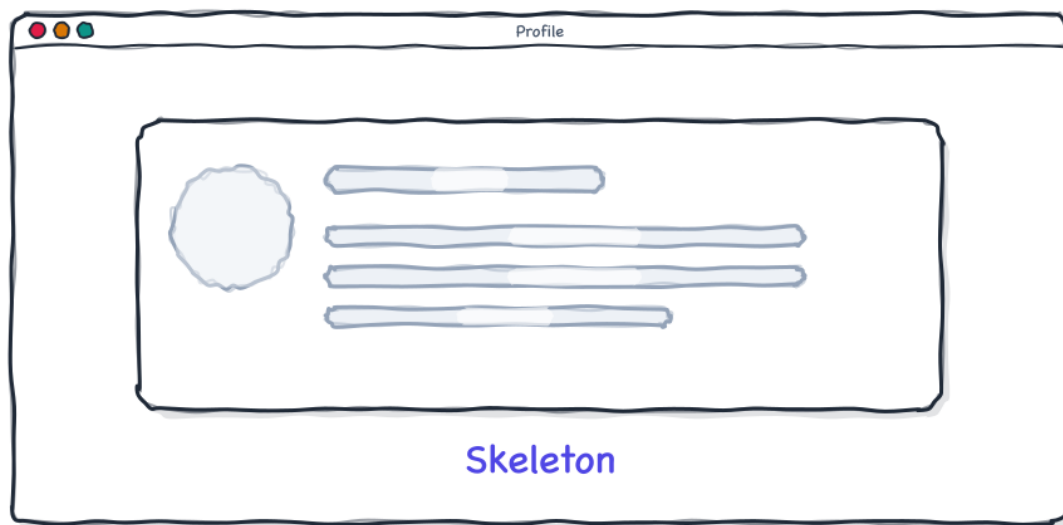


Skeleton

Developer Manual

GemsFX • com.dlsc.gemsfx • JavaFX Custom Controls



Skeleton placeholders mimic the shape of content while real data loads.

Skeleton is a Control that draws one placeholder unit: a rounded rectangle, a circle or stacked text lines. Its skin renders base rectangles plus a moving shimmer band, and all visual parameters are styleable through `skeleton.css`.

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1. Introduction

Skeleton extends `Control`. It represents one loading placeholder, not an entire loading layout. Compose several `Skeleton` instances directly or place them inside `SkeletonPane` to swap a placeholder tree for real content.

- Three variants: `ROUNDED_RECTANGLE`, `CIRCULAR` and `TEXT`.
- The shimmer animation travels left-to-right across the control.
- The skin reports unbounded maximum size so containers can stretch the placeholder.
- The constructor accepts an optional variant; null leaves the default styleable from CSS.

```
Skeleton title = new Skeleton(Skeleton.Variant.ROUNDED_RECTANGLE);
title.setPrefSize(160, 16);

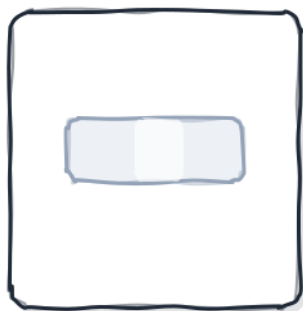
Skeleton avatar = new Skeleton(Skeleton.Variant.CIRCULAR);
avatar.setPrefSize(48, 48);
```

2. Getting started

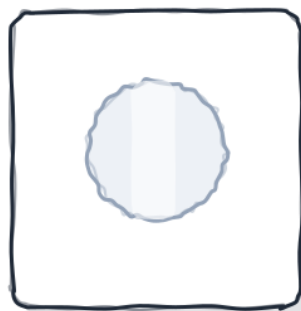
Use skeletons to match the eventual content geometry. The demo builds an avatar plus text column and wraps it in a `SkeletonPane`.

```
Skeleton paragraph = new Skeleton(Skeleton.Variant.TEXT);
paragraph.setLineCount(3);
paragraph.setLineHeight(12);
paragraph.setLineSpacing(8);
paragraph.setLastLineFillPercent(65);

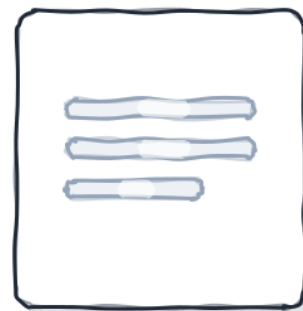
VBox placeholder = new VBox(8, title, paragraph);
```



