# JetsonPDF.Fluent

## Comprehensive Feature Showcase

This document exercises every public extension method, *decorator*, layout container, leaf element, and page slot in **JetsonPDF.Fluent**. Each section is anchored —click any TOC entry below.

## Contents

## 1. Page slots: Header, Footer, Background, Foreground

Every page in this document already demonstrates the four non-content slots: the grey **Background** tint, the title + page-number **Header**, the dynamic-component **Footer**, and the rotated translucent **DRAFT** watermark in the **Foreground**. Slots are drawn z-stack: BG -> Header -> Content -> Footer -> FG.

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## 2. Column

Stacks children vertically with an optional Spacing between items. Auto-paginates at child boundaries.

first item

second item

third — taller content

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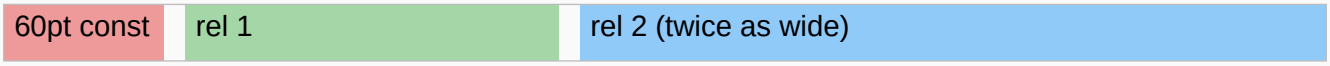
## 3. Row

Mixes ConstantItem(width) and RelativeItem(weight). Constants resolve first; relatives split the remainder.

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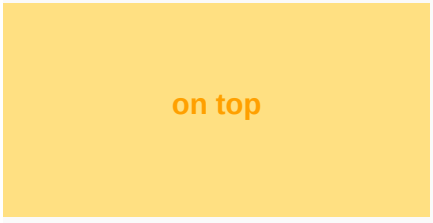
## 4. Stack (z-stack)

Children draw on top of each other from the slot origin. Reported size is the max of any child's measured size.

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## 5. Inlined (horizontal flow with row-wrap)

Items pack left-to-right at intrinsic width and wrap to the next row when the slot is exhausted.

alpha beta gamma delta epsilon zeta eta theta iota kappa lambda mu nu xi omicron

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## 6. Grid (fixed-column flow)

Items distribute across N equal-width columns then wrap to the next row. Row height = max of items in that row.

| | | | |
|---|---|---|---|
| #0 | #1 | #2 | #3 |
| #4 | #5 | #6 | #7 |

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## 7. Table — header + footer + column-span + row-span

Header rows repeat on every page. Footer renders only on the last page. **Cell(columnSpan: 2)** widens; **Cell(rowSpan: 2)** makes a cell occupy multiple rows; auto-flow honours occupancy.

| Group | Item | Status |
|---|---|---|
| **Alpha** | Implementation | Done |
| | Tests | Done |
| | Docs | WIP |
| **Beta** | Spec review | Open |
| | Prototype | Open |
| end of items | | |
| | **Total items** | **5** |

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## 8. Sizing: Width, Height, Min/Max

Width / Height pin a dimension exactly. MinWidth widens reported size; MaxWidth clamps the slot before measuring.

80×30 MinWidth 120 MaxWidth 160 (rel)

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## 9. Spacing: Padding variants

Padding(all), Padding(h, v), and PaddingLeft/Right/Top/Bottom + PaddingHorizontal/Vertical for axis-only padding.

| .Padding(8) | .Padding(12, 4) | PaddingLeft(20) |
|---|---|---|

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## 10. Alignment: horizontal + vertical fill

Horizontal alignment fills width and chooses x; vertical alignment fills height and chooses y. Combine by chaining.

| L/T | C/M | R/B |
|---|---|---|

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## 11. Visual decorators: Border, Background, AspectRatio

| Border(2) | Background | AspectRatio 3:1 |
|---|---|---|

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## 12. Transforms: Translate, Rotate

Translate offsets at draw time (measurement unaffected). Rotate pivots about slot center via PDF CTM.

| Translate(8, 8) | Rotate(20°) |
|---|---|

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## 13. Pagination control

Decorators that interact with the pagination loop. **ShowOnce** renders on the first page it'd render then becomes Empty; **SkipOnce** is Empty first time then renders normally; **ShowEntire** promotes Partial -> Wrap so an element never splits across pages; **EnsureSpace(min)** wraps to next page when less than min height remains.

This banner is wrapped in .ShowOnce() so it only appears on the FIRST page that renders this section. Re-running the showcase against a smaller slot would suppress it on continuation pages.

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## 14. Text: simple, styled, rich

Plain Text("...") uses the inherited DefaultTextStyle.

*Styled Text("...", s => ...) overrides the style for this leaf.*

Rich text supports multiple *styled* runs in one paragraph: **bold**, colour, size, and inline page references like Page **5** / **9** . Lines wrap at word boundaries preserving per-run styles.

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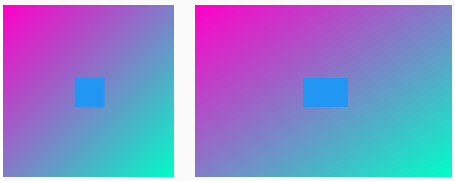
## 15. Image

.Image(pdfImage) fills the slot at the natural aspect; .Image(pdfImage, w, h) sets explicit dimensions.



<- A 64x64 RGB PNG generated in-memory. Right: same image stretched to 96x64.

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## 16. Lines and Placeholder

LineHorizontal / LineVertical fill their direction; Placeholder is an empty slot for layout scaffolding.

