

The <filter> element attributes

id = "name"

filterUnits = "userSpaceOnUse"
"objectBoundingBox"

primitiveUnits "userSpaceOnUse"
= "objectBoundingBox"

x = | y = "coordinate" | "-10%"

width = | height = "length" | "120%"

xlink:href = "iri" inherit any attributes of <filter> element iri that are not defined in this element

color-interpolation-filters = "sRGB"

Common filter primitive attributes

result = "filter-primitive-reference"

in = "SourceGraphic"
default for first filter primitive

"SourceAlpha"
"BackgroundImage | BackgroundAlpha"
filtered object must be within a container element specifying enable-background="new"

Common filter primitive attributes (cont)

"FillPaint | StrokePaint"

"filter-primitive-reference"
specified by a previous result

default input for non-first filter primitives is the output from the previous filter primitive

Simpler filter primitives

<feGaussianBlur>

stdDeviation = "blur spread" | "0"
larger is blurrier

<feImage>

xlink:href = "image source"

preserveAspectRatio "align [meet | slice] none | xMidyMid meet"

<feMorphology>

operator = "erode | dilate"

radius = "x-radius y-radius" | "radius | 0"

Utility filters

<feTile> tiles the in layer

<feOffset>

dx = | dy = "x offset" | "y offset" | "0"

<feFlood>

flood-color "color specification"

=

flood-opacity "value" 0 - 1

opacity =

Lighting effects

containers for light source elements

lighting-color = "color specification"

surfaceScale = "height" | "1"

<feDiffuseLighting>

diffuseConstant = "factor" | "1"
must be nonnegative

<feSpecularLighting>

specularConstant "factor" | "1"
= must be nonnegative

specularExponent "exponent" | "1" (1 - 128)
=

light source elements

<feDistantLight>

azimuth = | elevation = "degrees" | "0"

<fePointLight>

x = | y = | z = "coordinate" | "0"

<feSpotLight>

x = | y = | z = "coordinate" | "0"

pointsAtX = "coordinate" | "0"

pointsAtY =

pointsAtZ =

specularExponent "focus control" | "1"
=

limitingConeAngle "degrees"
=



Combining filter primitives

`<feMerge>` container for stacking
`<feMergeNode>`
 elements

`<feMergeNode>`

`in =` "intermediate
 result"

`<feBlend>`

`in2 =` "second input"

`mode =` "normal | multiply
 screen | darken |
 lighten"

`<feComposite>`

`in2 =` "second input"

`operator =` "over | in | out |
 atop
 xor | arithmetic"

attributes used with "arithmetic"

`k1 =` "factor for $in1 \times$
 $in2$ | 0"

`k2 =` "factor for $in1$ |
 0"

`k3 =` "factor for $in2$ |
 0"

`k4 =` "additive offset |
 0"

`<feDisplacementMap>`

`scale =` "displacement
 factor | 0"

`xChannelSelector` "R | G | B | A"

=

`yChannelSelector` "R | G | B | A"

=

`in2 =` "second input"

More filter primitives

`<feColorMatrix>`

`type =` "matrix
 | saturate | hueRotate
 | luminanceToAlpha"

`values =` "matrix values"
 "saturation value" 0
 - 1
 "rotate degrees"

`<feComponentTransfer>`

container for `<feFuncR>`, `<feFuncG>`,
`<feFuncB>`, and `<feFuncA>` elements.

`<feFuncX>`

`type =` "identity | table
 | discrete | linear |
 gamma"

`tableValues` "intervals for
 = table;
 steps for discrete"

`slope =` "linear slope"

`intercept =` "linear intercept"

`amplitude =` "gamma amplitude"

`exponent =` "gamma exponent"

`offset =` "gamma offset"

`<feConvolveMatrix>`

`order =` "columns rows"
 "3 by 3"

`kernel =` "values"

`bias =` "offset value"

`<feTurbulence>`

`type =` "turbulence" |
 "fractalNoise"

`baseFrequency` "x-frequency y-
 = frequency"

More filter primitives (cont)

`baseFrequency =` "frequency"

`numOctaves =` "integer"

`seed =` "number"



By **beccam**
cheatography.com/beccam/

Not published yet.
 Last updated 12th March, 2017.
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