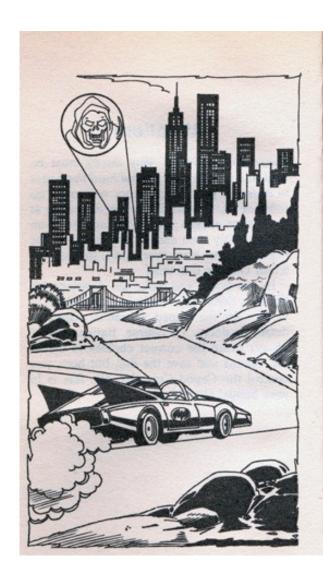
## Twine Workshop



#### Interactive Fiction



"What?!" cries Batman, nearly crashing the Batmobile. He has been speeding toward the dark streets of Gotham on his way to Police Headquarters, when the familiar Bat-Signal suddenly changed into a grinning skull! Someone has tampered with the searchlight, thinks Batman. But why turn the bat silhouette into a DEATH'S HEAD?! It must be a warning . . . or a trap.

Batman's next move could be critical. A wrong decision might mean his DOOM!

If Batman drives straight to Police Headquarters, turn to page 17.

If he radios Commissioner Gordon from the Batmobile, turn to page 26.

If he plays it safe and uses a public phone, turn to page 3.

For more information on the Bat-Signal, turn to page 119.

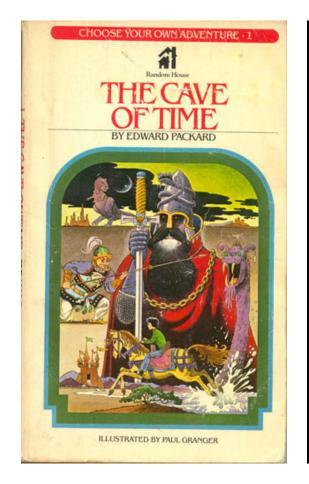


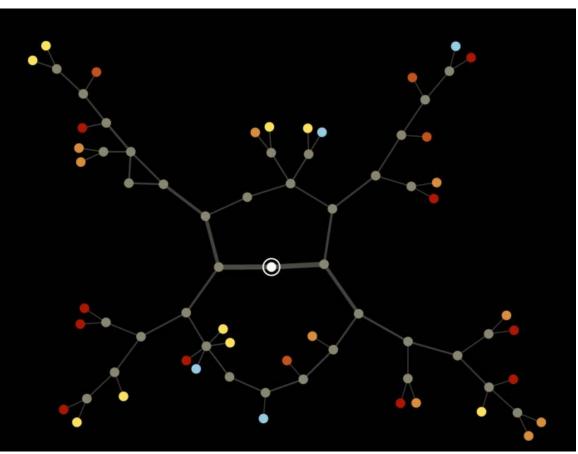
As you sit in the warm sunshine deciding about going to Morocco, you catch sight of a small girl—actually a midget—leading a dog. The midget walks up to you, hands you the leash, and before you realize that the dog is a mechanical dog, not a real one, it explodes into a thousand brilliant shards of metal. The explosion finishes you off.

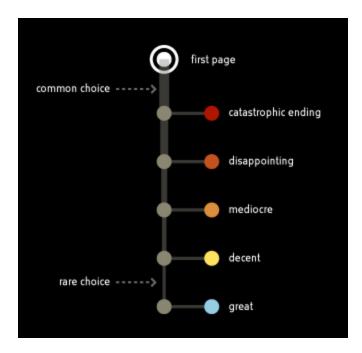
UGH! What a horrible way to go.

The End











#### Twine

- Open-source tool for building interactive stories
- Outputs to HTML
- Built upon HTML, CSS and JS



