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## FSDL 3.0 Recap - Elements and Attributes

This document provides a summary of the elements and attributes defined in the Frogans Slide Description Language 3.0. The elements and attributes described here are subject to change; they will be fully specified in the final FSDL 3.0 specification.

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## Legend

### <element>

Description of the element, if necessary

**"attribute"** (*mandatory | optional | applicable if <condition>*)

Description of the attribute, if necessary

- 'value' | description of a value (comment on the value, if necessary)

## Unique identifiers

A unique identifier is a case-sensitive string containing between 1 and 24 characters (inclusive).

Each character in the string is in the range from 'A' to 'Z' inclusive, in the range from 'a' to 'z' inclusive, in the range from '0' to '9' inclusive), or is the '\_' character.

The string does not contain the ' ' (space) character.

## File size limitations

The size of an FSDL document cannot exceed 64KB.

The total size of an FSDL document and all its auxiliary files (image files) cannot exceed 256KB.

## Rendering constraints

Rendering constraints are intended to ensure useability for end-users. They are currently under discussion.

The current Frogans slide rendering constraints are:

- The used area of the lead representation (i.e. the smallest rectangular part of the representation outside of which all the pixels are invisible pixels) covers at least 50% of the total area of the rendering canvas. This rendering constraint makes the same requirement for the used area of the vignette representation.

*Additional rendering constraints will be added in the future.*

FSDL documents are written using the XML 1.0 markup language.

The FSDL document starts with the following declaration:

```
<?xml version='1.0' encoding='utf-8'?>
```

## **<frogans-fsdl>**

The root element of the FSDL document.

Can contain from 0 to 32 of each of the following elements: <file>, <setfont>, <setfilter>, <setrelief>, <setshadow>, <button>.

Can contain a combined total of up to 128 of the following elements: <resimage>, <respixels>, <resdraw>, <respath>, <restext>, <resmerge>.

Can contain from 1 to 128 <layer> elements (including the <layer> elements contained in <button> elements).

Can contain either 0 or 1 <next> elements.

Contains at least one <layer> element where the "leapout" attribute equals either 'lead' or 'all', and at least one <layer> element where the "leapout" attribute equals either 'vignette' or 'all'.

### **"version"** (*mandatory*)

- '3.0'

## <file>

A file (an FSDL document or an image file) in the Frogans site root directory.

The content can optionally be the image file encoded in Base64 (if the value of the "nature" attribute equals 'embedded').

### **"fileid"** (mandatory)

- unique identifier

### **"nature"** (mandatory)

- 'static'
- 'dynamic'
- 'embedded'

### **"name"** (applicable if "nature"='static' or 'dynamic'; mandatory in that case)

- complete name of the file in the Frogans root directory

The file name is a string that contains between 2 and 128 characters (inclusive). The string starts with the '/' character. Each of the characters following the '/' is either in the range from 'a' to 'z' (inclusive), in the range from '0' to '9' (inclusive), or is any of the following characters: the '\_' character, the '-' character, the '.' character, or the '/' character. The string cannot end with a '/' character, or with a '.' character.

The string cannot contain any of the following sequences: two successive '.' characters, a '.' character followed by a '/' character, a '/' character followed by a '.' character, or two successive '/' characters.

As a result, the string cannot contain the ' ' (space) character or the '\' character.

### **"cache"** (applicable if "nature"='static'; optional in that case)

- 'on'
- 'off' (default value)

## <resimage>

Defines a resource based on a jpeg, png, or gif image file. Maximum size of the image (in pixels): 1,024 x 1,024.

### **"resid"** (*mandatory*)

- unique identifier

### **"size"** (*mandatory*)

- width,height    width from 1 to 640, height from 1 to 480

### **"fileref"** (*mandatory*)

- "fileid" of a previously defined <file>

### **"selection"** (*optional*)

- 'entire' (default value)
- 'extract'

### **"bounds"** (*applicable if "selection"=extract; mandatory in that case*)

- left,top,right,bottom  
    left,top from 0 to 1023, right,bottom from 1 to 1024

### **"aspect"** (*optional*)

- 'base' (default value)
- 'spread'
- 'zoom'
- 'echo'
- 'tile'

