

Building Advanced iBooks HTML 5 Widgets and iAd Rich Media Ads

iAd Producer

Session 611

Chi Wai Lau
Software Engineer

Mark Malone
iAd Technology Evangelist

These are confidential sessions—please refrain from streaming, blogging, or taking pictures

INTERGALACTIC ADVENTURES
PRESENTS

SPACE
TOURS
TO
MARS



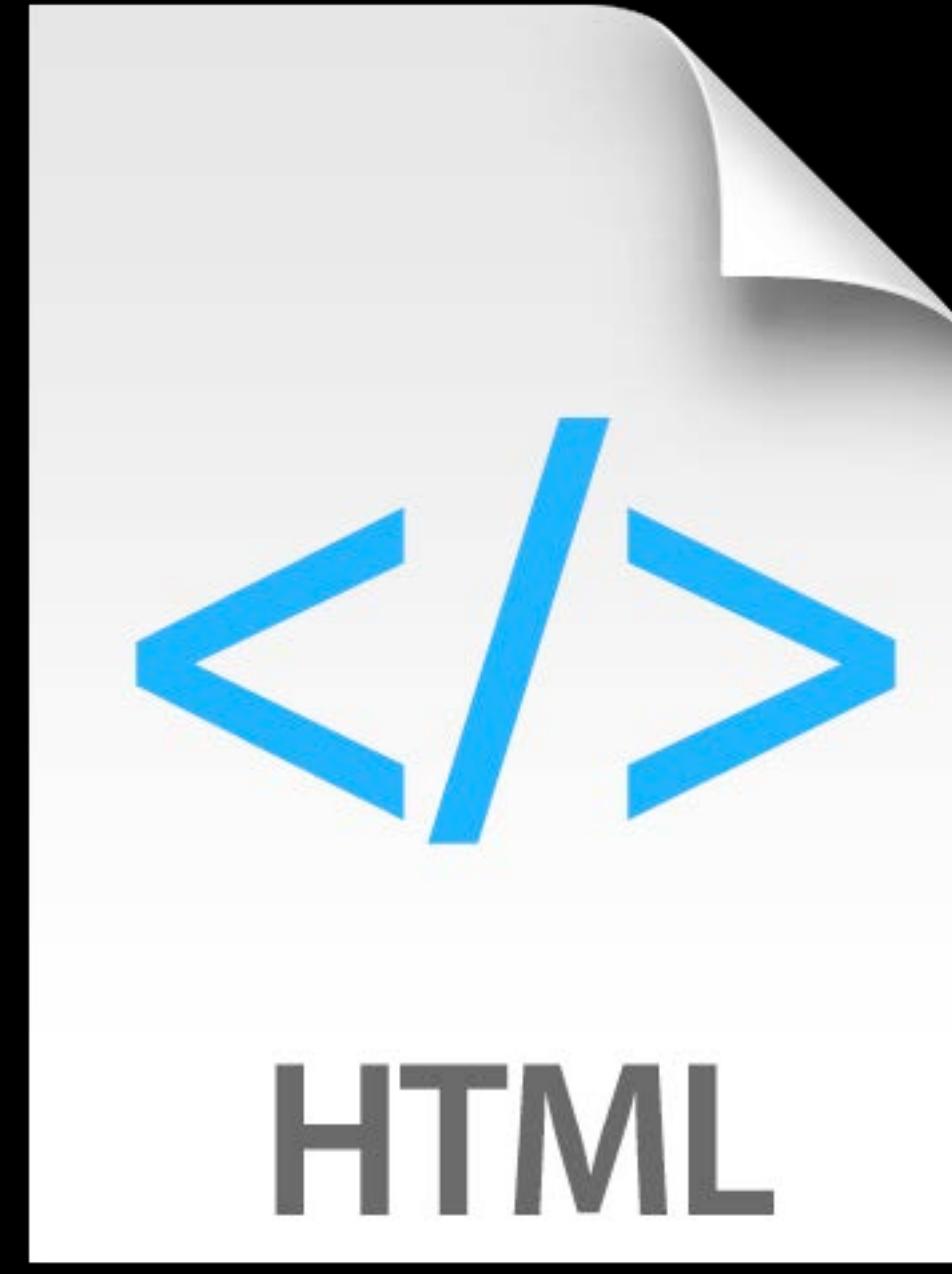
{ }

CSS



{;}

JS



</>

HTML

Space Tours to Mars

Splash + iPad (Retina) 38% Page Appear

General Media Multi-Cell Dynamic Content Objects Actions Layers

INTergalactic Adventures PRESENTS

SPACE TOURS TO MARS

imageBackground Fade In

trip-ship-trans Position

Play Audio RocketBlast.mp3

Total Duration 18.82s

Play Audio

RocketBlast.mp3

Must finish before starting next action

Start With Previous Action

Delay 0s

Assets Objects Actions Layers

Code Preview



What You'll Learn

Advanced development techniques

What You'll Learn

Advanced development techniques

- Content customization

What You'll Learn

Advanced development techniques

- Content customization
- Testing and debugging techniques

What You'll Learn

Advanced development techniques

- Content customization
- Testing and debugging techniques
- Performance optimization

