CSS2/page.html#propdef-page-break-inside>)
- **position** (<https://www.w3.org/TR/CSS2/visuren.html#propdef-position>)
- **quotes** (<https://www.w3.org/TR/CSS2/generate.html#propdef-quotes>)

- Note: not supported within `@page` rules. [Issue #43](https://github.com/vivliostyle/vivliostyle.js/issues/43)
- [right](https://www.w3.org/TR/CSS2/visuren.html#propdef-right)
- [table-layout](https://www.w3.org/TR/CSS2/tables.html#propdef-table-layout)
- [text-align](https://www.w3.org/TR/CSS2/text.html#propdef-text-align)
- [text-decoration](https://www.w3.org/TR/CSS2/text.html#propdef-text-decoration)
- [text-indent](https://www.w3.org/TR/CSS2/text.html#propdef-text-indent)
- [text-transform](https://www.w3.org/TR/CSS2/text.html#propdef-text-transform)
- [top](https://www.w3.org/TR/CSS2/visuren.html#propdef-top)
- [unicode-bidi](https://www.w3.org/TR/CSS2/visuren.html#propdef-unicode-bidi)
  - Supports new values (`isolate`, `isolate-override`, `plaintext`) in [CSS Writing Modes 3](https://www.w3.org/TR/css-writing-modes-3/#propdef-unicode-bidi)
- [vertical-align](https://www.w3.org/TR/CSS2/visudet.html#propdef-vertical-align)
- [visibility](https://www.w3.org/TR/CSS2/visufx.html#propdef-visibility)
- [white-space](https://www.w3.org/TR/CSS2/text.html#propdef-white-space)
- [widows](https://www.w3.org/TR/CSS2/page.html#propdef-widows)
- [width](https://www.w3.org/TR/CSS2/visudet.html#propdef-width)
- [word-spacing](https://www.w3.org/TR/CSS2/text.html#propdef-word-spacing)
- [z-index](https://www.w3.org/TR/CSS2/visuren.html#propdef-z-index)

## CSS Paged Media 3 (<https://www.w3.org/TR/css-page-3/>)

- [bleed](https://www.w3.org/TR/css-page-3/#bleed)
  - Only effective when specified within an `@page` rule without page selectors
- [marks](https://www.w3.org/TR/css-page-3/#marks)
  - Only effective when specified within an `@page` rule without page selectors
- [size](https://www.w3.org/TR/css-page-3/#page-size-prop)
  - Supports all required values and proposed values `A0 - A10` , `B0 - B10` , `C0 - C10` and `JIS-B0 - JIS-B10` . See PR #713 (<https://github.com/vivliostyle/vivliostyle.js/pull/713>)
- [crop-offset](#)
  - Specifies distance between the edge of the trim size and the edge of the output page media size
  - This property is not standardized yet. See Issue #913 (<https://github.com/vivliostyle/vivliostyle.js/issues/913>)
- [crop-marks-line-color](#)
  - Specifies color of the crop marks
  - This property is not standardized yet. See PR #1505 (<https://github.com/vivliostyle/vivliostyle.js/pull/1505>)
- [page \(Named Pages\)](https://www.w3.org/TR/css-page-3/#using-named-pages)

See also: [At-rules in CSS Paged Media 3](#)

## CSS Generated Content for Paged Media (GCPM) 3 (<https://www.w3.org/TR/css-gcpm-3/>)

- [string-set \(Named Strings\)](https://www.w3.org/TR/css-gcpm-3/#setting-named-strings-the-string-set-pro)
- [position: running\(\) \(Running Elements\)](https://www.w3.org/TR/css-gcpm-3/#running-elements)
- [footnote-display](https://www.w3.org/TR/css-gcpm-3/#propdef-footnote-display)
  - Supports `block` , `inline` , `compact` (<https://www.w3.org/TR/css-gcpm-3/#propdef-footnote-display>) values.
- [footnote-policy](https://www.w3.org/TR/css-gcpm-3/#propdef-footnote-policy)
  - Supports `auto` , `line` (<https://www.w3.org/TR/css-gcpm-3/#propdef-footnote-policy>) values.

See also:

- [At-rules in CSS Generated Content for Paged Media \(GCPM\) 3](#)
- [Values - Cross references, string\(\), content\(\), running\(\), element\(\), and leader\(\) functions](#)

## **CSS Fragmentation 3 (<https://www.w3.org/TR/css-break-3/>)**

- [break-after](https://www.w3.org/TR/css-break-3/#propdef-break-after) (<https://www.w3.org/TR/css-break-3/#propdef-break-after>)
- [break-before](https://www.w3.org/TR/css-break-3/#propdef-break-before) (<https://www.w3.org/TR/css-break-3/#propdef-break-before>)
- [break-inside](https://www.w3.org/TR/css-break-3/#propdef-break-inside) (<https://www.w3.org/TR/css-break-3/#propdef-break-inside>)
  - Note: All of `avoid-page` , `avoid-column` and `avoid-region` values are treated as if they were `avoid` . [Issue #128](https://github.com/vivliostyle/vivliostyle.js/issues/128) (<https://github.com/vivliostyle/vivliostyle.js/issues/128>)
- [orphans](https://www.w3.org/TR/css-break-3/#propdef-orphans) (<https://www.w3.org/TR/css-break-3/#propdef-orphans>)
- [widows](https://www.w3.org/TR/css-break-3/#propdef-widows) (<https://www.w3.org/TR/css-break-3/#propdef-widows>)
- [box-decoration-break](https://www.w3.org/TR/css-break-3/#propdef-box-decoration-break) (<https://www.w3.org/TR/css-break-3/#propdef-box-decoration-break>)
  - Note: Background, box-shadow and border images on inline-start/end borders are always rendered as if `box-decoration-break: clone` is specified.

## **CSS Fragmentation 4 (<https://www.w3.org/TR/css-break-4/>)**

- [margin-break](https://www.w3.org/TR/css-break-4/#break-margins) (<https://www.w3.org/TR/css-break-4/#break-margins>)

## CSS Page Floats (<https://drafts.csswg.org/css-page-floats/>)

- [clear](https://drafts.csswg.org/css-page-floats/#propdef-clear)
  - Supports `none`, `inline-start`, `inline-end`, `block-start`, `block-end`, `left`, `right`, `top`, `bottom`, `both`, `all`, `same` (<https://drafts.csswg.org/css-page-floats/#propdef-clear>) values.
  - When `all` is specified on a block-level box (not a page float), the block-start edge of the box gets pushed down so that the edge comes after any block-start/block-end page float of which anchors are before the box in the document order.
  - When a `clear` value is specified on a page float, it is placed so that it comes after any of preceding page floats.
  - `same` value means the same direction as one which the page float is floated to.
  - If a page float with `float: snap-block` would be placed at the block-start end but a `clear` value on it forbidden such placement, the float is instead placed at the block-end side (unless the `clear` value also forbidden such placement).
  - The `page`, `column`, and `region` values ensure that preceding page floats are placed before the page/column/region containing the element that has the `clear` property, which can be a page float, a normal float, or a block-level box.
- [float](https://drafts.csswg.org/css-page-floats/#propdef-float)
  - Supports `block-start`, `block-end`, `inline-start`, `inline-end`, `snap-block`, `left`, `right`, `top`, `bottom` and `none` (<https://drafts.csswg.org/css-page-floats/#propdef-float>) values.
  - Supports values combining keywords. For example,
    - `float: top right`; float to top right corner
    - `float: bottom left`; float to bottom left corner
    - `float: top bottom`; float to top or bottom edge
    - `float: top bottom left`; float to top left or bottom left corner
    - `float: top bottom left right`; float to top left, top right, bottom left, or bottom right corner
    - `float: block-start inline-start`; float to block-start and inline-start corner
    - `float: block-start block-end`; float to block-start or block-end edge (same as 'snap-block')
    - See [PR #1444](https://github.com/vivliostyle/vivliostyle.js/pull/1444) (<https://github.com/vivliostyle/vivliostyle.js/pull/1444>)
- [float-reference](https://drafts.csswg.org/css-page-floats/#propdef-float-reference) (<https://drafts.csswg.org/css-page-floats/#propdef-float-reference>)
  - Specify `float-reference: page` (or `column` / `region`) to enable page (or column/region) float.
- `float-min-wrap-block`