### **"adjust"** (*applicable if "aspect"='base', 'zoom' or 'echo'; optional in that case*)

- integer from -100 to 100; default value: 0

### **"origin"** (*applicable if "aspect"='tile'; optional in that case*)

- x,y    x from 0 to 1023, y from 0 to 1023; default value: '0,0'

## <respixels>

The content is a list of (columns\*rows) semi-colon-separated values in the following patterns (depending on the value of the "pix" attribute):

- if "pix"='rgba': '#rrggbaa'
- if "pix"='rgb': '#rrggbb'
- if "pix"='a': '#aa'
- if "pix"='y': '#yy'
- if "pix"='ya': '#yyaa'

### **"resid"** (mandatory)

- unique identifier

### **"size"** (mandatory)

- width,height width from 1 to 640, height from 1 to 480

### **"columns"** (mandatory)

- integer from 1 to 16

### **"rows"** (mandatory)

- integer from 1 to 16

### **"pix"** (mandatory)

- 'rgba'
- 'rgb'
- 'a'
- 'y'
- 'ya'

### **"color"** (applicable if "pix"='a': optional in that case)

- #rrggbb '#' followed by 3 pairs of hexadecimal digits;  
default value: '#0000ff'

### **"alpha"** (applicable if "pix"='rgb' or 'y': optional in that case)

- #aa '#' followed by 1 pair of hexadecimal digits;  
default value: '#ff'

**<resdraw>****"resid"** (*mandatory*)

- unique identifier

**"size"** (*mandatory*)

- width,height width from 1 to 640, height from 1 to 480

**"figure"** (*mandatory*)

- 'rect'
- 'roundrect'
- 'ellipse'

**"stroke"** (*mandatory*)

- 'on'
- 'off'

**"thick"** (*applicable if "stroke"='on'; optional in that case*)

- integer from 1 to 64; default value: 8

**"round"** (*applicable if "figure"='roundrect'; optional in that case*)

- width,height width from 1 to 640, height from 1 to 480;  
default value: '16,16'

**"color"** (*optional*)

- #rrggbb '#' followed by 3 pairs of hexadecimal digits;  
default value: '#0000ff'



## <respath>

The content is a list of between 2 and 512 semi-colon-separated items in any of the following patterns, where each x,y coordinate is between 0 and 2048:

- 'Ju:xp,yp': jump item, which corresponds to the starting point of a simple or composite Bezier curve, where xp,yp are the coordinates of the starting point. This item is the first item in the list; it cannot be the last item in the list; and there cannot be two consecutive jump items in the list.
- 'Li:xp,yp': linear item, which corresponds to the ending point of a linear Bezier curve, where xp,yp are the coordinates of the ending point.
- 'Co:xp,yp,x1,y1': conic item, which corresponds to the ending point of a conic Bezier curve, where xp,yp are the coordinates of the ending point and x1,y1 are the coordinates of the control point.
- 'Cu:xp,yp,x1,y1,x2,y2': cubic item, which corresponds to the ending point of a cubic Bezier curve, where xp,yp are the coordinates of the ending point, and x1,y1 and x2,y2 are the coordinates of the first and second control points, respectively.

### **"resid"** (mandatory)

- unique identifier

### **"size"** (mandatory)

- width,height    width from 1 to 640, height from 1 to 480

### **"crop"** (mandatory)

- 'none'
- 'auto'
- 'custom'

### **"corners"** (applicable if "crop"='custom'; mandatory in that case)

- xtl,ytl,xbr,ybr    each of the top-left and bottom-right coordinates is from 0 to 2048

### **"stroke"** (mandatory)

- 'on'
- 'off'

### **"thick"** (applicable if "stroke"='on'; optional in that case)

- integer from 1 to 64; default value: 8

**"close"** (*applicable if "stroke"='on'; optional in that case*)

- 'on'
- 'off' (default value)

**"fill"** (*applicable if "stroke"='off'; optional in that case*)

- 'non-zero' (default value)
- 'even-odd'

**"spread"** (*mandatory*)

- 'on'
- 'off'

**"adjust"** (*applicable if "spread"='off'; optional in that case*)

- integer from -100 to 100; default value: 0

**"color"** (*optional*)

- #rrggbb '#' followed by 3 pairs of hexadecimal digits; default value: '#0000ff'

## <setfont>

Can contain from 1 to 16 <font> elements.