#### Twine is good at:

- Stories
- Poetry
- Text-based RPG
- Hypermedia art
- Prototyping

### Twine Examples

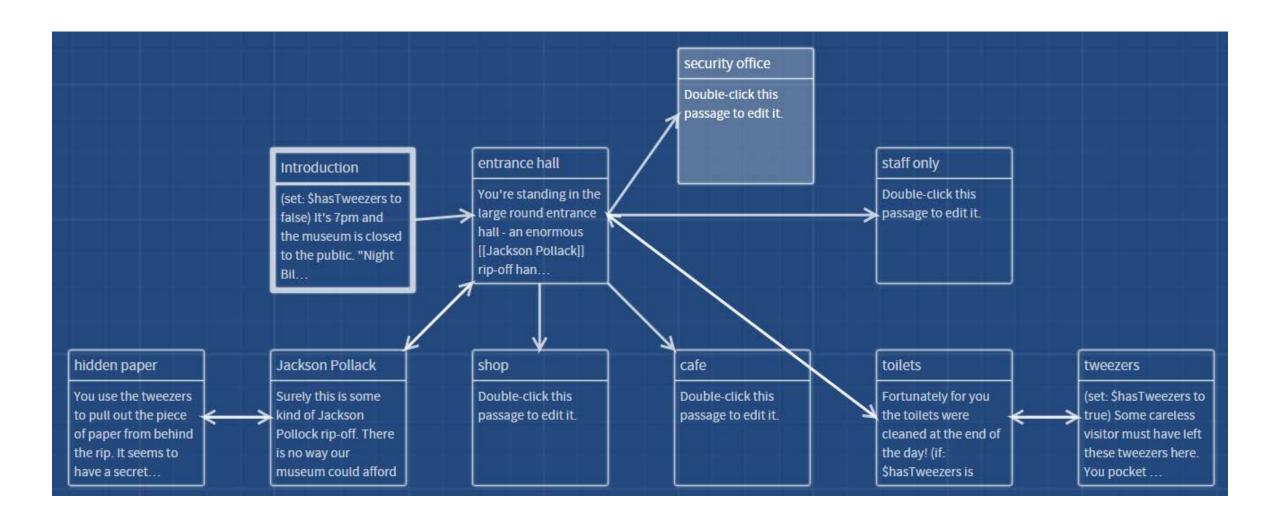
- Story
  - <u>Lifeline</u> (mobile app based on twine)
  - Player 2
  - Queers in Love at the End of the World
  - Even Cowgirls Bleed
  - The Uncle Who Works for Nintendo
- RPG/Puzzle
  - Candy Quest 3: Edge of Sweetness
  - Live, Run, Die Shop
- Empathy Games
  - Cis Gaze
- Poetry
  - A Kiss
  - Burnt Matches
- Other
  - <u>Twineplat</u>
  - <u>HHH.exe</u>

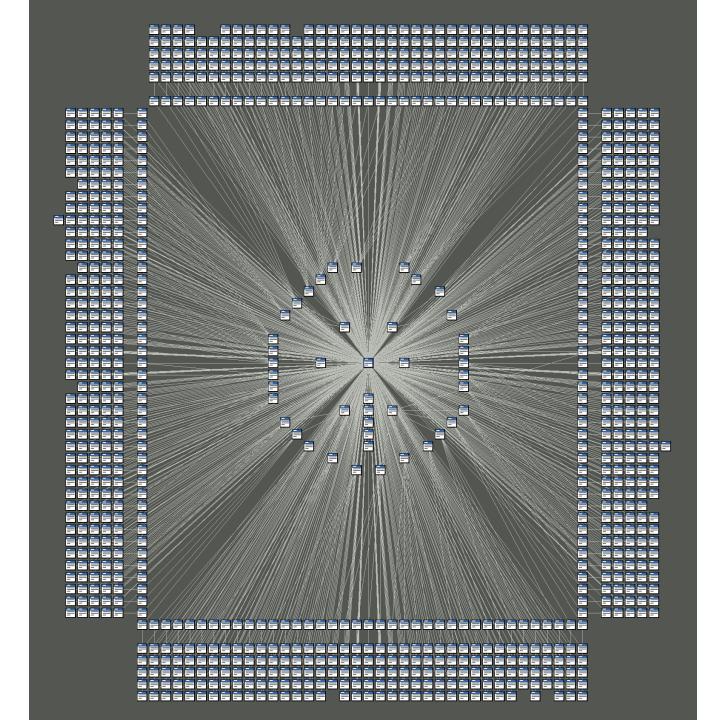


### Non-Twine Examples

- My boyfriend came back from the war
- Sleep is Death
- Digital: A Love Story
- Hatoful Boyfriend









### Twine is not so good at:

- 2D/3D graphics-based games
- Platormers, first-person shooters, etc.
- For those, check out: <u>Phaser</u>, <u>Three.js</u>, <u>Unity</u>





## Installing Twine

- Options:
  - Twine 1.4.2 the old standalone application
  - Browser-based the latest version of twine (2.01), running in the browser
  - Twine 2.01 the new standalone application
- Download 2.01 from here: <u>twinery.org</u>

#### Twine UI Demo

## Story Formats

- SugarCube
  - Easy to pick up
  - Flexible, includes save system, widely used
- Harlowe
  - Default in Twine 2
  - A little more restrictive than SugarCube
- Snowman
  - Advanced
  - Allows you to write raw HTML/CSS/JS easily