Content Customization



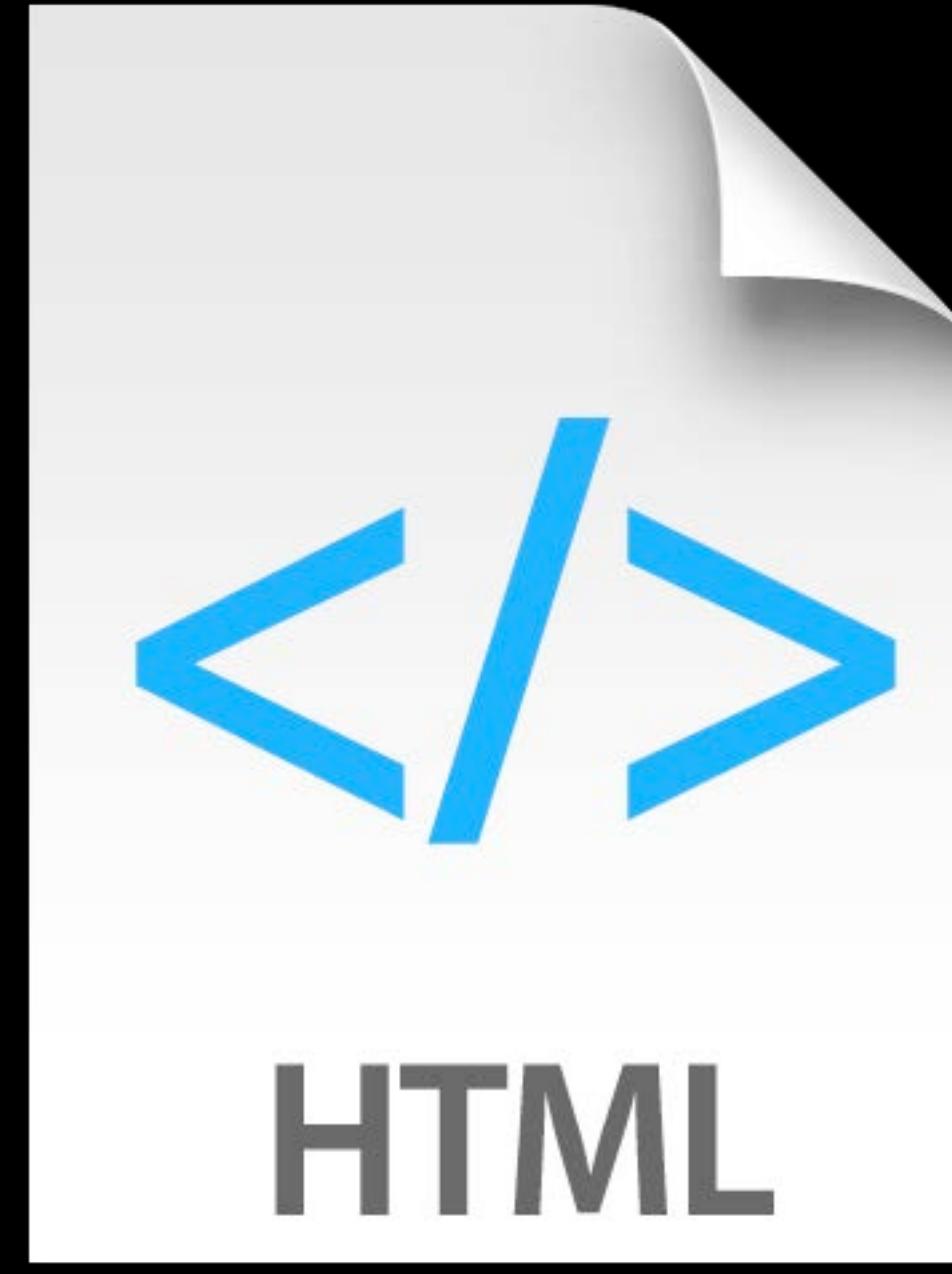
{ }

CSS



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JS



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HTML



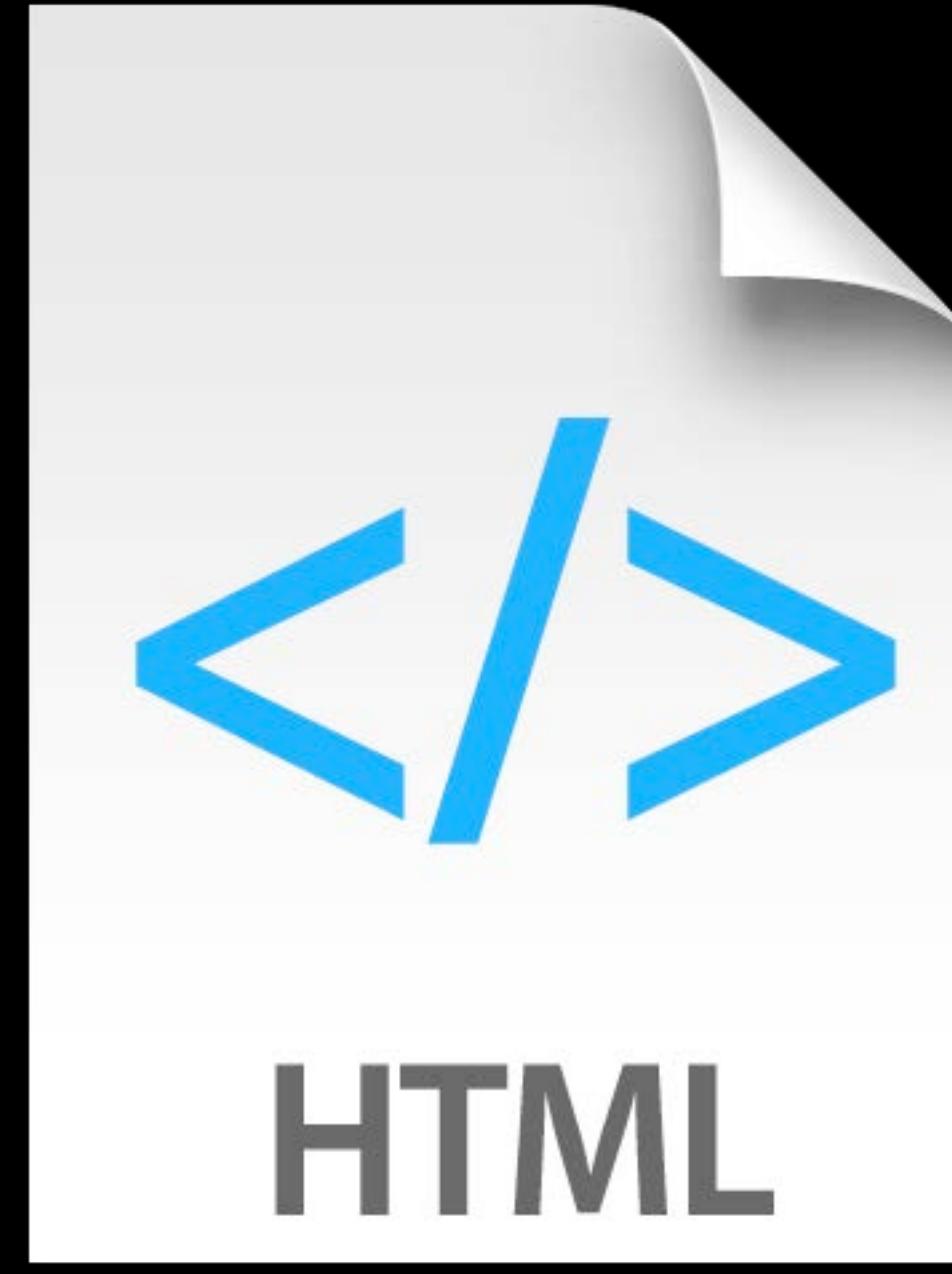
{ }

CSS



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JS



</>

HTML



{ }

CSS



{;}

JS



</>

HTML

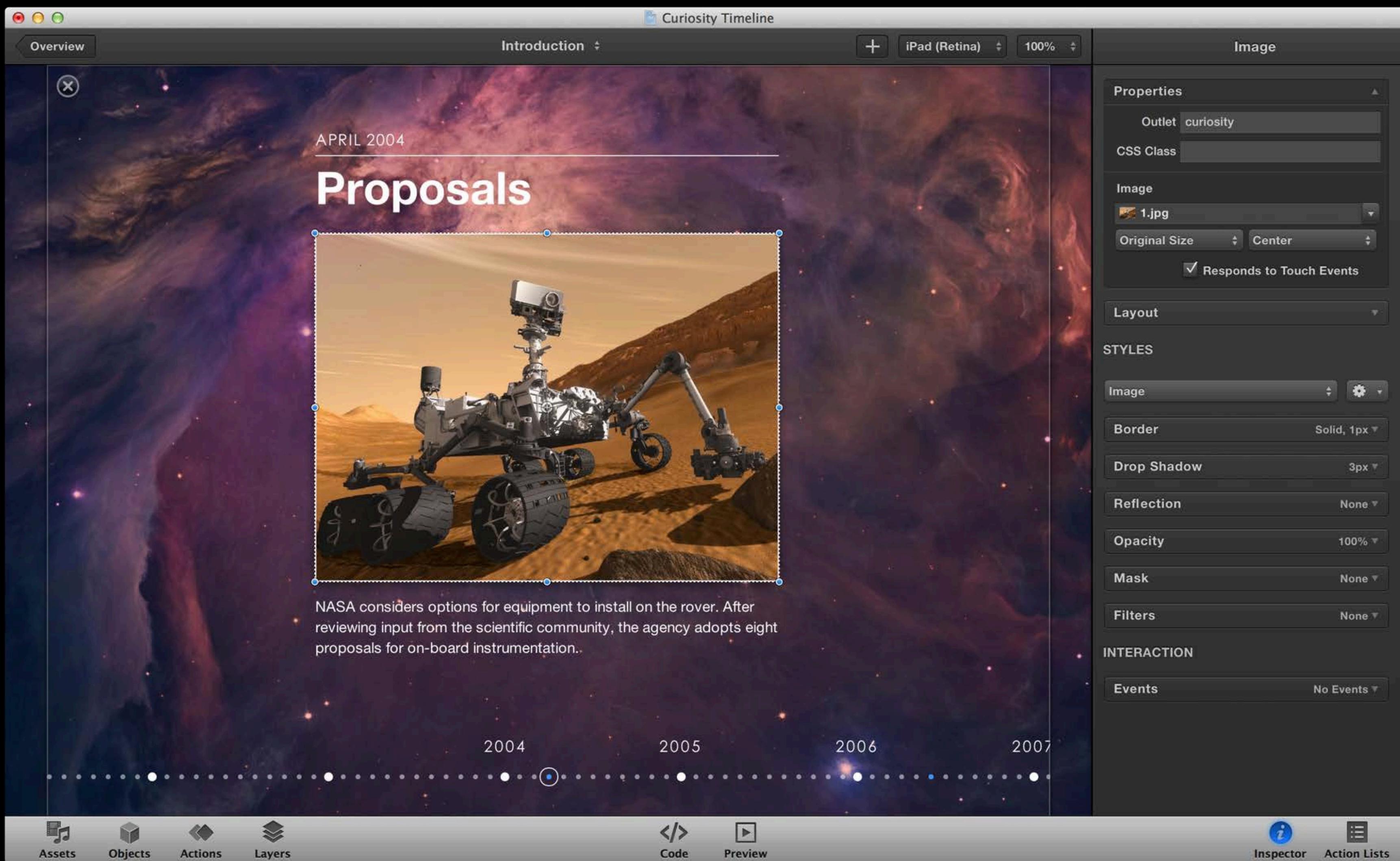
CSS Customization

Styling objects



CSS Customization

Styling objects



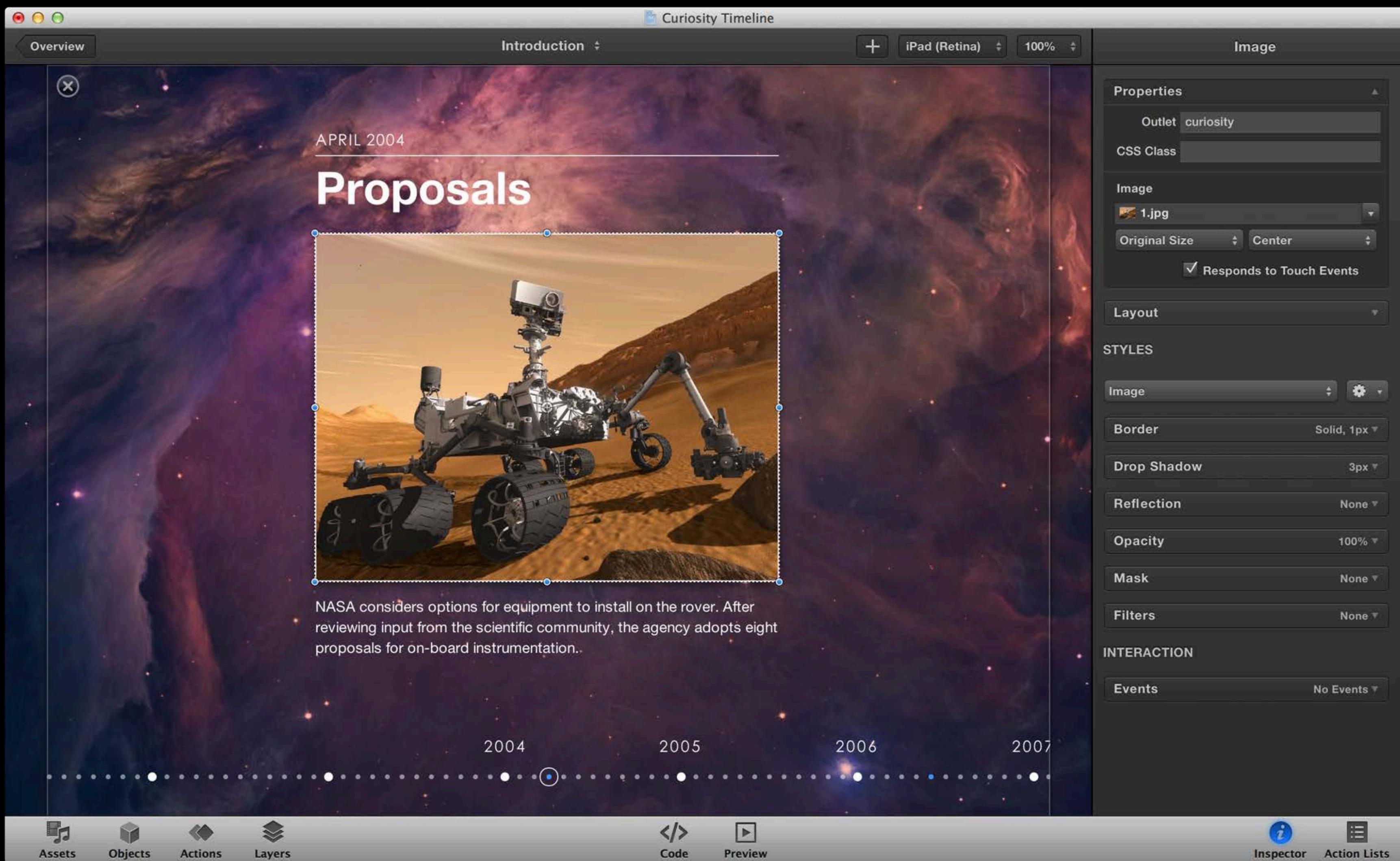
CSS Customization

Styling objects



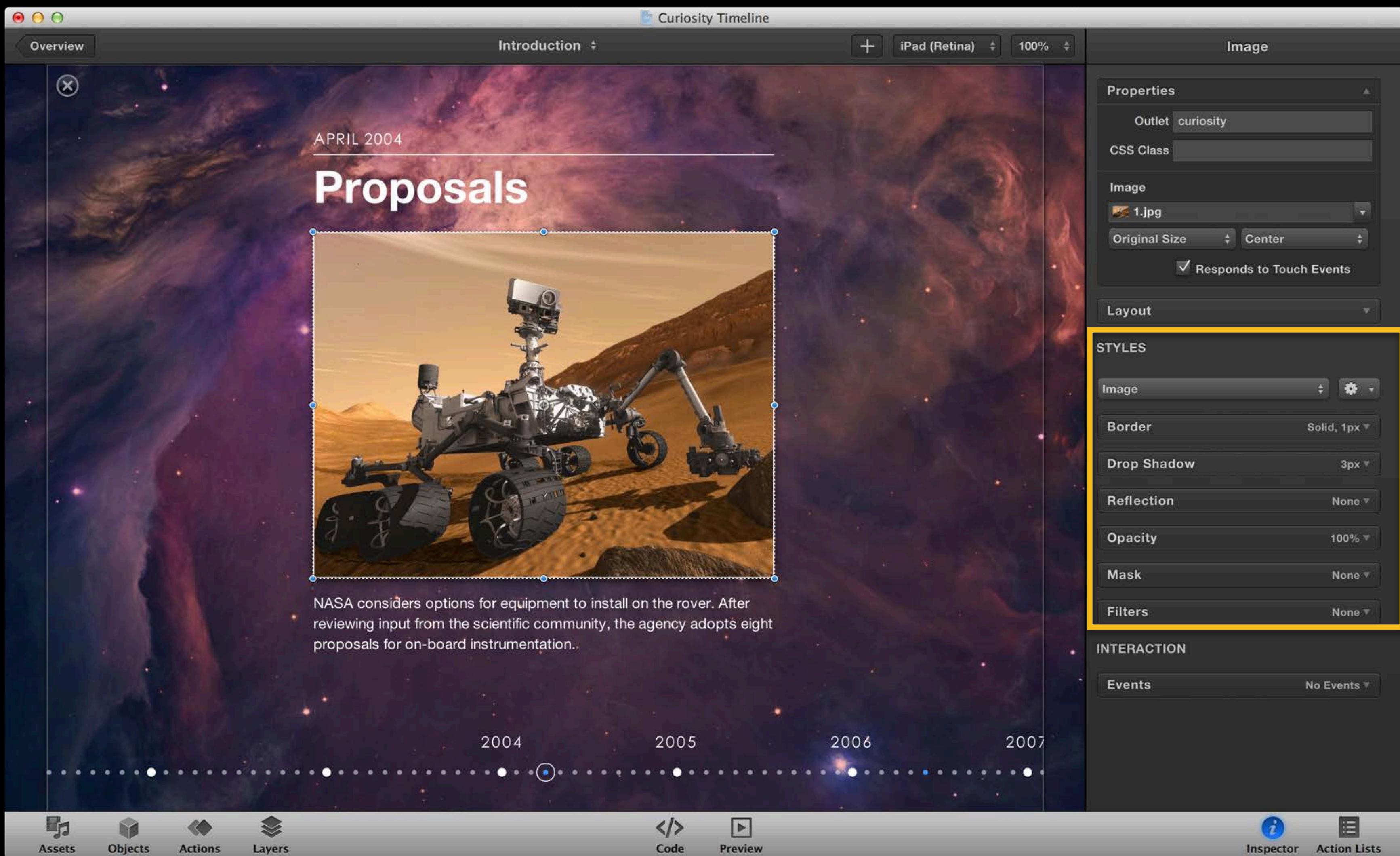
CSS Customization

Styling objects



CSS Customization

Styling objects



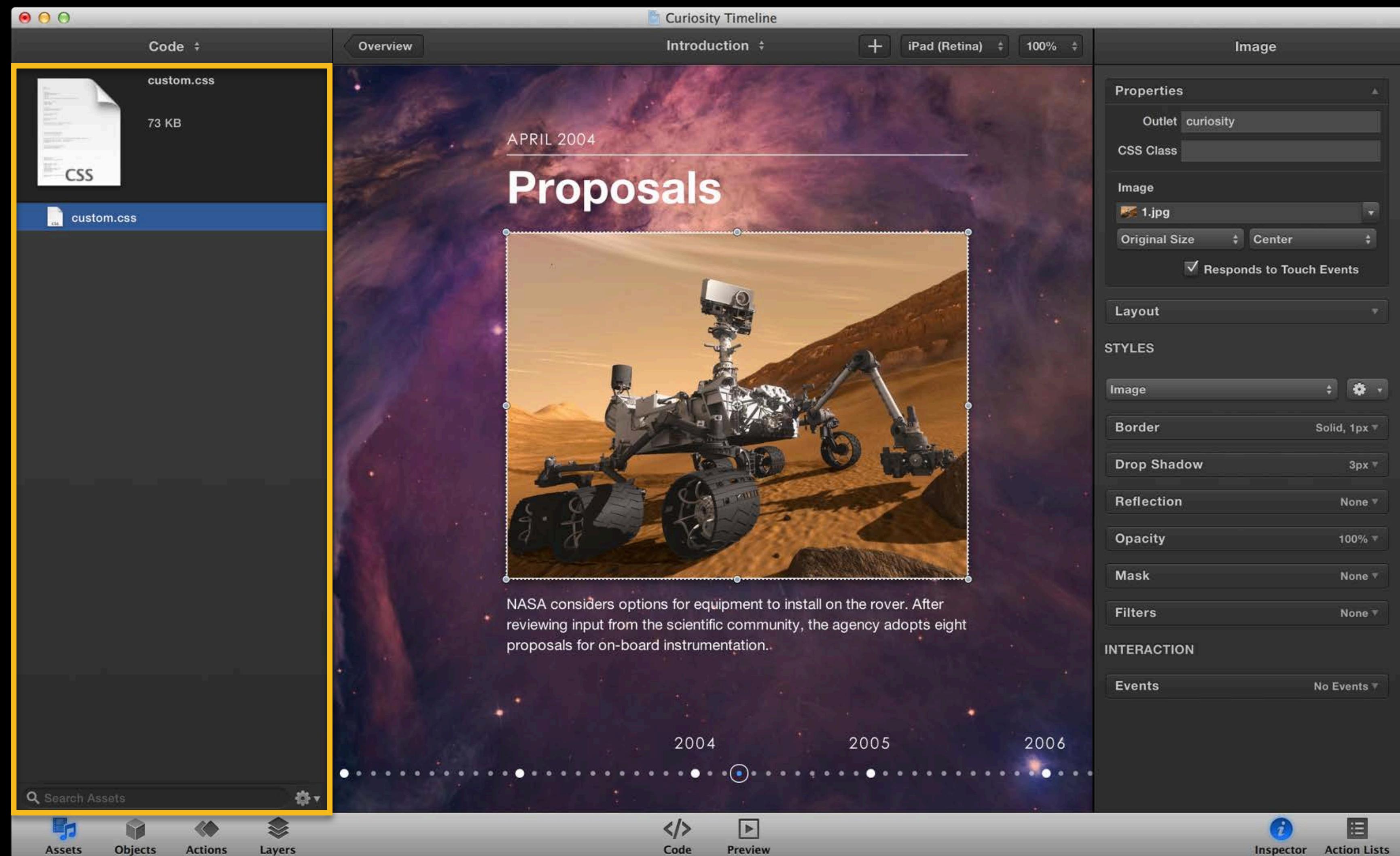
CSS Customization

Using imported file



CSS Customization

Using imported file



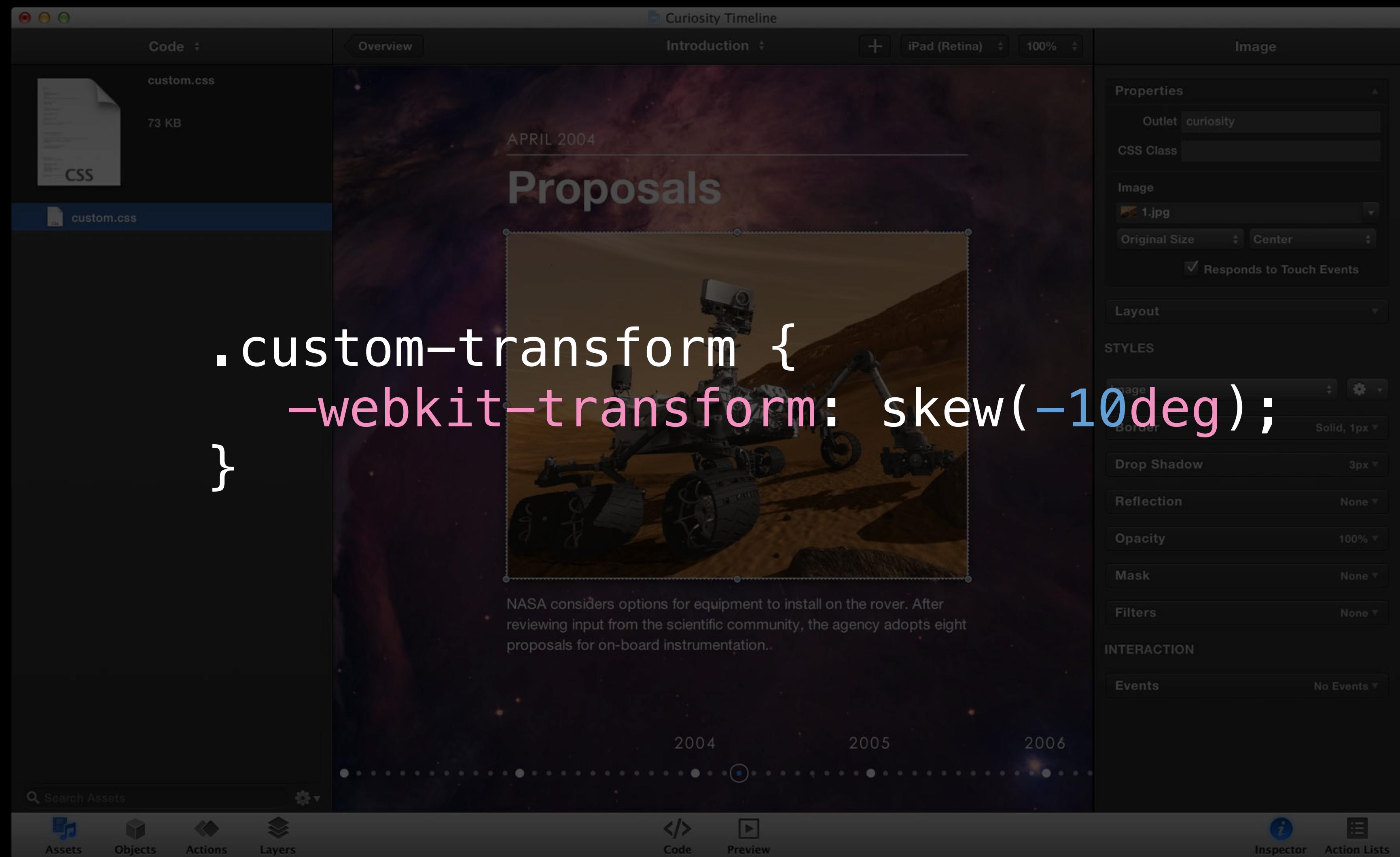
CSS Customization

Using imported file



CSS Customization

Using imported file



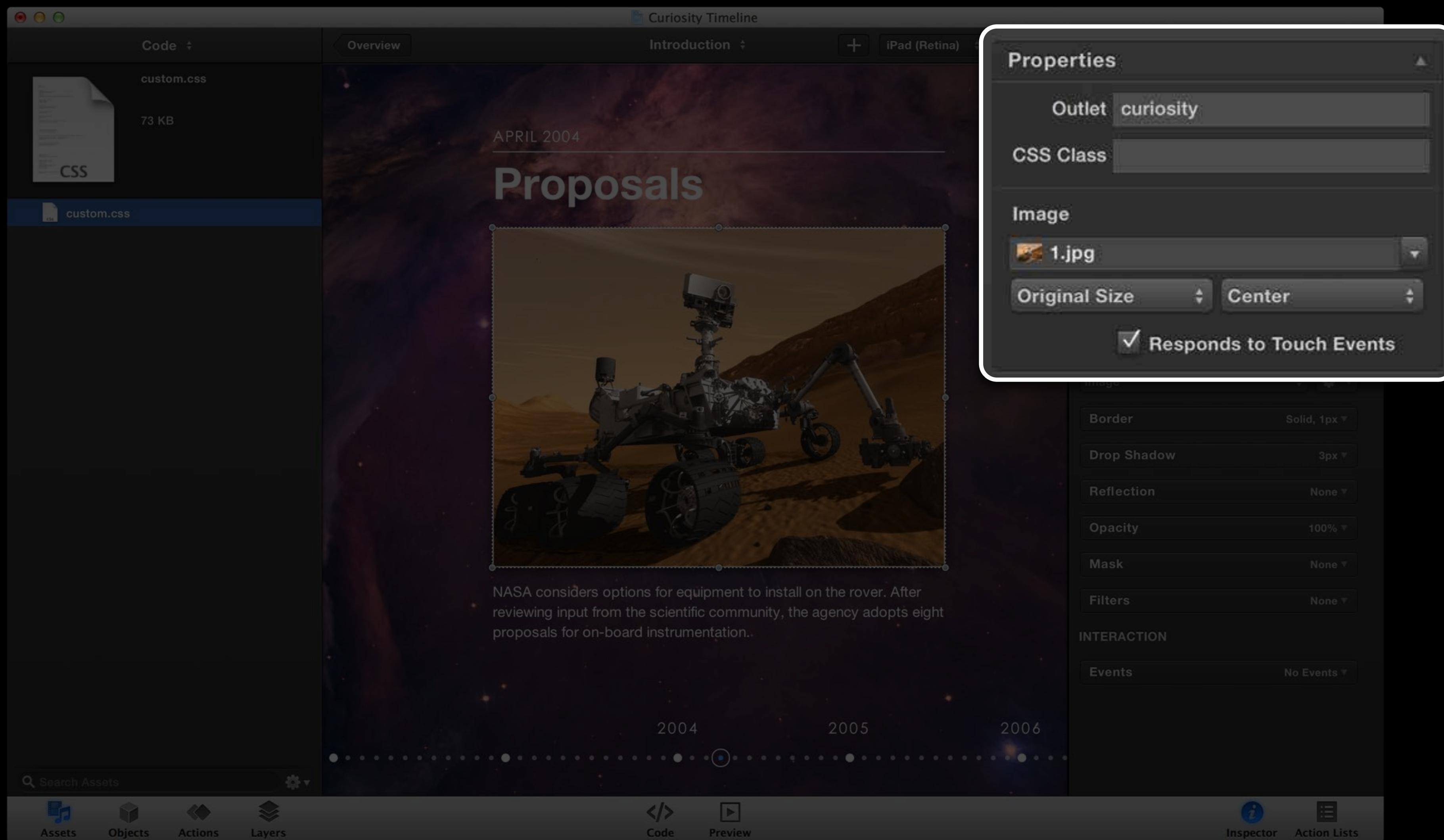
CSS Customization

Using imported file



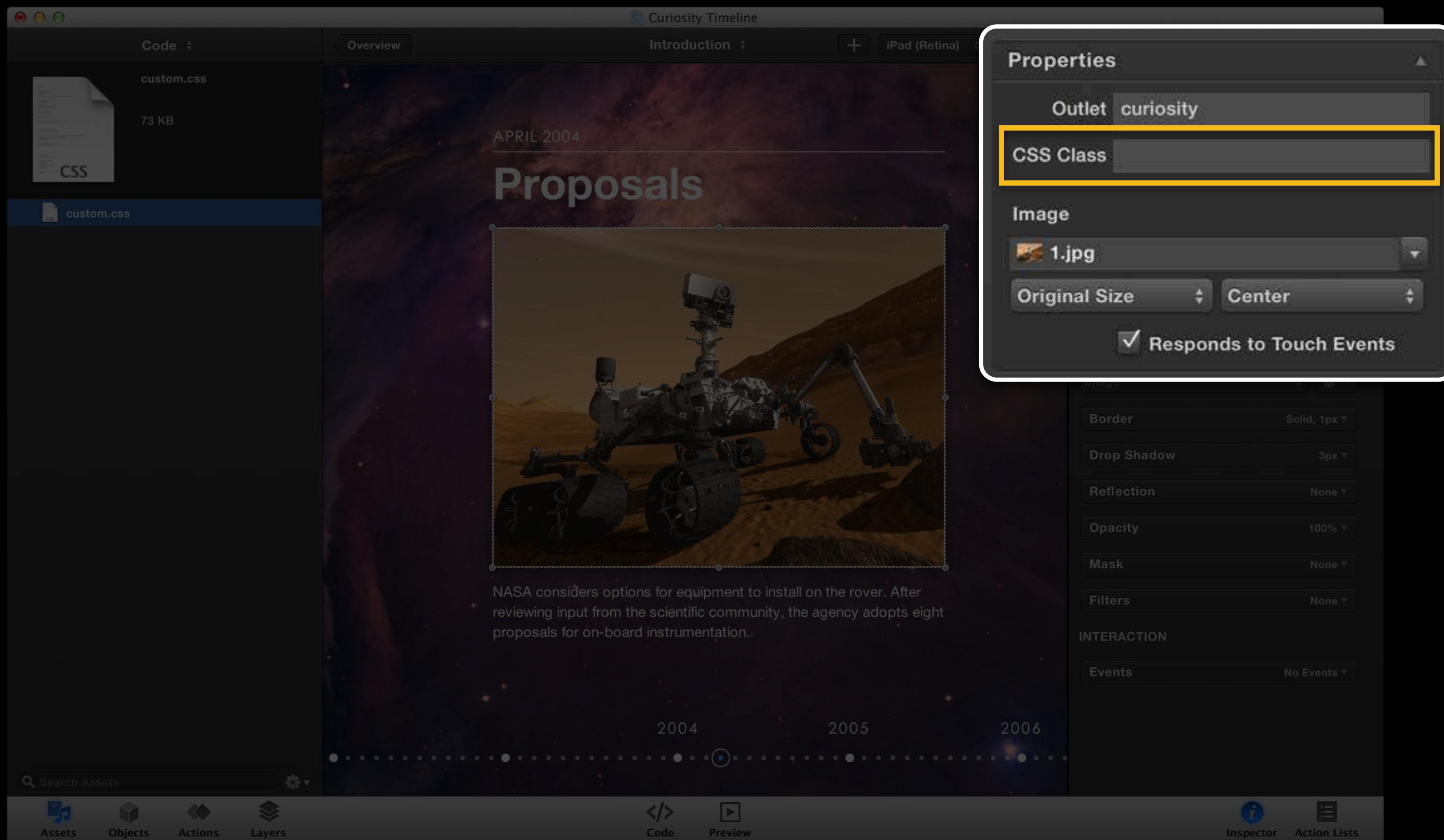
CSS Customization

Using imported file



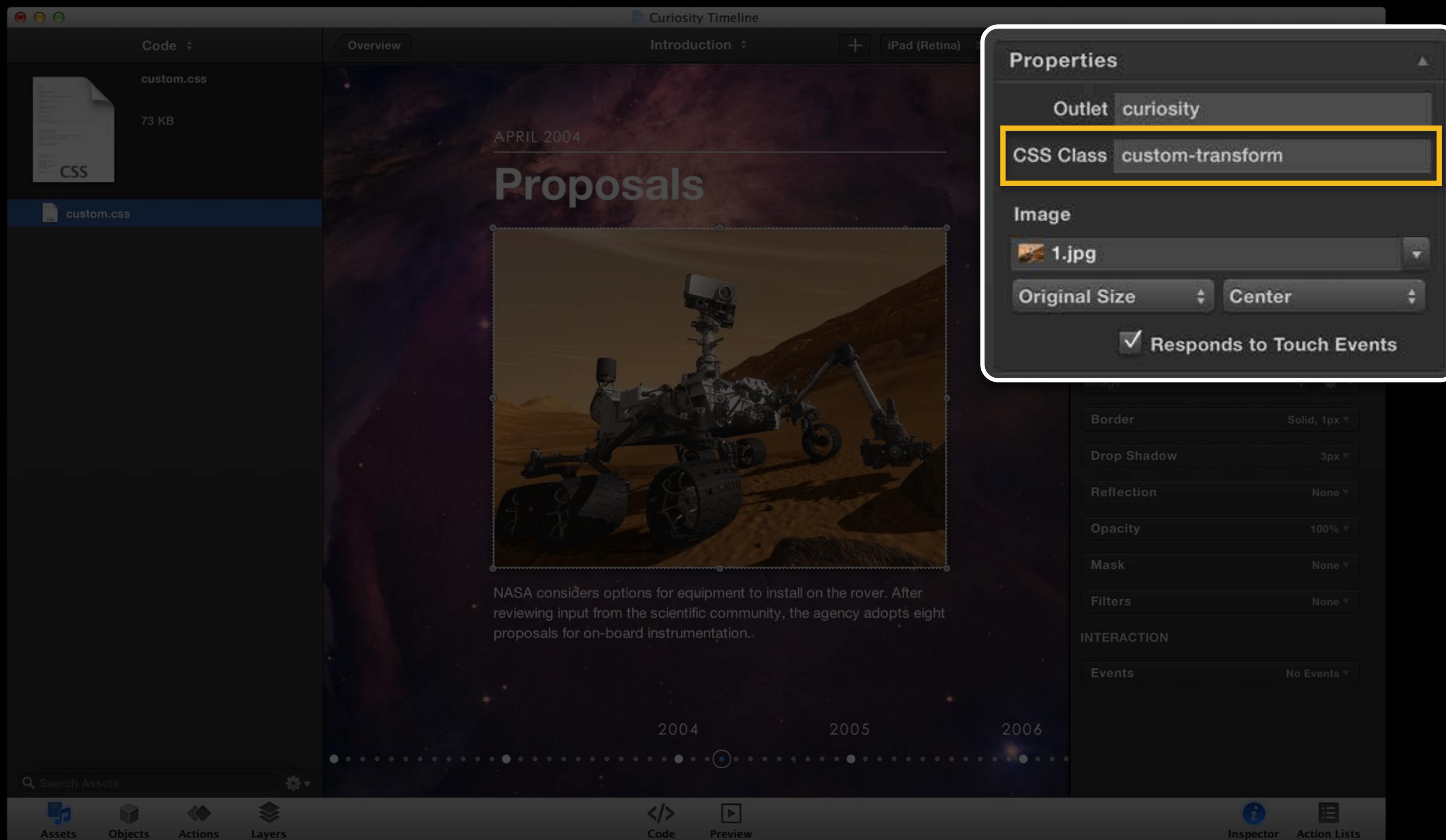
CSS Customization

Using imported file



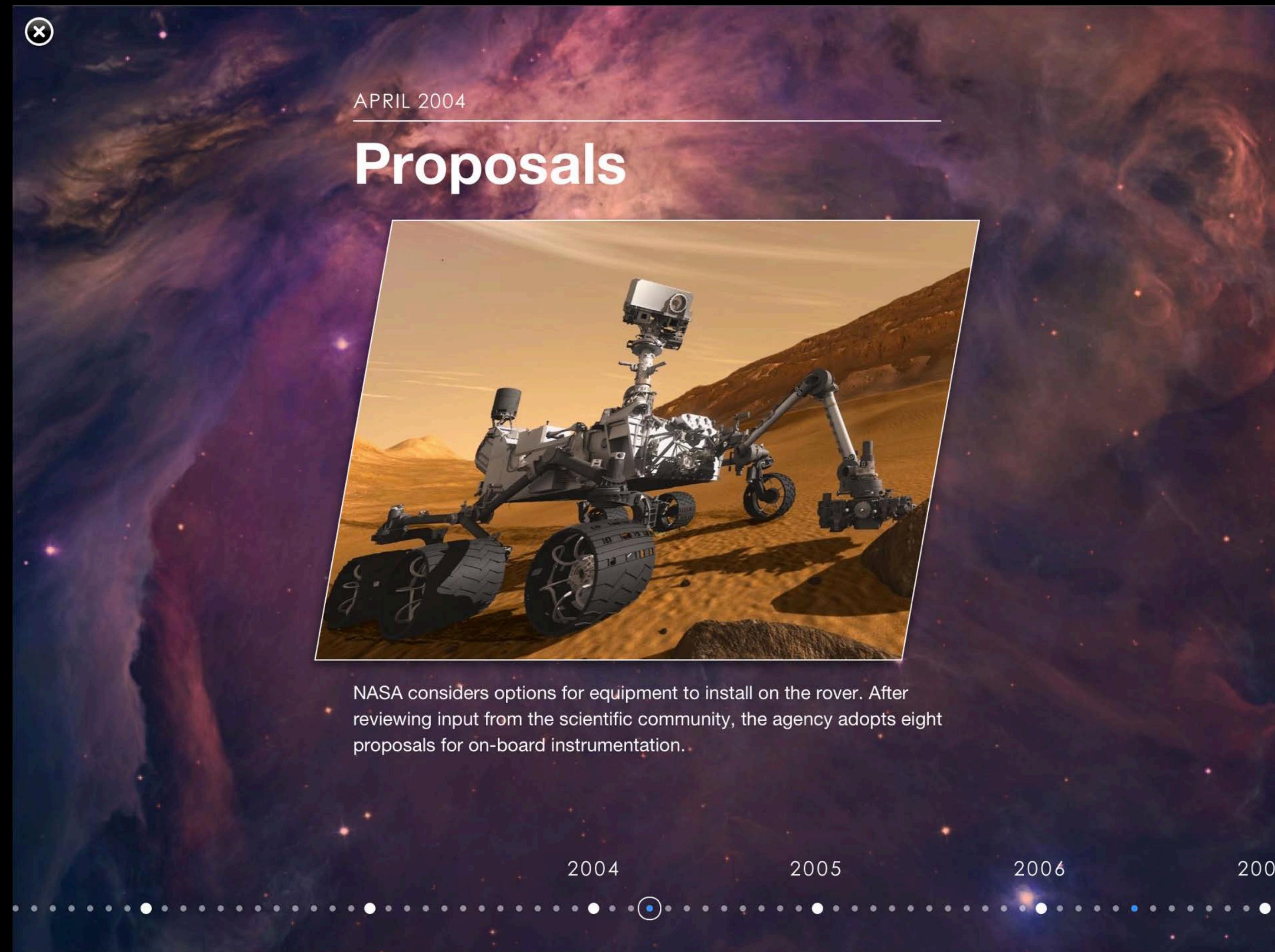
CSS Customization

Using imported file



CSS Customization

Using imported file



CSS Customization

Using code editor



CSS Customization

Using code editor



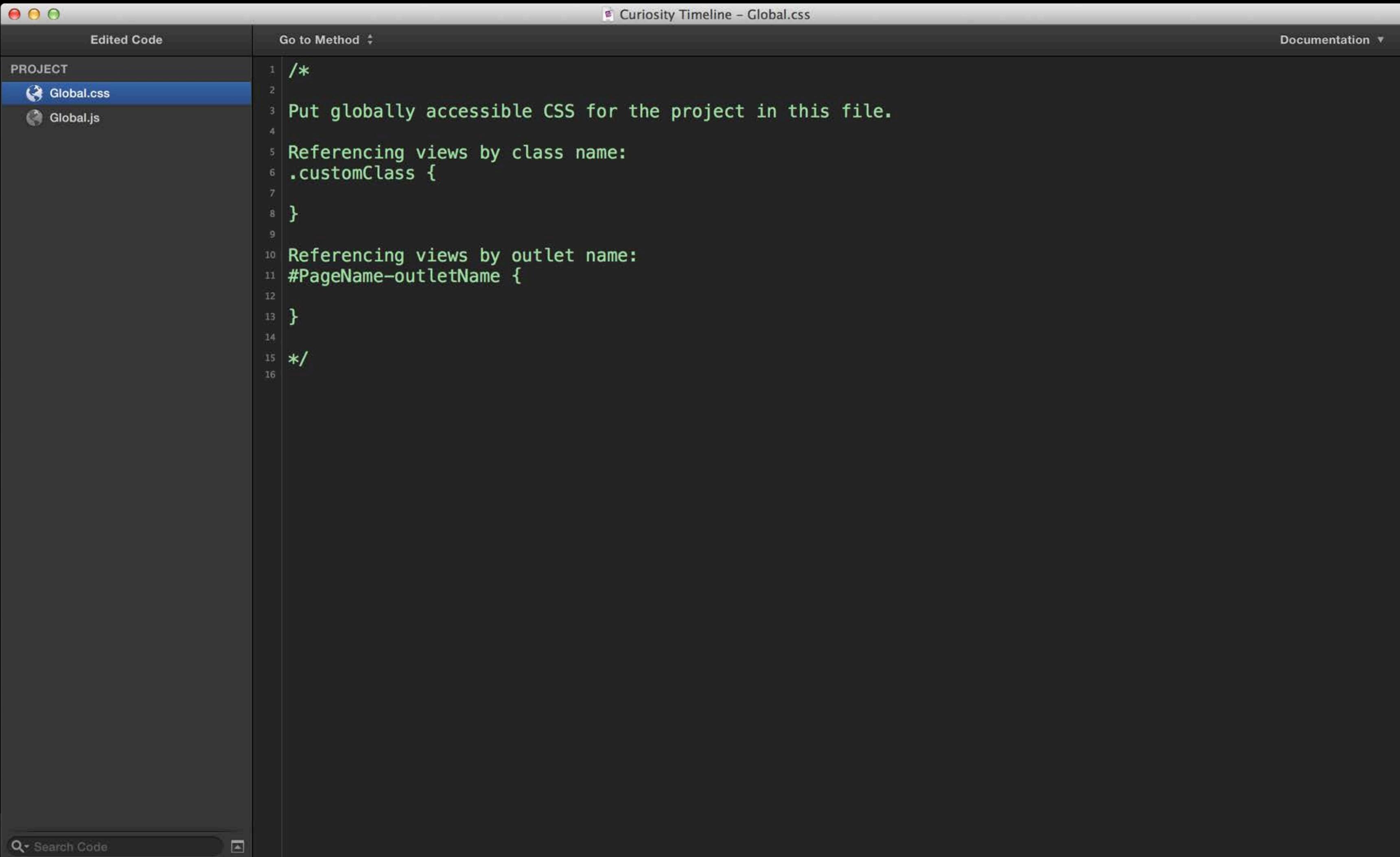
CSS Customization

Using code editor



CSS Customization

Using code editor



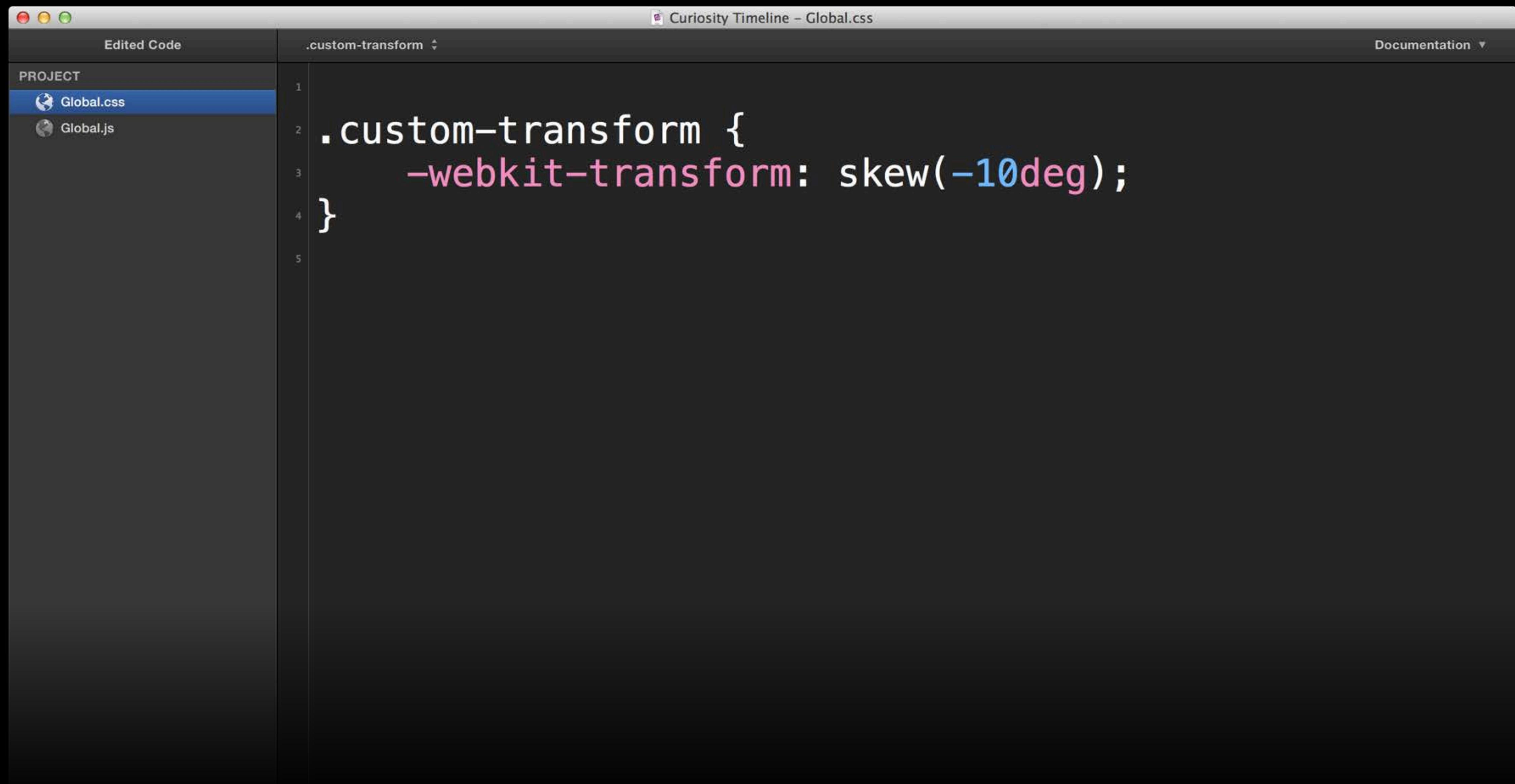
The screenshot shows a code editor window titled "Curiosity Timeline - Global.css". The left sidebar lists "PROJECT" items: "Global.css" (selected), "Global.js", and "Global.html". The main pane displays the following CSS code:

```
1  /*
2   * Put globally accessible CSS for the project in this file.
3   *
4   * Referencing views by class name:
5   * .customClass {
6   * }
7   *
8   * Referencing views by outlet name:
9   * #PageName-outletName {
10  * }
11  *
12  */
13
14
15 */
16
```

A search bar at the bottom left says "Search Code".