- Applies to a page float
- A percentage value is respect to the block dimension of the float reference of the page float
- When set to a positive length, in-flow contents are not allowed to be flown into a space next to the page float if the block extent of the space is less than the specified length. In that case, the space is kept empty and the in-flow contents are deferred to the next column.
- This property is not standardized yet. See PR #382 (<https://github.com/vivliostyle/vivliostyle.js/pull/382>)

## **CSS Color 3** (<https://www.w3.org/TR/css3-color/>)

- [color](https://www.w3.org/TR/css-color-3/#foreground) (<https://www.w3.org/TR/css-color-3/#foreground>)
- [opacity](https://www.w3.org/TR/css-color-3/#transparency) (<https://www.w3.org/TR/css-color-3/#transparency>)

See also: [Values - Supported color values](#)

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## CSS Backgrounds and Borders 3 (<https://www.w3.org/TR/css3-background/>)

- [background](https://www.w3.org/TR/css3-background/#propdef-background) (<https://www.w3.org/TR/css3-background/#propdef-background>)
- [background-attachment](https://www.w3.org/TR/css3-background/#propdef-background-attachment) (<https://www.w3.org/TR/css3-background/#propdef-background-attachment>)
- [background-clip](https://www.w3.org/TR/css3-background/#propdef-background-clip) (<https://www.w3.org/TR/css3-background/#propdef-background-clip>)
- [background-color](https://www.w3.org/TR/css3-background/#propdef-background-color) (<https://www.w3.org/TR/css3-background/#propdef-background-color>)
- [background-image](https://www.w3.org/TR/css3-background/#propdef-background-image) (<https://www.w3.org/TR/css3-background/#propdef-background-image>)
- [background-origin](https://www.w3.org/TR/css3-background/#propdef-background-origin) (<https://www.w3.org/TR/css3-background/#propdef-background-origin>)
- [background-position](https://www.w3.org/TR/css3-background/#propdef-background-position) (<https://www.w3.org/TR/css3-background/#propdef-background-position>)
- [background-repeat](https://www.w3.org/TR/css3-background/#propdef-background-repeat) (<https://www.w3.org/TR/css3-background/#propdef-background-repeat>)
- [background-size](https://www.w3.org/TR/css3-background/#propdef-background-size) (<https://www.w3.org/TR/css3-background/#propdef-background-size>)
- [border](https://www.w3.org/TR/css3-background/#propdef-border) (<https://www.w3.org/TR/css3-background/#propdef-border>)
- [border-bottom](https://www.w3.org/TR/css3-background/#propdef-border-bottom) (<https://www.w3.org/TR/css3-background/#propdef-border-bottom>)
- [border-bottom-color](https://www.w3.org/TR/css3-background/#propdef-border-bottom-color) (<https://www.w3.org/TR/css3-background/#propdef-border-bottom-color>)
- [border-bottom-left-radius](https://www.w3.org/TR/css3-background/#propdef-border-bottom-left-radius) (<https://www.w3.org/TR/css3-background/#propdef-border-bottom-left-radius>)
- [border-bottom-right-radius](https://www.w3.org/TR/css3-background/#propdef-border-bottom-right-radius) (<https://www.w3.org/TR/css3-background/#propdef-border-bottom-right-radius>)
- [border-bottom-style](https://www.w3.org/TR/css3-background/#propdef-border-bottom-style) (<https://www.w3.org/TR/css3-background/#propdef-border-bottom-style>)
- [border-bottom-width](https://www.w3.org/TR/css3-background/#propdef-border-bottom-width) (<https://www.w3.org/TR/css3-background/#propdef-border-bottom-width>)
- [border-color](https://www.w3.org/TR/css3-background/#propdef-border-color) (<https://www.w3.org/TR/css3-background/#propdef-border-color>)
- [border-image](https://www.w3.org/TR/css3-background/#propdef-border-image) (<https://www.w3.org/TR/css3-background/#propdef-border-image>)
- [border-image-outset](https://www.w3.org/TR/css3-background/#propdef-border-image-outset) (<https://www.w3.org/TR/css3-background/#propdef-border-image-outset>)
- [border-image-repeat](https://www.w3.org/TR/css3-background/#propdef-border-image-repeat) (<https://www.w3.org/TR/css3-background/#propdef-border-image-repeat>)
- [border-image-slice](https://www.w3.org/TR/css3-background/#propdef-border-image-slice) (<https://www.w3.org/TR/css3-background/#propdef-border-image-slice>)
- [border-image-source](https://www.w3.org/TR/css3-background/#propdef-border-image-source) (<https://www.w3.org/TR/css3-background/#propdef-border-image-source>)
- [border-image-width](https://www.w3.org/TR/css3-background/#propdef-border-image-width) (<https://www.w3.org/TR/css3-background/#propdef-border-image-width>)
- [border-left](https://www.w3.org/TR/css3-background/#propdef-border-left) (<https://www.w3.org/TR/css3-background/#propdef-border-left>)
- [border-left-color](https://www.w3.org/TR/css3-background/#propdef-border-left-color) (<https://www.w3.org/TR/css3-background/#propdef-border-left-color>)
- [border-left-style](https://www.w3.org/TR/css3-background/#propdef-border-left-style) (<https://www.w3.org/TR/css3-background/#propdef-border-left-style>)
- [border-left-width](https://www.w3.org/TR/css3-background/#propdef-border-left-width) (<https://www.w3.org/TR/css3-background/#propdef-border-left-width>)
- [border-radius](https://www.w3.org/TR/css3-background/#propdef-border-radius) (<https://www.w3.org/TR/css3-background/#propdef-border-radius>)
- [border-right](https://www.w3.org/TR/css3-background/#propdef-border-right) (<https://www.w3.org/TR/css3-background/#propdef-border-right>)
- [border-right-color](https://www.w3.org/TR/css3-background/#propdef-border-right-color) (<https://www.w3.org/TR/css3-background/#propdef-border-right-color>)
- [border-right-style](https://www.w3.org/TR/css3-background/#propdef-border-right-style) (<https://www.w3.org/TR/css3-background/#propdef-border-right-style>)

- [border-right-width](https://www.w3.org/TR/css3-background/#propdef-border-right-width) (https://www.w3.org/TR/css3-background/#propdef-border-right-width)
- [border-style](https://www.w3.org/TR/css3-background/#propdef-border-style) (https://www.w3.org/TR/css3-background/#propdef-border-style)
- [border-top](https://www.w3.org/TR/css3-background/#propdef-border-top) (https://www.w3.org/TR/css3-background/#propdef-border-top)
- [border-top-color](https://www.w3.org/TR/css3-background/#propdef-border-top-color) (https://www.w3.org/TR/css3-background/#propdef-border-top-color)
- [border-top-left-radius](https://www.w3.org/TR/css3-background/#propdef-border-top-left-radius) (https://www.w3.org/TR/css3-background/#propdef-border-top-left-radius)
- [border-top-right-radius](https://www.w3.org/TR/css3-background/#propdef-border-top-right-radius) (https://www.w3.org/TR/css3-background/#propdef-border-top-right-radius)
- [border-top-style](https://www.w3.org/TR/css3-background/#propdef-border-top-style) (https://www.w3.org/TR/css3-background/#propdef-border-top-style)
- [border-top-width](https://www.w3.org/TR/css3-background/#propdef-border-top-width) (https://www.w3.org/TR/css3-background/#propdef-border-top-width)
- [border-width](https://www.w3.org/TR/css3-background/#propdef-border-width) (https://www.w3.org/TR/css3-background/#propdef-border-width)
- [box-shadow](https://www.w3.org/TR/css3-background/#propdef-box-shadow) (https://www.w3.org/TR/css3-background/#propdef-box-shadow)

### **CSS Images 3** (<https://www.w3.org/TR/css-images-3/>)

- [object-fit](https://www.w3.org/TR/css-images-3/#the-object-fit) (https://www.w3.org/TR/css-images-3/#the-object-fit)
- [object-position](https://www.w3.org/TR/css-images-3/#the-object-position) (https://www.w3.org/TR/css-images-3/#the-object-position)
- [image-resolution](https://www.w3.org/TR/css-images-4/#the-image-resolution) (https://www.w3.org/TR/css-images-4/#the-image-resolution)
  - Only `<resolution>` value is supported.
  - Only supported for content of `img`, `input[type=image]` and `video` (applied to poster images) elements and before/after pseudoelements. Other images such as background images, list images or border images are not supported.
  - The property is applied to vector images such as SVG, as well as raster images. This behavior is different from what the spec specifies.