ROUNDED_RECTANGLE



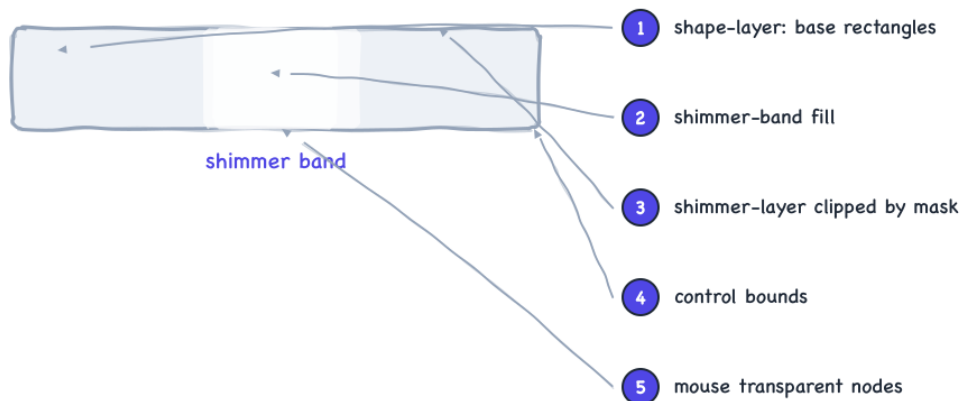
CIRCULAR



TEXT

The three variants drawn by the skin.

3. Anatomy



The skin separates base shapes, shimmer mask and moving band.

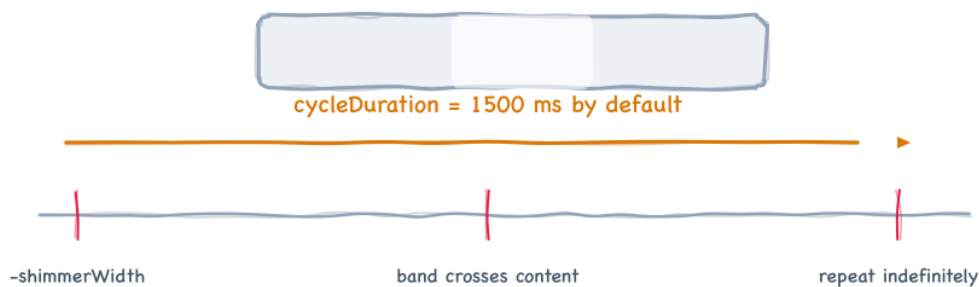
Part	Node	Description
Shape layer	Group	Contains rectangles filled with baseColor.
Shimmer layer	Group	Contains the moving shimmerBand and is clipped to the mask.
Shimmer mask	Group	Rectangles matching the base blocks.
Shimmer band	Rectangle	Moves from -shimmerWidth to content width on each cycle.

4. Control API

Property	Type	Default	Description
variant	ObjectProperty<Variant>	ROUNDED_RECTANGLE	Shape to render. Null falls back to the default variant at use site. Styleable.
cornerRadius	DoubleProperty	4.0	Corner radius for rounded rectangles. Negative and NaN render as 0. Styleable.
baseColor	ObjectProperty<Paint>	#e0e0e0 / CSS derive	Base fill. Null renders no base fill. Styleable.
shimmerFill	ObjectProperty<Paint>	white translucent gradient	Paint used for the moving band. Null renders no shimmer. Styleable.
cycleDuration	ObjectProperty<Duration>	1500 ms	Duration of one sweep. Null, unknown, indefinite or <= 0 disables animation. Styleable.
shimmerWidth	DoubleProperty	56.0	Band width in pixels. Negative, NaN and infinite render as 0. Styleable.
lineCount	IntegerProperty	1	Number of TEXT lines; values below 1 render as 1. Styleable.

Property	Type	Default	Description
lineHeight	DoubleProperty	14.0	Height of TEXT lines. Invalid values render as 0. Styleable.
lineSpacing	DoubleProperty	8.0	Vertical gap between TEXT lines. Invalid values render as 0. Styleable.
lastLineFillPercent	DoubleProperty	70.0	Width of final TEXT line, clamped to 0..100 at render time. Styleable.