CSS Customization

Using code editor



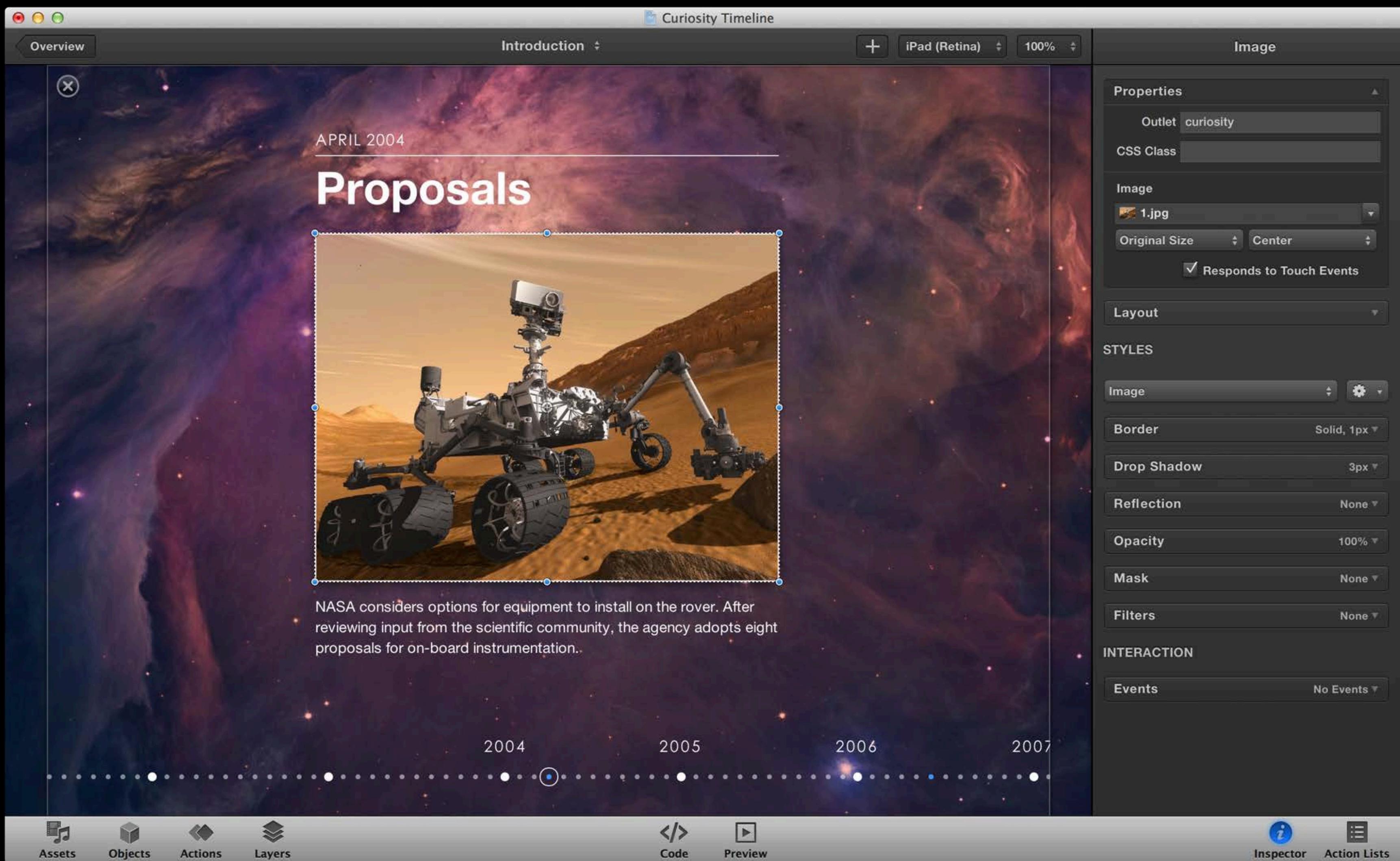
A screenshot of a code editor window titled "Curiosity Timeline - Global.css". The editor interface includes a top bar with standard OS X-style icons (red, yellow, green) and a tab labeled "Edited Code". Below the top bar is a "PROJECT" sidebar containing two items: "Global.css" (which is selected and highlighted in blue) and "Global.js". The main workspace shows the following CSS code:

```
.custom-transform {  
    -webkit-transform: skew(-10deg);  
}
```

The code is numbered from 1 to 5 on the left side. The "-webkit-transform" prefix is colored pink, while the rest of the code is in white. The "Documentation" button is located in the top right corner of the editor window.

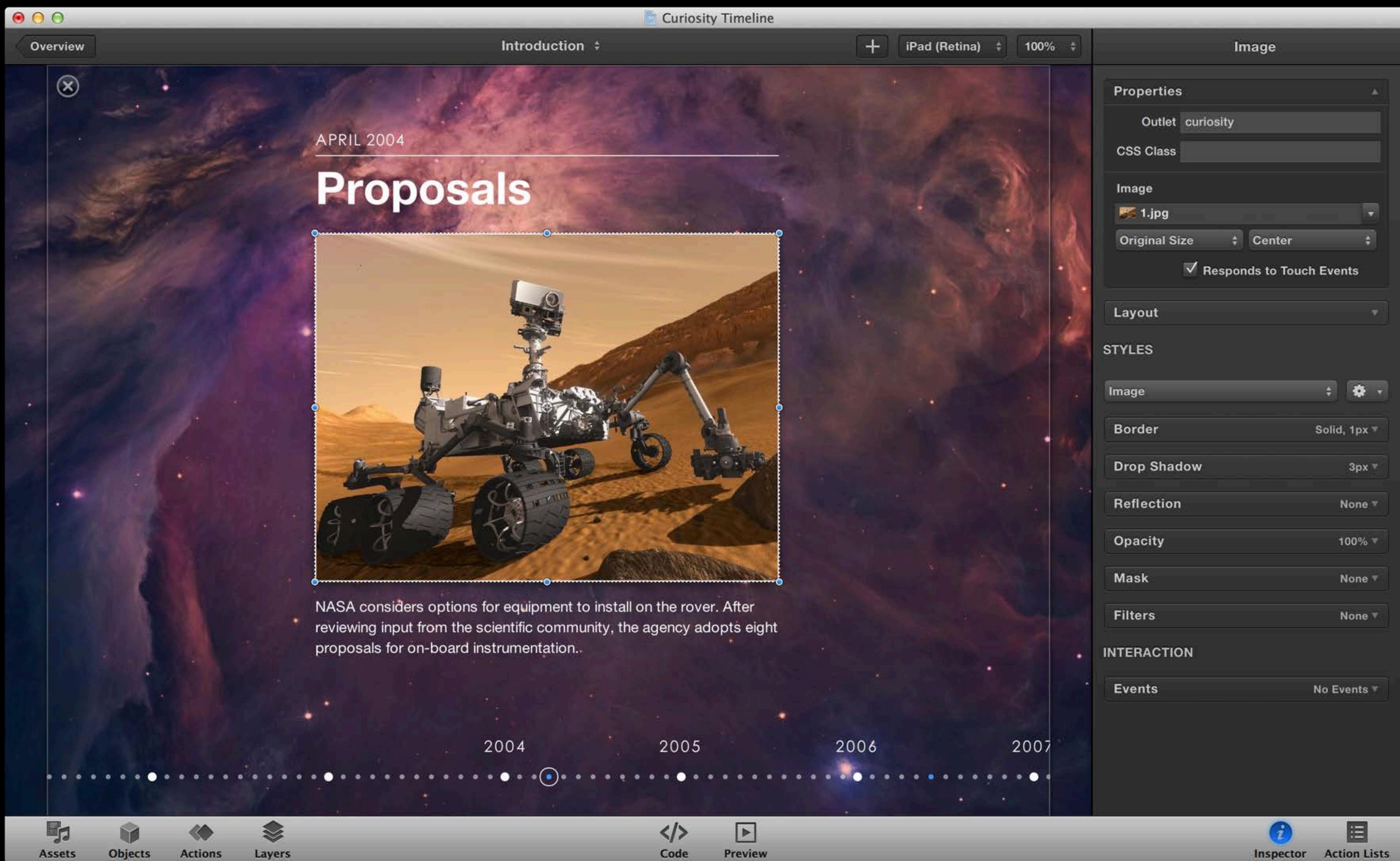
CSS Customization

Using code editor



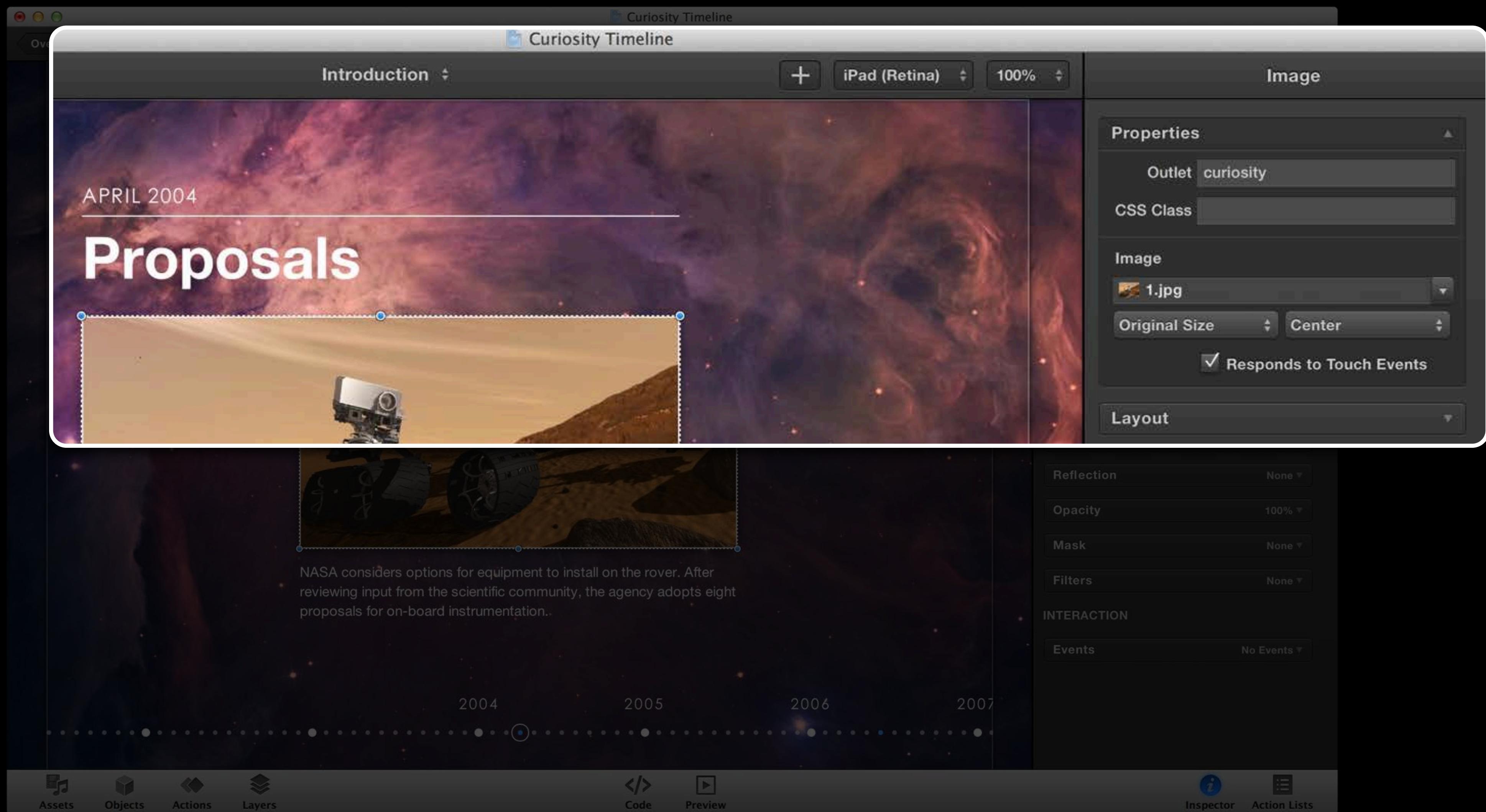
CSS Customization

Using code editor



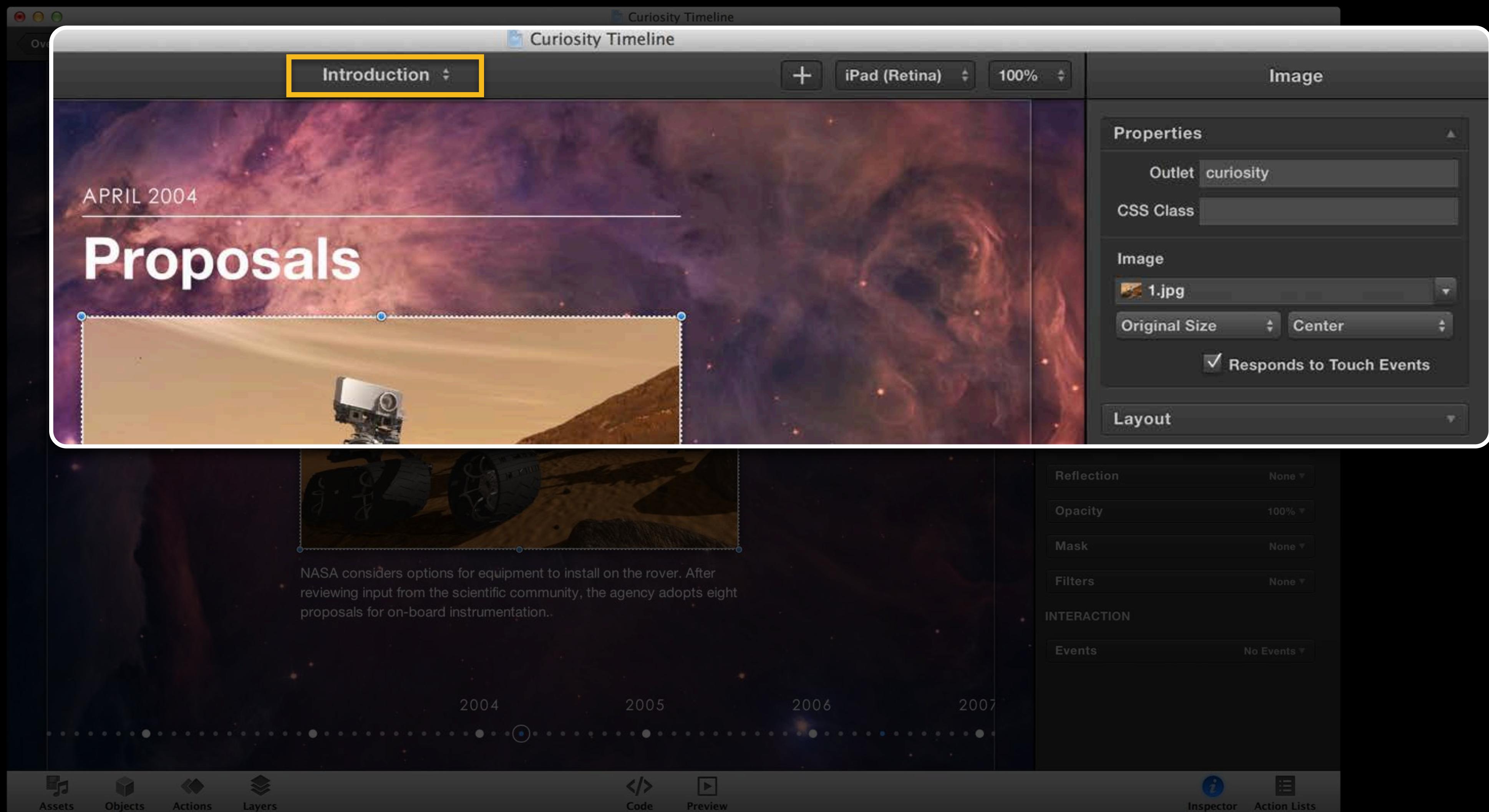
CSS Customization

Using code editor



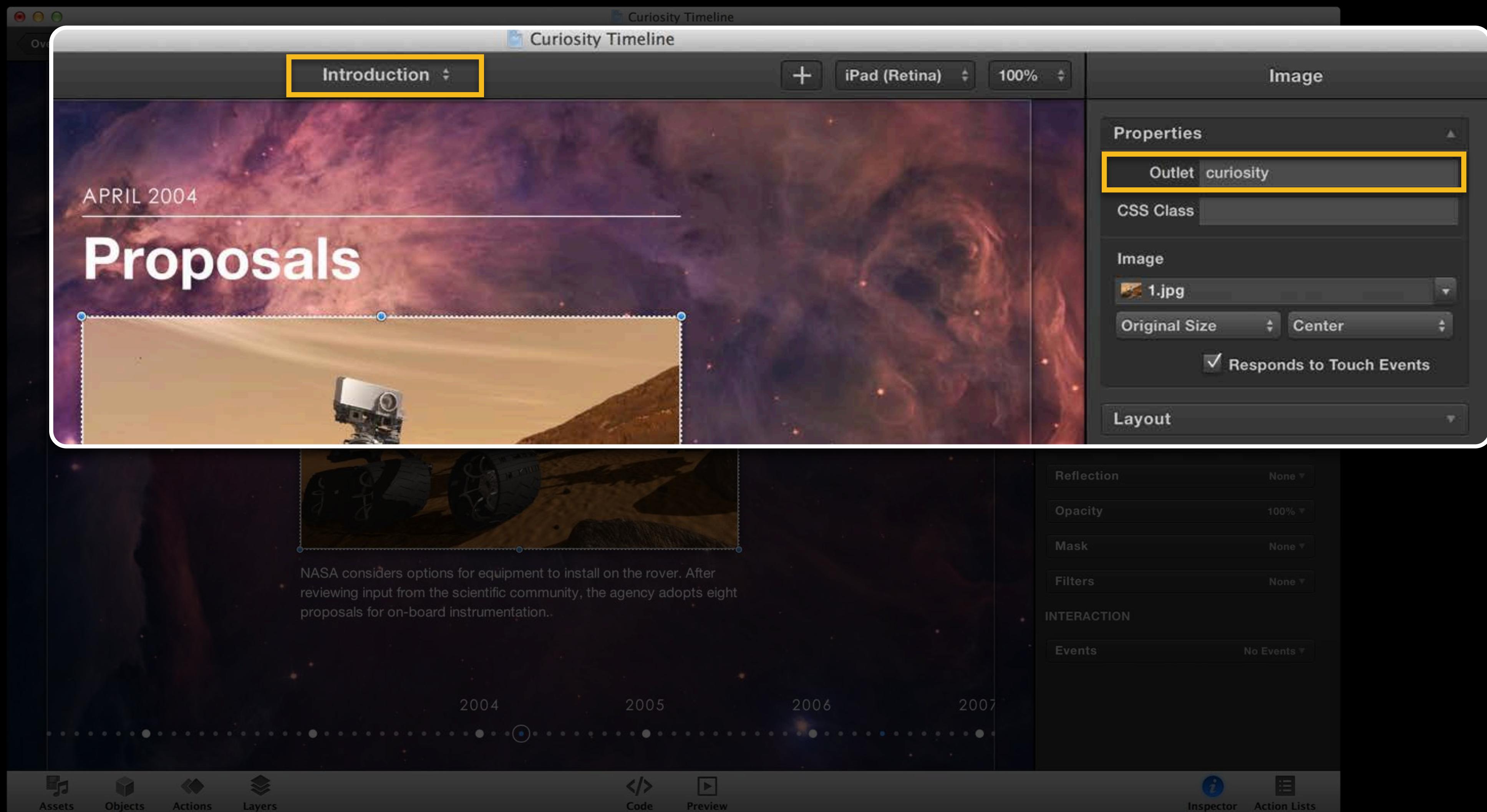
CSS Customization

Using code editor



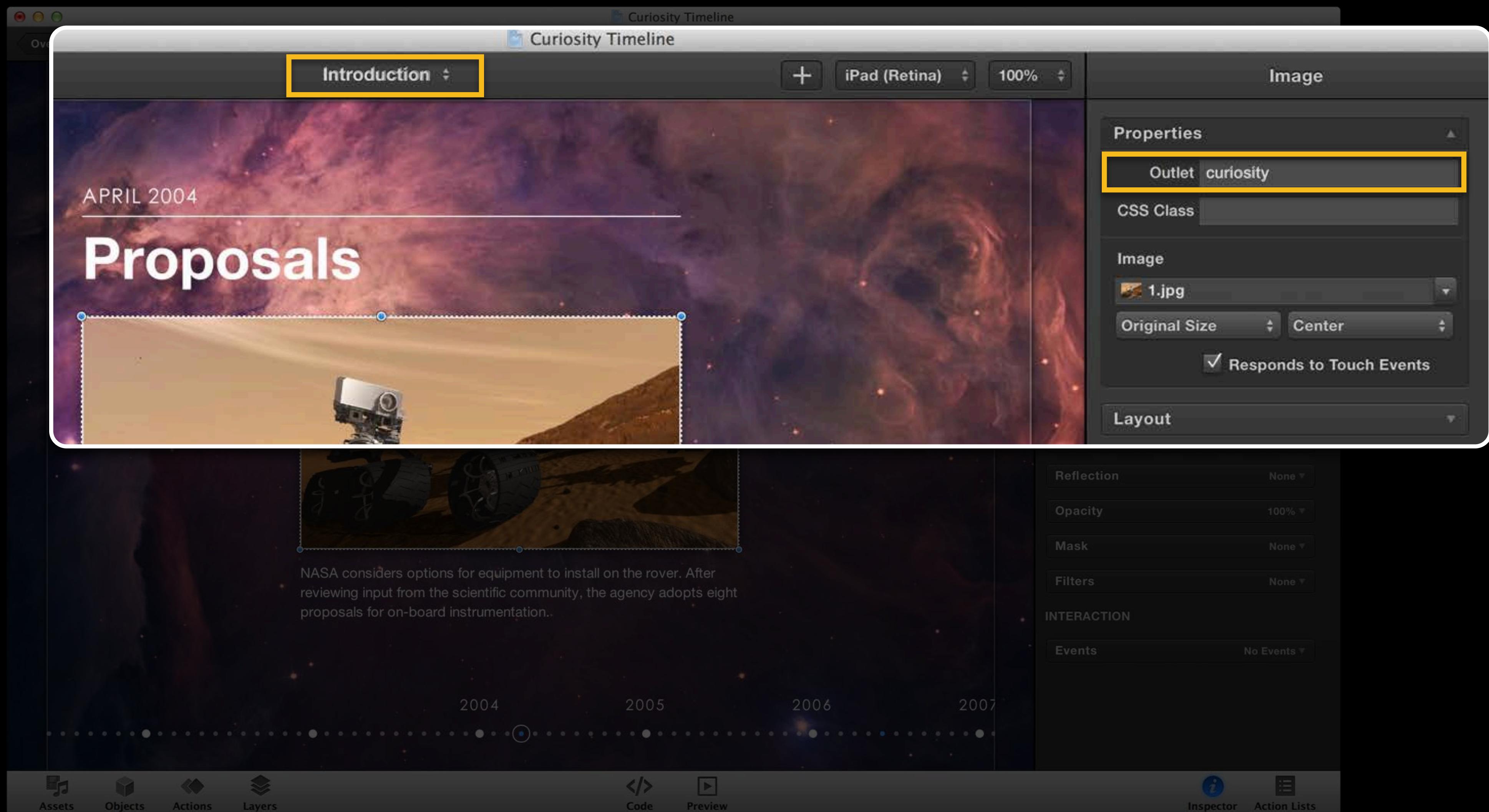
CSS Customization

Using code editor



CSS Customization

Using code editor

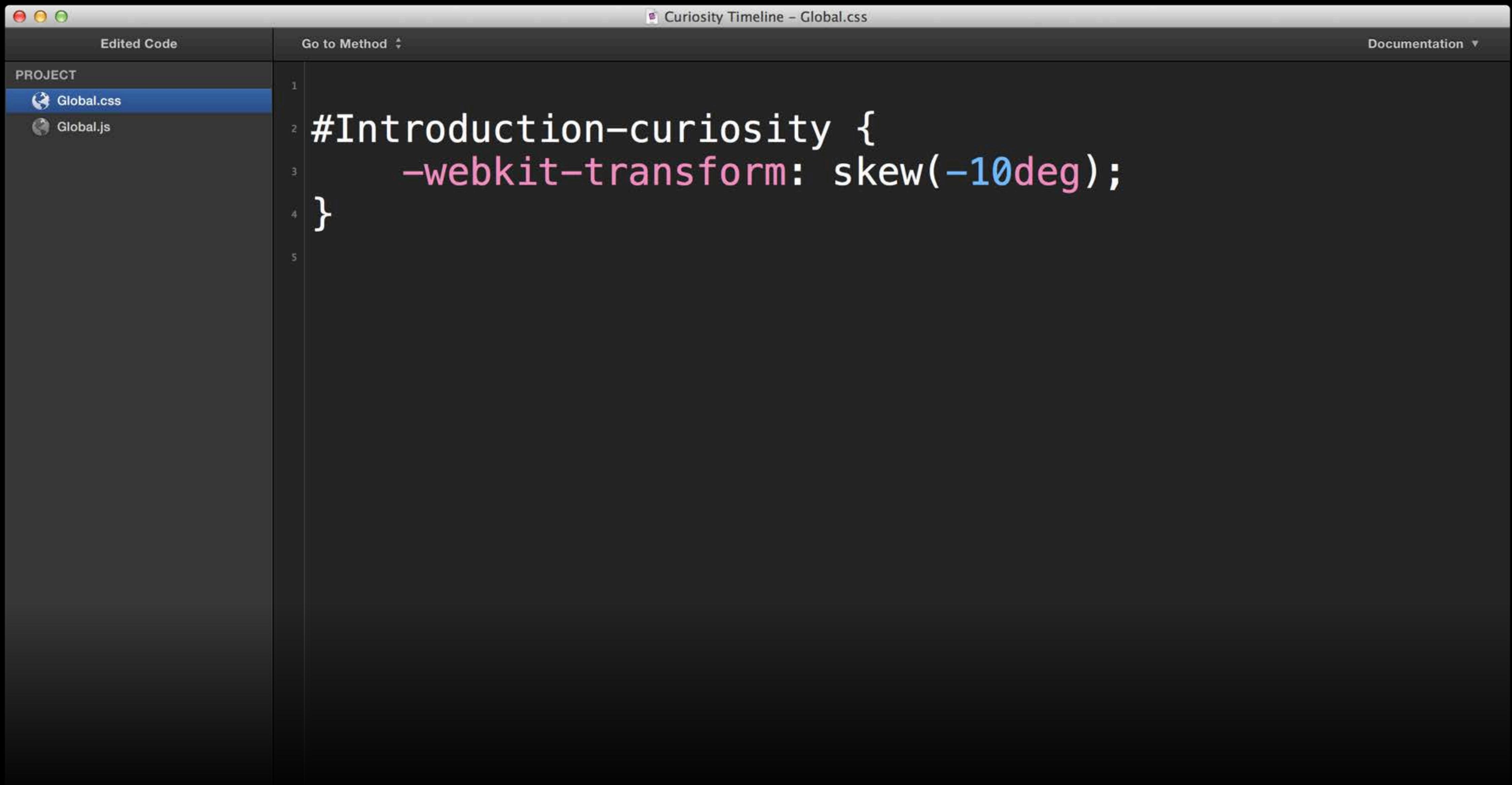


Introduction curiosity

Introduction-curiosity

CSS Customization

Using code editor



The screenshot shows a dark-themed code editor window titled "Curiosity Timeline - Global.css". The left sidebar is labeled "PROJECT" and contains two items: "Global.css" (which is selected and highlighted in blue) and "Global.js". The main editor area is labeled "Edited Code" and "Go to Method" at the top. The code itself is a single rule:

```
1 #Introduction-curiosity {  
2     -webkit-transform: skew(-10deg);  
3 }  
4  
5
```