## CSS Fonts 3 (<https://www.w3.org/TR/css-fonts-3/>)

- [font-family](https://www.w3.org/TR/css-fonts-3/#propdef-font-family) (<https://www.w3.org/TR/css-fonts-3/#propdef-font-family>)
- [font-feature-settings](https://www.w3.org/TR/css-fonts-3/#propdef-font-feature-settings) (<https://www.w3.org/TR/css-fonts-3/#propdef-font-feature-settings>)
- [font-kerning](https://www.w3.org/TR/css-fonts-3/#propdef-font-kerning) (<https://www.w3.org/TR/css-fonts-3/#propdef-font-kerning>)
- [font-size](https://www.w3.org/TR/css-fonts-3/#propdef-font-size) (<https://www.w3.org/TR/css-fonts-3/#propdef-font-size>)
- [font-style](https://www.w3.org/TR/css-fonts-3/#propdef-font-style) (<https://www.w3.org/TR/css-fonts-3/#propdef-font-style>)
- [font-variant](https://www.w3.org/TR/css-fonts-3/#propdef-font-variant) (<https://www.w3.org/TR/css-fonts-3/#propdef-font-variant>)
- [font-variant-ligatures](https://www.w3.org/TR/css-fonts-3/#propdef-font-variant-ligatures) (<https://www.w3.org/TR/css-fonts-3/#propdef-font-variant-ligatures>)
- [font-variant-caps](https://www.w3.org/TR/css-fonts-3/#propdef-font-variant-caps) (<https://www.w3.org/TR/css-fonts-3/#propdef-font-variant-caps>)
- [font-variant-numeric](https://www.w3.org/TR/css-fonts-3/#propdef-font-variant-numeric) (<https://www.w3.org/TR/css-fonts-3/#propdef-font-variant-numeric>)
- [font-variant-east-asian](https://www.w3.org/TR/css-fonts-3/#propdef-font-variant-east-asian) (<https://www.w3.org/TR/css-fonts-3/#propdef-font-variant-east-asian>)
- [font-weight](https://www.w3.org/TR/css-fonts-3/#propdef-font-weight) (<https://www.w3.org/TR/css-fonts-3/#propdef-font-weight>)
- [font-stretch](https://www.w3.org/TR/css-fonts-4/#propdef-font-stretch) (<https://www.w3.org/TR/css-fonts-4/#propdef-font-stretch>)

See also: [At-rules in CSS Fonts 3](#)

## CSS Text 3 (<https://www.w3.org/TR/css-text-3/>)

- [hanging-punctuation](#)
  - Supports all required values, `none` | `[ first || [ force-end | allow-end ] || last ]`. See [PR #814](https://github.com/vivliostyle/vivliostyle.js/pull/814) (<https://github.com/vivliostyle/vivliostyle.js/pull/814>)
- [hyphens](https://www.w3.org/TR/css-text-3/#hyphenation) (<https://www.w3.org/TR/css-text-3/#hyphenation>)
- [letter-spacing](https://www.w3.org/TR/css-text-3/#letter-spacing-property) (<https://www.w3.org/TR/css-text-3/#letter-spacing-property>)
- [line-break](https://www.w3.org/TR/css-text-3/#line-break-property) (<https://www.w3.org/TR/css-text-3/#line-break-property>)
- [overflow-wrap, word-wrap](https://www.w3.org/TR/css-text-3/#overflow-wrap-property) (<https://www.w3.org/TR/css-text-3/#overflow-wrap-property>)
- [tab-size](https://www.w3.org/TR/css-text-3/#tab-size-property) (<https://www.w3.org/TR/css-text-3/#tab-size-property>)
- [text-align-last](https://www.w3.org/TR/css-text-3/#text-align-last-property) (<https://www.w3.org/TR/css-text-3/#text-align-last-property>)
  - Note: While `text-align` property is a shorthand in CSS Text 3, Vivliostyle treats `text-align` for now as an independent property (defined in CSS 2.1) rather than a shorthand.
- [white-space](https://www.w3.org/TR/css-text-3/#white-space-property) (<https://www.w3.org/TR/css-text-3/#white-space-property>)
- [word-break](https://www.w3.org/TR/css-text-3/#word-break-property) (<https://www.w3.org/TR/css-text-3/#word-break-property>)

## CSS Text 4 (<https://www.w3.org/TR/css-text-4/>)

- [text-autospace](https://www.w3.org/TR/css-text-4/#text-autospace-property)
  - Supported values: `normal` | `no-autospace` | [`ideograph-alpha` | `ideograph-numeric`] | `auto`
- [text-spacing-trim](https://www.w3.org/TR/css-text-4/#text-spacing-trim-property)
  - Values: `space-all` | `normal` | `space-first` | `trim-start` | `trim-both` | `auto`
- [text-spacing](https://www.w3.org/TR/css-text-4/#text-spacing-property)
  - Values: `normal` | `none` | `auto` | [`<autospace>` | `<spacing-trim>`]
  - Note: This is a shorthand property that sets the `text-autospace` and `text-spacing-trim` properties. See PR #1142 (<https://github.com/vivliostyle/vivliostyle.js/pull/1142>)

## CSS Text Decoration 3 (<https://www.w3.org/TR/css-text-decor-3/>)

- [text-decoration-color](https://www.w3.org/TR/css-text-decor-3/#text-decoration-color-property)
- [text-decoration-line](https://www.w3.org/TR/css-text-decor-3/#text-decoration-line-property)
- [text-decoration-style](https://www.w3.org/TR/css-text-decor-3/#text-decoration-style-property)
- [text-emphasis](https://www.w3.org/TR/css-text-decor-3/#text-emphasis-property)
- [text-emphasis-color](https://www.w3.org/TR/css-text-decor-3/#text-emphasis-color-property)
- [text-emphasis-position](https://www.w3.org/TR/css-text-decor-3/#text-emphasis-position-property)
- [text-emphasis-style](https://www.w3.org/TR/css-text-decor-3/#text-emphasis-style-property)
- [text-shadow](https://www.w3.org/TR/css-text-decor-3/#text-shadow-property)
- [text-underline-position](https://www.w3.org/TR/css-text-decor-3/#text-underline-position-property)

## CSS Inline Layout 3 (<https://www.w3.org/TR/css-inline-3/>)

- [initial-letter](https://www.w3.org/TR/css-inline-3/#sizing-drop-initials)

## **CSS Multi-column 1 (<https://www.w3.org/TR/css3-multicol/>)**

Vivliostyle supports CSS multi-column layout, but the behavior differs depending on whether it is specified on

the root/body element or on other elements:

- **Root multicol** (specified on the root or body element):
  - If both the root element and the body element have multi-column specified, only the root element's multi-column is treated as root multicol.
  - The page area becomes the multi-column container.
  - Implemented independently by Vivliostyle, not dependent on the browser's multi-column implementation.
  - `float-reference: column` in the CSS Page Floats feature is only supported for root multicol.
  - Limitation: `column-span: all` is only supported for page floats in root multicol.
- **Non-root multicol** (specified on elements other than root/body):
  - Multi-column processing depends on the browser's multi-column implementation.
  - Allows mixing multiple multi-column containers with different column counts on the same page, nesting multi-column layouts inside each other, and spanning elements across all columns with `column-span: all`.
  - Note: Since this relies on the browser's multi-column implementation, when using Vivliostyle.js with Safari/WebKit, nested multi-column layouts may be broken or page breaking inside non-root multi-column boxes may not work well due to known WebKit bugs. See [Issue #1821](https://github.com/vivliostyle/vivliostyle.js/issues/1821) (<https://github.com/vivliostyle/vivliostyle.js/issues/1821>)
- [column-count](https://www.w3.org/TR/css3-multicol/#propdef-column-count) (<https://www.w3.org/TR/css3-multicol/#propdef-column-count>)
- [column-gap](https://www.w3.org/TR/css-multicol-1/#cg) (<https://www.w3.org/TR/css-multicol-1/#cg>)
- [column-rule](https://www.w3.org/TR/css3-multicol/#propdef-column-rule) (<https://www.w3.org/TR/css3-multicol/#propdef-column-rule>)
- [column-rule-color](https://www.w3.org/TR/css3-multicol/#propdef-column-rule-color) (<https://www.w3.org/TR/css3-multicol/#propdef-column-rule-color>)
- [column-rule-style](https://www.w3.org/TR/css3-multicol/#propdef-column-rule-style) (<https://www.w3.org/TR/css3-multicol/#propdef-column-rule-style>)
- [column-rule-width](https://www.w3.org/TR/css3-multicol/#propdef-column-rule-width) (<https://www.w3.org/TR/css3-multicol/#propdef-column-rule-width>)
- [column-width](https://www.w3.org/TR/css3-multicol/#propdef-column-width) (<https://www.w3.org/TR/css3-multicol/#propdef-column-width>)
- [columns](https://www.w3.org/TR/css3-multicol/#propdef-columns) (<https://www.w3.org/TR/css3-multicol/#propdef-columns>)
- [column-fill](https://www.w3.org/TR/css3-multicol/#propdef-column-fill) (<https://www.w3.org/TR/css3-multicol/#propdef-column-fill>)

- [column-span](https://drafts.csswg.org/css-multicol-2/#propdef-column-span) (https://drafts.csswg.org/css-multicol-2/#propdef-column-span)
  - Note: In root multicol, `column-span` is effective only when specified on a page float. When `auto` value is specified, either a single column or all columns are spanned depending on the min-content inline size of the page float.
  - In non-root multicol, `column-span: all` can be used without restrictions.