The value of the "scripts" attribute of the first <font> element equals 'default'.

In any given <setfont> element, each script included in the comma-separated list in the value of the "scripts" attribute of all <font> elements is unique.

### **"fontid"** (*mandatory*)

- unique identifier

## <font> (child of <setfont>)

### **"scripts"** (*mandatory*)

- either 'default' or a comma-separated list of between 1 and 16 script names. For a list of available script names, see Appendix 1: "scripts" attribute of the <font> element.

### **"pfont"** (*mandatory*)

- name of the physical font. For a list of all available physical fonts, see Appendix 2: "pfont" attribute of the <font> element.

### **"height"** (*mandatory*)

- numeric with one optional digit after the decimal point, from 8.0 to 72.0

### **"spacing"** (*optional*)

- integer from -100 to 100; default value: 0

### **"stretching"** (*optional*)

- integer from -100 to 100; default value: 0

### **"xbold"** (*optional*)

- integer from 0 to 100; default value: 0

### **"xitalic"** (*optional*)

- integer from -100 to 100; default value: 0

### **"underline"** (*optional*)

- 'on'
- 'off' (default value)

**"strikeout"** (*optional*)

- 'on'
- 'off' (default value)

**"opacity"** (*optional*)

- integer from 0 to 100; default value: 100

**"color"** (*optional*)

- #rrggbb '#' followed by 3 pairs of hexadecimal digits; default value: '#0000ff'

**<restext>**

Can contain from 1 to 16 <text> elements.

**"resid"** (*mandatory*)

- unique identifier

**"size"** (*mandatory*)

- width,height    width from 1 to 640, height from 1 to 480

**"orientation"** (*mandatory*)

- 'h-ttb-ltr'
- 'h-ttb-rtl'
- 'h-btt-ltr'
- 'h-btt-rtl'
- 'v-ltr-ttb'
- 'v-ltr-btt'
- 'v-rtl-ttb'
- 'v-rtl-btt'

**"fontref"** (*mandatory*)

- "fontid" of a previously defined <setfont>

**"talign"** (*optional*)

- 'begin' (default value)
- 'end'
- 'center'
- 'justify'

**"linespace"** (*optional*)

- integer from -100 to 100; default value: 0

**"vstyle"** (*applicable if "orientation" starts with 'v-'; optional in that case*)

- 'natural' (default value)
- 'opposite'
- 'upright'

**<text>** (child of <restext>)

The content is a string (max. length 768) of Unicode characters representing the text.

**"fontref"** (*optional*)

- "fontid" of a previously defined <setfont>

default value: the "fontref" attribute value of the parent

**"talign"** (*optional*)

- 'begin'
- 'end'
- 'center'
- 'justify'

default value: the "talign" attribute value of the parent

**"linespace"** (*optional*)

integer from -100 to 100; default value: the "linespace" attribute value of the parent

**"vstyle"** (*applicable if the "orientation" attribute value of the parent starts with 'v-'; optional in that case*)

- 'natural'
- 'opposite'
- 'upright'

default value: the "vstyle" attribute value of the parent

**"join"** (*optional*)

- 'none' (default value)
- 'space'
- 'nospace'

## <setfilter>

Can contain from 1 to 16 <filter> elements.

**"filterid"** (*mandatory*)

- unique identifier

## <filter> (child of <setfilter>)

**"effect"** (*mandatory*)

- 'light'
- 'contrast'
- 'saturation'
- 'hue'
- 'solarize'
- 'addcolor'
- 'mixcolor'
- 'negative'
- 'lumakey'
- 'chromakey'
- 'lumatoalpha'
- 'alphatoluma'

**"level"** (*applicable if "effect"='light', 'contrast', 'saturation', 'solarize', 'addcolor', or 'mixcolor'; mandatory in that case*)

- integer from -100 to 100; if "effect"='solarize' or 'mixcolor', then the filter is active only for values greater than zero

**"angle"** (*applicable if "effect"='hue'; mandatory in that case*)

- integer from -180 to 180

**"tolerance"** (*applicable if "effect"='lumakey' or 'chromakey'; mandatory in that case*)

- integer from 0 to 100

**"color"** (*applicable if "effect"='addcolor', 'mixcolor', 'lumakey', or 'chromakey'; mandatory in that case*)

- #rrggbb '#' followed by 3 pairs of hexadecimal digits; default value: '#0000ff'

## <setrelief>

Can contain from 1 to 4 <relief> elements.