{ }

CSS



{;}

JS



</>

HTML



{ }

CSS



{,·}

JS

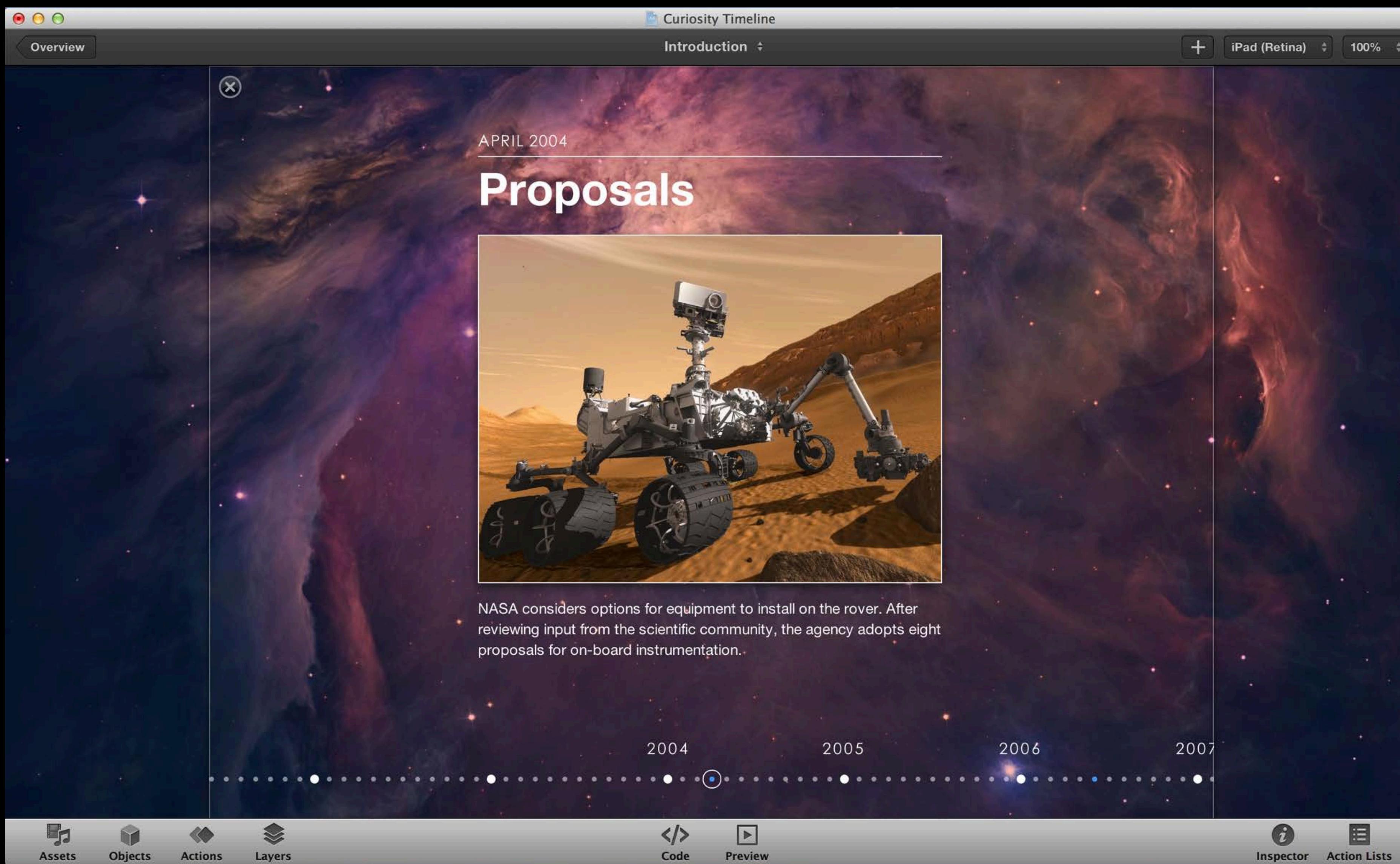


</>

HTML

JS Customization

The next level



JS Customization

Events and callbacks

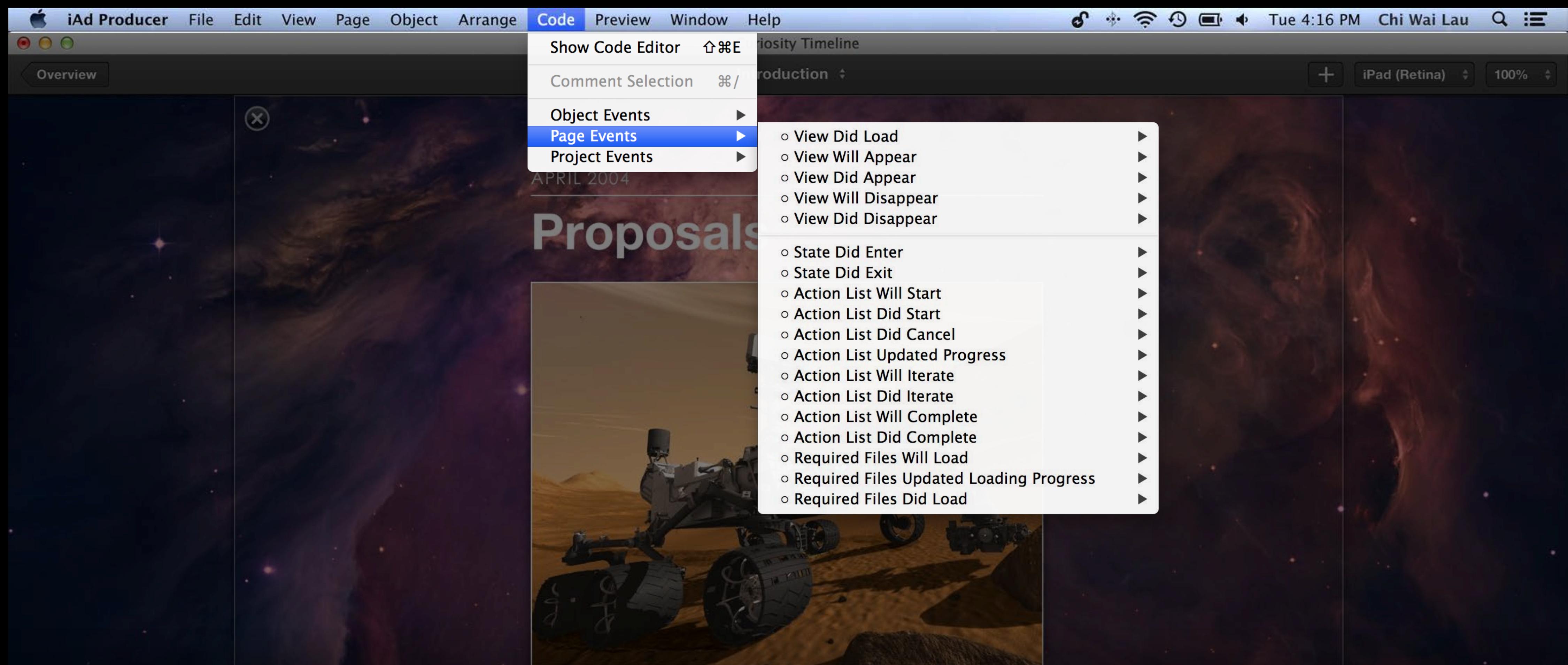
The screenshot shows a Mac OS X desktop with the iAd Producer application open. The window title is "iAd Producer". The menu bar includes "File", "Edit", "View", "Page", "Object", "Arrange", "Code" (which is selected), "Preview", "Window", and "Help". The status bar at the bottom right shows "Tue 4:16 PM Chi Wai Lau". A dropdown menu under "Code" is open, showing options: "Show Code Editor ⌘⌘E", "Comment Selection ⌘/", "Object Events ▶", "Page Events ▶", and "Project Events ▶". The main content area displays a dark background image of a planet's surface with a red and orange hue. In the center, there is a white text box with the word "Proposals" in large, bold, white letters. Below the text box is a photograph of a Mars rover (Curiosity) on the surface of Mars, with its robotic arm extended. At the bottom left of the image area, there is a block of text:

APRIL 2004

NASA considers options for equipment to install on the rover. After reviewing input from the scientific community, the agency adopts eight proposals for on-board instrumentation.

JS Customization

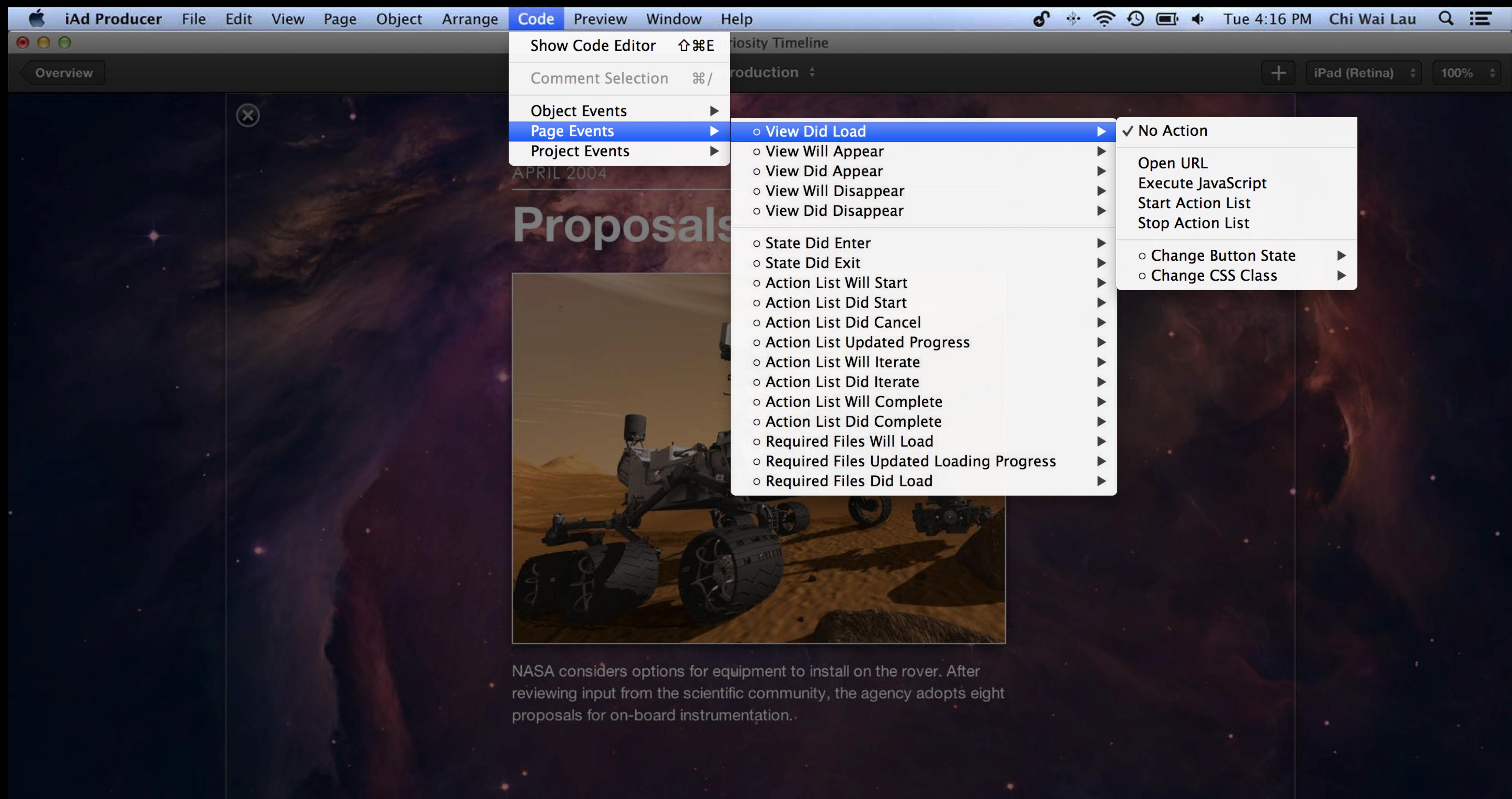
Events and callbacks



NASA considers options for equipment to install on the rover. After reviewing input from the scientific community, the agency adopts eight proposals for on-board instrumentation.

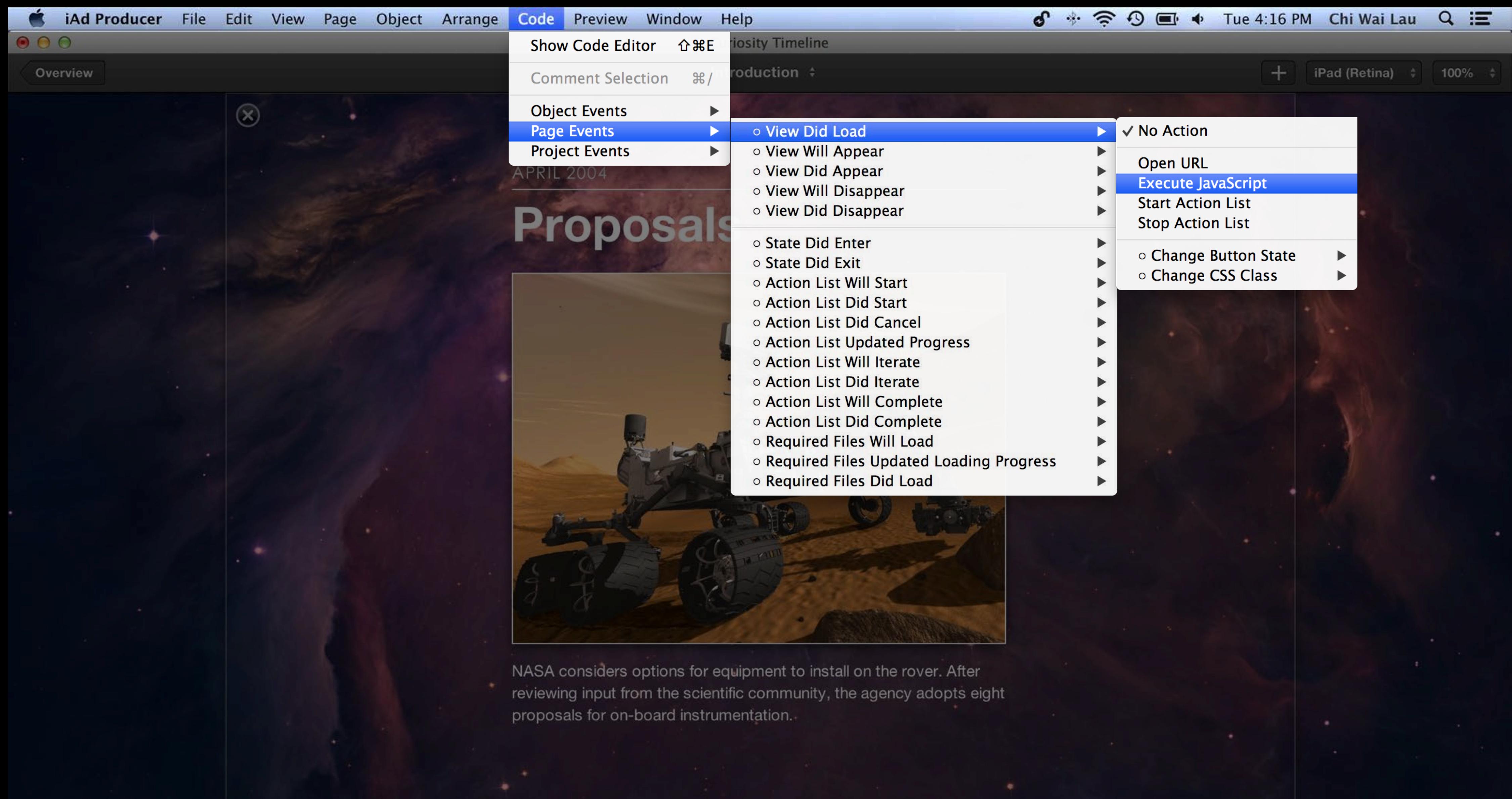
JS Customization

Events and callbacks



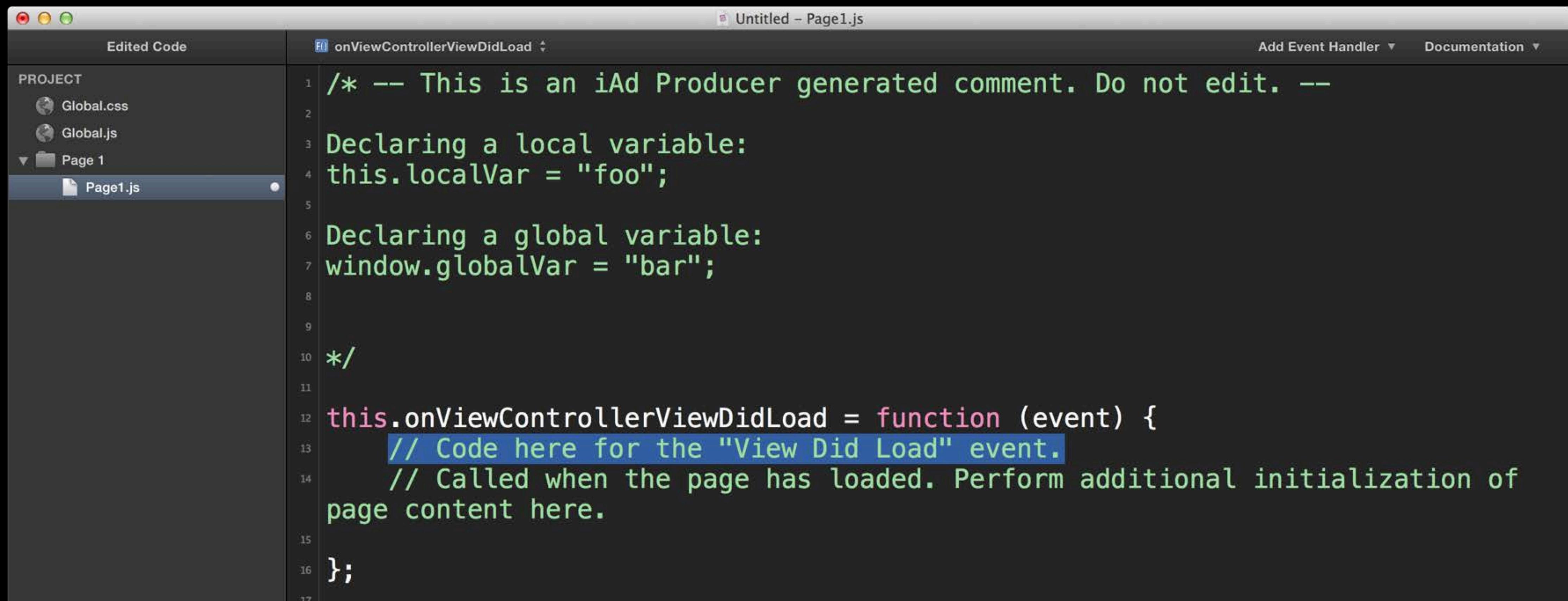
JS Customization

Events and callbacks



JS Customization

Events and callbacks



The screenshot shows a developer tools interface with a code editor window titled "Untitled - Page1.js". The code editor displays the following JavaScript code:

```
/* -- This is an iAd Producer generated comment. Do not edit. --  
1  
2  
3 Declaring a local variable:  
4 this.localVar = "foo";  
5  
6 Declaring a global variable:  
7 window.globalVar = "bar";  
8  
9  
10 */  
11  
12 this.onViewControllerViewDidLoad = function (event) {  
13     // Code here for the "View Did Load" event.  
14     // Called when the page has loaded. Perform additional initialization of  
15     // page content here.  
16 };  
17
```

The code includes comments and declarations for local and global variables. It also defines an event handler for the "onViewControllerViewDidLoad" event.