## **CSS Basic User Interface 3** (<https://www.w3.org/TR/css3-ui/>)

- [box-sizing](https://www.w3.org/TR/css3-ui/#propdef-box-sizing) (https://www.w3.org/TR/css3-ui/#propdef-box-sizing)
- [outline](https://www.w3.org/TR/css3-ui/#propdef-outline) (https://www.w3.org/TR/css3-ui/#propdef-outline)
- [outline-color](https://www.w3.org/TR/css3-ui/#propdef-outline-color) (https://www.w3.org/TR/css3-ui/#propdef-outline-color)
- [outline-style](https://www.w3.org/TR/css3-ui/#propdef-outline-style) (https://www.w3.org/TR/css3-ui/#propdef-outline-style)
- [outline-width](https://www.w3.org/TR/css3-ui/#propdef-outline-width) (https://www.w3.org/TR/css3-ui/#propdef-outline-width)
- [text-overflow](https://www.w3.org/TR/css3-ui/#propdef-text-overflow) (https://www.w3.org/TR/css3-ui/#propdef-text-overflow)

## **CSS Writing Modes 3** (<https://www.w3.org/TR/css-writing-modes-3/>)

- [direction](https://www.w3.org/TR/css-writing-modes-3/#propdef-direction) (https://www.w3.org/TR/css-writing-modes-3/#propdef-direction)
- [text-combine-upright](https://www.w3.org/TR/css-writing-modes-3/#propdef-text-combine-upright) (https://www.w3.org/TR/css-writing-modes-3/#propdef-text-combine-upright)
- [text-orientation](https://www.w3.org/TR/css-writing-modes-3/#propdef-text-orientation) (https://www.w3.org/TR/css-writing-modes-3/#propdef-text-orientation)
- [unicode-bidi](https://www.w3.org/TR/css-writing-modes-3/#propdef-unicode-bidi) (https://www.w3.org/TR/css-writing-modes-3/#propdef-unicode-bidi)
- [writing-mode](https://www.w3.org/TR/css-writing-modes-3/#propdef-writing-mode) (https://www.w3.org/TR/css-writing-modes-3/#propdef-writing-mode)

## **CSS Flexible Box 1 (<https://www.w3.org/TR/css-flexbox-1/>)**

- [align-content](https://www.w3.org/TR/css-flexbox-1/#propdef-align-content) (<https://www.w3.org/TR/css-flexbox-1/#propdef-align-content>)
- [align-items](https://www.w3.org/TR/css-flexbox-1/#propdef-align-items) (<https://www.w3.org/TR/css-flexbox-1/#propdef-align-items>)
- [align-self](https://www.w3.org/TR/css-flexbox-1/#propdef-align-self) (<https://www.w3.org/TR/css-flexbox-1/#propdef-align-self>)
- [display](https://www.w3.org/TR/css-flexbox-1/#flex-containers) (<https://www.w3.org/TR/css-flexbox-1/#flex-containers>)
- [flex](https://www.w3.org/TR/css-flexbox-1/#propdef-flex) (<https://www.w3.org/TR/css-flexbox-1/#propdef-flex>)
- [flex-basis](https://www.w3.org/TR/css-flexbox-1/#propdef-flex-basis) (<https://www.w3.org/TR/css-flexbox-1/#propdef-flex-basis>)
- [flex-direction](https://www.w3.org/TR/css-flexbox-1/#propdef-flex-direction) (<https://www.w3.org/TR/css-flexbox-1/#propdef-flex-direction>)
- [flex-flow](https://www.w3.org/TR/css-flexbox-1/#propdef-flex-flow) (<https://www.w3.org/TR/css-flexbox-1/#propdef-flex-flow>)
- [flex-grow](https://www.w3.org/TR/css-flexbox-1/#propdef-flex-grow) (<https://www.w3.org/TR/css-flexbox-1/#propdef-flex-grow>)
- [flex-shrink](https://www.w3.org/TR/css-flexbox-1/#propdef-flex-shrink) (<https://www.w3.org/TR/css-flexbox-1/#propdef-flex-shrink>)
- [flex-wrap](https://www.w3.org/TR/css-flexbox-1/#propdef-flex-wrap) (<https://www.w3.org/TR/css-flexbox-1/#propdef-flex-wrap>)
- [justify-content](https://www.w3.org/TR/css-flexbox-1/#propdef-justify-content) (<https://www.w3.org/TR/css-flexbox-1/#propdef-justify-content>)
- [order](https://www.w3.org/TR/css-flexbox-1/#propdef-order) (<https://www.w3.org/TR/css-flexbox-1/#propdef-order>)

## **CSS Transforms 1 (<https://www.w3.org/TR/css-transforms-1/>)**

- [transform](https://www.w3.org/TR/css-transforms-1/#propdef-transform) (<https://www.w3.org/TR/css-transforms-1/#propdef-transform>)
- [transform-origin](https://www.w3.org/TR/css-transforms-1/#propdef-transform-origin) (<https://www.w3.org/TR/css-transforms-1/#propdef-transform-origin>)
- [backface-visibility](https://www.w3.org/TR/css-transforms-2/#propdef-backface-visibility) (<https://www.w3.org/TR/css-transforms-2/#propdef-backface-visibility>)

## **Compositing and Blending 1 (<https://www.w3.org/TR/compositing-1/>)**

- [background-blend-mode](https://www.w3.org/TR/compositing-1/#propdef-background-blend-mode) (<https://www.w3.org/TR/compositing-1/#propdef-background-blend-mode>)
- [isolation](https://www.w3.org/TR/compositing-1/#propdef-isolation) (<https://www.w3.org/TR/compositing-1/#propdef-isolation>)
- [mix-blend-mode](https://www.w3.org/TR/compositing-1/#propdef-mix-blend-mode) (<https://www.w3.org/TR/compositing-1/#propdef-mix-blend-mode>)

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## Scalable Vector Graphics (SVG) 2 (<https://www.w3.org/TR/SVG2/>)