### SugarCube Installation

- 1. Download the current local version of <u>SugarCube 2.x for Twine 2</u>.
- Extract the archive to a safe location on your computer and take note of the path to it. I recommend some place like: Documents/Twine/Formats.
- 3. Click on the Formats link in the Twine 2 sidebar.
- 4. In the dialog that opens, click on the Add a New Format tab.
- 5. Finally, paste a <u>file URL</u> to the format.js file, based on the path from step #2, into the textbox and click the +Add button.
- 6. Set SugarCube as the default under "Story Formats"





#### SugarCube Documentation

- Documentation: <u>motoslave.net/sugarcube/2/</u>
- Important sections to start with:
  - Markup info on formatting
  - TwineScript info on variables
  - Macros info on SugarCube's built-in functionality

#### **Headings**

An exclamation point which begins a line defines the heading markup. It consists of one to six exclamation points, each additional one beyond the first signifying a lesser heading.

Туре	Syntax	Example	Rendered As	
Level 1	!Level 1 Heading	Level 1 Heading	<h1>Level 1 Heading</h1>	
Level 2	!!Level 2 Heading	Level 2 Heading	<h2>Level 2 Heading</h2>	
Level 3	!!!Level 3 Heading	Level 3 Heading	<h3>Level 3 Heading</h3>	
Level 4	!!!!Level 4 Heading	Level 4 Heading	<h4>Level 4 Heading</h4>	
Level 5	!!!!!Level 5 Heading	Level 5 Heading	<h5>Level 5 Heading</h5>	
Level 6	!!!!!Level 6 Heading	Level 6 Heading	<h6>Level 6 Heading</h6>	

#### **Basic Formatting**

Туре	Syntax	Example	Rendered As			
Emphasis //Emphasis//		Emphasis	<em>Emphasis</em>			
Strong U''Strong Emphasis''		Strong Emphasis	<strong>Strong Emphasis</strong>			
Underline	Underline	<u>Underline</u>	<u>Underline</u>			
Strikethrough	==Strikethrough==	Strikethrough	<s>Strikethrough</s>			
Superscript	Super^^script^^	Super <sup>script</sup>	Super <sup>script</sup>			
Subscript	Sub~~script~~	Sub <sub>script</sub>	Sub <sub>script</sub>			
Code, Inline	{{{Code}}}	Code	<code>Code</code>			
Code, Block	{{{ Code }}}	Code	<pre>Code</pre>			
Em-dash	EmDash	Em—Dash	Em-Dash			
Avoiding formatting (all markup inside is not transformed and rendered as-is)						
	"""Non-formatted""" No ''//formatting//'' No ''//formatting//''		No ''//formatting//''			
	<nowiki>Non-formatted</nowiki>	No ''//formatting//''	No ''//formatting//''			

#### **Images**

SugarCube's wiki image syntax consists of a required Image component and optional Title, Link, and Setter components. The Image, Title, and Link components may be either plain text or any valid TwineScript expression, which will be evaluated early (i.e. when the link is initially processed). The Setter component (which only works with passage links, not external links) must be a valid TwineScript expression, of the <<set>>> macro variety, which will be evaluated late (i.e. when the link is clicked on).

The Image component value may be any valid URL to an image resource (local or remote) or the title of an embedded image passage (pre-Twine 2 only). The Link component value may be the title of a passage or any valid URL to a resource (local or remote).

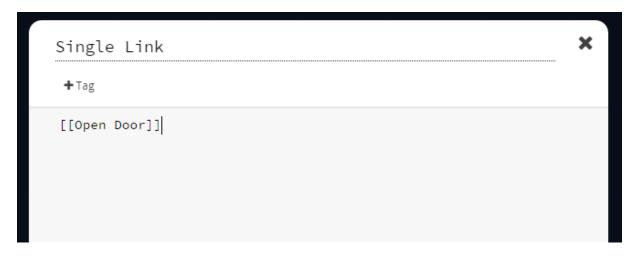
Also, in addition to the standard pipe separator (1) used to separate the Image and Title components (as seen below), SugarCube also supports the arrow separators (-> & <-). Particular to the arrow separators, the arrows' direction determines the order of the components, with the arrow always pointing at the Image component (i.e. the right arrow works like the pipe separator, Title->Image, while the left arrow is reversed, Image<-Title).

