

# PDF Standard 14 Fonts

These fonts are guaranteed to be available in all PDF viewers

## Times-Roman

The quick brown fox jumps over the lazy dog.

## Times-Bold

**The quick brown fox jumps over the lazy dog.**

Times-Italic

*The quick brown fox jumps over the lazy dog.*

Times-BoldItalic

*The quick brown fox jumps over the lazy dog.*

Helvetica

The quick brown fox jumps over the lazy dog.

Helvetica-Bold

**The quick brown fox jumps over the lazy dog.**

Helvetica-Oblique

*The quick brown fox jumps over the lazy dog.*

Helvetica-BoldOblique

***The quick brown fox jumps over the lazy dog.***

Courier

The quick brown fox jumps over the lazy dog.

Courier-Bold

The quick brown fox jumps over the lazy dog.

## Courier-Oblique

The quick brown fox jumps over the lazy dog.

Courier-BoldOblique

*The quick brown fox jumps over the lazy dog.*

Symbol

αβχδεϕγηιϑ ΑΒΧΔΕΦΓΗΙΘ 0123456789

## ZapfDingbats

[illegible]

# PDF Text Parameters Demonstration

Showcasing text state operators: Tc, Tw, Tz, TL, Ts, Tr, Tm

## 1. Font Size (Tf operator)

8pt 12pt 16pt 20pt 24pt

## 2. Character Spacing (Tc operator)

Tc=0 (default)      T c = 2      T c = 5      Tc=1

## 3. Word Spacing (Tw operator)

Tw=0: Hello World Test  
Tw=10: Hello World Test  
Tw=20: Hello World Test

## 4. Horizontal Scaling (Tz operator)

Tz=50% (condensed)  
Tz=100% (normal)  
Tz=150% (expanded)

## 5. Text Leading (TL operator)

TL=12: Line one Line two Line three	TL=20: Line one Line two Line three	TL=30: Line one  Line two  Line three
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## 6. Text Rise (Ts operator)

Normal<sup>superscript</sup> Normal<sub>subscript</sub> Normal  
Chemical formula: H<sub>2</sub>O    Mathematical:  $x^2 + y^2 = z^2$

## 7. Text Rendering Mode (Tr operator)

Text	Text	Text	
Fill (0)	Stroke (1)	FillStroke (2)	Invisible (3)

## 8. Text Matrix (Tm operator)

Normal      Rotated 15      Rotated -15      Skewed      Ellipse

# PDF Text Clipping Path Demonstration

## Section 1: Text Clipping with Stripe Pattern

CLIP TEXT DIAG DOT

## Section 2: Color Bands Effect

RAINBOW SUNSET

## Section 3: FillClip & StrokeClip Modes

SHINE STROKE BOTH INVIS

## Section 4: Concentric Circles & Radial Burst

WAVES BURST SPIRAL

## Section 5: Checkerboard & Crosshatch

CHECK CROSS BRICK

## Section 6: Smooth Color Transitions

SMOOTH OCEAN  
FOREST FIRE

Modes: Clip(7)=invisible clip, FillClip(4)=fill+clip, StrokeClip(5)=stroke+clip, FillStrokeClip(6)=both+clip

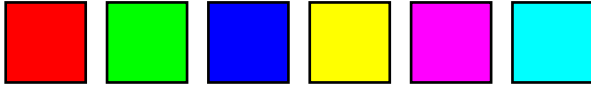
## 1. DeviceGray

Single component grayscale (0.0 = black, 1.0 = white)



## 2. DeviceRGB

Three components: Red, Green, Blue (each 0.0-1.0)



## 3. DeviceCMYK

Four components: Cyan, Magenta, Yellow, black (each 0.0-1.0)



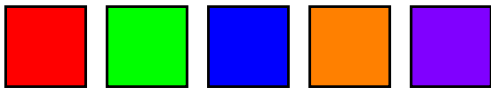
## 4. CalGray (Calibrated Grayscale)

CIE-based grayscale with gamma correction (WhitePoint: D65)



## 5. CalRGB (Calibrated RGB)

CIE-based RGB with gamma and color matrix (sRGB-like)