XMLHttpRequest

iAd.XHRLoader

JS Customization

Loading remote content with iAd.XHRLoader

iAd.XHRLoader(url)

JS Customization

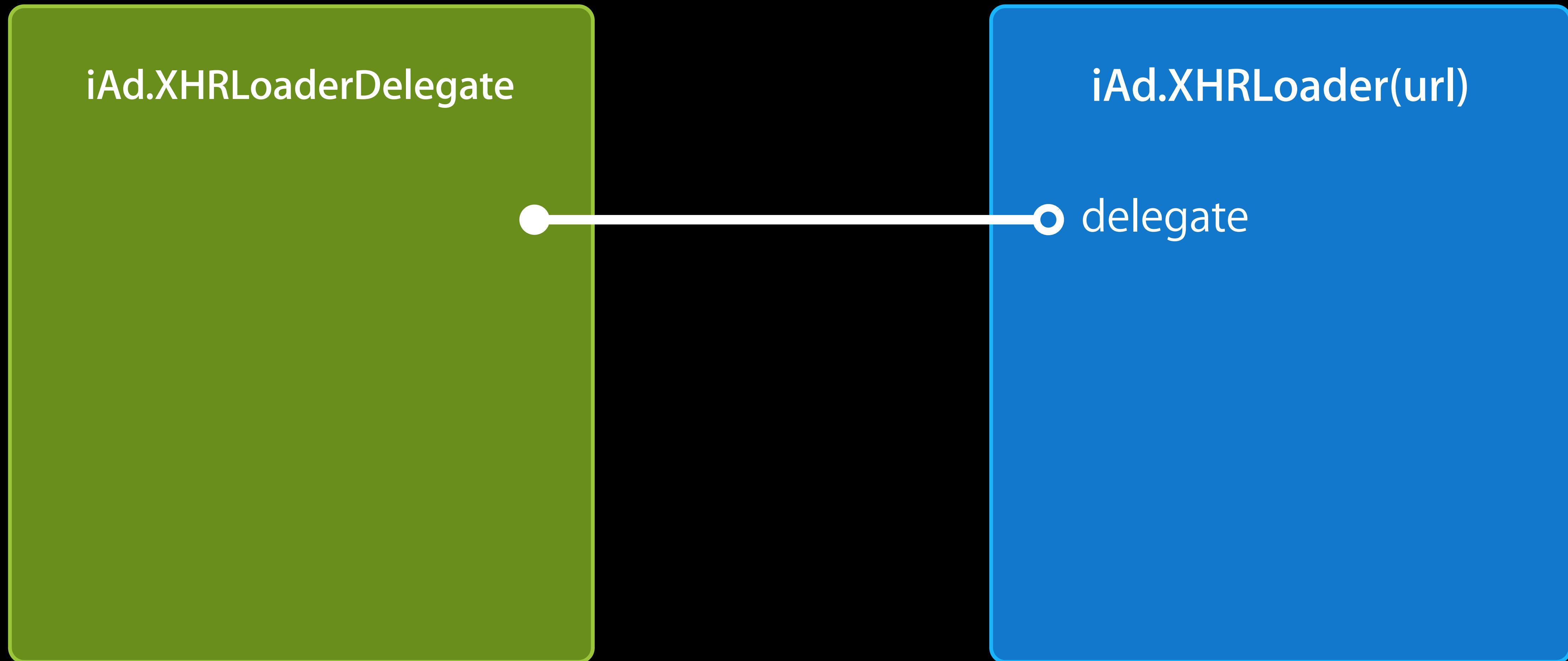
Loading remote content with iAd.XHRLoader

iAd.XHRLoader(url)

○ delegate

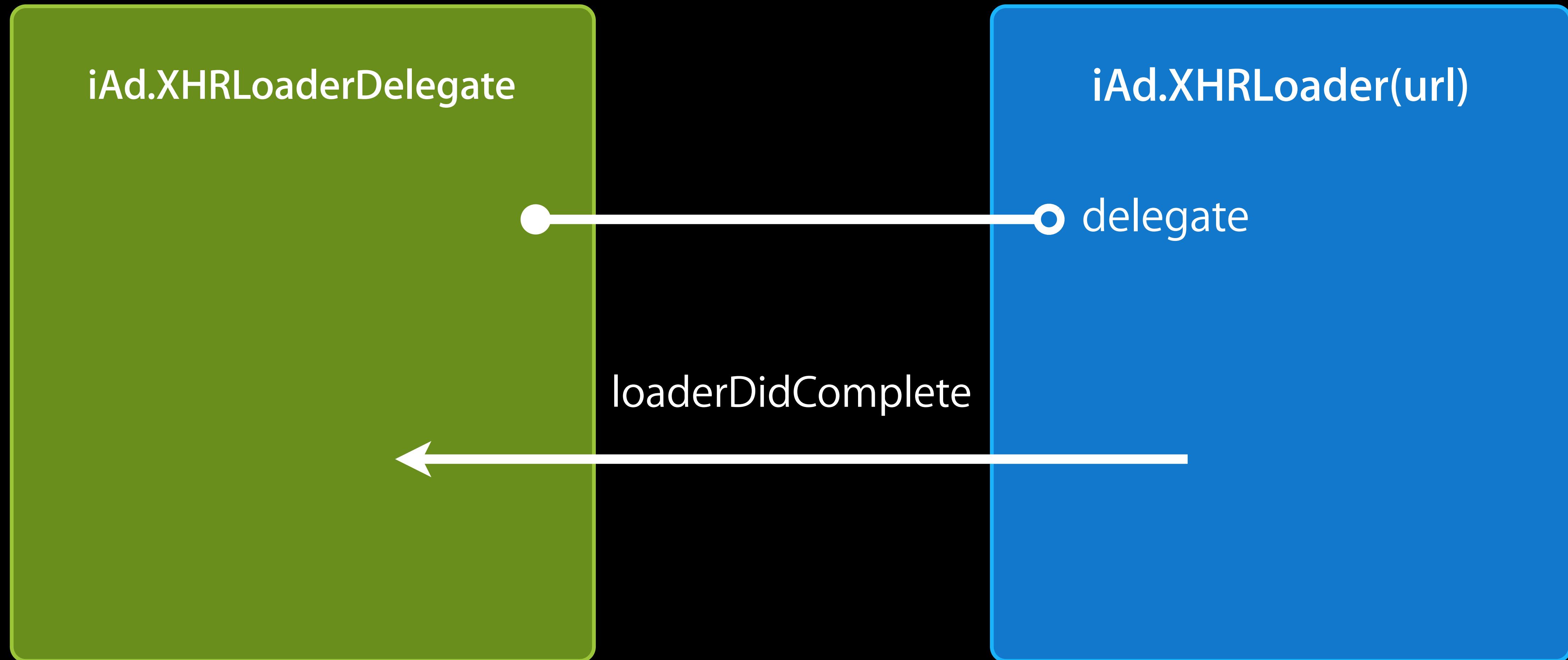
JS Customization

Loading remote content with `iAd.XHRLoader`



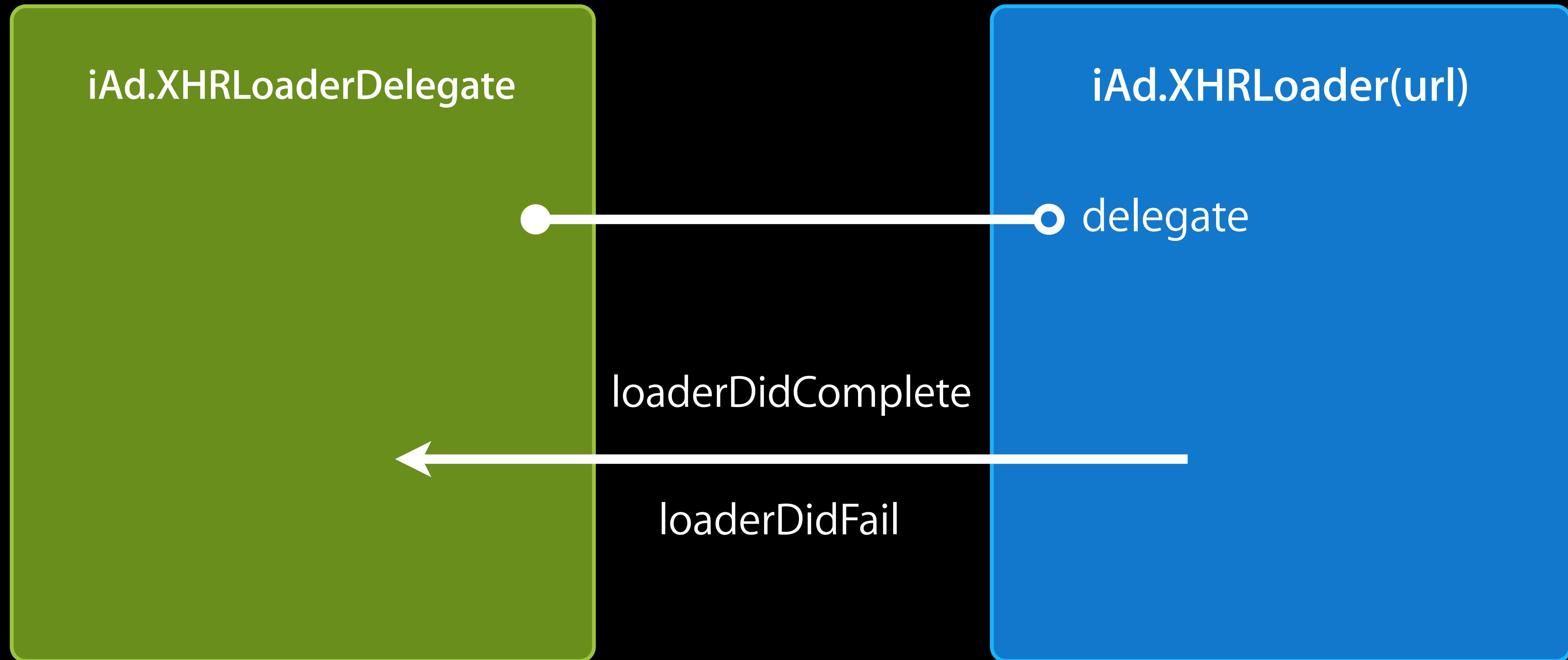
JS Customization

Loading remote content with iAd.XHRLoader



JS Customization

Loading remote content with iAd.XHRLoader



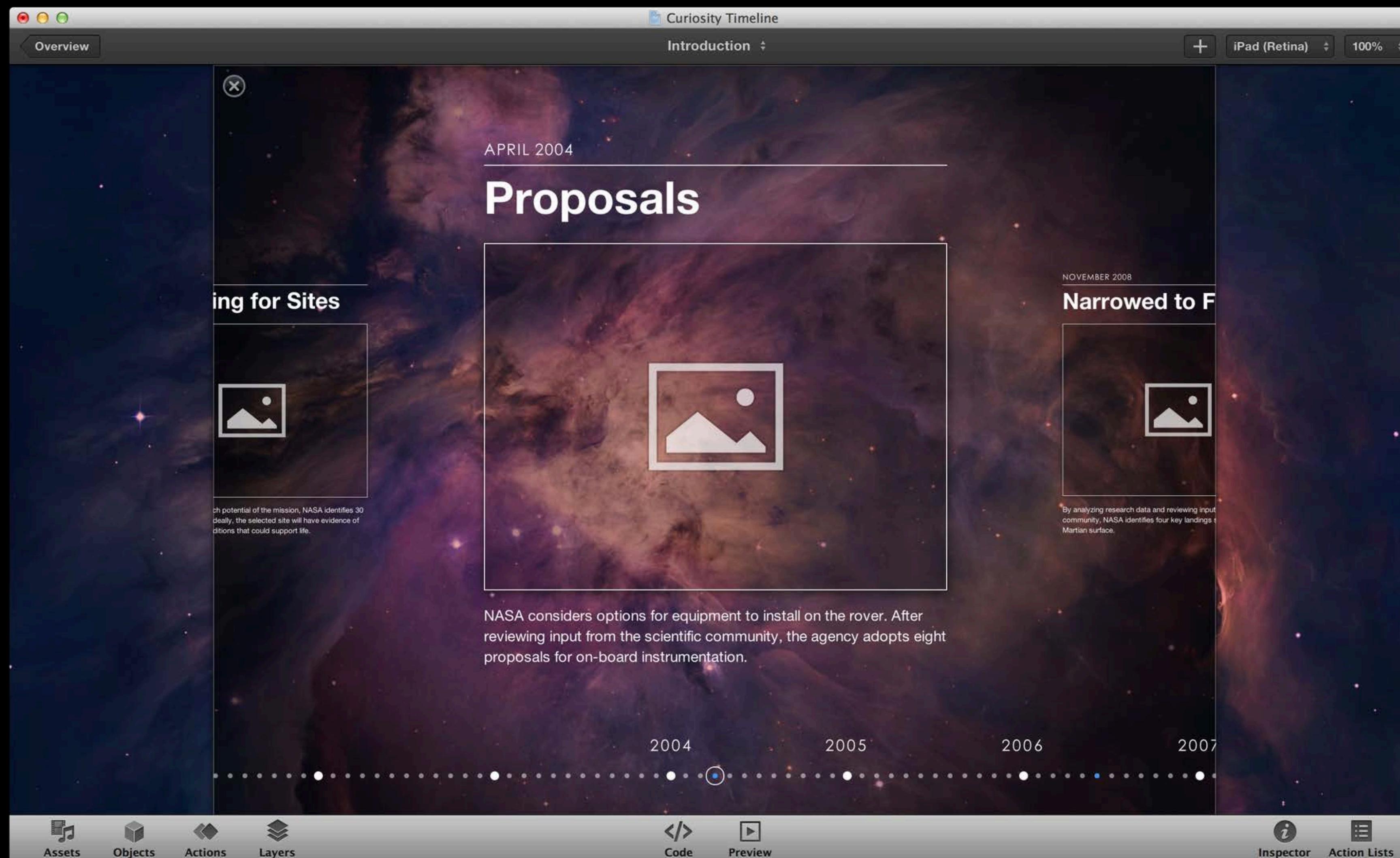
JS Customization

Loading remote content with iAd.XHRLoader

```
1 // Get data from remote server
2 this.onViewControllerViewDidLoad = function (event) {
3     var xmlLoader = new iAd.XHRLoader("http://.../images");
4     xmlLoader.delegate = this;
5     xmlLoader.load();
6 };
7
8 // Called when the XHR call failed
9 this.loaderDidFail = function (loader, error) {
10    alert("Load failed with error: " + error);
11};
12
13 // Called when the XHR call succeeded
14 this.loaderDidComplete = function (loader) {
15    // An array of images downloaded from a remote server
16    this.imageArray = createImageViewsFromData(loader.content);
17};
18
19
```

JS Customization

Loading dynamic content in multi-cell objects



JS Customization

Loading dynamic content in multi-cell objects

Multi-Cell Object

JS Customization

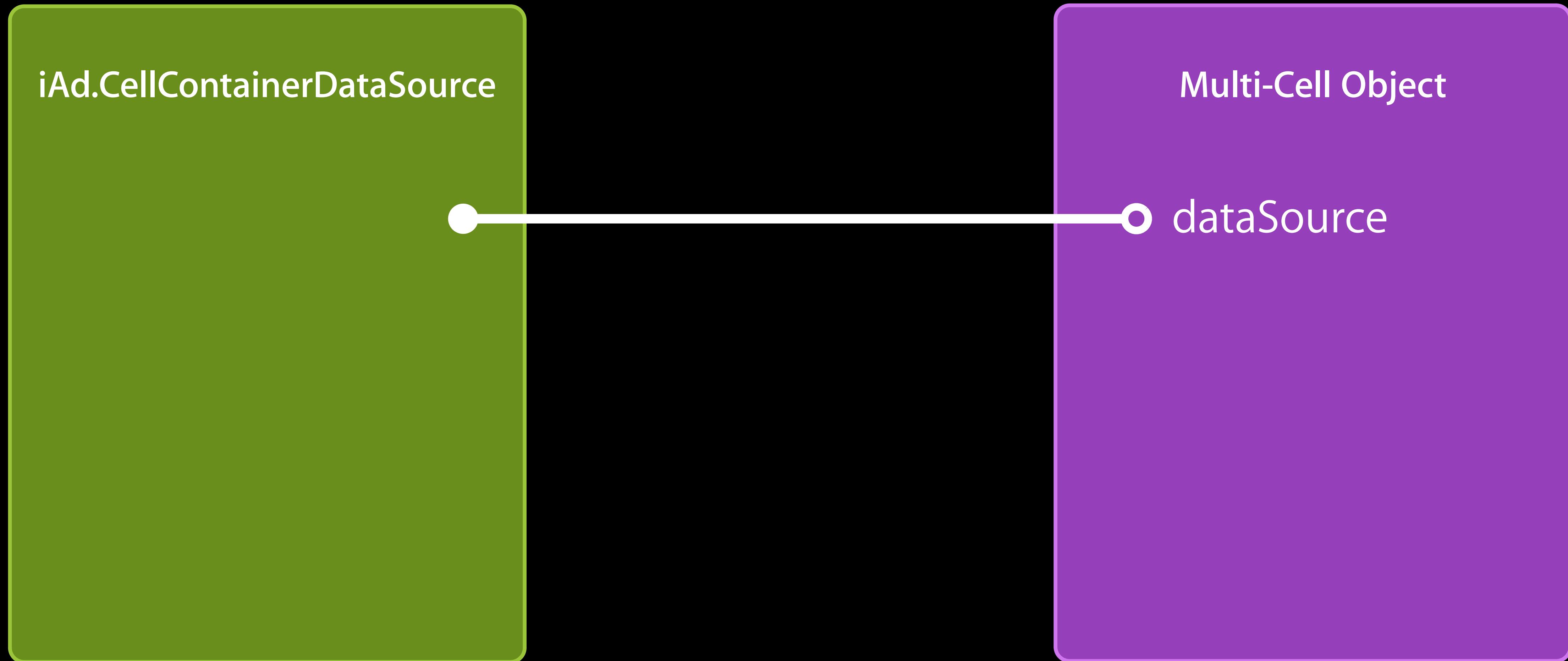
Loading dynamic content in multi-cell objects

Multi-Cell Object

- dataSource

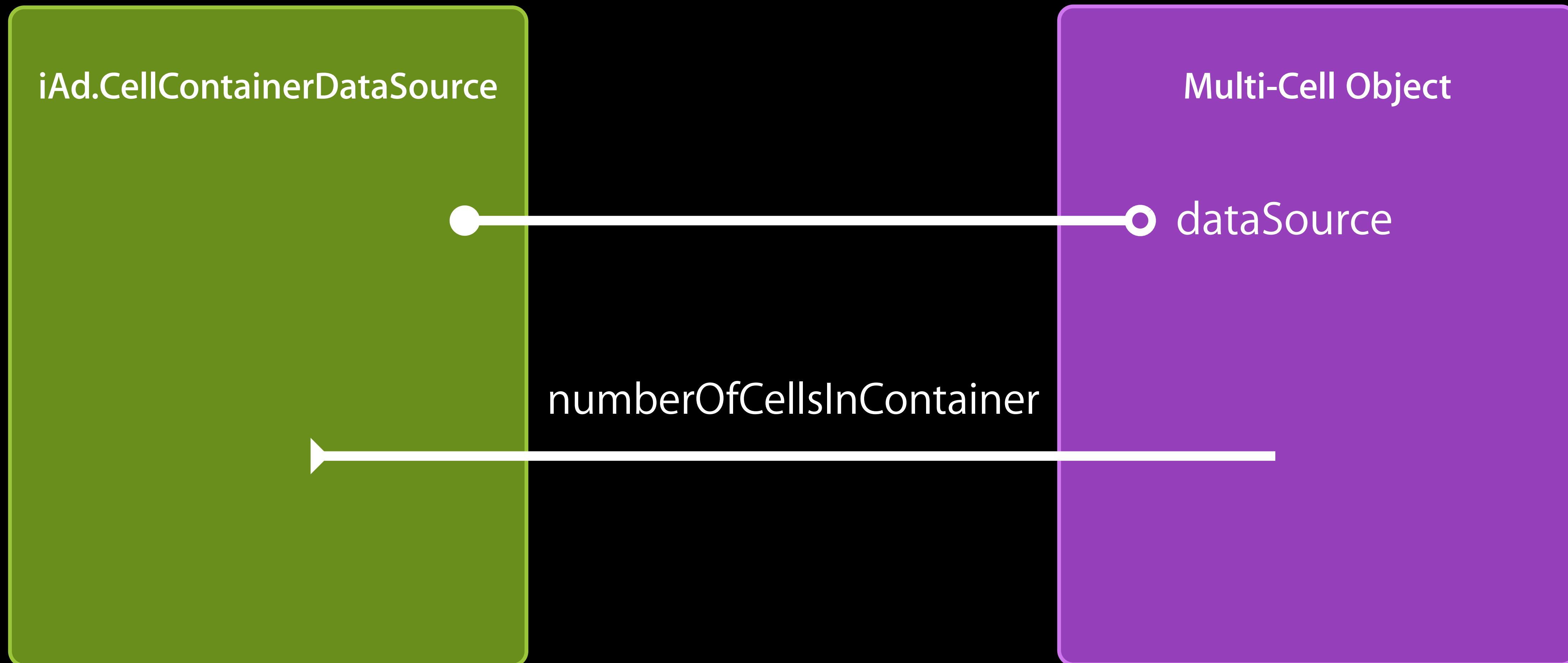
JS Customization

Loading dynamic content in multi-cell objects



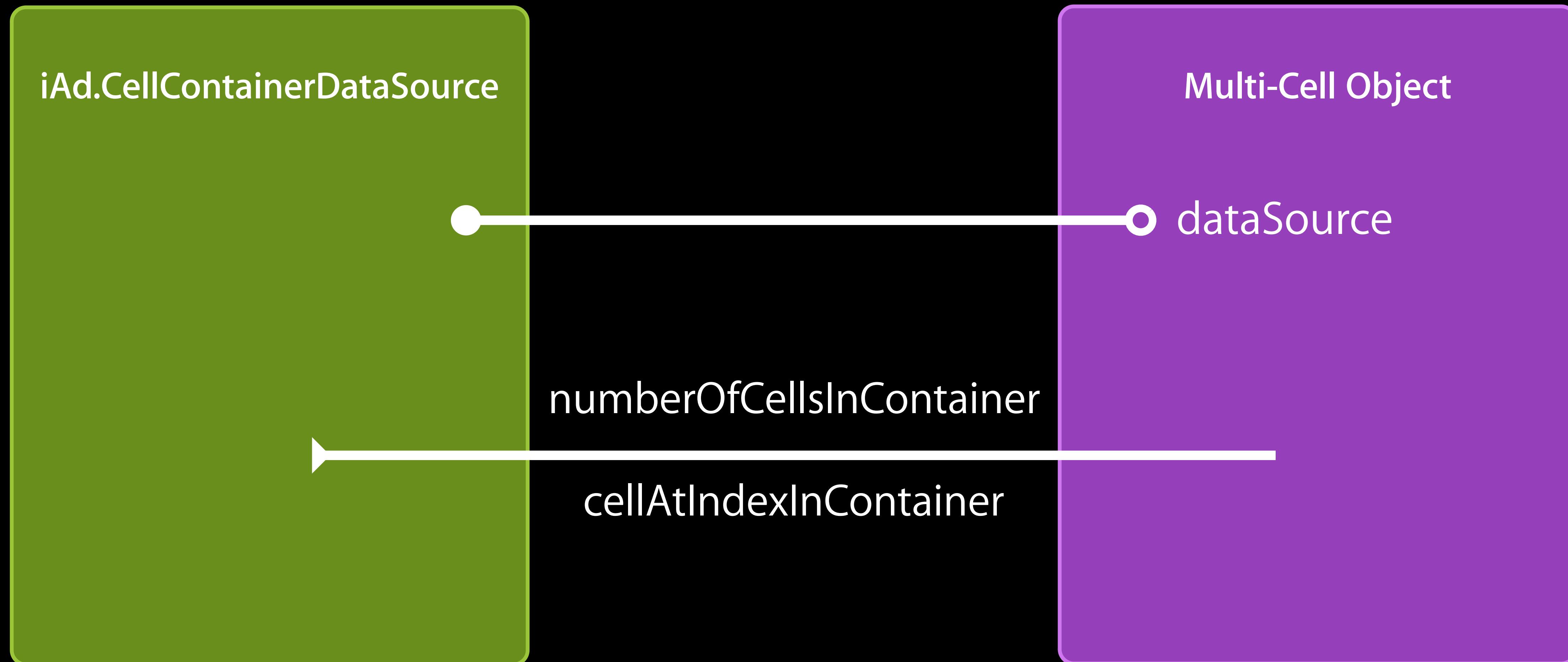
JS Customization

Loading dynamic content in multi-cell objects



JS Customization

Loading dynamic content in multi-cell objects



JS Customization

Loading dynamic content in multi-cell objects

```
13
14 // Called when the XHR call succeeded
15 this.loaderDidComplete = function (loader) {
16     // An array of images downloaded from a remote server
17     this.imageArray = createImageViewsFromData(loader.content);
18
19     // Set the data source of the gallery
20     var galleryView = this.outlets.galleryView;
21     galleryView.dataSource = this;
22     galleryView.reload();
23 };
24
25 // Return the number of cells
26 this.numberOfCellsInContainer = function (container) {
27     return this.imageArray.length;
28 };
29
30 // Return the cell at a given index
31 this.cellAtIndexInContainer = function(container, index) {
32     return this.imageArray[index];
33 };
34
```