**"reliefid"** (*mandatory*)

- unique identifier

## <relief> (child of <setrelief>)

**"rpos"** (*mandatory*)

- x,y            x from -64 to 64, y from -64 to 64

**"color"** (*optional*)

- #rrggbb    '#' followed by 3 pairs of hexadecimal digits;  
default value: '#ffffff'

**"blur"** (*optional*)

- integer from 0 to 32; default value: 0

**"opacity"** (*optional*)

- integer from 0 to 100; default value: 100



## **<setshadow>**

Can contain from 1 to 4 <shadow> elements.

### **"shadowid"** (*mandatory*)

- unique identifier

## **<shadow>** (child of <setshadow>)

### **"rpos"** (*mandatory*)

- x,y            x from -64 to 64, y from -64 to 64

### **"color"** (*optional*)

- #rrggbb    '#' followed by 3 pairs of hexadecimal digits;  
default value: '#000000'

### **"blur"** (*optional*)

- integer from 0 to 32; default value: 0

### **"opacity"** (*optional*)

- integer from 0 to 100; default value: 100

### **"combine"** (*mandatory*)

- 'add'
- 'clip'
- 'cutout'
- 'inter'

## <resmerge>

Can contain from 1 to 16 <merge> elements.

### "**resid**" (*mandatory*)

- unique identifier

### "**size**" (*mandatory*)

- width,height    width from 1 to 640, height from 1 to 480

## <merge> (child of <resmerge>)

### "**resref**" (*mandatory*)

- "resid" of the prepared resource. Cannot refer to the parent <resmerge> element.

### "**flip**" (*optional*)

- 'none' (default value)
- 'xdir'
- 'ydir'
- 'xydir'

### "**filterref**" (*optional*)

- "filterid" of a previously defined <setfilter>; default value: "" (the empty string)

### "**reliefref**" (*optional*)

- "reliefid" of a previously defined <setrelief>; default value: "" (the empty string)

### "**blur**" (*optional*)

- integer from 0 to 32; default value: 0

### "**opacity**" (*optional*)

- integer from 0 to 100; default value: 100

### "**angle**" (*optional*)

- integer from -180 to 180; default value: 0

**"pos"** (*mandatory*)

- x,y            x from -640 to 1280, y from -480 to 960

**"align"** (*optional*)

- 'left-top'
- 'left-middle'
- 'left-bottom'
- 'center-top'
- 'center-middle' (default value)
- 'center-bottom'
- 'right-top'
- 'right-middle'
- 'right-bottom'

**"combine"** (*mandatory*)

- 'add'
- 'clip'
- 'cutout'
- 'inter'

**"shadowref"** (*optional*)

- "shadowid" of a previously defined <setshadow>; default value: "" (the empty string)

**<layer>** (child of <frogans-fsdl> or <button>)

**"layerid"** (*mandatory*)

- unique identifier

**"leapout"** (*mandatory*)

- 'all'
- 'lead' (*only possible value if child of <button>*)
- 'vignette'

**"resref"** (*mandatory*)

- "resid" of a previously prepared resource

**"flip"** (*optional*)

- 'none' (default value)
- 'xdir'
- 'ydir'
- 'xydir'

**"filterref"** (*optional*)

- "filterid" of a previously defined <setfilter>; default value: "" (the empty string)

**"reliefref"** (*optional*)

- "reliefid" of a previously defined <setrelief>; default value: "" (the empty string)

**"blur"** (*optional*)

- integer from 0 to 32; default value: 0

**"opacity"** (*optional*)

- integer from 0 to 100; default value: 100

**"angle"** (*optional*)

- integer from -180 to 180; default value: 0

**"pos"** (*mandatory*)

- x,y            x from -640 to 1280, y from -480 to 960

**"align"** (*optional*)

- 'left-top'
- 'left-middle'
- 'left-bottom'
- 'center-top'
- 'center-middle' (default value)
- 'center-bottom'
- 'right-top'
- 'right-middle'
- 'right-bottom'