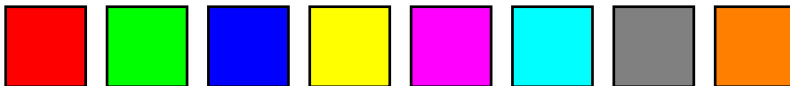
## 6. Lab (CIE L\*a\*b\*)

Perceptually uniform: L\* (0-100), a\* (-128 to 127), b\* (-128 to 127)



## 7. Indexed (Palette-based)

Single index into color lookup table (0-255 palette entries)



## 8. Separation (Spot Color)

Single tint for spot color 'PANTONE Orange' (0.0-1.0)



## 9. DeviceN (Multiple Spot Colors)

Multiple colorants: SpotBlue + SpotGreen (each 0.0-1.0)



# PDF Line Dash Pattern Demonstration

## Section 1: Basic Dash Patterns

Dash array defines on/off lengths, phase sets start offset



Solid [] phase 0



Dashes [10] phase 0



[15, 5] phase 0



[5, 15] phase 0



Dotted [2, 4] phase 0



Dash-dot [10,3,2,3]

## Section 2: Phase Offset Effects

Same pattern [10, 5] with different phase values



phase 0



phase 5



phase 10

## Section 3: Line Cap Styles with Dashes

Pattern [20, 10] with different cap styles (line width 6)



Butt cap (default)



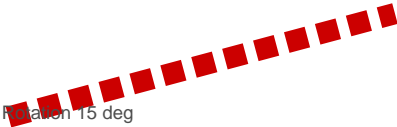
Round cap



Projecting square

## Section 4: Dash Patterns with Coordinate Transforms

Transforms affect line rendering but dash pattern stays in user space



Rotation 15 deg



Scale X 1.5x



Scale Y 2x



Shear X



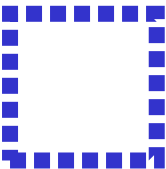
Scale + Rotate



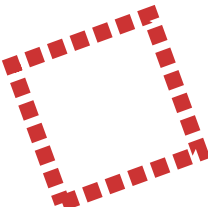
Flip horizontal

## Section 5: Transformed Shapes with Dash Patterns

Rectangles with different transforms and dash patterns



Normal



Rotated 20 deg



Scaled 1.3x0.7

## Section 6: Complex Dash Patterns



Morse-like [20,5,5,5,5,5]



Railroad [1,8]



Fine dots [0.5,3]

Note: Transforms affect the entire graphics state including line width.

Dash patterns are defined in user space units before transformation.

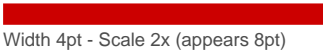
# PDF Line Style Transform Demonstration

## Section 1: Line Width Under Transforms

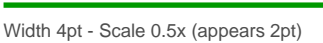
Line width is in user space - transforms affect rendered thickness



Width 4pt - No transform



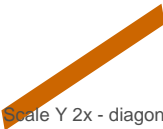
Width 4pt - Scale 2x (appears 8pt)



Width 4pt - Scale 0.5x (appears 2pt)



Scale X 2x only



Scale Y 2x - diagonal line

## Section 2: Line Cap Styles

Butt (default), Round, and Projecting Square caps



Butt Cap

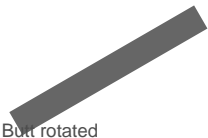


Round Cap

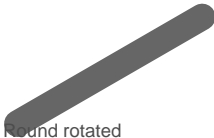


Projecting Square

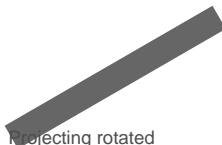
Line caps under 30-degree rotation



Butt rotated



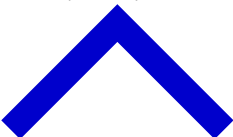
Round rotated



Projecting rotated

## Section 3: Line Join Styles

Miter (default), Round, and Bevel joins at corners



Miter Join



Round Join



Bevel Join

Line joins under non-uniform scaling (X: 1.5, Y: 0.7)