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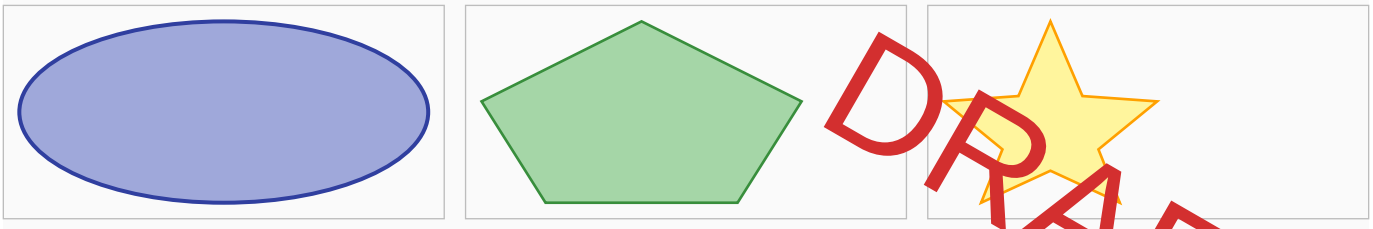
## 17. Shapes: Ellipse, Polygon

Ellipse fills its slot's bounding box; Polygon takes engine-coord points relative to the slot's top-left.

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## 18. Shadow decorator

.Shadow(dx, dy, color) paints a flat offset rectangle behind the child — the 'card shadow' idiom. Not a Gaussian blur, but a small offset reads as a soft drop shadow at most viewing zooms.

Shadow(2, 2)

Shadow(4, 4)

Shadow(0, 6)

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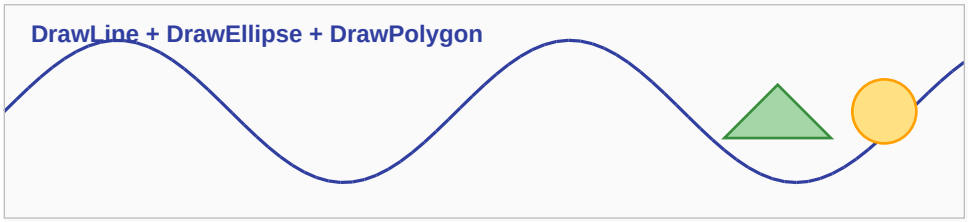
## 19. Canvas escape hatch (IDrawingSurface)

Canvas((surface, w, h) => ...) hands the slot to a user callback with engine-coords drawing primitives. Use for anything the layout primitives can't express directly.

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## 20. Page numbers: standalone and inline

Standalone:

PageNumber: 6 TotalPages: 9

Inline rich text: this is page **6** of **9** —both go through deferred-text resolution so digit width is reserved at measure time and the actual digits are stamped after the layout pass.

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## 21. Form widgets

All five AcroForm widget types: text field, check box, combo box, list box, push button. Each is a leaf that consumes the slot.

Text field: default

☒ Check box (initially checked)

Combo box:

List box:

One
Two
Three
Four

Submit

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## 22. Links: external URL and internal navigation

Click this link to open https://jetsonpdf.com —but note rich-text spans aren't link-wrapped; the actual link is below.

Visit jetsonpdf.com (external link)

Jump to the Table section (internal link)

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## 23. Dynamic components

IDynamicComponent.Compose(ctx) is invoked once per page. ctx.CurrentPage is current; ctx.TotalPagesEstimate is the final total (after the renderer's two-pass count).

This text was composed dynamically for page 1 —the running count at composition time. (For 'Page X of Y' headers prefer the rich descriptor's deferred TotalPages.)

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## 24. Colors palette and FromHex

~50 named colours plus FromHex("#RRGGBB") for arbitrary RGB.

| | | | | |
|---|---|---|---|---|
| Red | RedLight | RedDark | Pink | Purple |
| PurpleDark | Indigo | IndigoDark | Blue | BlueLight |
| BlueDark | Cyan | Teal | TealDark | Green |
| GreenLight | GreenDark | Lime | Yellow | Amber |
| AmberDark | Orange | OrangeDark | Brown | Blu… |
| Grey50 | Grey100 | Grey200 | Grey300 | Grey… |
| Grey | Grey600 | Grey700 | Grey800 | Grey900 |

FromHex("#3F51B5")

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## 25. Optional-content layers (OCG)

Document.WithLayer(name) registers an OCG that PDF viewers expose in the layers panel. Wrap any slot's chain in **.Layer(handle)** to scope its draws into that layer — the viewer can toggle it without regenerating the document.

| | | |
|---|---|---|
| Always visible (no .Layer wrap) | Design layer (visible by default) | Notes layer (hidden by default) |

*Open the layer panel in your PDF reader to toggle visibility.*

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## 26. Multi-page FluentDocument.Create

A single **FluentDocument.Create** callback can call **.Page(...)** multiple times — each is an independent paginating block with its own size, margins, and slots. Page numbers count across blocks. This document uses one main block + an appendix block at the end.

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## 27. Document config: Outline, Conformance, PageLabels

Three document-level builders feed catalog entries the layout engine doesn't see directly:

**.WithOutline(o => ...)** — bookmark tree referencing Section anchors. This document's outline lists each major section; open the outline panel in your reader to see it.

**.WithConformance(Conformance.PdfA1b)** — declare PDF/A-1b or PDF/UA-1 conformance; XMP namespaces and catalog entries are emitted automatically. Pair with *.WithLanguage("en-US")* for PDF/UA. (This document is not declared conforming because it intentionally exercises the DRAFT watermark transparency, but the API is wired in.)

**.WithPageLabels(pl => pl.Range(0, ...).Range(2, ...))** — viewer-displayed page numbers like *i, ii, 1, 2* or *A-1, A-2*. This document labels its appendix with prefix "A-".

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## Appendix — second Page block, landscape orientation

# Why two Page blocks?

A Document can mix orientations and page sizes by using multiple .Page(...) blocks. Page numbers are continuous: this is the first appendix page, and TotalPages includes both blocks.

Showcased so you can verify the renderer's two-pass count handles blocks of different dimensions correctly.