**"combine"** (*mandatory*)

- 'add'
- 'clip' (*only possible value if child of <button>*)
- 'cutout'
- 'inter'

**"shadowref"** (*optional*)

- "shadowid" of a previously defined <setshadow>; default value: "" (the empty string)

**"visible"** (*applicable if child of <button>; mandatory in that case*)

- 'always'
- 'nofocus'
- 'focus'

## <button>

Contains from 1 to 128 <layer> elements (including the <layer> elements contained in the <frogans-fsdl> element).

Each <button> element must contain at least two <layer> elements.

In addition, if there is one <layer> element where the value of the "visible" attribute equals 'always', then there must be at least one other <layer> element where the value of the "visible" attribute equals either 'focus' or 'nofocus'; otherwise (i.e. there is no <layer> element where the value of the "visible" attribute equals 'always'), there must be at least one <layer> element where the value of the "visible" attribute equals 'focus', and at least one <layer> element where the value of the "visible" attribute equals 'nofocus'.

### **"buttonid"** (mandatory)

- unique identifier

### **"goto"** (mandatory)

- 'slide'
- 'frogans-site'
- 'web-site' (for future use)
- 'email-message' (for future use)

### **"fileref"** (applicable if "goto"='slide'; mandatory in that case)

- "fileid" of a previously defined <file>

### **"address"** (applicable if "goto"='frogans-site'; mandatory in that case)

- Frogans address of another Frogans site (e.g. 'network-name\*site-name')

### **"url"** (applicable if "goto"='web-site'; mandatory in that case)

- URL of a Web site. For future use; currently only possible value is "" (empty string)

### **"email"** (applicable if "goto"='email-message'; mandatory in that case)

- e-mail address. For future use; currently only possible value is "" (empty string)

**<next>**

Slide of the Frogans site to be loaded automatically after a defined period.

**"delay"** (*mandatory*)

- integer from 5 to 86400, in seconds

**"fileref"** (*mandatory*)

- "fileid" of a previously defined <file>

## Appendix 1: "scripts" attribute of the <font> element

The following case-sensitive script names can be used to compose the value of the "scripts" attribute of the <font> element. They are listed in the order defined for Unicode scripts in the Unicode standard.

default            *(to be used alone)*

Common

Latin

Greek

Cyrillic

Cyrillic:Macedonian

Cyrillic:Serbian

Armenian

Hebrew

Arabic

Arabic:Kurdish

Arabic:Sindhi

Arabic:Urdu

Syriac

Thaana

Devanagari

Bengali

Gurmukhi

Gujarati

Oriya

Tamil

Telugu

Kannada

Malayalam

Thai

Lao



Tibetan  
Myanmar  
Georgian  
Hangul  
Ethiopic  
Cherokee  
Canadian\_Aboriginal  
Ogham  
Runic  
Khmer  
Mongolian  
Hiragana  
Katakana  
Bopomofo  
Han:Chinese\_Simplified  
Han:Chinese\_Traditional  
Han:Japanese  
Han:Korean  
Yi  
Buhid  
Limbu  
Braille  
Buginese  
Coptic  
Tifinagh  
Phags\_Pa  
Nko