Miter scaled



Round scaled



Bevel scaled

## Section 4: Combined Styles Under Complex Transforms

Triangles with different styles under rotation and shear



Normal



Rotate 25 deg

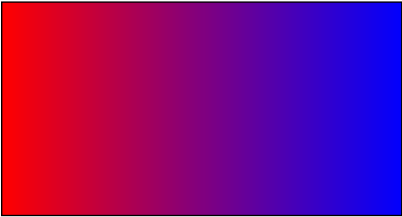


Shear X

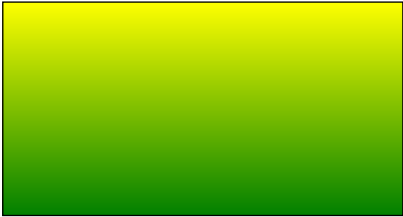
# PDF Shading (Gradient) Demonstration

## Type 2: Axial Shadings (Linear Gradients)

Linear color blend between two points. Coords: [x0, y0, x1, y1]



Horizontal (Red->Blue)



Vertical (Green->Yellow)



Diagonal (Purple->Orange)



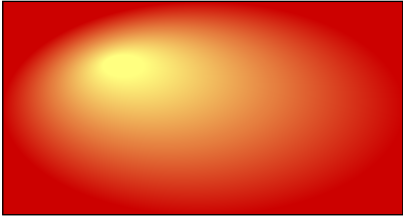
No Extend (Cyan->Magenta)

## Type 3: Radial Shadings (Circular Gradients)

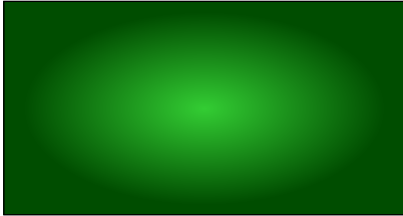
Circular color blend between two circles. Coords: [x0, y0, r0, x1, y1, r1]



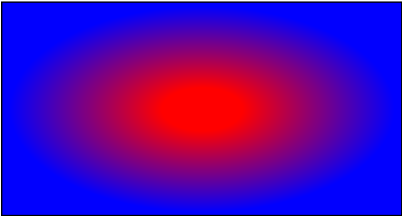
Concentric (White->Blue)



Spotlight (Yellow->Red)



From Center (Green)



Ring (Red->Blue)

Note: Shadings use unit coordinate space [0,1] mapped via transformation matrix.  
Extend flags control whether colors continue beyond gradient boundaries.

# Advanced PDF Shading Demo - All 7 Types

PDF Specification Section 8.7.4 - Shading Dictionaries

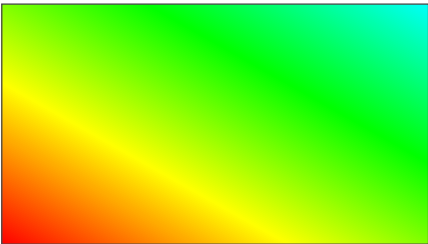
## Dictionary-Based Shadings

### Type 1: Function-Based



Color =  $f(x, y)$

### Type 2: Axial (Linear)



Gradient along axis

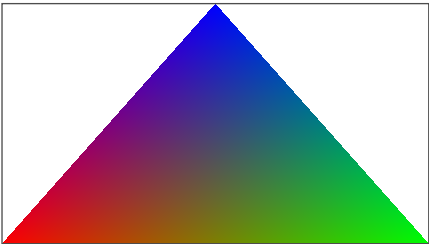
### Type 3: Radial (Circular)