Demo

Customization

Mark Malone
iAd Technology Evangelist



{ }

CSS



{,·}

JS



</>

HTML



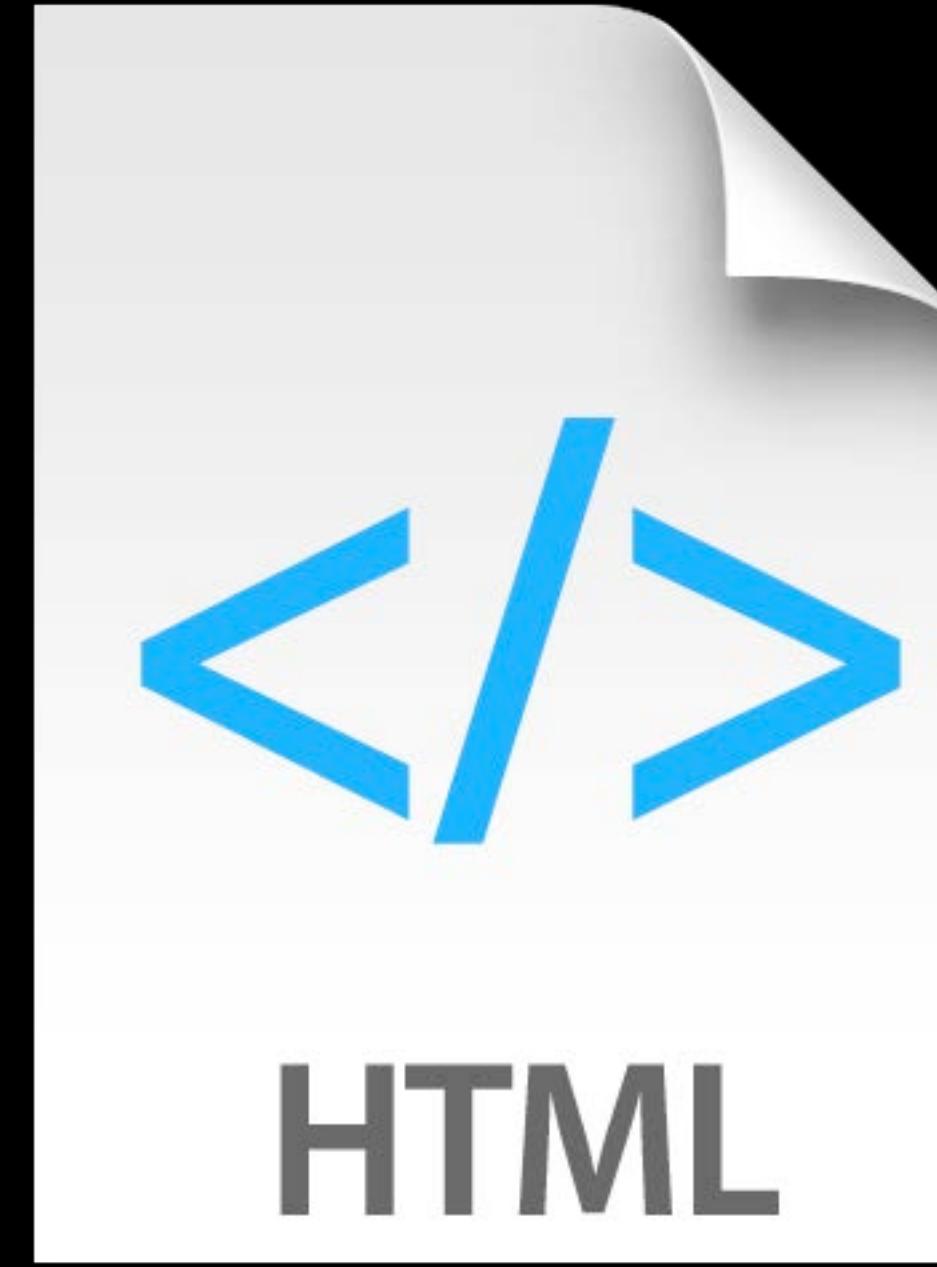
{ }

CSS



{;}

JS



</>

HTML

HTML Customization

Embedded objects



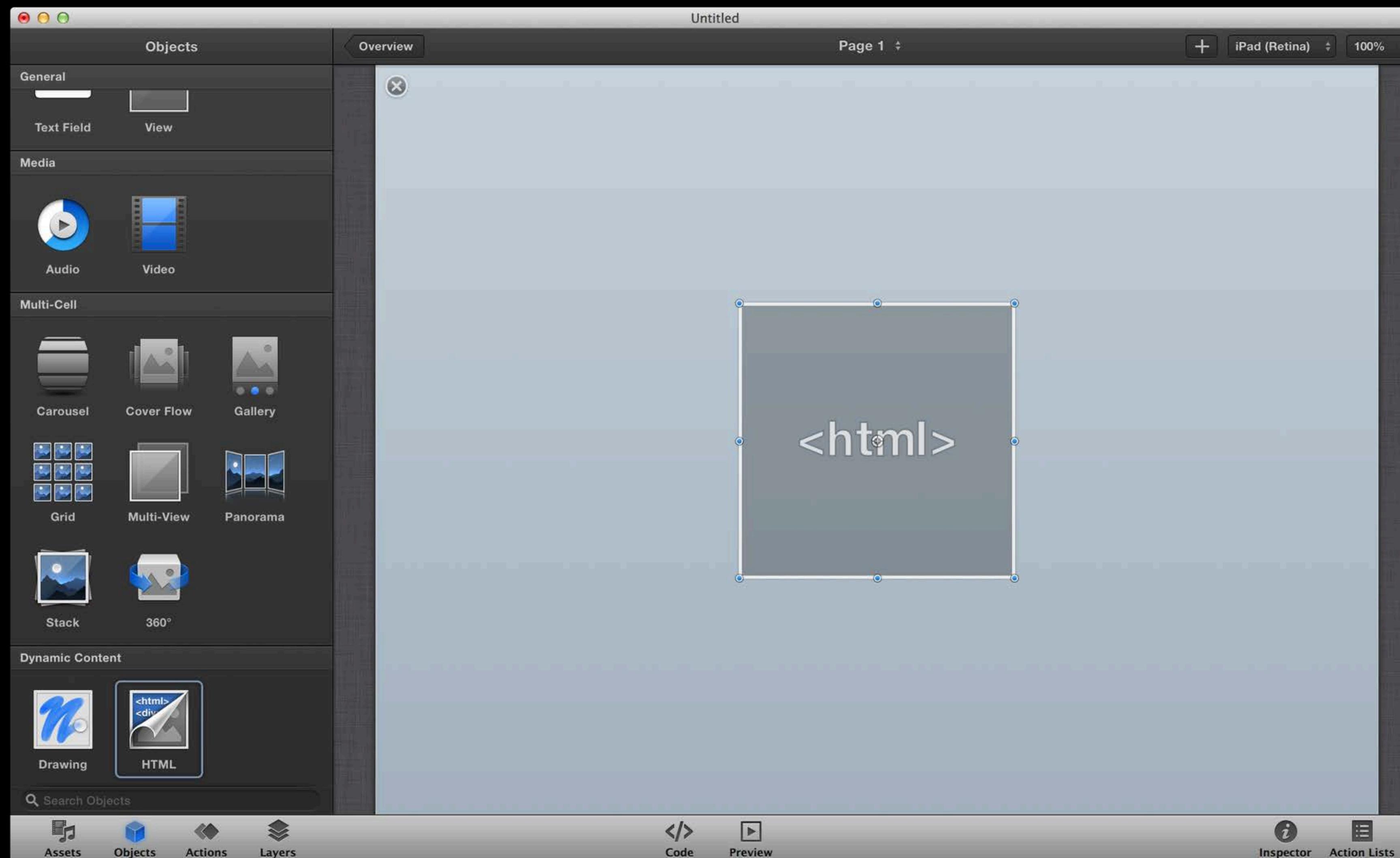
HTML Customization

Embedded objects



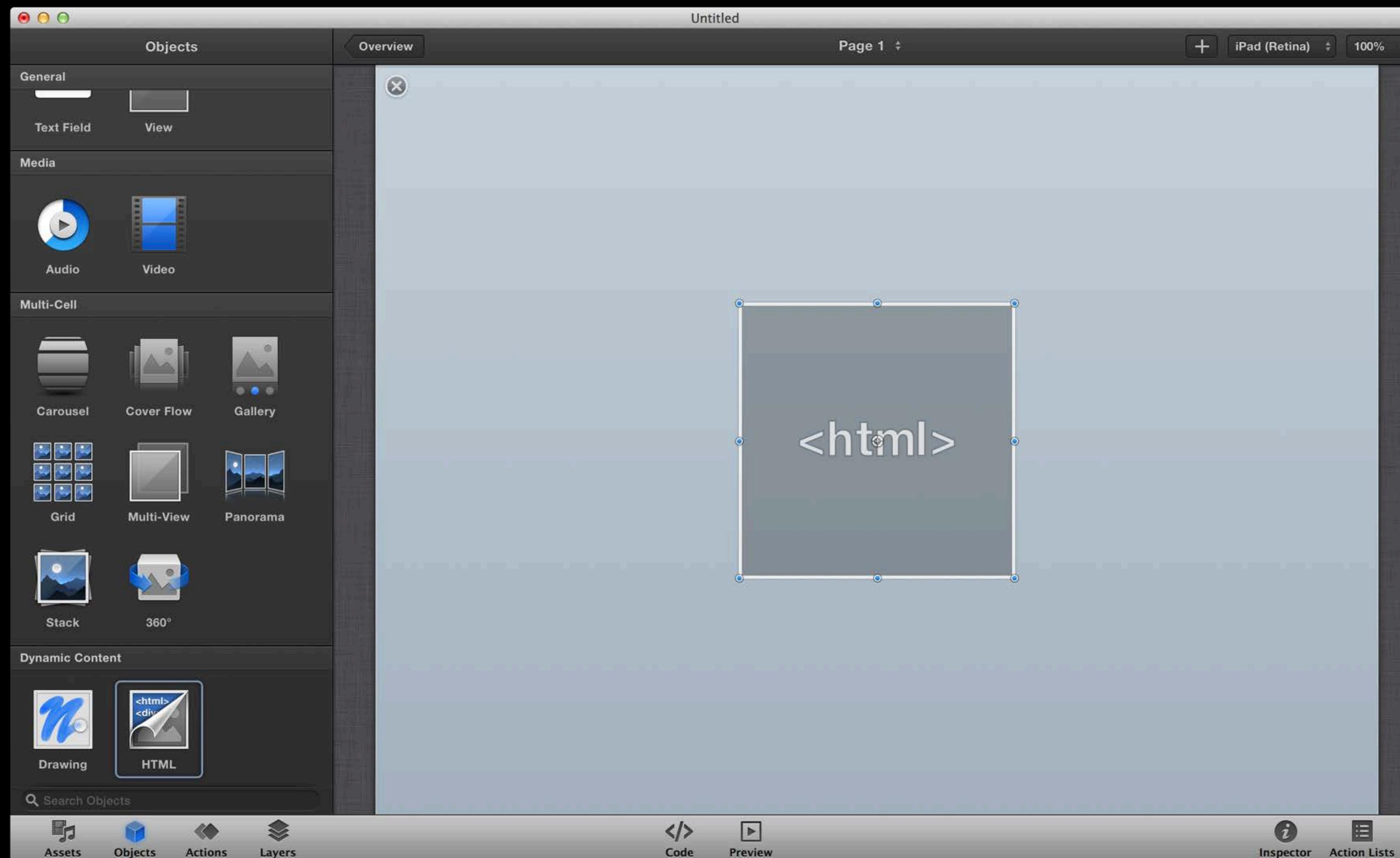
HTML Customization

Embedded objects



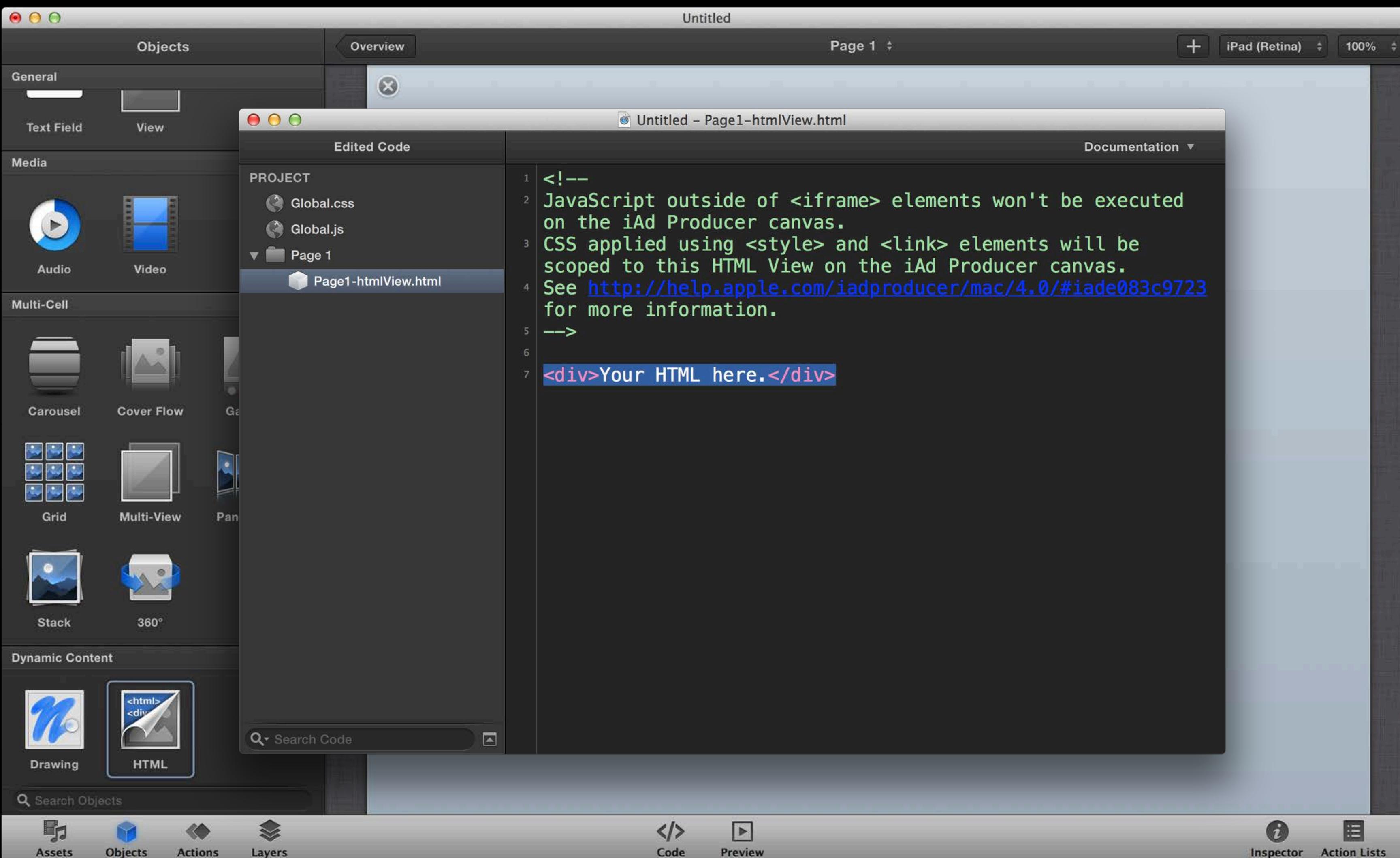
HTML Customization

Embedded objects



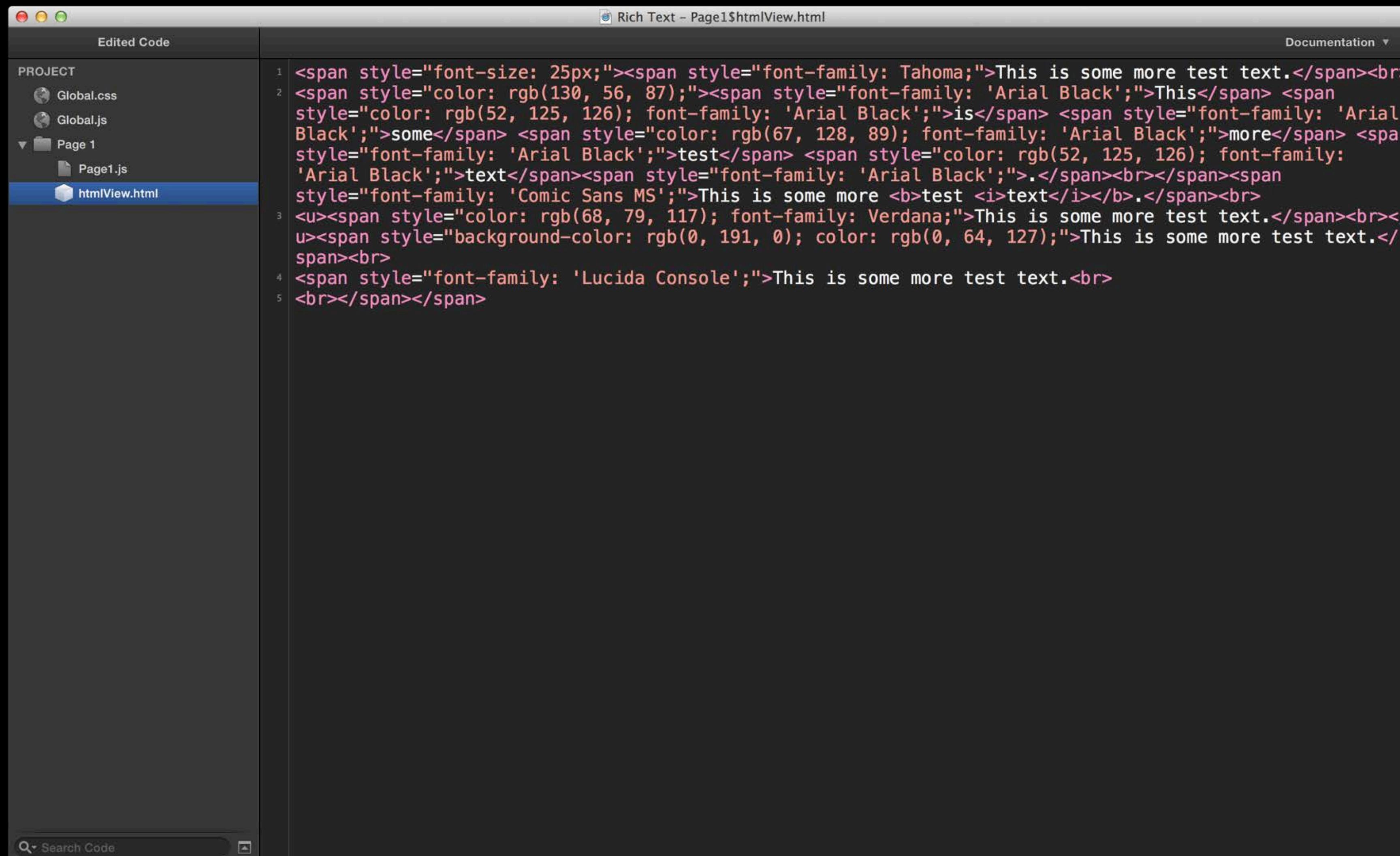
HTML Customization

Embedded objects



HTML Customization

Formatted text



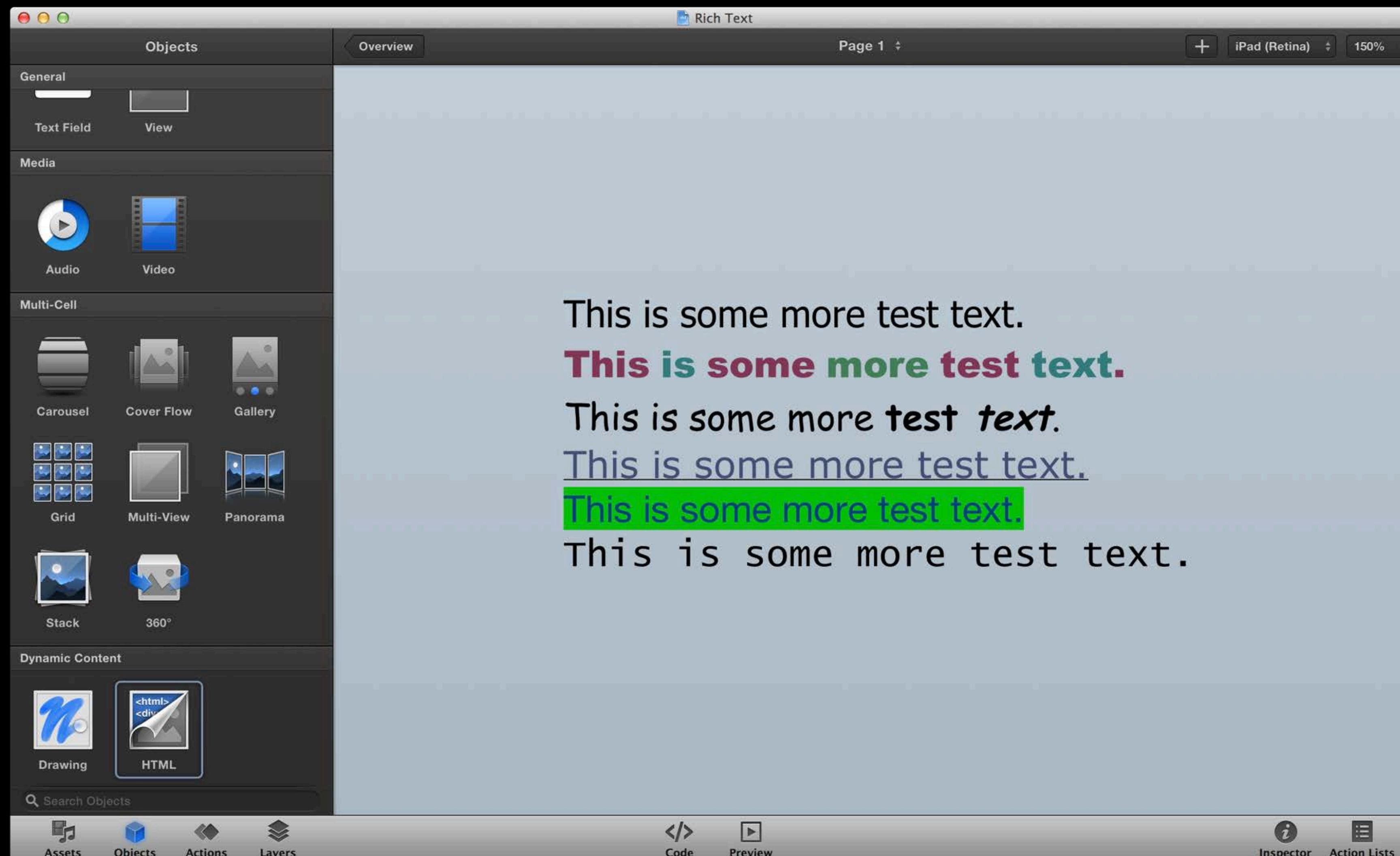
The screenshot shows a code editor window titled "Rich Text – Page1\$htmlView.html". The left sidebar is labeled "Edited Code" and contains a "PROJECT" section with files: Global.css, Global.js, Page 1 (containing Page1.js), and htmlView.html. The file "htmlView.html" is currently selected and highlighted with a blue bar at the bottom of the sidebar. The main pane displays the following HTML code:

```
1 <span style="font-size: 25px;"><span style="font-family: Tahoma;">This is some more test text.</span><br>
2 <span style="color: rgb(130, 56, 87);"><span style="font-family: 'Arial Black';">This</span> <span
style="color: rgb(52, 125, 126); font-family: 'Arial Black';">is</span> <span style="font-family: 'Arial
Black';">some</span> <span style="color: rgb(67, 128, 89); font-family: 'Arial Black';">more</span> <span
style="font-family: 'Arial Black';">test</span> <span style="color: rgb(52, 125, 126); font-family:
'Arial Black';">text</span><span style="font-family: 'Arial Black';">.</span><br></span><span
style="font-family: 'Comic Sans MS';">This is some more <b>test <i>text</i></b>.</span><br>
3 <u><span style="color: rgb(68, 79, 117); font-family: Verdana;">This is some more test text.</span><br></
u><span style="background-color: rgb(0, 191, 0); color: rgb(0, 64, 127);">This is some more test text.</
span><br>
4 <span style="font-family: 'Lucida Console';">This is some more test text.<br>
<br></span></span>
```

At the bottom of the editor, there is a search bar with the placeholder "Search Code".

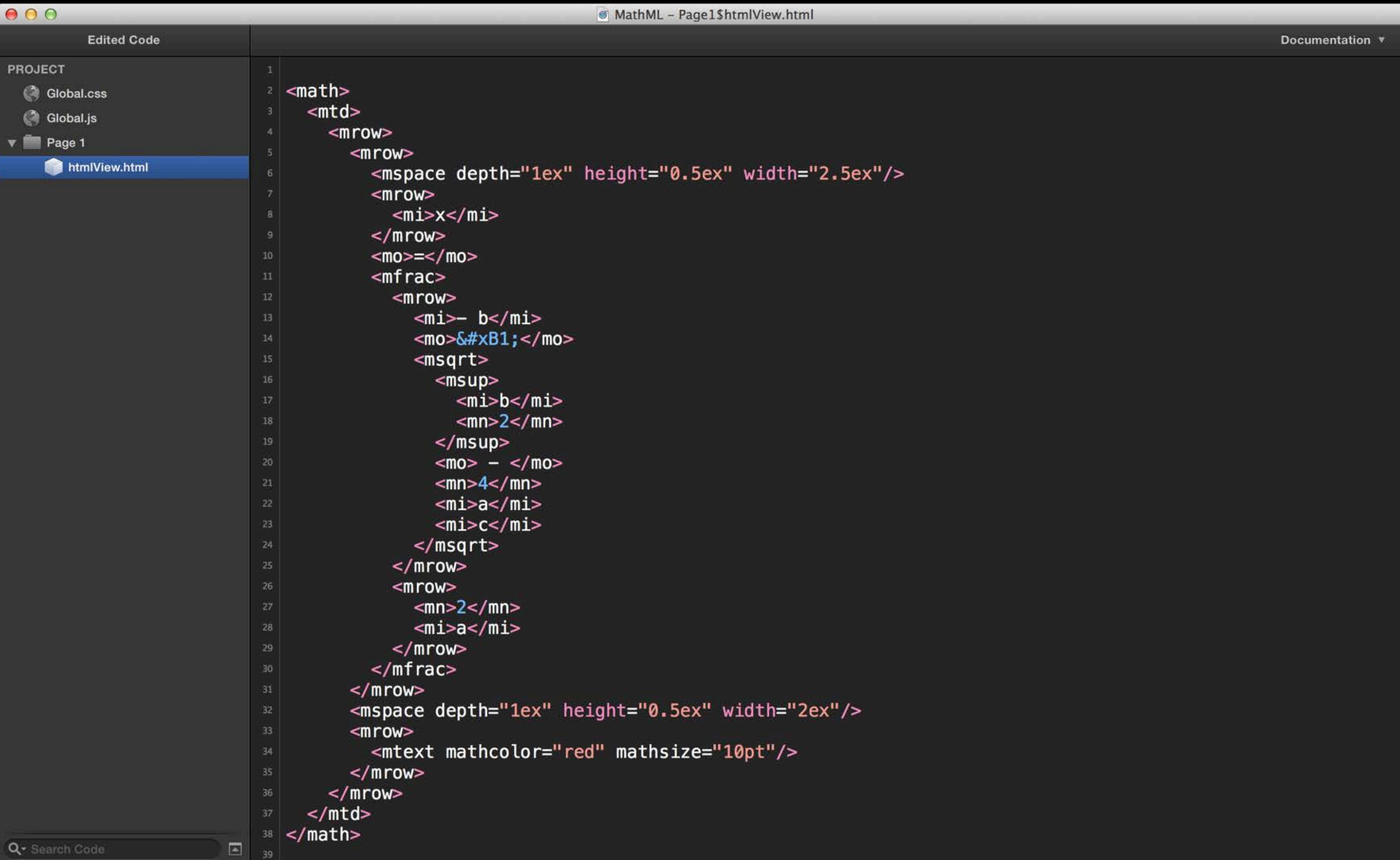
HTML Customization

Formatted text



HTML Customization

MathML



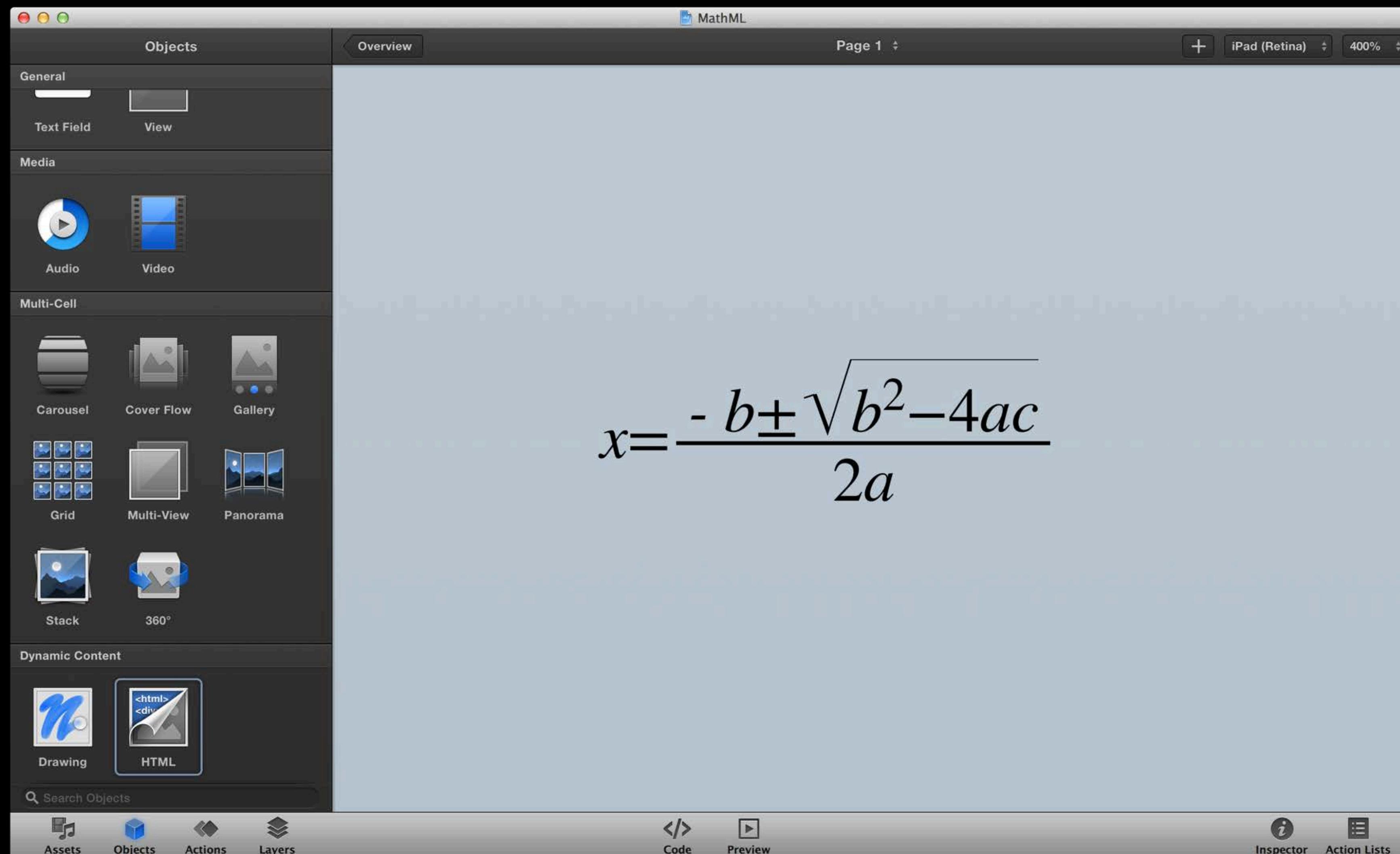
The screenshot shows a code editor window titled "Edited Code" with a dark theme. The project sidebar on the left lists "Global.css", "Global.js", "Page 1", and "htmlView.html", with "htmlView.html" currently selected. The main code area displays the following MathML code:

```
1 <math>
2   <mtd>
3     <mrow>
4       <mrow>
5         <mspace depth="1ex" height="0.5ex" width="2.5ex"/>
6         <mrow>
7           <mi>x</mi>
8         </mrow>
9         <mo>=</mo>
10        <mfrac>
11          <mrow>
12            <mi>- b</mi>
13            <mo>&#xB1;</mo>
14            <msqrt>
15              <msup>
16                <mi>b</mi>
17                <mn>2</mn>
18              </msup>
19              <mo> - </mo>
20              <mn>4</mn>
21              <mi>a</mi>
22              <mi>c</mi>
23            </msqrt>
24          </mrow>
25          <mrow>
26            <mn>2</mn>
27            <mi>a</mi>
28          </mrow>
29        </mfrac>
30      </mrow>
31    <mrow>
32      <mspace depth="1ex" height="0.5ex" width="2ex"/>
33      <mrow>
34        <mtext mathcolor="red" mathsize="10pt"/>
35      </mrow>
36    </mrow>
37  </mtd>
38</math>
```

The code implements a quadratic formula solver. It uses MathML elements like mtd , $mrow$, $mspace$, mi , mo , $mfrac$, $msqrt$, $msup$, and $mtext$. The $mtext$ element at the end is styled with `mathcolor="red"` and `mathsize="10pt"`.