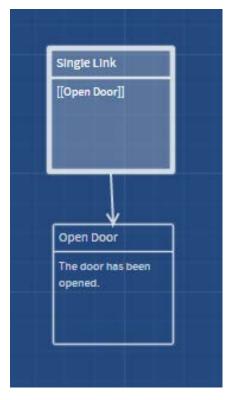
For the following examples assume: \$src is home.png, \$go is Home, and \$show is Go home

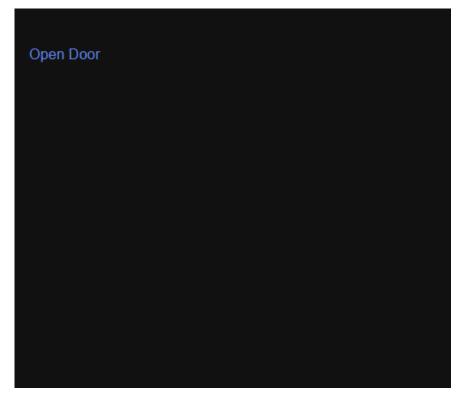
Туре	Syntax	Example	Result	
Image	[img[Image]]	[img[home.png]] [img[\$src]]		home.png
Imago w/ Link	[img[Image][Link]]	<pre>[img[home.png][Home]] [img[\$src][\$go]]</pre>	Image:	home.png
Image w/ Link			Link:	Home
	[img[Image][Link][Setter]]	<pre>[img[home.png][Home][\$done to true]] [img[\$src][\$go][\$done to true]]</pre>	Image:	home.png
Image w/ Link & Setter			Link:	Home
Lim a consi			Setter:	\$done to true
Image w/ Title	[:[T:+]- T]]	<pre>[img[Go home home.png]] [img[\$show \$src]]</pre>	Title:	Go home
Image w/ Title	[img[Title Image]]		Image:	home.png
	[img[Title Image][Link]]	<pre>[img[Go home home.png][Home]] [img[\$show \$src][\$go]]</pre>	Title:	Go home
Image w/ Title & Link			Image:	home.png
			Link:	Home
	<pre>[img[Title Image][Link][Setter]]</pre>	<pre>[img[Go home home.png][Home][\$done to true]] [img[\$show \$src][\$go][\$done to true]]</pre>	Title:	Go home
Image w/ Title,			Image:	home.png
Link, & Setter			Link:	Home
			Setter:	\$done to true

## Links



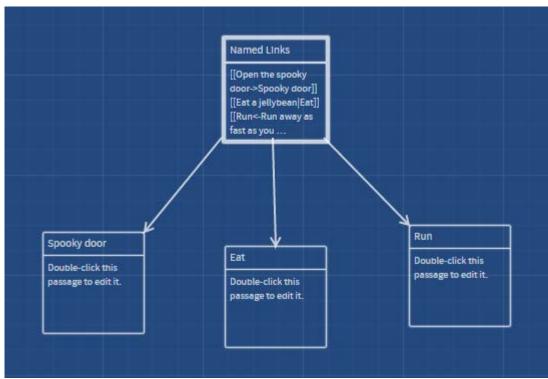












Open the spooky door
Eat a jellybean
Run away as fast as you can

## Linking to Media



### Strategies

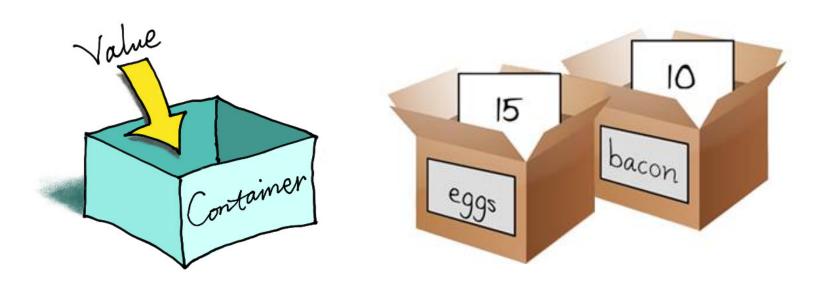
- Hotlinking
  - Linking to a file someone else has hosted online
  - If that person takes the file down, you lose access to it
- Hosting Yourself
  - Create a GitHub repository called MyTwines
  - Upload images/sounds/video to folders there
  - Link to them using a URL: http://mikewesthad.github.io/MyTwine/images/cat.png
- Encoding & Embedding
  - More info later...



