



Sketchify Tutorial

Timers

sketchify.sf.net

Željko Obrenović

z.obrenovic@tue.nl



Timers

- Timers can update variables so that the flow of time can be incorporated in a sketch
- A timer has a cycle duration and time resolution, and variables updated by it
- A timer can cycle more than once, or work as a “pulsar”
 - Pulsar: a variable increases from its minimum value to its maximum value in the forward cycle, while it decreases in the backward cycle.



Defining Timers

The screenshot shows a software interface for defining a timer. The main window is titled "Timer 1" and contains the following settings:

- Name: Timer 1
- Duration: 2.0
- Wait Before: 0.0
- Wait After: 0.0
- Resolution: 10.0
- Timer Curve: (dropdown menu)
- Options: Loop, Pulsar, Reset

Below the settings is a table with the following columns: Variable, Start value, End value, Prefix, Postfix, Format, Curve, and Test Value. The table is currently empty.

At the bottom of the window are buttons for Test, Reset, Delete, Duplicate, Move Up, Move Down, and Edit.

On the right side, there is a pane with tabs for Sketchlets, I/O Services, Timers, and Macros. The "Timers" tab is circled in red. A red arrow points from this tab to the "Timer 1" title bar of the main window.



Timers

- Timers are essential for animation effects
 - A timer may update the variable associated with the image path of an active region, hence changing the image shown in the active region.
 - We can graphically transform an active region, changing, for example, its position, orientation, transparency or size. For example, we can define a timer with a cycle duration of 60 seconds and a resolution of one update per second to update the variable “orientation” from 0 to 360 degrees. This variable can be used to control the orientation of other active regions, simulating the handle of a clock, for instance.



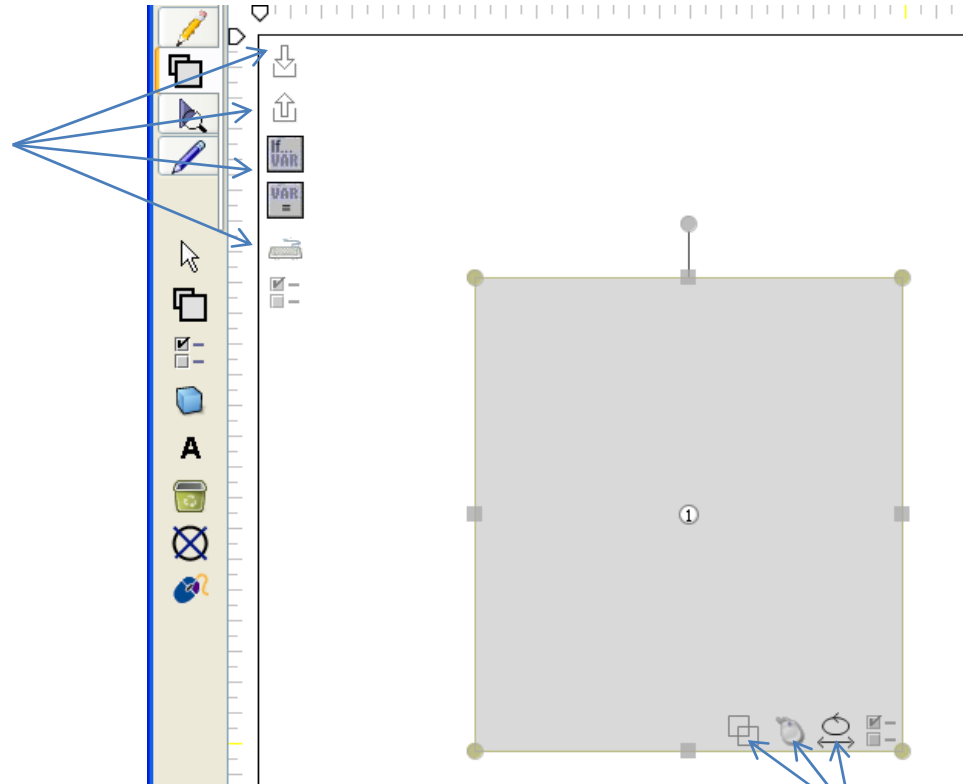
Starting Timers

- Timers can be started from several places
 - On active region mouse events
 - On sketch events (entry or exit)
 - On variable updates ("On Variable Update" actions)
 - On keyboard events
 - From other macros, as one of the commands
- Drag-and-Drop on any sketch or region event
- Directly specify in settings



Drop Event Anchors

Anchors for connecting sketch events (on entry, on exit, on variable update, on keyboard event) by drag-and-drop of variables, timers and macros. You can also double-click on these icons to open current settings for these events and properties.



Anchors for connecting region events (region overlap, discrete mouse events, continues mouse events) by drag-and-drop of variables, timers and macros. You can also double-click on these icons to open current settings for these events and properties.