- [color-interpolation](https://www.w3.org/TR/SVG2/painting.html#ColorInterpolationProperty) (<https://www.w3.org/TR/SVG2/painting.html#ColorInterpolationProperty>)
- [color-rendering](https://www.w3.org/TR/SVG2/painting.html#ColorRenderingProperty) (<https://www.w3.org/TR/SVG2/painting.html#ColorRenderingProperty>)
- [fill](https://www.w3.org/TR/SVG2/painting.html#FillProperty) (<https://www.w3.org/TR/SVG2/painting.html#FillProperty>)
- [fill-opacity](https://www.w3.org/TR/SVG2/painting.html#FillOpacityProperty) (<https://www.w3.org/TR/SVG2/painting.html#FillOpacityProperty>)
- [fill-rule](https://www.w3.org/TR/SVG2/painting.html#FillRuleProperty) (<https://www.w3.org/TR/SVG2/painting.html#FillRuleProperty>)
- [glyph-orientation-vertical](https://www.w3.org/TR/SVG2/text.html#GlyphOrientationVerticalProperty) (<https://www.w3.org/TR/SVG2/text.html#GlyphOrientationVerticalProperty>)
- [image-rendering](https://www.w3.org/TR/SVG2/painting.html#ImageRenderingProperty) (<https://www.w3.org/TR/SVG2/painting.html#ImageRenderingProperty>)
- [marker](https://www.w3.org/TR/SVG2/painting.html#MarkerProperty) (<https://www.w3.org/TR/SVG2/painting.html#MarkerProperty>)
- [marker-start](https://www.w3.org/TR/SVG2/painting.html#MarkerStartProperty) (<https://www.w3.org/TR/SVG2/painting.html#MarkerStartProperty>)
- [marker-mid](https://www.w3.org/TR/SVG2/painting.html#MarkerMidProperty) (<https://www.w3.org/TR/SVG2/painting.html#MarkerMidProperty>)
- [marker-end](https://www.w3.org/TR/SVG2/painting.html#MarkerEndProperty) (<https://www.w3.org/TR/SVG2/painting.html#MarkerEndProperty>)
- [pointer-events](https://www.w3.org/TR/SVG2/interact.html#PointerEventsProperty) (<https://www.w3.org/TR/SVG2/interact.html#PointerEventsProperty>)
- [paint-order](https://www.w3.org/TR/SVG2/painting.html#PaintOrderProperty) (<https://www.w3.org/TR/SVG2/painting.html#PaintOrderProperty>)
- [shape-rendering](https://www.w3.org/TR/SVG2/painting.html#ShapeRenderingProperty) (<https://www.w3.org/TR/SVG2/painting.html#ShapeRenderingProperty>)
- [stop-color](https://www.w3.org/TR/SVG2/pservers.html#StopColorProperty) (<https://www.w3.org/TR/SVG2/pservers.html#StopColorProperty>)
- [stop-opacity](https://www.w3.org/TR/SVG2/pservers.html#StopOpacityProperty) (<https://www.w3.org/TR/SVG2/pservers.html#StopOpacityProperty>)
- [stroke](https://www.w3.org/TR/SVG2/painting.html#StrokeProperty) (<https://www.w3.org/TR/SVG2/painting.html#StrokeProperty>)
- [stroke-dasharray](https://www.w3.org/TR/SVG2/painting.html#StrokeDasharrayProperty) (<https://www.w3.org/TR/SVG2/painting.html#StrokeDasharrayProperty>)
- [stroke-dashoffset](https://www.w3.org/TR/SVG2/painting.html#StrokeDashoffsetProperty) (<https://www.w3.org/TR/SVG2/painting.html#StrokeDashoffsetProperty>)
- [stroke-linecap](https://www.w3.org/TR/SVG2/painting.html#StrokeLinecapProperty) (<https://www.w3.org/TR/SVG2/painting.html#StrokeLinecapProperty>)
- [stroke-linejoin](https://www.w3.org/TR/SVG2/painting.html#StrokeLinejoinProperty) (<https://www.w3.org/TR/SVG2/painting.html#StrokeLinejoinProperty>)
- [stroke-miterlimit](https://www.w3.org/TR/SVG2/painting.html#StrokeMiterlimitProperty) (<https://www.w3.org/TR/SVG2/painting.html#StrokeMiterlimitProperty>)
- [stroke-opacity](https://www.w3.org/TR/SVG2/painting.html#StrokeOpacityProperty) (<https://www.w3.org/TR/SVG2/painting.html#StrokeOpacityProperty>)
- [stroke-width](https://www.w3.org/TR/SVG2/painting.html#StrokeWidthProperty) (<https://www.w3.org/TR/SVG2/painting.html#StrokeWidthProperty>)
- [text-anchor](https://www.w3.org/TR/SVG2/text.html#TextAnchorProperty) (<https://www.w3.org/TR/SVG2/text.html#TextAnchorProperty>)
- [text-rendering](https://www.w3.org/TR/SVG2/painting.html#TextRenderingProperty) (<https://www.w3.org/TR/SVG2/painting.html#TextRenderingProperty>)
- [vector-effect](https://www.w3.org/TR/SVG2/coords.html#VectorEffectProperty) (<https://www.w3.org/TR/SVG2/coords.html#VectorEffectProperty>)

## Scalable Vector Graphics (SVG) 1.1 (<https://www.w3.org/TR/SVG11/>)

- [alignment-baseline](https://www.w3.org/TR/SVG11/text.html#AlignmentBaselineProperty) (<https://www.w3.org/TR/SVG11/text.html#AlignmentBaselineProperty>)
- [baseline-shift](https://www.w3.org/TR/SVG11/text.html#BaselineShiftProperty) (<https://www.w3.org/TR/SVG11/text.html#BaselineShiftProperty>)
- [dominant-baseline](https://www.w3.org/TR/SVG11/text.html#DominantBaselineProperty) (<https://www.w3.org/TR/SVG11/text.html#DominantBaselineProperty>)
- [mask](https://www.w3.org/TR/SVG11/masking.html#MaskProperty) (<https://www.w3.org/TR/SVG11/masking.html#MaskProperty>)

## CSS Masking 1 (<https://drafts.fxtf.org/css-masking-1/>)

- [clip-path](https://drafts.fxtf.org/css-masking-1/#the-clip-path) (<https://drafts.fxtf.org/css-masking-1/#the-clip-path>)
- [clip-rule](https://drafts.fxtf.org/css-masking-1/#the-clip-rule) (<https://drafts.fxtf.org/css-masking-1/#the-clip-rule>)

## Filter Effects 1 (<https://www.w3.org/TR/filter-effects-1/>)

- [filter](https://www.w3.org/TR/filter-effects-1/#propdef-filter) (<https://www.w3.org/TR/filter-effects-1/#propdef-filter>)
- [flood-color](https://www.w3.org/TR/filter-effects-1/#FloodColorProperty) (<https://www.w3.org/TR/filter-effects-1/#FloodColorProperty>)
- [flood-opacity](https://www.w3.org/TR/filter-effects-1/#propdef-flood-opacity) (<https://www.w3.org/TR/filter-effects-1/#propdef-flood-opacity>)
- [lighting-color](https://www.w3.org/TR/filter-effects-1/#propdef-lighting-color) (<https://www.w3.org/TR/filter-effects-1/#propdef-lighting-color>)

## Pointer Events (<https://www.w3.org/TR/pointerevents/>)

- [touch-action](https://www.w3.org/TR/pointerevents/#the-touch-action-css-property) (<https://www.w3.org/TR/pointerevents/#the-touch-action-css-property>)

## CSS Logical Properties and Values 1 (<https://www.w3.org/TR/css-logical-1/>)

- [block-size, inline-size, min-block-size, min-inline-size, max-block-size, max-inline-size](https://www.w3.org/TR/css-logical-1/#dimension-properties) (<https://www.w3.org/TR/css-logical-1/#dimension-properties>)
- [margin-block-start, margin-block-end, margin-inline-start, margin-inline-end, margin-block, margin-inline](https://www.w3.org/TR/css-logical-1/#margin-properties) (<https://www.w3.org/TR/css-logical-1/#margin-properties>)
- [inset-block-start, inset-block-end, inset-inline-start, inset-inline-end, inset-block, inset-inline](https://www.w3.org/TR/css-logical-1/#inset-properties) (<https://www.w3.org/TR/css-logical-1/#inset-properties>)
- [padding-block-start, padding-block-end, padding-inline-start, padding-inline-end, padding-block, padding-inline](https://www.w3.org/TR/css-logical-1/#padding-properties) (<https://www.w3.org/TR/css-logical-1/#padding-properties>)
- [border-block-start-width, border-block-end-width, border-inline-start-width, border-inline-end-width, border-block-width, border-inline-width, border-block-start-style, border-block-end-style, border-inline-start-style, border-inline-end-style, border-block-style, border-inline-style, border-block-start-color, border-block-end-color, border-inline-start-color, border-inline-end-color, border-block-color, border-inline-color, border-block-start, border-block-end, border-inline-start, border-inline-end, border-block, border-inline](https://www.w3.org/TR/css-logical-1/#border-properties) (<https://www.w3.org/TR/css-logical-1/#border-properties>)

## Page spread inside/outside properties and values

In these properties and values, the `inside` and `outside` keywords resolve to `left` and `right` depending on whether the page is left or right page.

Note: These CSS properties and values are not standardized yet. See [PR #1519](https://github.com/vivliostyle/vivliostyle.js/pull/1519) (<https://github.com/vivliostyle/vivliostyle.js/pull/1519>)

Added \*-inside/outside properties:

- `margin-inside`, `margin-outside`
- `padding-inside`, `padding-outside`
- `border-inside`, `border-outside`
- `border-inside-color`, `border-outside-color`
- `border-inside-style`, `border-outside-style`
- `border-inside-width`, `border-outside-width`
- `inset-inside`, `inset-outside`

Extended properties with `inside` and `outside` values:

- `float`, `clear`
- `text-align`, `text-align-last`

## CSS Repeated Headers and Footers (<https://specs.rivoal.net/css-repeat/>)

Note: This spec proposal is not submitted to CSS Working Group yet.