## Appendix 2: "pfont" attribute of the <font> element

<b>"pfont" attribute value</b>	<b>Corresponding font name</b>
101-1-serif-r	Abyssinica SIL, Regular
102-1-serif-r	Amiri Quran, Regular
102-2-serif-b	Amiri, Bold
102-3-serif-bi	Amiri, Bold Slanted
102-4-serif-r	Amiri, Regular
102-5-serif-i	Amiri, Slanted
103-1-sans-r	AnjaliOldLipi, Regular
104-1-serif-b	Annapurna SIL, Bold
104-2-serif-r	Annapurna SIL, Regular
105-1-serif-r	AR PL Ukai CN, Regular
105-2-serif-r	AR PL Ukai HK, Regular
105-3-serif-r	AR PL Ukai TW MBE, Regular
105-4-serif-r	AR PL Ukai TW, Regular
106-1-serif-r	Caslon, Roman
107-1-serif-r	Caudex, Regular
108-1-sans-r	Comic Relief, Regular
109-1-mono-r	Consola Mono, Book
110-1-mono-r	Courier Prime, Regular
111-1-sans-r	Cousine, Regular
112-1-mono-r	DejaVu Sans Mono, Book
112-2-sans-r	DejaVu Sans, Book
112-3-sans-r	DejaVu Sans, Condensed
112-4-sans-r	DejaVu Sans, ExtraLight
112-5-serif-b	DejaVu Serif, Bold
112-6-serif-bi	DejaVu Serif, Bold Italic
112-7-serif-i	DejaVu Serif, Italic
112-8-serif-r	DejaVu Serif, Book
112-9-serif-r	DejaVu Serif, Condensed
112-10-serif-b	DejaVu Serif, Condensed Bold
112-11-serif-bi	DejaVu Serif, Condensed Bold Italic

<b>"pfont" attribute value</b>	<b>Corresponding font name</b>
112-12-serif-i	DejaVu Serif, Condensed Italic
113-1-serif-i	EB Garamond, 08 Italic
113-2-serif-r	EB Garamond, 08 Regular
114-1-sans-r	Ekushey Lohit, Normal
115-1-serif-r	Ethiopic Fantuwua, Regular
116-1-serif-r	Ethiopic Wookianos, Regular
117-1-serif-r	Ethiopic Yigezu Bisrat Gothic, Regular
118-1-serif-r	HanaMinA, Regular
119-1-serif-r	Jomolhari, Regular
120-1-serif-r	Kalpurush, Regular
121-1-sans-r	Lohit Devanagari, Regular
121-2-sans-r	Lohit Marathi, Regular
122-1-sans-b	Noto Kufi Arabic, Bold
122-2-sans-r	Noto Kufi Arabic, Regular
122-3-sans-b	Noto Naskh Arabic, Bold
122-4-sans-r	Noto Naskh Arabic, Regular
122-5-serif-r	Noto Nastaliq Urdu Draft, Regular
122-6-sans-r	Noto Sans CJK JP, DemiLight
122-7-sans-r	Noto Sans CJK KR, DemiLight
122-8-sans-r	Noto Sans CJK SC, DemiLight
122-9-sans-r	Noto Sans CJK TC, DemiLight
122-10-sans-r	Noto Sans Hebrew, Regular
122-11-sans-b	Noto Sans Kannada, Bold
122-12-sans-r	Noto Sans Kannada, Regular
122-13-sans-b	Noto Sans Malayalam, Bold
122-14-sans-r	Noto Sans Malayalam, Regular
122-15-sans-b	Noto Sans Myanmar, Bold
122-16-sans-r	Noto Sans Myanmar, Regular
122-17-sans-b	Noto Sans Oriya, Bold
122-18-sans-r	Noto Sans Oriya, Regular
122-19-sans-b	Noto Sans Tamil UI, Bold
122-20-sans-r	Noto Sans Tamil UI, Regular
122-21-sans-b	Noto Sans Telugu, Bold

<b>"pfont" attribute value</b>	<b>Corresponding font name</b>
122-22-sans-r	Noto Sans Telugu, Regular
122-23-sans-b	Noto Sans Thai, Bold
122-24-sans-r	Noto Sans Thai, Regular
122-25-sans-b	Noto Sans, Bold [Khmer]
122-26-sans-r	Noto Sans, Regular [Khmer]
122-27-serif-b	Noto Serif Thai, Bold
122-28-serif-r	Noto Serif Thai, Regular
123-1-sans-b	Padauk, Bold
123-2-sans-r	Padauk, Regular
124-1-sans-r	Rupali, Regular
125-1-serif-b	SeoulHangang, B
125-2-serif-r	SeoulHangang, M
126-1-serif-r	SolaimanLipi, Normal
127-1-sans-r	TharLon, Regular
128-1-serif-b	Tinos, Bold
128-2-serif-bi	Tinos, Bold Italic
128-3-serif-i	Tinos, Italic
128-4-serif-r	Tinos, Regular