Gradient between circles

## Gouraud-Shaded Triangle Meshes

### Type 4: Free-Form Gouraud



Arbitrary triangle mesh

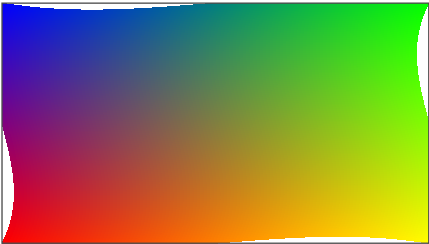
### Type 5: Lattice Gouraud



Structured vertex grid

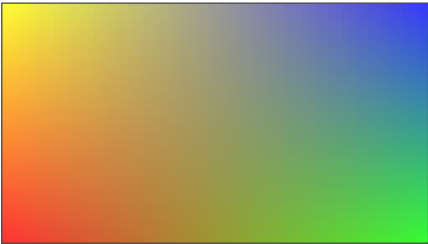
## Bezier Patch Meshes

### Type 6: Coons Patch



12 control points/patch

### Type 7: Tensor-Product



16 control points/patch

### Notes:

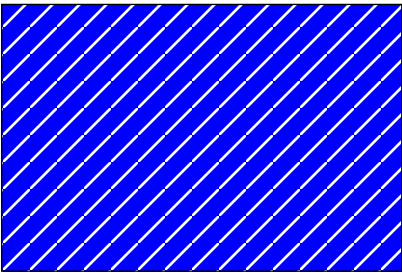
- Types 1-3 use dictionary entries for shading parameters
- Types 4-7 use stream data for vertex/control point coordinates and colors
- All shadings use unit coordinate space  $[0,1]$  mapped via transformation matrix



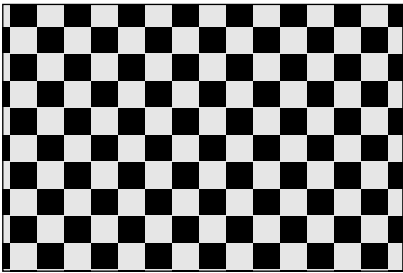
# PDF Pattern Demonstration

## Type 1: Tiling Patterns

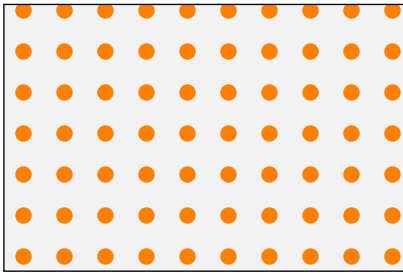
Small graphical figures (pattern cells) repeated at fixed intervals



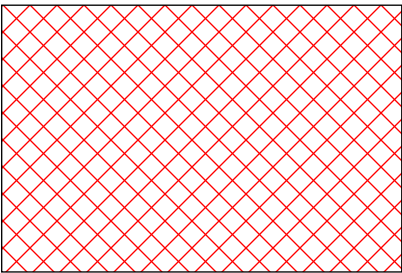
Diagonal Stripes (Colored)



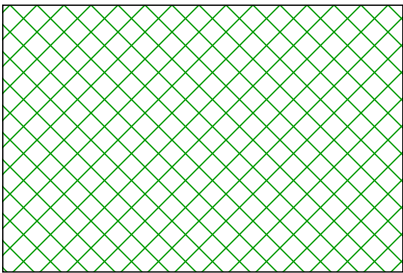
Checkerboard (Colored)



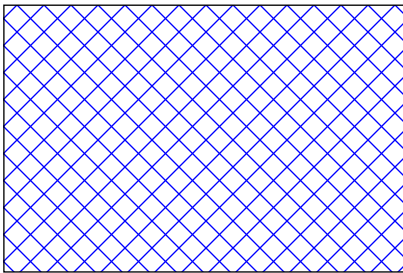
Polka Dots (Colored)



Crosshatch (Red)



Crosshatch (Green)



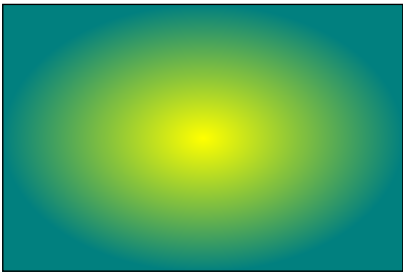
Crosshatch (Blue)

## Type 2: Shading Patterns

Smooth color transitions (gradients) used as fill patterns



Axial Gradient Pattern



Radial Gradient Pattern

Note: Colored patterns (PaintType=1) specify their own colors.  
Uncolored patterns (PaintType=2) use the current color from graphics state.