#### Variables



#### Variables Are Containers



```
Variables

+Tag

</set $bacon = 10>>

</set $eggs = 15>>
```

### Twine Variable Types

- Strings
  - A series of characters inside of double quotation marks
- Numbers
  - Whole numbers or decimals
- Booleans
  - Either true or false

```
<<set $name = "Charizard">>
<<set $weight = 200>>
<<set $canFly = true>>
```

### Twine Story Variables

- Must start with a dollar sign (\$)
- Second character: A Z, a z, \$ or \_
- Any other characters: A Z, a z, 0 9, \$ or \_
- Pick meaningful, descriptive names!
- We will use <u>lowerCamelCase</u>

```
$cash
$age
$preferredNickname
$hasKeyCard2
$hasMetRobot
```

#### Macros



#### Macros

- IA macro is a piece of programming functionality
  - Under the hood, macros run a piece of JavaScript
- We've already used a macro:

```
<<set $canFly = true>>
```

- In SugarCube, there are three general types of macros
  - Documentation: <u>motoslave.net/sugarcube/2/docs/macros.html</u>



# Set Macro (Single Expression Macro)

#### <<set expression>>

Sets story \$variables and temporary \_variables based on the given expression.

#### Arguments:

expression: A valid expression. See Variables and Expressions for more information.

# Set Macro (Single Expression Macro)

TwineScript Expression

</set \$canFly = true>>

Macro Name End of Macro



#### Textbox Macro

(Multiple Expression Macro)

Oh, hello there Er, I know this Okay. I knew this once. What's your name?							
Continue							



#### Textbox Macro

#### (Multiple Expression Macro)

#### <<textbox variable\_name default\_value [passage\_name] [autofocus]>>

Creates a text input box, used to modify the value of the \$variable with the given name, optionally forwarding the user to another passage.

**SEE:** Interactive macro warning.

#### Arguments:

- variable\_name: The name of the \$variable to modify, which *must* be quoted (e.g. "\$foo"). Object and array property references are also supported (e.g. "\$foo.bar", "\$foo['bar']", & "\$foo[0]").
- default\_value: The default value of the text box.
- · passage name: (optional) The name of the passage to go to if the return/enter key is pressed.
- autofocus: (optional) Keyword, used to signify that the text box should automatically receive focus. Only use the keyword once per page;
   attempting to focus more than one element is undefined behavior.

#### Usage:

```
→ Creates a text box which modifies $pie
What's your favorite pie? <<textbox "$pie" "Blueberry">>>

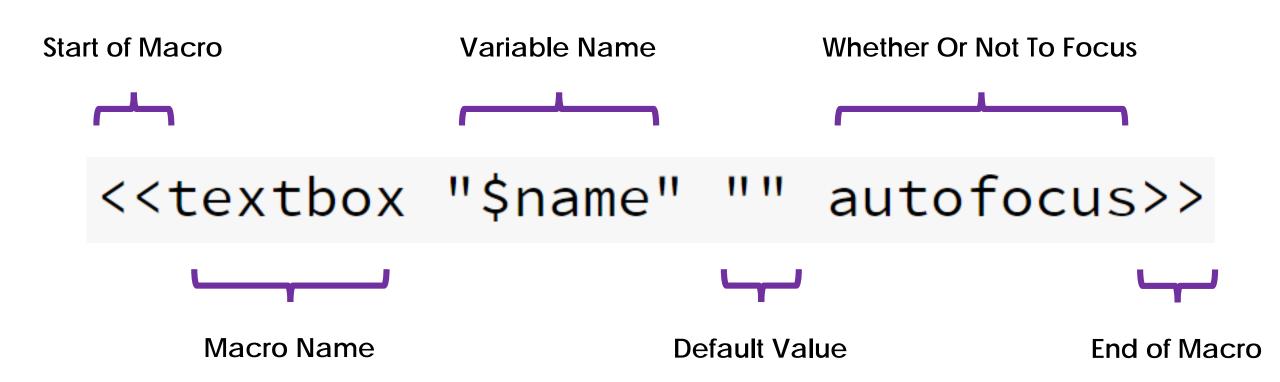
→ Creates an automatically focused text box which modifies $pie
What's your favorite pie? <<textbox "$pie" "Blueberry" autofocus>>

→ Creates a text box which modifies $pie and forwards to the "Cakes" passage
What's your favorite pie? <<textbox "$pie" "Blueberry" "Cakes">>>

→ Creates an automatically focused text box which modifies $pie and forwards to the "Cakes" passage
What's your favorite pie? <<textbox "$pie" "Blueberry" "Cakes" autofocus>>
```

#### Textbox Macro

(Multiple Expression Macro)