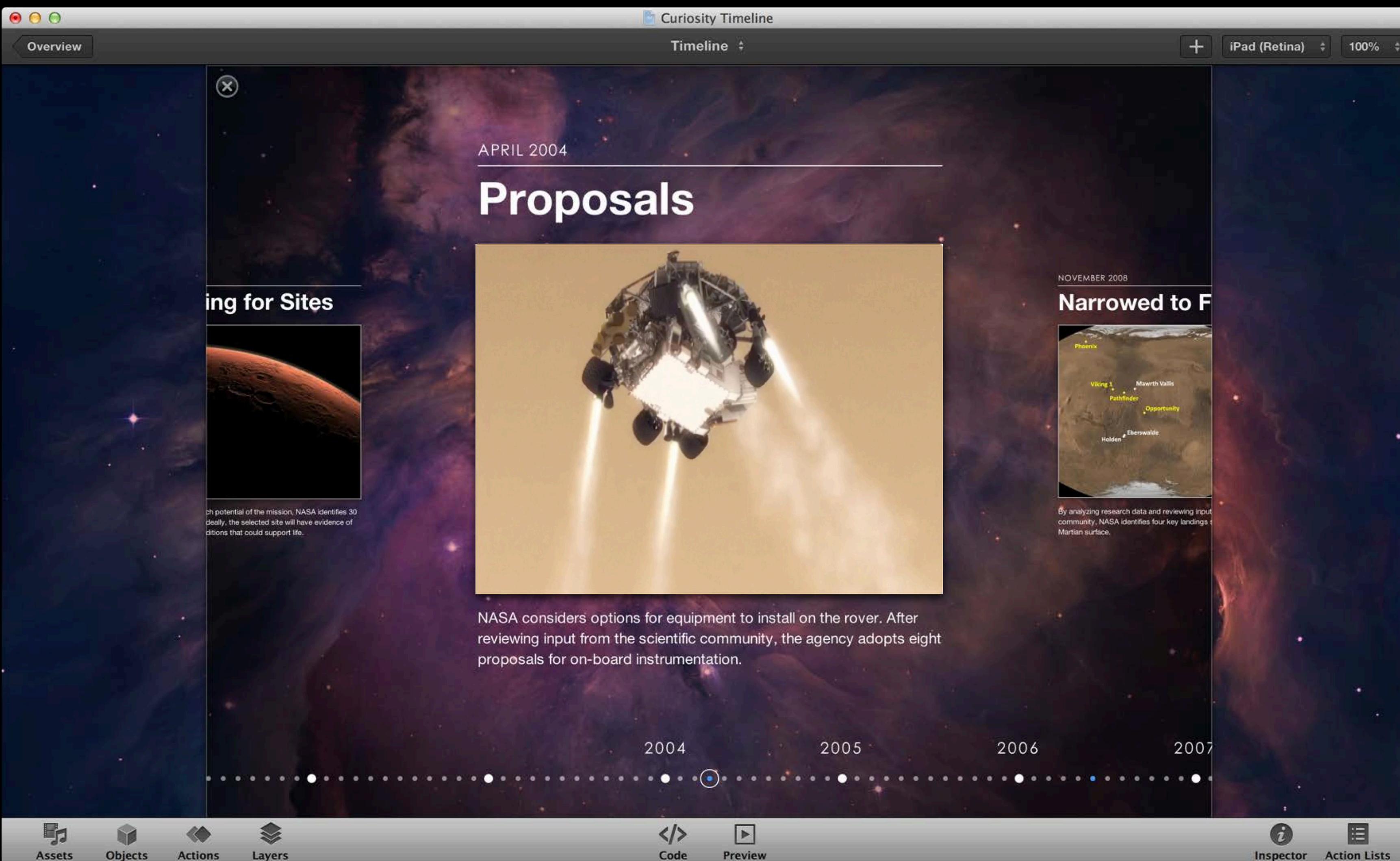
HTML Customization

MathML



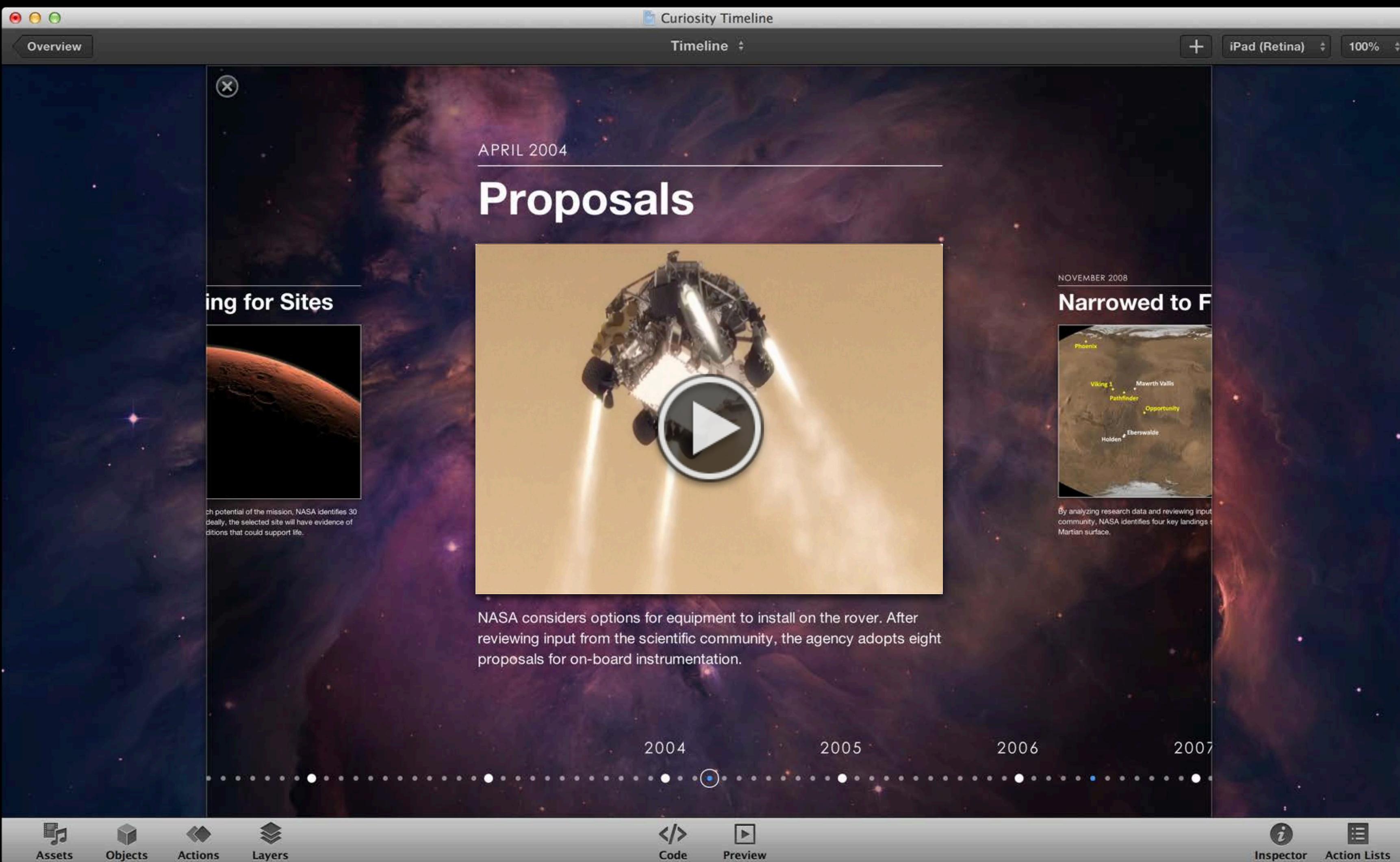
HTML Customization

Embedded objects



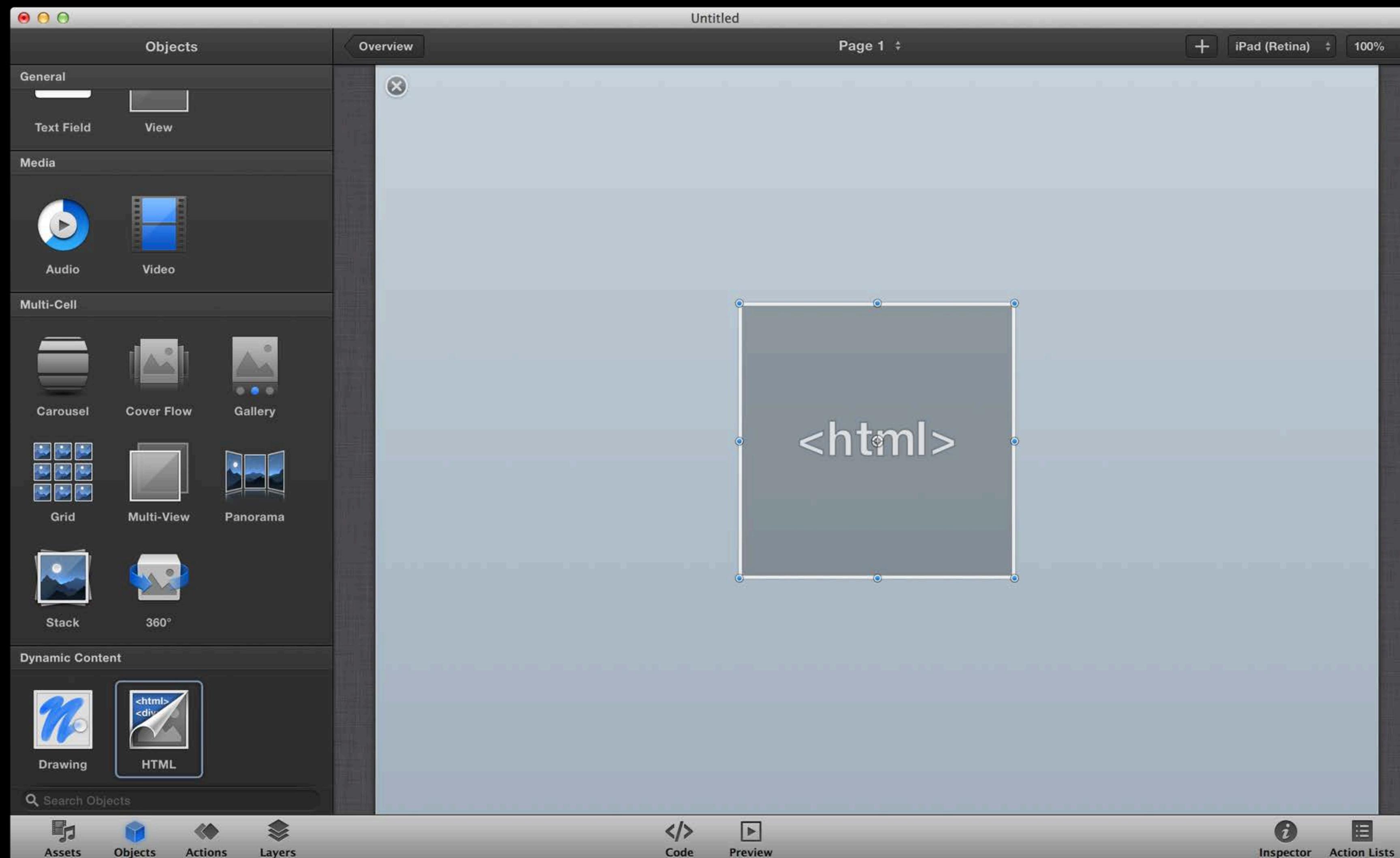
HTML Customization

Embedded objects



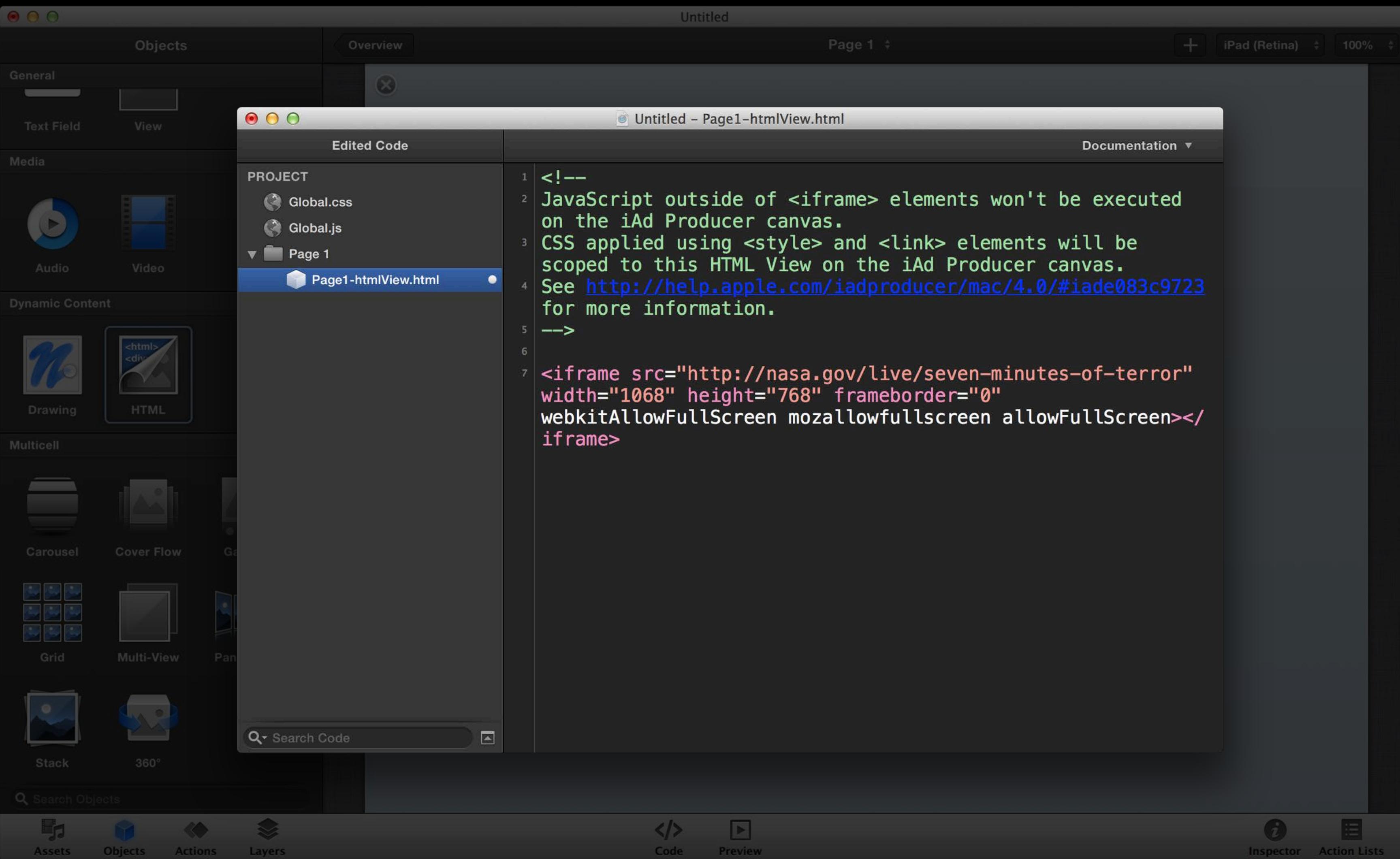
HTML Customization

Embedded objects



HTML Customization

Embedded objects



The screenshot shows the iAd Producer application interface. The main window title is "Untitled". The top menu bar includes "Objects", "Overview", "Page 1", a "+" button, "iPad (Retina)", and "100%". The left sidebar is titled "Objects" and contains sections for "General", "Text Field", "View", "Media" (with Audio and Video options), "Dynamic Content" (with Drawing and HTML options), and "Multicell" (with Carousel, Cover Flow, Grid, Multi-View, Pan, Stack, and 360° options). The central panel is titled "Edited Code" and shows the following HTML code:

```
1 <!--
2 JavaScript outside of <iframe> elements won't be executed
on the iAd Producer canvas.
3 CSS applied using <style> and <link> elements will be
scoped to this HTML View on the iAd Producer canvas.
4 See http://help.apple.com/iadproducer/mac/4.0/#iade083c9723
for more information.
5 -->
6
7 <iframe src="http://nasa.gov/live/seven-minutes-of-terror"
width="1068" height="768" frameborder="0"
webkitAllowFullScreen mozallowfullscreen allowFullScreen></
iframe>
```

The "Edited Code" panel also displays a "PROJECT" section with files: Global.css, Global.js, Page 1, and Page1-htmlView.html (which is currently selected).

