

# SVG - GRADIENTS

Gradient refers to smooth transition of one color to another color within a shape. SVG provides two types of gradients.

- **Linear Gradients** – Represents linear transition of one color to another from one direction to another.
- **Radial Gradients** – Represents circular transition of one color to another from one direction to another.

## Linear Gradients

### Declaration

Following is the syntax declaration of **<linearGradient>** element. We've shown main attributes only.

```
<linearGradient
  gradientUnits = "units to define co-ordinate system of contents of gradient"
  gradientTransform = "definition of an additional transformation from the gradient
coordinate system onto the target coordinate system"

  x1="x-axis co-ordinate"
  y1="y-axis co-ordinate"
  x2="x-axis co-ordinate"
  y2="y-axis co-ordinate"

  spreadMethod="indicates method of spreading the gradient within graphics element"
  xlink:href="reference to another gradient" >
</linearGradient>
```

### Attributes

Sr.No.	Name & Description
1	<b>gradientUnits</b> – units to define the coordinate system for the various length values within the gradient. If gradientUnits="userSpaceOnUse", values represent values in the current user coordinate system in place at the time when the gradient element is used. If patternContentUnits="objectBoundingBox", values represent values in fractions or percentages of the bounding box on the referencing element in place at the time when the gradient element is used. Default is userSpaceOnUse.
2	<b>x1</b> – x-axis co-ordinate of the gradient vector. Default is 0.
3	<b>y1</b> – y-axis co-ordinate of the gradient vector. Default is 0.
4	<b>x2</b> – x-axis co-ordinate of the gradient vector. Default is 0.
5	<b>y2</b> – y-axis co-ordinate of the gradient vector. Default is 0.
6	<b>spreadMethod</b> – indicates method of spreading the gradient within graphics element. Default is 'pad'.
7	<b>xlink:href</b> – used to refer to another gradient.

### Example

[testSVG.htm](#)

```

<html>
  <title>SVG Linear Gradient</title>
  <body>

    <h1>Sample SVG Linear Gradient</h1>

    <svg width="600" height="600">

      <defs>
        <linearGradient >
          <stop offset="0%" stop-color="#FF0000" />
          <stop offset="100%" stop-color="#00FF00" />
        </linearGradient>
      </defs>

      <g>
        <text x="30" y="50" >Using Linear Gradient: </text>
        <rect x="100" y="100" width="200" height="200" stroke="green" stroke-
width="3"
          fill="url(#sampleGradient)" />
      </g>

    </svg>

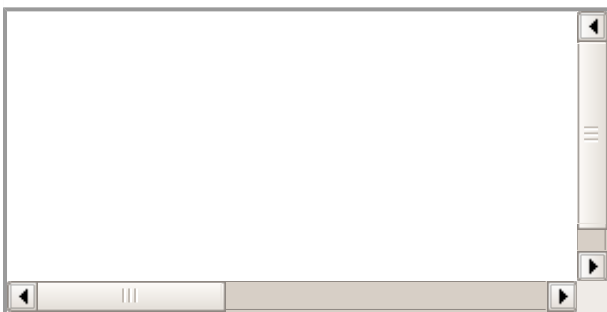
  </body>
</html>

```

- One <linearGradient> element defined as sampleGradient.
- In linearGradient, two offsets are defined with two colors.
- in rect element, in fill attribute, url of the gradient is specified to fill the rectangle with gradient created earlier.

## Output

Open textSVG.htm in Chrome web browser. You can use Chrome/Firefox/Opera to view SVG image directly without any plugin. Internet Explorer 9 and higher also supports SVG image rendering.



## Radial Gradients

### Declaration

Following is the syntax declaration of <radialGradient> element. We've shown main attributes only.

```

<radialGradient
  gradientUnits = "units to define co-ordinate system of contents of gradient"
  gradientTransform = "definition of an additional transformation from the gradient
coordinate system onto the target coordinate system"

  cx="x-axis co-ordinate of center of circle."
  cy="y-axis co-ordinate of center of circle."

  r="radius of circle"

```

```

fx="focal point for the radial gradient"
fy="focal point for the radial gradient"

spreadMethod="indicates method of spreading the gradient within graphics element"
xlink:href="reference to another gradient" >
</radialGradient>

```

## Attributes

### Sr.No. Name & Description

- 1 **gradientUnits** – units to define the coordinate system for the various length values within the gradient. If gradientUnits="userSpaceOnUse", values represent values in the current user coordinate system in place at the time when the gradient element is used. If patternContentUnits="objectBoundingBox", values represent values in fractions or percentages of the bounding box on the referencing element in place at the time when the gradient element is used. Default is userSpaceOnUse.
- 2 **cx** – x-axis co-ordinate of the center of largest circle of gradient vector. Default is 0.
- 3 **cy** – y-axis co-ordinate of the center of largest circle of gradient vector. Default is 0.
- 4 **r** – radius of the center of largest circle of gradient vector. Default is 0.
- 5 **fx** – focal point of radial gradient. Default is 0.
- 6 **fy** – focal point of radial gradient. Default is 0.
- 7 **spreadMethod** – indicates method of spreading the gradient within graphics element. Default is 'pad'.
- 8 **xlink:href** – used to refer to another gradient.

## Example

testSVG.htm

```

<html>
  <title>SVG Radial Gradient</title>
  <body>

    <h1>Sample SVG Radial Gradient</h1>

    <svg width="600" height="600">
      <defs>
        <radialGradient >
          <stop offset="0%" stop-color="#FF0000" />
          <stop offset="100%" stop-color="#00FFFF" />
        </radialGradient>
      </defs>

      <g>
        <text x="30" y="50" >Using Radial Gradient: </text>
        <rect x="100" y="100" width="200" height="200" stroke="green" stroke-
width="3"
          fill="url(#sampleGradient)" />
      </g>
    </svg>

  </body>
</html>

```

- One <radialGradient> element defined as sampleGradient.
- In radialGradient, two offsets are defined with two colors.

- in rect element, in fill attribute, url of the gradient is specified to fill the rectangle with gradient created earlier.

## Output

Open textSVG.htm in Chrome web browser. You can use Chrome/Firefox/Opera to view SVG image directly without any plugin. Internet Explorer 9 and higher also supports SVG image rendering.

