

ClockTunes

XML Reference

Clock Engine Version 1.1

Rev 1.2 (06-01-13)

Rev 1.1 (09-22-12)

XML Format

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>

<ClockSkinXML version="1.1">

  <clockinfo>
    <version>1.0</version>
    <name>test</name>
    <description></description>
    <author>Your Name</author>
    <email>mail@mail.com</email>
    <webpage>http://www.leechbite.com</webpage>
  </clockinfo>

  <clocklayout width="768" height="768" background="RGB:0.3,0.3,0.3">

    <!-- clock elements go here -->

  </clocklayout>

</ClockSkinXML>
```

<clocklayout/> - defines the clock layout. Under this tag are the clock elements.
width,height = sets the main dimensions of the clock in pixels. The clock might be scaled down to a smaller size but the width/height proportion will be maintained. Clock will not be scaled up above the defined width and height.

background = sets the background color/pattern of the clock.

Example:

background="RGB:0.0,0.0,1.0" will display a blue background. Red, Green and Blue values range from 0.0 to 1.0.

background="PATTERN:brick.png" will display a tiled background of 'brick.png' image.

overflow = sets how overflow outside the clock layout is displayed. (values: "default", "hidden")

General Attributes:

x, y = location coordinates for object based on layout size.

alternative values:

center = centers the object.

xx% = sets as xx percentage to layout width or height.

width,height = sets object width and height. (default is image width and height if available)

alpha = sets alpha transparency (0.0 to 1.0; default = 1.0)

shadowopacity = sets shadow opacity on element, value = 0.0 to 1.0. (default = 0.0 i.e. no shadow)

shadowoffset = sets shadow offset in format "xoffset,yoffset". (default = "0,-3.0")

shadowcolor = sets shadow color in format "red,green,blue", color range is from 0.0 to 1.0. (e.g.

"1.0,0.0,0.0" for red. default = "0.0,0.0,0.0")

shadowradius = sets shadow's blur radius. (default = 3.0)

NOTE: Shadows affects layer animation performance. For frequently animated objects (e.g. second-hand), it would be better to add an extra shadow image layer instead.

smoothtransistion = when set, this will give any animation a smooth transition. (default = "0")
"0" - no smooth transition.
"1" - provides smooth transition using the default animation time.
Any float value, e.g. "1.0", "0.5" will have a transition animation time specified in seconds. Transition time will not be higher than refreshinterval.

animcurve = to be used with smoothtransistion. This specifies the animation curve function for the transition.
(values: "default", "easein", "easeout", "easeinout" or "linear")

<layer/> - used to display image element.

image = image file name to display. (only PNG/JPG files are supported)

<clockhand/> - displays an analog clock hand.

image = image file name for the clock hand. **Tip:** To minimize 'jaggies' on the image as it rotates, allow few empty (transparent) pixels around the image.

fullrotatettime = time counts (in seconds) based on timeinterval to represent a full 360 deg hand rotation. (min = 1.0; default = 60.0)
e.g. fullrotatettime = 43200 (= 60sec X 60min X 12hrs) will show a hour hand.
fullrotatettime = 3600 will show a minute hand.
fullrotatettime = 60 will show a second hand.

angleoffset = offsets the rotation of the clock hand rotation in degrees. +ve value for CW offset, -ve for CCW offset.
useful for tilted clock design.

anglescale = scales the rotation (default = 1.0)
e.g. angle scale = 0.5 will move the clock hand at half angle
angle scale = -1.0 will move the clock in reverse (CCW rotation)

resolution = defines the resolution, in degrees, the hand angle is set. (min setting = 0.5)
e.g. resolution = 6 will move the hand on the full second. (360 deg / 60 sec = 6 deg/sec)
resolution = 30 will move the hand on every 5 second mark.

refreshinterval = sets how frequently, in seconds, the hand updates. Default is 1 sec. Fastest refresh setting is 0.1 sec.
refreshinterval are automatically rounded to factors of 0.1;
anchorx,anchor = x & y coordinates on the image where it will be rotated.
Setting to "center" will rotate image on center of image.

smoothtransistion = when set, this will animate the clockhand into the next position giving a smoother transistion. (default = "0")

<text/>

format = format of text to be displayed, %@ is replaced with arguments. e.g. "Today's date is: %@"
arguments = lists the arguments for the format separated by "|". To display "|", use "||".
Conforms to Unicode Date Field Symbol Table. http://unicode.org/reports/tr35/tr35-6.html#Date_Format_Patterns

e.g.
now:EEEE MMMM d, YYYY - will replace %@ on format with current time & date, like:
Tuesday August 9, 2011
alarm:hh:mm a - will display the alarm time in: 07:30 AM (not yet available)

font = text font. Available fonts are listed here: <http://iosfonts.com/>
fontsize = text size