- `repeat-on-break` (<https://specs.rivoal.net/css-repeat/#propdef-repeat-on-break>)

## Semantic Footnotes (`role` / `epub:type` attributes)

Vivliostyle supports footnotes using semantic attributes on HTML elements, in addition to CSS GCPM `float: footnote` property. Footnote references and footnote content are identified by `role` attributes (DPUB-ARIA (<https://www.w3.org/TR/dpub-aria-1.1/>)) or `epub:type` attributes (EPUB 3 Structural Semantics Vocabulary (<https://www.w3.org/TR/epub-ssv-11/>)).

- Footnote reference: `<a role="doc-noteref" href="#fn1">1</a>` or `<a epub:type="noteref" href="#fn1">1</a>`
- Footnote content: `<aside role="doc-footnote" id="fn1">Footnote text</aside>` or `<aside epub:type="footnote" id="fn1">Footnote text</aside>`

See Issue #1700 (<https://github.com/vivliostyle/vivliostyle.js/issues/1700>)

## EPUB Adaptive Layout (<http://www.idpf.org/epub/pgt/>)

---

Note: This spec is not on a W3C standards track. Future version of Vivliostyle may drop support for this spec.

### At-rules

- [@-epubx-define](http://www.idpf.org/epub/pgt/#rule-define) (<http://www.idpf.org/epub/pgt/#rule-define>)
- [@-epubx-flow](http://www.idpf.org/epub/pgt/#rule-flow) (<http://www.idpf.org/epub/pgt/#rule-flow>)
- [@-epubx-page-master](http://www.idpf.org/epub/pgt/#rule-page-master) (<http://www.idpf.org/epub/pgt/#rule-page-master>)
- [@-epubx-page-template](http://www.idpf.org/epub/pgt/#rule-page-template) (<http://www.idpf.org/epub/pgt/#rule-page-template>)
- [@-epubx-partition](http://www.idpf.org/epub/pgt/#rule-partition) (<http://www.idpf.org/epub/pgt/#rule-partition>)
- [@-epubx-partition-group](http://www.idpf.org/epub/pgt/#rule-partition-group) (<http://www.idpf.org/epub/pgt/#rule-partition-group>)
- [@-epubx-region](http://www.idpf.org/epub/pgt/#rule-region) (<http://www.idpf.org/epub/pgt/#rule-region>)
- [@-epubx-viewport](http://www.idpf.org/epub/pgt/#rule-viewport) (<http://www.idpf.org/epub/pgt/#rule-viewport>)
- [@-epubx-when](http://www.idpf.org/epub/pgt/#rule-when) (<http://www.idpf.org/epub/pgt/#rule-when>)

## Properties

- [-epubx-conflicting-partitions](http://www.idpf.org/epub/pgt/#prop-conflicting-partitions) (<http://www.idpf.org/epub/pgt/#prop-conflicting-partitions>)
- [-epubx-enabled](http://www.idpf.org/epub/pgt/#prop-enabled) (<http://www.idpf.org/epub/pgt/#prop-enabled>)
- [-epubx-flow-consume](http://www.idpf.org/epub/pgt/#prop-flow-consume) (<http://www.idpf.org/epub/pgt/#prop-flow-consume>)
- [-epubx-flow-from](http://www.idpf.org/epub/pgt/#prop-flow-from) (<http://www.idpf.org/epub/pgt/#prop-flow-from>)
  - Only effective when specified to EPUB Adaptive Layout partitions.
- [-epubx-flow-into](http://www.idpf.org/epub/pgt/#prop-flow-into) (<http://www.idpf.org/epub/pgt/#prop-flow-into>)
- [-epubx-flow-linger](http://www.idpf.org/epub/pgt/#prop-flow-linger) (<http://www.idpf.org/epub/pgt/#prop-flow-linger>)
- [-epubx-flow-options](http://www.idpf.org/epub/pgt/#prop-flow-options) (<http://www.idpf.org/epub/pgt/#prop-flow-options>)
- [-epubx-flow-priority](http://www.idpf.org/epub/pgt/#prop-flow-priority) (<http://www.idpf.org/epub/pgt/#prop-flow-priority>)
- [-epubx-min-page-height](http://www.idpf.org/epub/pgt/#prop-min-page-height) (<http://www.idpf.org/epub/pgt/#prop-min-page-height>)
- [-epubx-min-page-width](http://www.idpf.org/epub/pgt/#prop-min-page-width) (<http://www.idpf.org/epub/pgt/#prop-min-page-width>)
- [-epubx-required](http://www.idpf.org/epub/pgt/#prop-required) (<http://www.idpf.org/epub/pgt/#prop-required>)
- [-epubx-required-partitions](http://www.idpf.org/epub/pgt/#prop-required-partitions) (<http://www.idpf.org/epub/pgt/#prop-required-partitions>)
- [-epubx-shape-outside](http://www.idpf.org/epub/pgt/#prop-shape-outside) (<http://www.idpf.org/epub/pgt/#prop-shape-outside>)
  - Only effective when specified to EPUB Adaptive Layout partitions.
  - Note: only old syntaxes from 3 May 2012 Working Draft (<https://www.w3.org/TR/2012/WD-css3-exclusions-20120503/#supported-svg-shapes>) are supported.
- [-epubx-shape-inside](http://www.idpf.org/epub/pgt/#prop-shape-inside) (<http://www.idpf.org/epub/pgt/#prop-shape-inside>)
  - Only effective when specified to EPUB Adaptive Layout partitions.
  - Note: only old syntaxes from 3 May 2012 Working Draft (<https://www.w3.org/TR/2012/WD-css3-exclusions-20120503/#supported-svg-shapes>) are supported.
- [-epubx-snap-height](http://www.idpf.org/epub/pgt/#prop-snap-height) (<http://www.idpf.org/epub/pgt/#prop-snap-height>)
- [-epubx-snap-width](http://www.idpf.org/epub/pgt/#prop-snap-width) (<http://www.idpf.org/epub/pgt/#prop-snap-width>)
- [-epubx-text-zoom](http://www.idpf.org/epub/pgt/#prop-text-zoom) (<http://www.idpf.org/epub/pgt/#prop-text-zoom>)
- [-epubx-utilization](http://www.idpf.org/epub/pgt/#prop-utilization) (<http://www.idpf.org/epub/pgt/#prop-utilization>)
- [-epubx-wrap-flow](http://www.idpf.org/epub/pgt/#prop-wrap-flow) (<http://www.idpf.org/epub/pgt/#prop-wrap-flow>)
  - Only effective when specified to EPUB Adaptive Layout partitions.

# Core API Reference

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- API

- constants

- PageProgression
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- plugin

- registerHook(name, fn)
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- profile

- profiler.registerStartTiming(name, timestamp)
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---

- Classes

- `CoreViewer`

- `addListener(type, listener)`
- `getCurrentPageProgression()`
- `getPageSizes()`
- `isTOCVisible()`
- `loadDocument(singleDocumentOptions, documentOptions, viewerOptions)`
- `loadPublication(pubURL, documentOptions, viewerOptions)`
- `navigateToInternalUrl()`
- `navigateToPage()`
- `queryZoomFactor(type)`
- `removeListener(type, listener)`
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- `showTOC(opt_show, opt_autohide)`

- TypeDefs

- `DocumentOptions`
- `SingleDocumentOptions`
- `CoreViewerSettings`
- `CoreViewerOptions`

## constants

---

### `constants.PageProgression`

Enum `PageProgression` represents page progression direction. `PageProgression` has members, `LTR` and `RTL`.

### `constants.PageSide`

Enum `PageSide` represents page side. `PageSide` has members, `LEFT` and `RIGHT`.

### `constants.ReadyState`

Enum `ReadyState` represents viewer ready state. `ReadyState` has members, `LOADING`, `INTERACTIVE` and `COMPLETE`.

---

## plugin

---

### `plugin.registerHook(name, fn)`

Register a function to a hook with the specified name. The registered function is called at appropriate timings by the core code. Arguments passed to the function depend on the hook. When multiple functions are registered, they are called by the order in which they are registered.

#### Parameters

- `name` (string) — Name of the hook.
- `fn` (function) — Function to be registered to the hook.