**Note:** When a macro takes multiple parameters, you need to separate each parameter with whitespace!



#### Conditional Macros

## Conditionals

- Oftentimes, you will need to do something only under certain conditions
  - E.g. if the player has the key, let them open the chest
  - E.g. if the player's health drops to zero, restart the game
- In order to express this in code, we need two things:
  - A way to compare variables (conditional operators)
  - A new set of macros (if, elseif, else)

### JavaScript conditional operators: (not an exhaustive list)

==	Evaluates to true if both sides are equal (e.g. \$bullets == 6).
!=	Evaluates to true if both sides are not equal (e.g. \$pie != "cherry").
===	Evaluates to true if both sides are strictly equal (e.g. \$bullets === 6).
!==	Evaluates to true if both sides are <i>strictly</i> not equal (e.g. \$pie !== "cherry").
>	Evaluates to true if the left side is greater than the right side (e.g. \$cash > 5).
>=	Evaluates to true if the left side is greater than or equal to the right side (e.g. $foundStars >= foundStars$ ).
<	Evaluates to true if the left side is less than the right side (e.g. \$shoeCount < (\$peopleCount * 2)).
<=	Evaluates to true if the left side is less than or equal to the right side (e.g. \$level <= 30).
!	Flips a true evaluation to false, and vice versa (e.g. !\$hungry).
&&	Evaluates to true if all subexpressions evaluate to true (e.g. \$age >= 20 && \$age <= 30).
П	Evaluates to true if any subexpressions evaluate to true (e.g. \$friend === "Sue"    \$friend === "Dan").



(Opening/Closing Macro)

```
<<if conditional_expression>>, <<elseif conditional_expression>>, & <<else>>
```

Executes its contents if the given conditional expression evaluates to true. If the condition evaluates to false and an <<else>>> exists, then other contents can be executed.

**NOTE:** SugarCube does not trim whitespace from the contents of <<if>>> macros, so that authors don't have to resort to various kludges to get whitespace where they want it. However, this means that extra care must be taken when writing them to ensure that unwanted whitespace is not created within the final output.

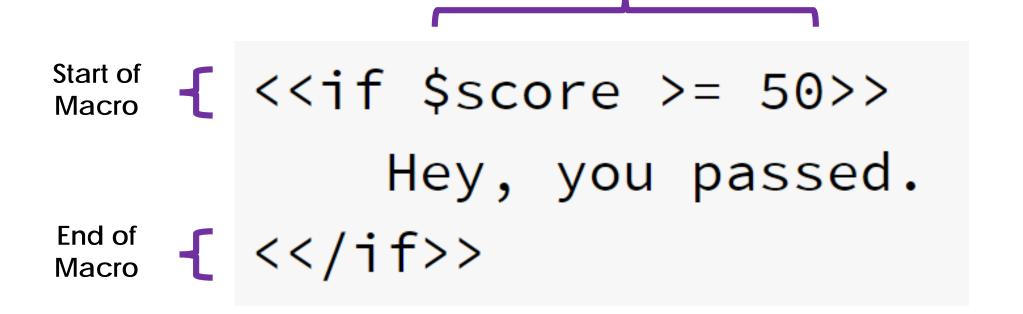
### Arguments:

conditional\_expression: A valid conditional expression, evaluating to either true or false. See Expressions for more information.



(Opening/Closing Macro)

### **Conditional Expression**



**Note:** assume we already have a variable called \$score



(Opening/Closing Macro)

```
<<if $score >= 50>>
    Hey, you passed.
<<else>>
   Well, better luck next time.
<</if>>
```



(Opening/Closing Macro)

```
<<if $score >= 90>>
    Nice, an A.
<<elseif $score >= 50>>
    Hey, you passed.
<<else>>
    Well, better luck next time.
<</if>>
```

```
<!-- Checking a Boolean -->
<<if $isRaining>>
Bring an umbrella.
<</if>>
```

```
<!-- Comparing a String -->
<<if $name == "Lassie">>
    What, Timmy's fallen in the well?
<</if>>
```