align = text alignment (values: left,center,right; default = "left")
color = text color in format "red,green,blue", color range is from 0.0 to 1.0. (e.g. "1.0,0.0,0.0" for red. default = "1.0,1.0,1.0")

arguments code:

a:	AM/PM
A:	0~86399999 (Millisecond of Day)
c/cc:	1~7 (Day of Week)
ccc:	Sun/Mon/Tue/Wed/Thu/Fri/Sat
cccc:	Sunday/Monday/Tuesday/Wednesday/Thursday/Friday/Saturday
d:	1~31 (0 padded Day of Month)
D:	1~366 (0 padded Day of Year)
e:	1~7 (0 padded Day of Week)
E~EEEE:	Sun/Mon/Tue/Wed/Thu/Fri/Sat
EEEE:	Sunday/Monday/Tuesday/Wednesday/Thursday/Friday/Saturday
F:	1~5 (0 padded Week of Month, first day of week = Monday)
g:	Julian Day Number (number of days since 4713 BC January 1)
G~GGG:	BC/AD (Era Designator Abbreviated)

GGGG: Before Christ/Anno Domini

h: 1~12 (0 padded Hour (12hr))
H: 0~23 (0 padded Hour (24hr))

k: 1~24 (0 padded Hour (24hr))
K: 0~11 (0 padded Hour (12hr))

L/LL: 1~12 (0 padded Month)
LLL: Jan/Feb/Mar/Apr/May/June/July/Aug/Sep/Oct/Nov/Dec
LLLL: January/February/March/April/May/June/July/August/September/October/November/December

m: 0~59 (0 padded Minute)
M/MM: 1~12 (0 padded Month)
MMM: Jan/Feb/Mar/Apr/May/June/July/Aug/Sep/Oct/Nov/Dec
MMMM: January/February/March/April/May/June/July/August/September/October/November/December

q/qq: 1~4 (0 padded Quarter)
qqq: Q1/Q2/Q3/Q4
qqqq: 1st quarter/2nd quarter/3rd quarter/4th quarter
Q/QQ: 1~4 (0 padded Quarter)
QQQ: Q1/Q2/Q3/Q4
QQQQ: 1st quarter/2nd quarter/3rd quarter/4th quarter

s: 0~59 (0 padded Second)
S: (rounded Sub-Second)

u: (0 padded Year)

v~vvv: (General GMT Timezone Abbreviation)
vvvv: (General GMT Timezone Name)

w: 1~53 (0 padded Week of Year, 1st day of week = Sunday, NB: 1st week of year starts from the last Sunday of last year)
W: 1~5 (0 padded Week of Month, 1st day of week = Sunday)

y/yyyy: (Full Year)
yy/yy: (2 Digits Year)
Y/YYYY: (Full Year, starting from the Sunday of the 1st week of year)
YY/YYYY: (2 Digits Year, starting from the Sunday of the 1st week of year)

z~zzz: (Specific GMT Timezone Abbreviation)
zzzz: (Specific GMT Timezone Name)
Z: +0000 (RFC 822 Timezone)

<digits/>

digitsimage = image filename of digits graphics.
Image is an equally spaced graphics containing the images for 0,1,2,3,4,5,6,7,8,9,-
,:(on),:(off),.,AM,PM
Images can be stacked horizontally or vertically.
digitwidth = width of digits in pixels.
digitheight = height of digits in pixels.
colonwidth = width of ':' in pixels. The image from digitsimage will be cropped on sides leaving the image on the center. (Defaults to digitwidth if not specified)
spacewidth = width of a space in pixels. (Defaults to digitwidth if not specified)

format = format to be displayed. Digits image is a smaller subset of the text formatting.

format code:

a: AM/PM

A: 0~9 (msec)
AA: 00~99 (msec)
AAA: 000~999 (msec)

ss: 00~59 (seconds)
S: (rounded Sub-Second)
mm: 00~59 (minute)

hh: 01~12 (Hour)
HH: 00~23 (Hour)
kk: 01~24 (Hour)

KK: 00~11 (Hour)

dd: 01~31 (Day of Month)

DDD: 001~366 (Day of Year)

c: 1~7 (day of week. 1=Sun,2=Mon, etc.)

Tip: this can be used to display day of week by placing day of week graphics into digitalimage instead of numbers.)

ww: 01~53 (week of year)

L: 0~9,:(on),:(off) (digital month,. 0=Jan, 1=Feb ... 9=Oct, :(on)-Nov, :(off)-Dec

Use digitalimages to display different graphics of each month.)

ll: 01~12 (Month)

q: 1~4 (Quarter)

yy: 00~99 (2-digit year)

yyyy: 0000~9999 (4-digit year)

: - colon

; - blinking colon

x: space. This could be paired with other code to display space instead of a number.

e.g. xs - would display a space and the first digit of the 2-digit seconds.

sx - would display 2nd digit of the seconds and a space.

AxA - would display 3rd digit of msec, a space then 1st digit.

x can be used to display different font for different digits by layering 2 or more digits objects.

Animations

Simple animations can be achieved by adding simple expressions to element properties. For example, you can set `alpha="sec/59"`, and the element will change its alpha level from 0.0 to 1.0 as the seconds changes. Expressions can be added to *alpha*, *x*, *y*, *width* and *height* properties.

Available variables are:

msec, ***sec***, ***min***, ***hr***, ***day***, ***dow*** (day of week), ***day*** (day of year), ***woy*** (week of year), ***month***, ***year***.

GMT variables are:

gmthr, ***gmtday***, ***gmdow***, ***gmtday***, ***gmtmonth***.

Supported functions and operators

- Basic operators: +, -, * (multiply) and / (divide)
- Mod operator: %
- Exponentiation operator: ^
- Negation: unary -
- Assignment: =
- Log functions: log(), log2(), ln(), exp()
- Transcendental functions: sin(), cos(), tan(), asin(), acos(), atan(), sinh(), cosh(), tanh(), asinh(), acosh(), atanh()
- Square root function: sqrt()
- Rounding functions: ceil(), floor(), round(), trunc(), rint(), near()
- Angular conversion functions: dtor(), rtod()
- Absolute value function: abs()
- Constants: pi