### `plugin.removeHook(name, fn)`

Remove a function already registered to the specified name. Note that even if the same function are registered multiple times, this method removes only the first one.

#### Parameters

- `name` (string) — Name of the hook.
- `fn` (function) — Function to be removed from the hook.

### `plugin.HOOKS.PAGINATION_PROGRESS`

Called when pagination progresses during document load.

The hook receives a payload object:

- `fraction` (number) — Fraction of the HTML content already paginated (0-1).
- `pages` (number) — Number of pages created so far.

---

## profile

---

### `profile.profiler.registerStartTiming(name, timestamp)`

Registers start timing of some event.

**Parameters**

- `name` (string) — Name of event.
- `timestamp` (number, optional) — Used as the actual timestamp of the event if specified, instead of "now".

**`profile.profiler.registerEndTiming(name, timestamp)`**

Registers end timing of some event.

**Parameters**

- `name` (string) — Name of event.
- `timestamp` (number, optional) — Used as the actual timestamp of the event if specified, instead of "now".

**`profile.profiler.printTimings()`**

Log registered timings (start/end/duration). All values are printed in ms unit.

**`profile.profiler.disable()`**

Disable profiling.

**`profile.profiler.enable()`**

Enable profiling.

## core-viewer

---

**`new CoreViewer(settings, options)`**

Vivliostyle CoreViewer class. Creates `CoreViewer`.

**Parameters**

- `settings` (`CoreViewerSettings`)
- `options` (`CoreViewerOptions`, optional)

**`PageViewMode`**

Enum `PageViewMode`. `PageViewMode` has members, `SINGLE_PAGE`, `SPREAD` and `AUTO_SPREAD`.

## ZoomType

Enum `ZoomType`. `ZoomType` has only one member, `FIT_INSIDE_VIEWPORT`.

# Classes

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## CoreViewer

### `CoreViewer.addListener(type, listener)`

Add a listener function, which is invoked when the specified type of event is dispatched.

#### Parameters

- `type` (string) — Event type.
- `listener` (function) — Listener function.

### `CoreViewer.getCurrentPageProgression()`

Returns the current page progression of the viewer. If no document is loaded, returns null.

#### Returns

[PageProgression](#)

### `CoreViewer.getPageSizes()`

#### Returns

Array<{width: number, height: number}>

### `CoreViewer.isTOCVisible()`

Returns true if TOC is visible, false if hidden, null if TOC is unavailable

### `CoreViewer.loadDocument(singleDocumentOptions, documentOptions, viewerOptions)`

Load an HTML or XML document(s).

**Parameters**

- `singleDocumentOptions` (`SingleDocumentOptions|Array<SingleDocumentOptions>`)
- `documentOptions` (`DocumentOptions`, optional)
- `viewerOptions` (`CoreViewerOptions`, optional)

**`CoreViewer.loadPublication(pubURL, documentOptions, viewerOptions)`**

Load a EPUB/WebPub publication.

**Parameters**

- `pubURL` (string)
- `documentOptions` (`DocumentOptions`, optional)
- `viewerOptions` (`CoreViewerOptions`, optional)

**`CoreViewer.navigateToInternalUrl()`**

Navigate to the specified internal URL.

**`CoreViewer.navigateToPage()`**

Navigate to the specified page.

**`CoreViewer.queryZoomFactor(type)`**

Returns zoom factor corresponding to the specified zoom type.

**Parameters**

- `type` (`ZoomType`)

**Returns**

number

**`CoreViewer.removeListener(type, listener)`**

Remove an event listener.

**Parameters**

- `type` (string) — Event type.
- `listener` (function) — Listener function.

## **CoreViewer.setOptions(options)**

Set CoreViewerOptions to the viewer.

### Parameters

- `options` ([CoreViewerOptions](#))

## **CoreViewer.showTOC(opt\_show, opt\_autohide)**

Show or hide TOC box

### Parameters

- `opt_show` (boolean) - If true show TOC, false hide TOC. If null or undefined toggle TOC.
- `opt_autohide` (boolean) - If true, automatically hide when click TOC item

## TypeDefs

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### **DocumentOptions**

Options for the displayed document.

- `documentObject` ([Document](#), optional) — Document object for the document. If provided, it is used directly without parsing the source again.
- `fragment` (string, optional) — Fragmentation identifier (EPUB CFI) of the location in the document which is to be displayed.
- `authorStyleSheet` ([Array<string>](#), optional) — An array of author style sheets to be injected after all author style sheets referenced from the document. A single stylesheet may be a URL of the style sheet or a text content of the style sheet.
- `userStyleSheet` ([Array<string>](#), optional) — An array of user style sheets to be injected. A single stylesheet may be a URL of the style sheet or a text content of the style sheet.

## SingleDocumentOptions

Options for a single source document. `SingleDocumentOptions` is the object that has members below, or otherwise string that represents `url`.

- `url` (string) — URL of the document.
- `startPage` (number, optional) — If specified, the `page` page-based counter is set to the specified value on the first page of the document. It is equivalent to specifying `counter-reset: page [specified value - 1]` on that page.
- `skipPagesBefore` (number, optional) — If specified, the `page` page-based counter is incremented by the specified value *before* updating page-based counters on the first page of the document. This option is ignored if `startPageNumber` option is also specified.

## CoreViewerSettings

CoreViewer settings that must be passed to CoreViewer's constructor.

- `viewportElement` (HTMLElement, **required**) — An element used as the viewport of the displayed contents.
- `userAgentRootURL` (string, optional) — URL of a directory from which viewer resource files (under `resources/` directory in the source repository) are served.
- `window` (Window, optional) — Window object. If omitted, current `window` is used.
- `debug` (boolean, optional) — Debug flag.

## CoreViewerOptions

Viewer options that can be set after the Viewer object is constructed.

- `autoResize` (boolean, optional) — Run layout again when the window is resized. default: true
- `fontSize` (number, optional) — Default font size (px). default: 16
- `pageBorderWidth` (number, optional) — Width of a border between two pages in a single spread (px). Effective only in spread view mode. default: 1
- `renderAllPages` (boolean, optional) — Render all pages at the document load time. default: true
- `pageViewMode` (PageViewMode, optional) — Page view mode (singlePage / spread / autoSpread). default: singlePage
- `zoom` (number, optional) — Zoom factor with which pages are displayed. default: 1
- `fitToScreen` (boolean, optional) — Auto adjust zoom factor to fit the screen. default: false
- `defaultPaperSize` ({width: number, height: number}, optional) — Default paper size in px. Effective when `@page size` is set to auto. default: undefined (means the windows size is used as paper size).

# print

## printHTML

Allows page-laying using the `vivliostyle` for printing within a website without destroying the original layout

```
import { printHTML } from '@vivliostyle/core';

const htmlDoc = `<!doctype html>
<html>
  <head>
    <style>
      ... Add your CSS code here ...
    </style>
  </head>
  <body>
    ... Add your HTML code here ...
  </body>
</html>`;

const config = {
  title: 'My printed page',
  printCallback: (iframeWin) => iframeWin.print(), // optional: only needed if calling som
};

printHTML(htmlDoc, config);
```

# Contribution Guides

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Learn how to contribute to each Vivliostyle product. Choose the project you'd like to contribute to:

- [Vivliostyle.js](#) — the rendering engine
- [Vivliostyle CLI](#) — the command-line tool
- [VFM](#) — Vivliostyle Flavored Markdown
- [Vivliostyle Themes](#) — official themes package

# Vivliostyle.js Contribution Guide

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## Module structure

Vivliostyle.js consists of two components:

<b>Core</b> ( <a href="https://github.com/vivliostyle/vivliostyle.js/tree/master/packages/core">https://github.com/vivliostyle/vivliostyle.js/tree/master/packages/core</a> )	<b>Viewer</b> ( <a href="https://github.com/vivliostyle/vivliostyle.js/tree/master/packages/viewer">https://github.com/vivliostyle/vivliostyle.js/tree/master/packages/viewer</a> )
Vivliostyle.js Core layout engine	Vivliostyle.js Viewer UI

## Setup a development environment

Make sure that the following is installed:

- **Node.js** (<https://nodejs.org>)
- **Yarn** (<https://classic.yarnpkg.com>)
- **Git** (<https://git-scm.com>)

Clone `vivliostyle.js` (<https://github.com/vivliostyle/vivliostyle.js>).

```
git clone https://github.com/vivliostyle/vivliostyle.js.git
cd vivliostyle.js
```

Install dependencies and link packages:

```
yarn install # install dependencies and link packages
```

`@vivliostyle/core` is listed as a dependency for `@vivliostyle/viewer` in `package.json`. During development, the local copy of `@vivliostyle/core` is used rather than the package installed from npm.