5. Variants and rendering

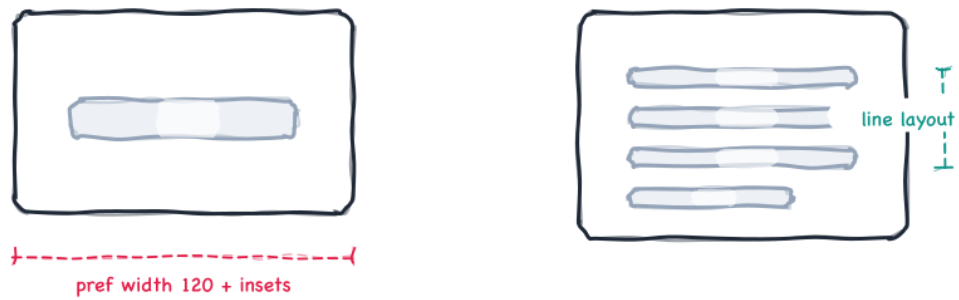


The shimmer timeline repeats while the control is showing.

Variant	Rendering rule
ROUNDED_RECTANGLE	One rectangle filling the content area, with cornerRadius.
CIRCULAR	A circle inscribed in min(width, height) and centered.
TEXT	Stacked rounded rectangles using lineCount, lineHeight, lineSpacing and lastLineFillPercent.

Note. The animation pauses when the control is no longer showing in a scene and resumes when it becomes visible again.

6. Layout and sizing



Rounded/text pref width 120; circular pref size 48; max size is unbounded

Preferred sizes and text-line layout come from the skin.

Variant	Preferred size
ROUNDED_RECTANGLE	120 x 16 plus insets
TEXT	120 wide; height from lineCount, lineHeight and lineSpacing
CIRCULAR	48 x 48 plus insets

Minimum size is only the control insets. Maximum width and height are `Double.MAX_VALUE`, which lets layouts stretch skeletons to mirror real content.

7. Styling with CSS

The user agent stylesheet is `skeleton.css`. It declares every visual property.

CSS property	Default
<code>-fx-variant</code>	rounded-rectangle
<code>-fx-corner-radius</code>	4px
<code>-fx-base-color</code>	derive(-fx-background, -8%)
<code>-fx-shimmer-fill</code>	translucent white linear gradient
<code>-fx-cycle-duration</code>	1500ms
<code>-fx-shimmer-width</code>	56px
<code>-fx-line-count</code>	1
<code>-fx-line-height</code>	14px
<code>-fx-line-spacing</code>	8px
<code>-fx-last-line-fill-percent</code>	70

```
.skeleton {
  -fx-base-color: #e5e7eb;
  -fx-shimmer-width: 72px;
  -fx-cycle-duration: 1200ms;
}

.skeleton.text-placeholder {
  -fx-variant: text;
  -fx-line-count: 3;
}
```

8. Localization

Skeleton uses `ResourceBundleManager.BundleType.SKELETON` for its accessible role description.

Key	English text
<code>accessible.role-description</code>	loading placeholder

9. Accessibility

The constructor sets `AccessibleRole.NODE` with a localized role description. The source does not bind accessible text to animation progress because the control is decorative placeholder content.

```
Skeleton skeleton = new Skeleton(Skeleton.Variant.TEXT);
skeleton.setAccessibleText("Loading profile details");
```

10. Recipes

10.1 Profile card placeholder

```
Skeleton avatar = new Skeleton(Skeleton.Variant.CIRCULAR);
avatar.setPrefSize(48, 48);

Skeleton body = new Skeleton(Skeleton.Variant.TEXT);
body.setLineCount(2);
body.setLastLineFillPercent(68);

HBox row = new HBox(14, avatar, body);
```

10.2 Disable shimmer

```
skeleton.setCycleDuration(Duration.ZERO);
// or in CSS: -fx-cycle-duration: 0ms;
```

- 1 Match placeholder dimensions to the real content.
- 2 Use TEXT only for line stacks; use rounded rectangles for titles and buttons.
- 3 Keep circular skeletons square with pref and max sizes.

11. Troubleshooting

- If nothing is drawn, check that width and height are positive.
- A zero or invalid lineHeight makes TEXT produce no blocks.
- A zero shimmerWidth or disabled cycleDuration removes the sweep but not the base shape.
- Use SkeletonPane when you need to swap an entire placeholder tree with real content.