# Special Passages

### **Passage Names**

Passage	Description						
PassageDone	Used for post-passage-display tasks, like redoing dynamic changes (happens after the rendering and display of each passage).  Equivalent to the postdisplay task object.						
PassageFooter	Footer Appended to each rendered passage. Mostly equivalent to the postrender task object.						
PassageHeader	Prepended to each rendered passage. Mostly equivalent to the prerender task object.						
PassageReady	Used for pre-passage-display tasks, like redoing dynamic changes (happens before the rendering of each passage). Equivale to the predisplay task object.						
Start	Twine 1:	Required. The starting passage, the first passage displayed. Configurable, see Config.passages.start for mor information.					
	Twine 2:	Not special. Choose the starting passage by marking it via the 🖋 (rocket ship icon) passage context-menu item.					
StoryAuthor	Sets the authorial byline in the UI bar (element ID: story-author).						
StoryBanner	Set the story's banner in the UI bar (element ID: story-banner).						
StoryCaption	Sets the story's caption in the UI bar (element ID: story-caption).						
StoryInit	Used for p	pre-story-start initialization tasks, like variable initialization (happens at the beginning of story initialization).					
StoryMenu	Sets the story's menu items in the UI bar (element ID: menu-story).						
StanuSattings	Twine 1:	Not special and not used. The Configuration Object serves the same basic purpose.					
StorySettings	Twine 2:						
StoryShare	Used to populate the contents of the Share dialog.						
StorySubtitle	Sets the story's subtitle in the UI bar (element ID: story-subtitle).						
StanuTitle	Twine 1:	Required. Sets the story's title in the UI bar and elsewhere (element ID: story-title).					
StoryTitle	Twine 2:	Not special. The story's title/name is part of the story project.					
		Compiler Passages (not meaningful to story formats, listed only for completeness)					
ChanuTnalud	Twine 1:	Used by the compiler to include other Twine (.tws) or Twee (.twee, .tw) source files during compilation.					
StoryIncludes	Twine 2:	: Unsupported by the compiler (i.e. Twine 2).					



```
StoryInit

+Tag

</set $hasKey = false>>
</set $score = 0>>|
```

# Cycling Link Macro

## **Custom Macros**

- If you know JavaScript, you can write your own macro
- The <<cyclinglink>> macro allows you to create a link that cycles through a series of options when you click on it
- Installing the macro
  - Download the macro <u>here</u>
  - Open up cyclinglink-macro.min.js in VS Code
  - Copy and paste it into you "Story JavaScript" in Twine

Variable to Store
Current Link

<<cyclinglink "\$pieType" "apple" "blueberry" "pumpkin">>

Values to Cycle Through

## **Audio Macros**



## Supported Audio Formats

- MP3 all browsers
- WAV all but IE

Format	Container	Chrome	Internet Explorer	Edge	Firefox	Opera	Safari
PCM	WAV	Yes	No	Yes	Yes, in v3.5	Yes, in v11.00	Yes, in v3.1
MP3	-	Yes	Yes, in IE9	Yes	From OS <sup>[a]</sup>	From OS <sup>[a]</sup>	Yes, in v3.1
AAC	MP4	Yes	Yes, in IE9	Yes	From OS <sup>[a]</sup>	From OS <sup>[a]</sup>	Yes
	ADTS[b]	Yes	No	Yes	From OS, in v45.0	No	Yes
Vorbis	Ogg	Yes, in v9	No	No	Yes, in v3.5	Yes, in v10.50	With Xiph QuickTime Components
	WebM	Yes	No	No <sup>[15]</sup>	Yes, in v4.0	Yes, in v10.60	No
Opus	Ogg	Yes, in v25 (in v31 for Windows)	No	No	Yes, in v15.0	Yes, in v14	No
	WebM	Yes	No	Yes <sup>[16][17]</sup>	Yes, in v28.0 <sup>[18]</sup>	Yes	No
FLAC	FLAC	Yes, in v56 <sup>[19]</sup>	No	?	Yes, in v51 <sup>[20]</sup>	No	No
	Ogg	Yes, in v56 <sup>[19]</sup>	No	?	Yes, in v51 <sup>[20]</sup>	No	No

## Sounds for Exercise

• github.com/mikewesthad/Class-TwineMedia

### Sound Resources

- Incompetech music
- Freesound.org sound effects, ambient sounds
- <u>ChipTone</u> online app for making game sounds
- <u>Newgrounds Audio</u> music (not all is downloadable)
- Online <u>audio to mp3</u> converter
- <u>Audacity</u> free audio editing software

## Playing Sounds

- 1. Load all sounds using <<cacheaudio>>
  - Best to do this in a passage called "StoryInit"
- 2. Play/stop/loop/fade sounds with <<audio>>

### <<cacheaudio track\_id source\_list>>

Caches an audio track for use by the other audio macros.

NOTE: The StoryInit passage is normally the best place to set up audio tracks.