## Build and serve

```
yarn build-dev # build a development version of both Core and Viewer.
yarn dev      # start watching source files and open browser.
```

With `yarn dev`, a web server starts ([Browsersync](https://browsersync.io/) with live-reload enabled), and Google Chrome should automatically open. If no browser opens, open <http://localhost:3000/core/test/files/>. On saving any source file, the browser automatically reloads.

## Viewer and test files

Viewer HTML file (in development mode) is located at `packages/viewer/lib/vivliostyle-viewer-dev.html`. You can open an (X)HTML file with a URL (relative to the viewer HTML file) specified to `#src=hash` parameter. For example, [http://localhost:3000/viewer/lib/vivliostyle-viewer-dev.html#src=../../core/test/files/print\\_media/index.html](http://localhost:3000/viewer/lib/vivliostyle-viewer-dev.html#src=../../core/test/files/print_media/index.html) opens a test file for print media located at `packages/core/test/files/print_media/index.html`.

Test HTML files, intended to be used during development, are located at `packages/core/test/files/`. You are encouraged to add test files useful for implementing and verifying features.

The `packages/core/scripts/package-artifacts/samples/` directory holds sample files for testing. See [Vivliostyle Samples](https://vivliostyle.org/samples/) for more samples.

## Testing

The TypeScript source files are compiled and minified by Rollup. To build the minified version of JavaScript files, run `yarn build` (in the repository root directory). The sources are type-checked and the minified file will be generated under `packages/core/lib/` and `packages/viewer/lib` directories.

[Jasmine](http://jasmine.github.io/) is used for unit testing. Spec files are located under `packages/core/test/spec/`. To run unit tests on a local machine, run `yarn test`.

The unit tests is automatically invoked in [Travis CI](https://travis-ci.org/vivliostyle/vivliostyle.js) when pushing to GitHub. When pushed to master, after all tests pass, the code will be automatically deployed as the [Canary release](https://vivliostyle.github.io/#canary-release-equivalent-to-master) so please be careful when pushing to master (merging PR).

## Development mode

In development mode (`yarn dev`), you can debug Vivliostyle.js with TypeScript source code in your browser's DevTools.

## Lint and code formatting

Run `yarn lint` for lint and code formatting (using [ESLint](https://eslint.org/) with [eslint-plugin-prettier](https://github.com/prettier/eslint-plugin-prettier)).

Run `yarn format` for code formatting with [prettier](https://prettier.io/).

## Release Flow

Before proceeding with the release process, run the following code to ensure that a production build has been created.

```
yarn lint
yarn test
yarn clean
yarn build
```

### 1. Pre-release

Run `yarn version:prerelease` to create pre-release. And run `yarn version:bump` to increment pre-release count.

### 2. Stable release

If current version is pre-release (e.g. v2.0.0-pre.4), run:

```
yarn version:graduate
```

To bump up version from stable version to stable version (e.g. v2.0.0 -> v2.0.1):

```
yarn version:bump
```

### 3. Publish

After running `yarn version:*` command above, you can edit `CHANGELOG.md` if needed, then run `yarn version:push`. This amends the release commit, updates the tag, and pushes to GitHub. CI will then publish to npm and create the GitHub Release.

## Consistent Naming Guideline

1. Match class name and its file name for consistency.
2. Use PascalCase for module import name, kebab-case for a file name, making easier to visually distinguish differences.
3. No abbreviation in a file name and class name for perspicuity, except:
  1. Initialism (EPUB, PDF, etc).
  2. Lengthy name (prefer conditional-props over conditional-properties).

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## Commit Message Guideline

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All notable changes to this project will be documented in `CHANGELOG.md`. See [Conventional Commits \(https://conventionalcommits.org\)](https://conventionalcommits.org) for commit guidelines.

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## Maintaining documents

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Please update the following documents as developing.

- `CHANGELOG.md` (<https://github.com/vivliostyle/vivliostyle.js/blob/master/CHANGELOG.md>)
  - Automatically generated with [Conventional Commits \(https://conventionalcommits.org\)](https://conventionalcommits.org).
- [Supported CSS Features](#)
  - Document about CSS features (values, selectors, at-rules, media queries and properties) supported by Vivliostyle.

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## Source files

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Source files under `packages/core/src/` are briefly described below.

### `vivliostyle/core-viewer.ts`

- Exposed interface of vivliostyle-core. To use vivliostyle-core, instantiate Vivliostyle.CoreViewer, set options, register event listeners by addListener method, and call loadDocument or loadPublication method.

### `vivliostyle/constants.ts`

- Defines constants used throughout the library.

### `vivliostyle/task.ts`

- Task scheduling.

### `vivliostyle/exprs.ts`

- Definitions for [expressions \(http://www.idpf.org/epub/pgt/#s2\)](http://www.idpf.org/epub/pgt/#s2) of Adaptive Layout.

### `vivliostyle/css.ts`

- Definitions for various CSS values.

### **vivliostyle/css-parser.ts**

- CSS parser.

### **vivliostyle/css-cascade.ts**

- Classes for selector matching and cascading calculation.

### **vivliostyle/vtree.ts**

- View tree data structures.

### **vivliostyle/css-styler.ts**

- Apply CSS cascade to a document incrementally.

### **vivliostyle/font.ts**

- Web font handling.

### **vivliostyle/page-masters.ts**

- Classes for page masters of Adaptive Layout (<http://www.idpf.org/epub/pgt/#s3.4>).

### **vivliostyle/page-floats.ts**

- Page floats.

### **vivliostyle/vgen.ts**

- Generation of view tree.

### **vivliostyle/layout.ts**

- Content layout inside regions, including column breaking etc.

### **vivliostyle/css-page.ts**

- Support for CSS Paged Media (<https://drafts.csswg.org/css-page/>).

### **vivliostyle/ops.ts**

- Select page master, layout regions (columns) one by one etc.

## **vivliostyle/epub.ts**

- Handling EPUB metadata, rendering pages etc.

*(There are more files... See the `packages/core/src` directory)*

## **Other dev documents**

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- [Vivliostyle API Reference](#)
- [Migration to TypeScript](#)

# Vivliostyle CLI Contribution Guide

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## Development Guide

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Please ensure pnpm:>=10 is installed on your machine.

```
git clone https://github.com/vivliostyle/vivliostyle-cli.git && cd vivliostyle-cli
pnpm install
```

After setup, run `pnpm dev` to watch files.

# VFM Contribution Guide

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## Development Guide

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```
git clone https://github.com/vivliostyle/vfm.git && cd vfm
npm install
npm run build
npm link
DEBUG=vfm vfm
```

After setup, run `npm run dev` to watch files.

## Commit Guide

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### Comment

Please refer to [Semantic Commit Messages](https://gist.github.com/joshbucnea/6f47e86d2510bce28f8e7f42ae84c716) (<https://gist.github.com/joshbucnea/6f47e86d2510bce28f8e7f42ae84c716>) for the commit comment.

## Release Guide (Maintainers only)

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### Enter pre-release

```
release-it --preRelease=beta --npm.tag=next
```

### Bump pre-release version

```
npm run release:pre
# or
release-it --preRelease --npm.tag=next
```

## Graduate

```
npm run release  
# or  
release-it
```

# Vivliostyle Themes Contribution Guide

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## Developing theme

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- See [Theme Spec.](#)

## Donating your theme

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We appreciate your donation to the list of our official themes!

### Merging criteria

- The design and type of your theme should be reasonably distinct from all other existing official themes. This is to avoid duplication.
- Your theme has to meet our [Theme Spec.](#)
- You have to sign the Contributor License Agreement.
- You must follow [Code of Conduct \(https://github.com/vivliostyle/themes/blob/main/CODE\\_OF\\_CONDUCT.md\)](https://github.com/vivliostyle/themes/blob/main/CODE_OF_CONDUCT.md).

## Perks

- You will become a member of [Vivliostyle](https://github.com/vivliostyle) (<https://github.com/vivliostyle>) as well as a maintainer of `vivliostyle/theme` as a part of `@vivliostyle/theme` team.
- You will be given permissions to manage `vivliostyle/themes` and all the other theme-related repositories which enables you to:
  - Push to the repository
  - Triage issues
  - Review and merge pull-requests