Directly Specify in Settings

On Entry | On Exit | On Variable Updates | On Keyboard Events

Start macro

Macro 1

Repeat: 1

Complete Blocks | Reset | Test

highlight execution

Image	Mouse Event	Action	Param1	Param2
Properties	Left Button Press	Start macro	Macro 1	
Move & Rotate	Left Button Press	Variable update		
Mouse Events				
Overlap & Touch				
Embedded Sketch				



Timer Curves

- Mapping between time and variable values can also be given nonlinearly, using timer curves. Timer curves can be defined manually, or extracted from the active region trajectory timestamps.



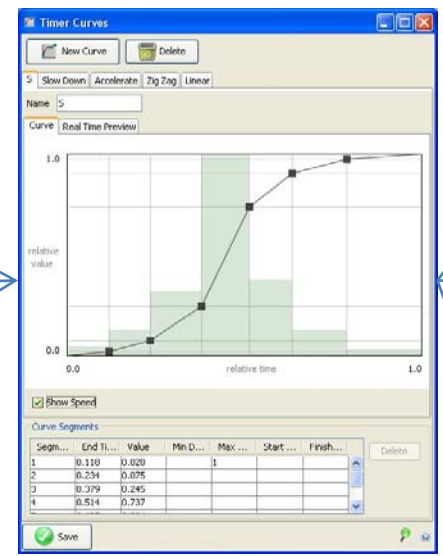
Timer Curves

- Timer curves enable defining the non-linear mapping between time and values in timers. Without using timer curves, timers change variable values linear from start to end value. With timer curves, however, such time transition can have variable speed, for example, progressing fast at the beginning and then slowing down at the end. A timer curve is defined independent from the timer. A timer can define a default timer curve which will be used for all variable updates, but it can also use different curves for each variable.



Timer defines:

- Duration of the cycle
- Resolution
- Loop and pulsar options
- Initial and end delays



Timer curve defines relative mapping between time in each timer cycle and updated values

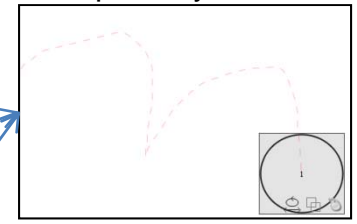
Variable

Variable

Variable

Variable

Active region trajectory, transparency, size...



MIDI Player



External applications

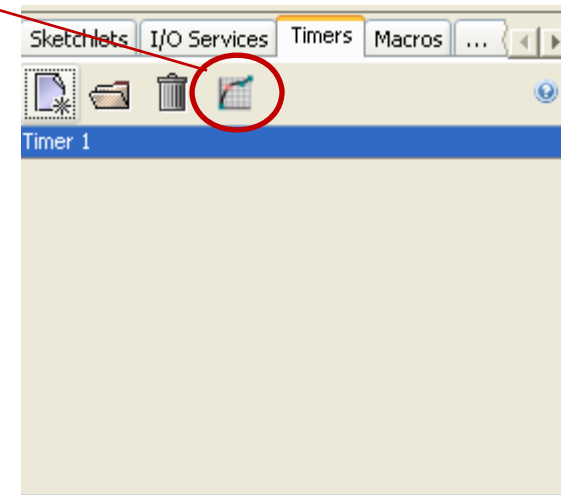
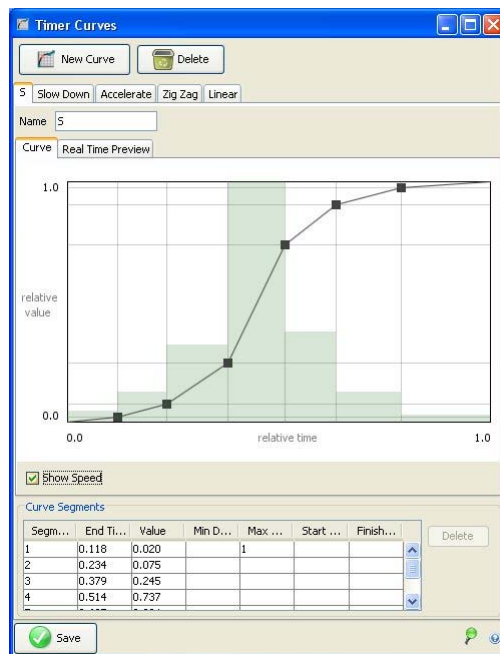


By combining data from the timer and timer curve, we then update various **variables** used to change properties of sketches and active regions, or control services and applications



Defining a Curve

- A curve consists of curve points which define curve segments with different speeds





Create a new curve

Delete a curve

Timer Curves

New Curve Delete

5 Slow Down Accelerate Zig Zag Linear

Name 5

Curve Real Time Preview

relative value

relative time

Show Speed

Curve Segments

Segm...	End Ti...	Value	Min D...	Max ...	Start ...	Finish...
1	0.118	0.020		1		
2	0.234	0.075				
3	0.379	0.245				
4	0.514	0.737				

Delete

Save

Dragging a curve point to change its position and values

Dragging between existing points will create a new point

Delete selected curve point

Curve point parameter. For each curve point segment you can (optionally) define:

- Minimal duration
- Maximal duration
- Earliest starting time
- Latest ending time