#### Arguments:

- track id: The ID of the audio track, which will be used by the other audio macros to reference it.
- source\_list: A space separated list of sources for the audio track. Only one is required, though supplying additional sources in differing formats is recommended. A source must be either a URL (absolute or relative) to an audio resource or a data URI. In rare cases where the audio format cannot be automatically detected from the source (URLs are parsed for a file extension, data URIs are parsed for the media type), a format specifier may be prepended to the front of each source to manually specify the format (syntax: format: {format};, where {format} is the audio format; generally, use whatever the file extension would normally be, e.g. mp3, mp4, ogg, weba, wav).

### Usage:



### <<audio track\_id action\_list>>

Controls the playback of individual audio tracks, which must be set up via <<cacheaudio>>.

**NOTE:** Group IDs do not affect playlist tracks which have been copied into their respective playlist—meaning those set up via <a href="https://www.createplaylist"><createplaylist</a> with its copy action or all tracks set up via, the deprecated, <a href="https://www.csetplaylist>>"><a href="https://www.csetplaylist>>">><a href="

### Arguments:

- track\_id: The ID of the audio track. Special group IDs, which affect multiple tracks at once, may also be used. Available group IDs are:
   :all, :looped, :muted, :paused, and :playing.
- · action list: The list of actions to perform. Available actions are:
  - play: Start playback.
  - pause: Pause playback.
  - stop: Stop playback.
  - fadein: Start playback and fade the audio from its current volume level to 1 (loudest).
  - fadeout: Start playback and fade the audio from its current volume level to 0 (silent; will also pause playback).
  - fadeto level: Start playback and fade the audio from its current volume level to the specified level.
  - fadeoverto seconds level: Start playback and fade the audio from its current volume level to the specified level over the specified number of seconds.
  - **volume** *level*: Set the current volume level to the specified level. Valid values are floating-point numbers in the range @ (silent) to 1 (loudest) (e.g. @ is 0%, 0.5 is 50%, 1 is 100%).
  - time seconds: Set the current playback time to the specified number of seconds. Valid values are floating-point numbers in the range 0 (start) to the maximum duration (e.g. 60 is 60 is sixty seconds in, 90.5 is ninety-point-five seconds in).
  - mute: Mute the volume (effectively volume 0, except without changing the volume level).
  - · unmute: Unmute the volume.
  - loop: Set the audio to repeat playback upon ending.
  - unloop: Set the audio to not repeat playback (this is the default).
  - goto passage: Forwards the user to the passage with the given name when playback ends normally. May be called either with the
    passage name or with a wiki link.



#### Usage (normal track IDs):

```
→ Given the following (best done in the StoryInit special passage)
<cacheaudio "bgm space" "media/audio/space quest.mp3" "media/audio/space quest.ogg">>
→ Start playback
<<audio "bgm_space" play>>
→ Start playback at 50% volume
<<audio "bgm_space" volume 0.5 play>>
→ Start playback at 120 seconds in
<<audio "bgm_space" time 120 play>>
→ Start repeating playback
<<audio "bgm_space" loop play>>
→ Start playback and fade from 0% to 100% volume
<<audio "bgm space" volume 0 fadein>>
→ Start playback and fade from 75% to 0% volume
<<audio "bgm space" volume 0.75 fadeout>>
→ Start playback and fade from 25% to 75% volume
<<audio "bgm_space" volume 0.25 fadeto 0.75>>
→ Start playback and fade from 25% to 75% volume over 30 seconds
<<audio "bgm_space" volume 0.25 fadeoverto 30 0.75>>
→ Start playback and goto the "Peace Moon" passage upon ending normally
<<audio "bgm_space" play goto "Peace Moon">>
→ Pause playback
<<audio "bgm_space" pause>>
→ Stop playback
<<audio "bgm space" stop>>
→ Mute playback, without changing the current playback state
<<audio "bgm space" mute>>
→ Unmute playback, without changing the current playback state
<<audio "bgm_space" unmute>>
→ Change the volume to 40%, without changing the current playback state
<<audio "bgm_space" volume 0.40>>
→ Seek to 90 seconds in, without changing the current playback state
<<audio "bgm_space" time 90>>
```

### Usage (group IDs):

```
→ Start playback of paused individual audio tracks
<<audio ":paused" start>>

→ Pause playback of playing individual audio tracks
<<audio ":playing" pause>>

→ Stop playback of playing individual audio tracks
<<audio ":playing" stop>>

→ Stop playback of all individual audio tracks (equivalent to <<stopallaudio>>)
<<audio ":all" stop>>
```