HTML Customization

Embedded objects





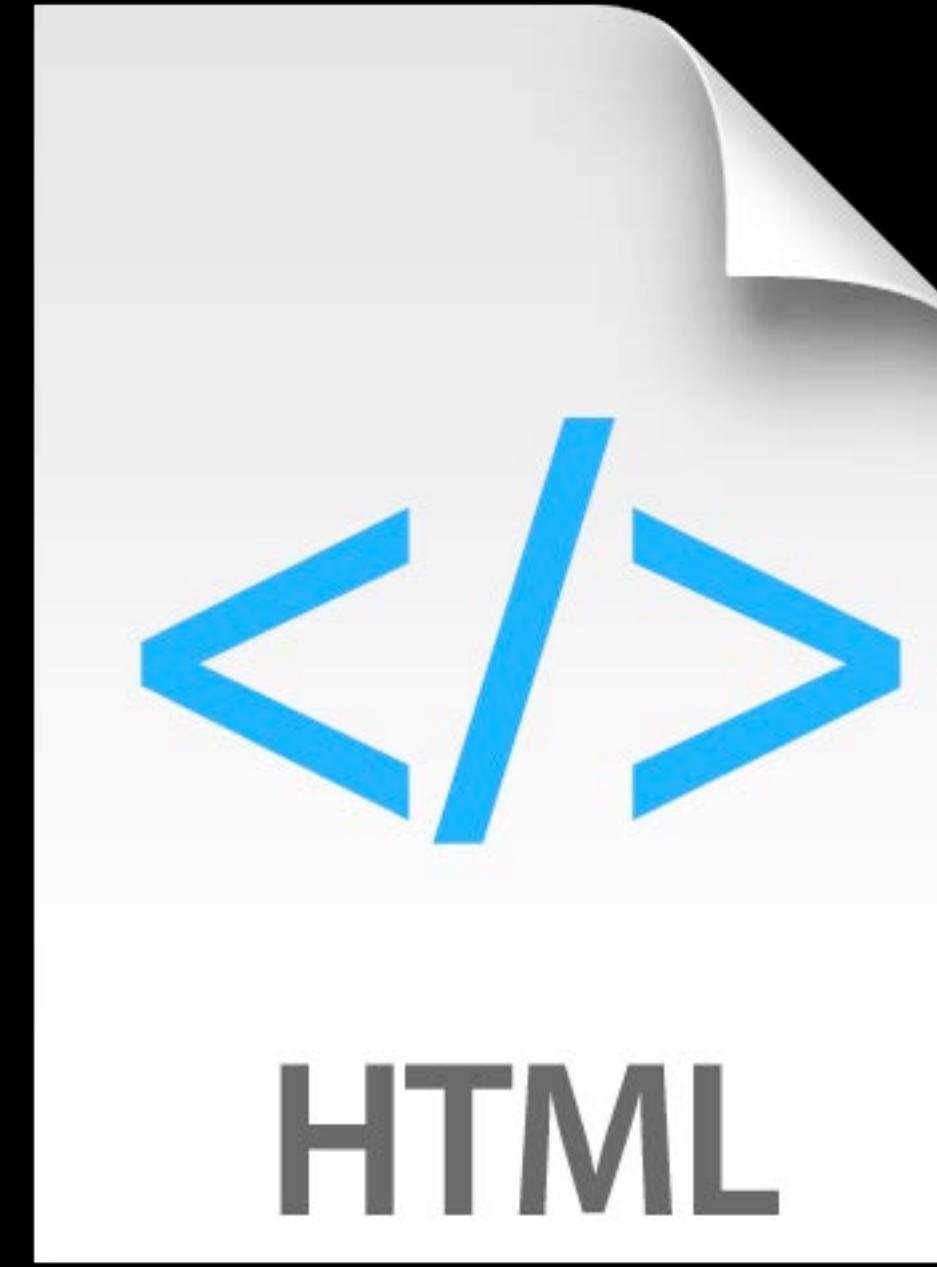
{ }

CSS



{;}

JS



</>

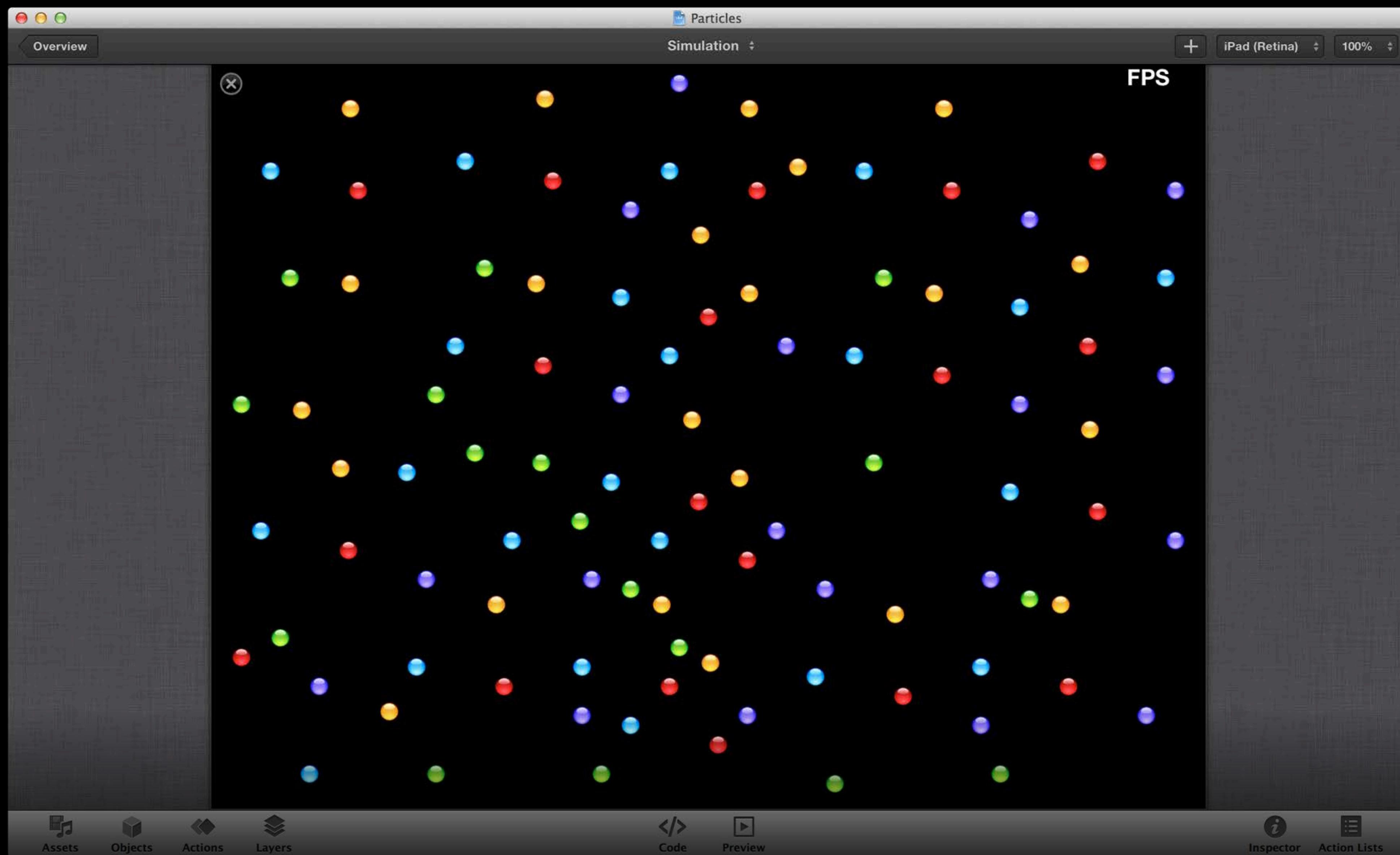
HTML

Content Customization

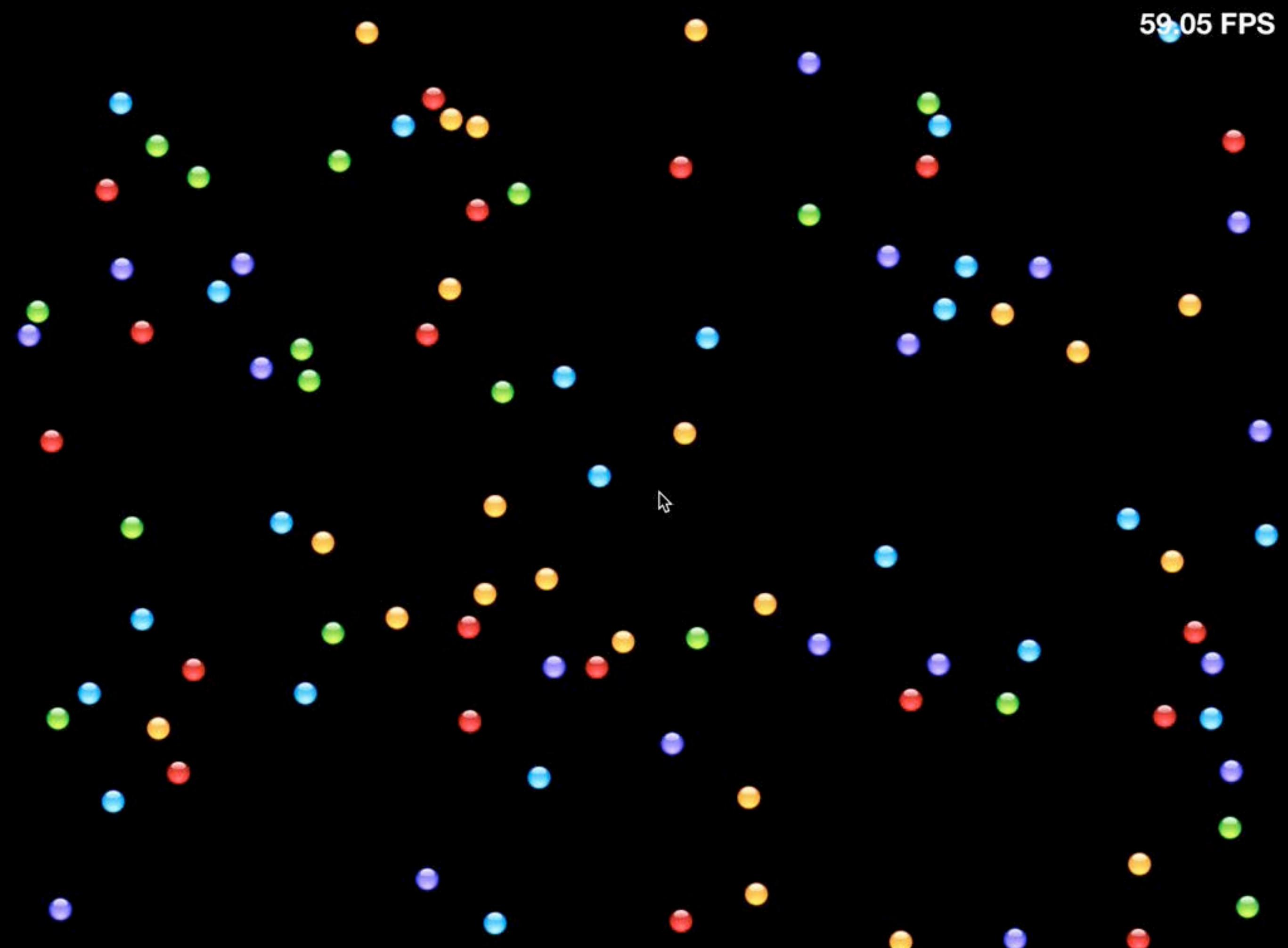


Performance

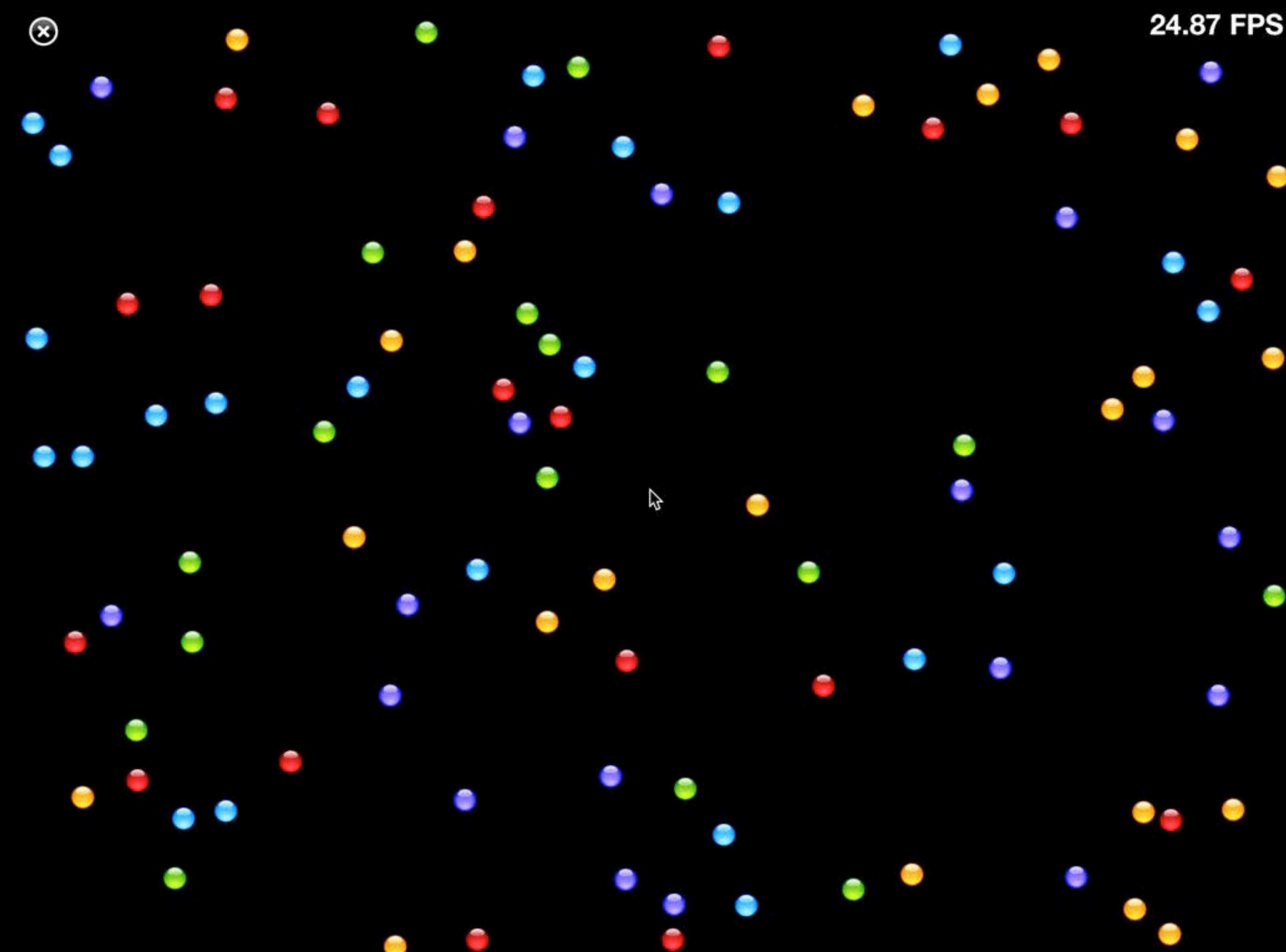
Great Widget Is Done



Mac



iOS Device



Performance

Testing and debugging

Performance

Testing and debugging

- Remote Web Inspector

Performance

Testing and debugging

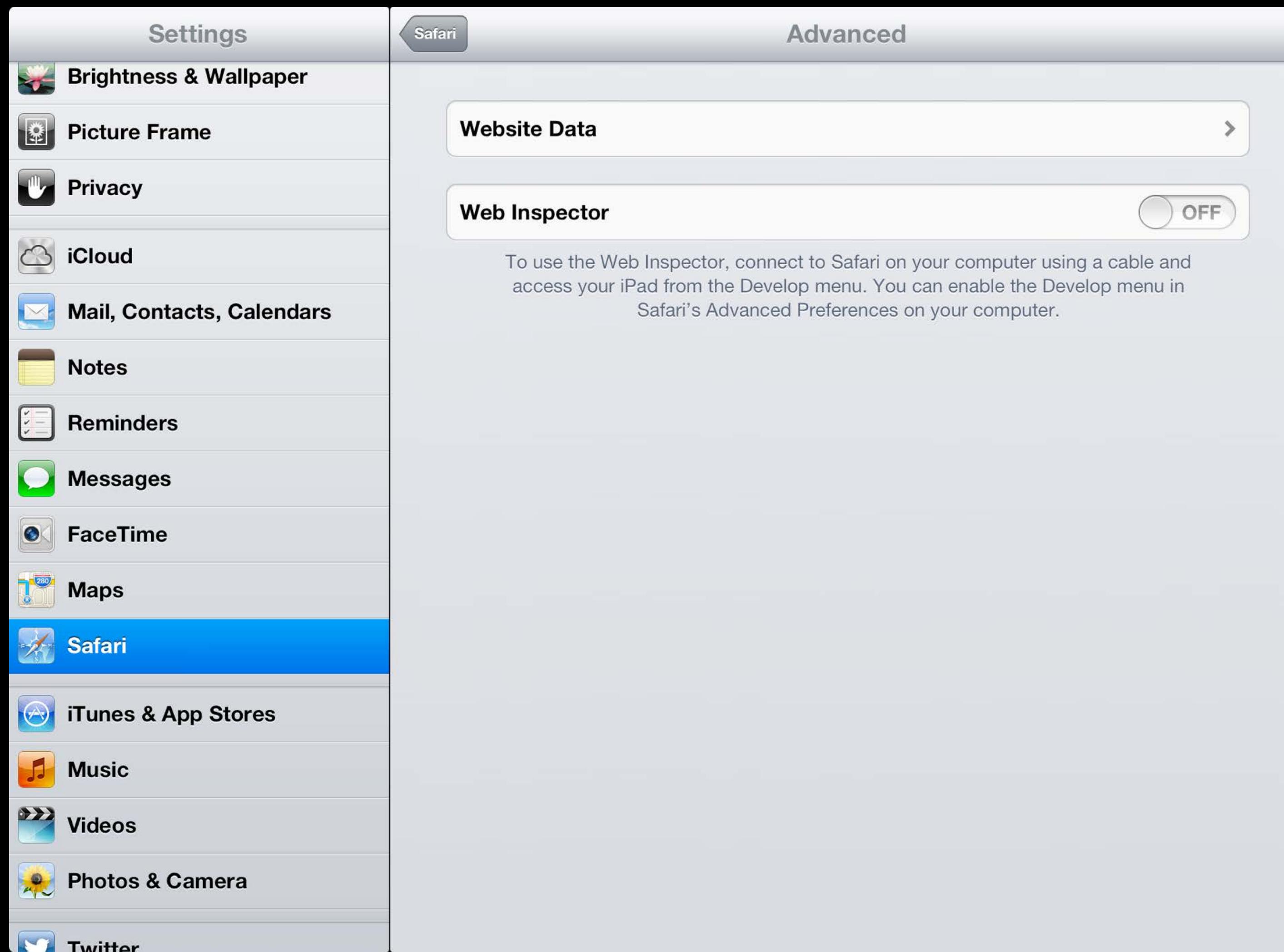
- Remote Web Inspector
- Instruments

Web Inspector



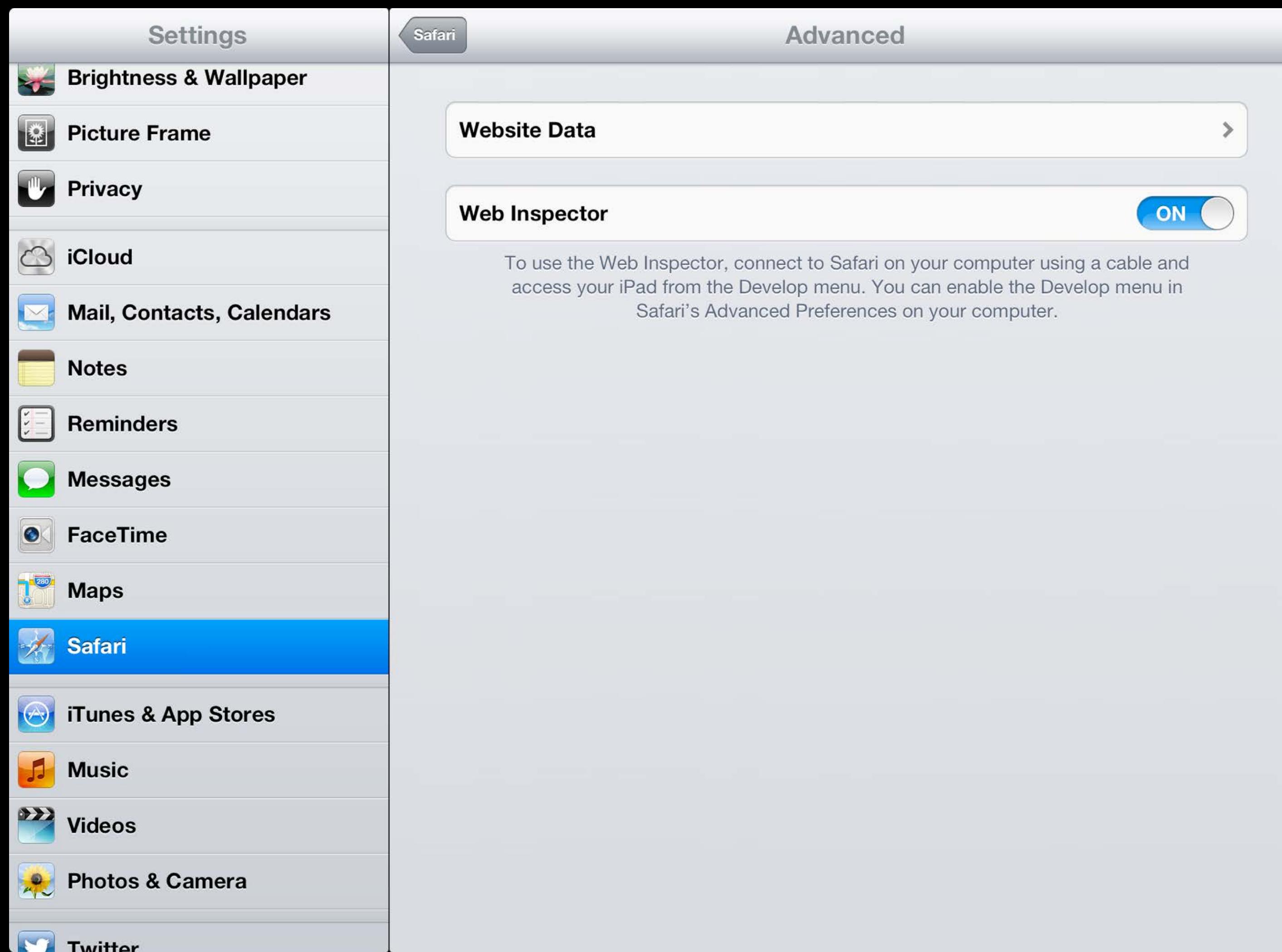
Web Inspector

Setup



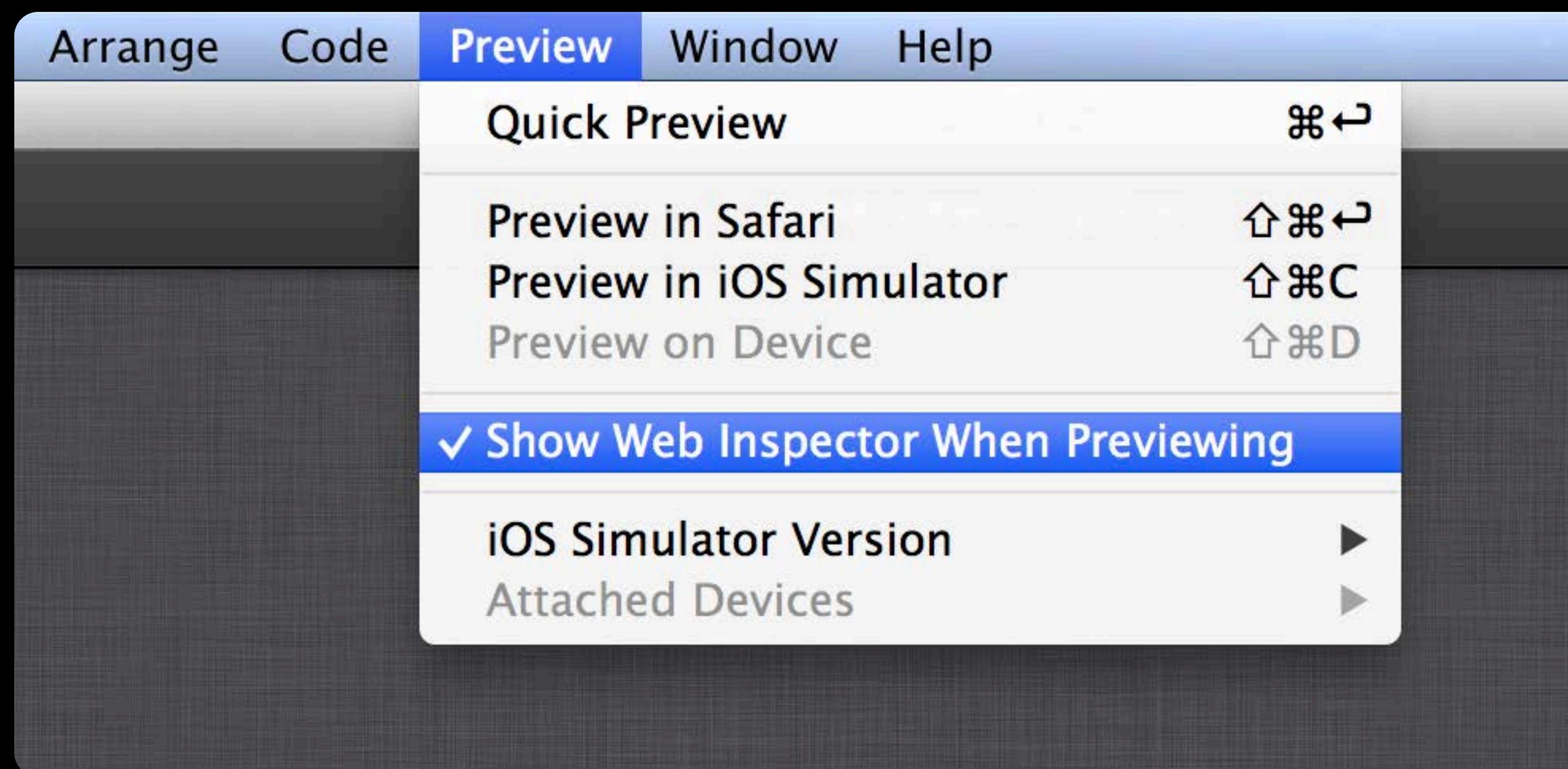
Web Inspector

Setup



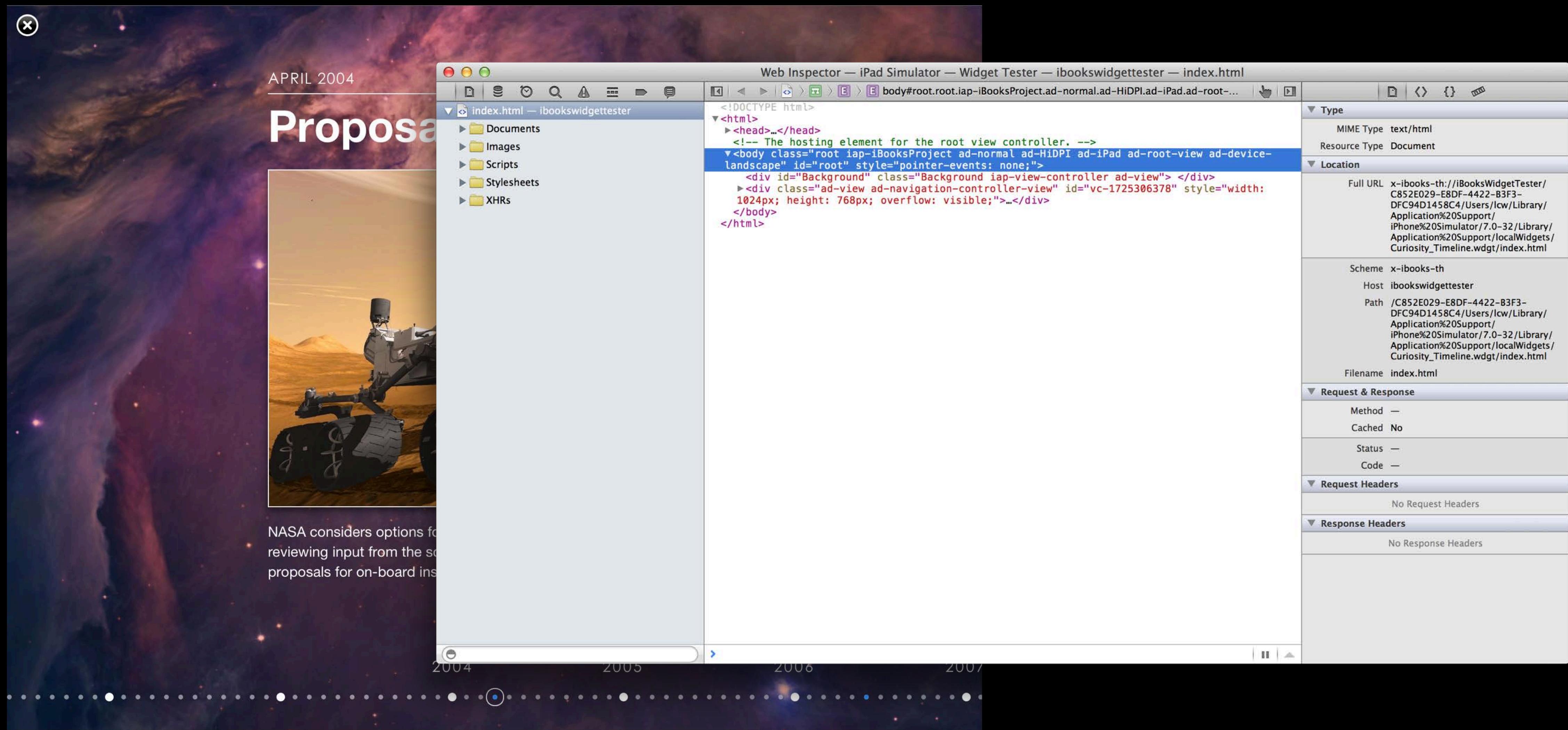
Web Inspector

Setup



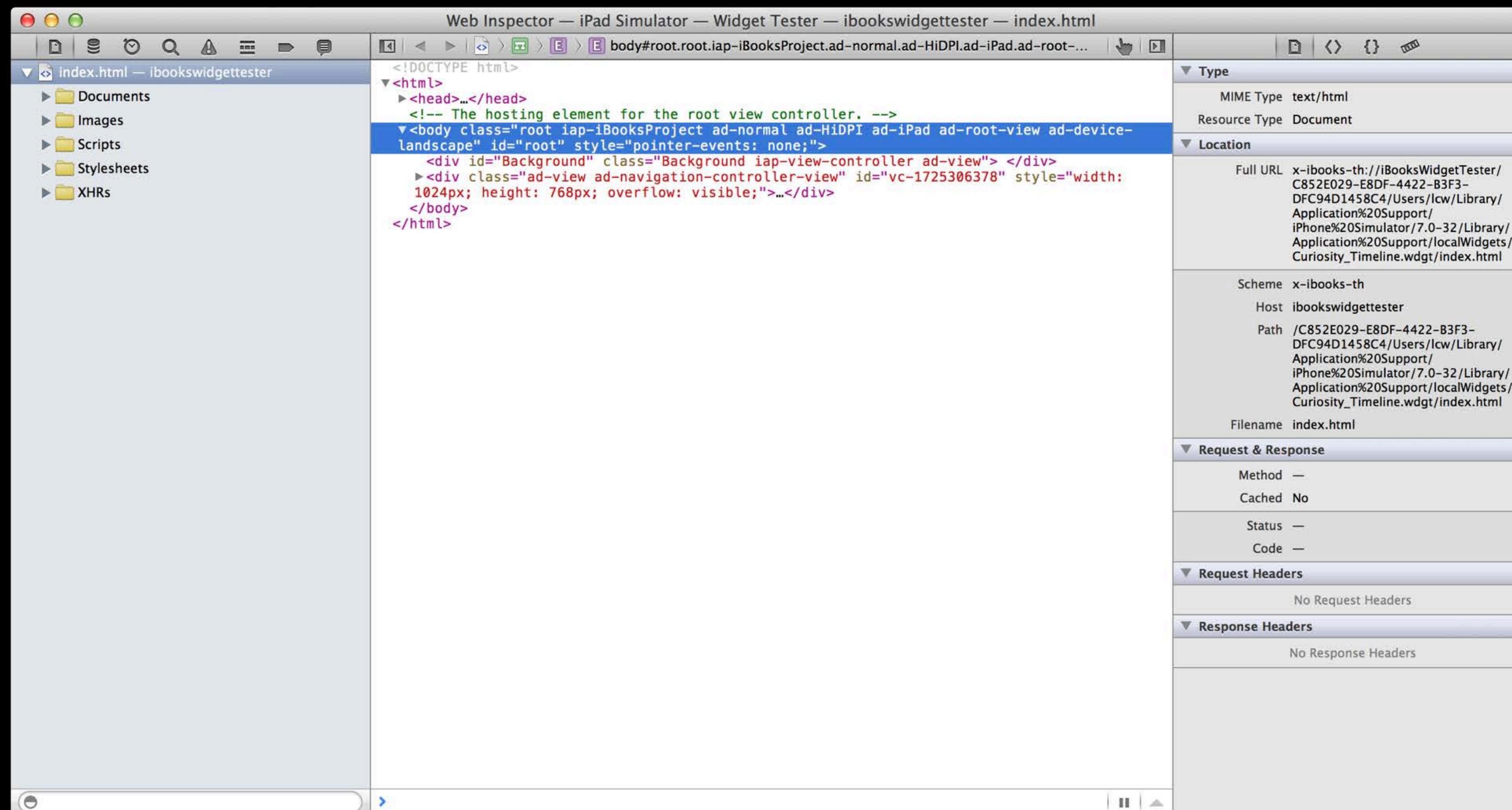
Web Inspector

Setup



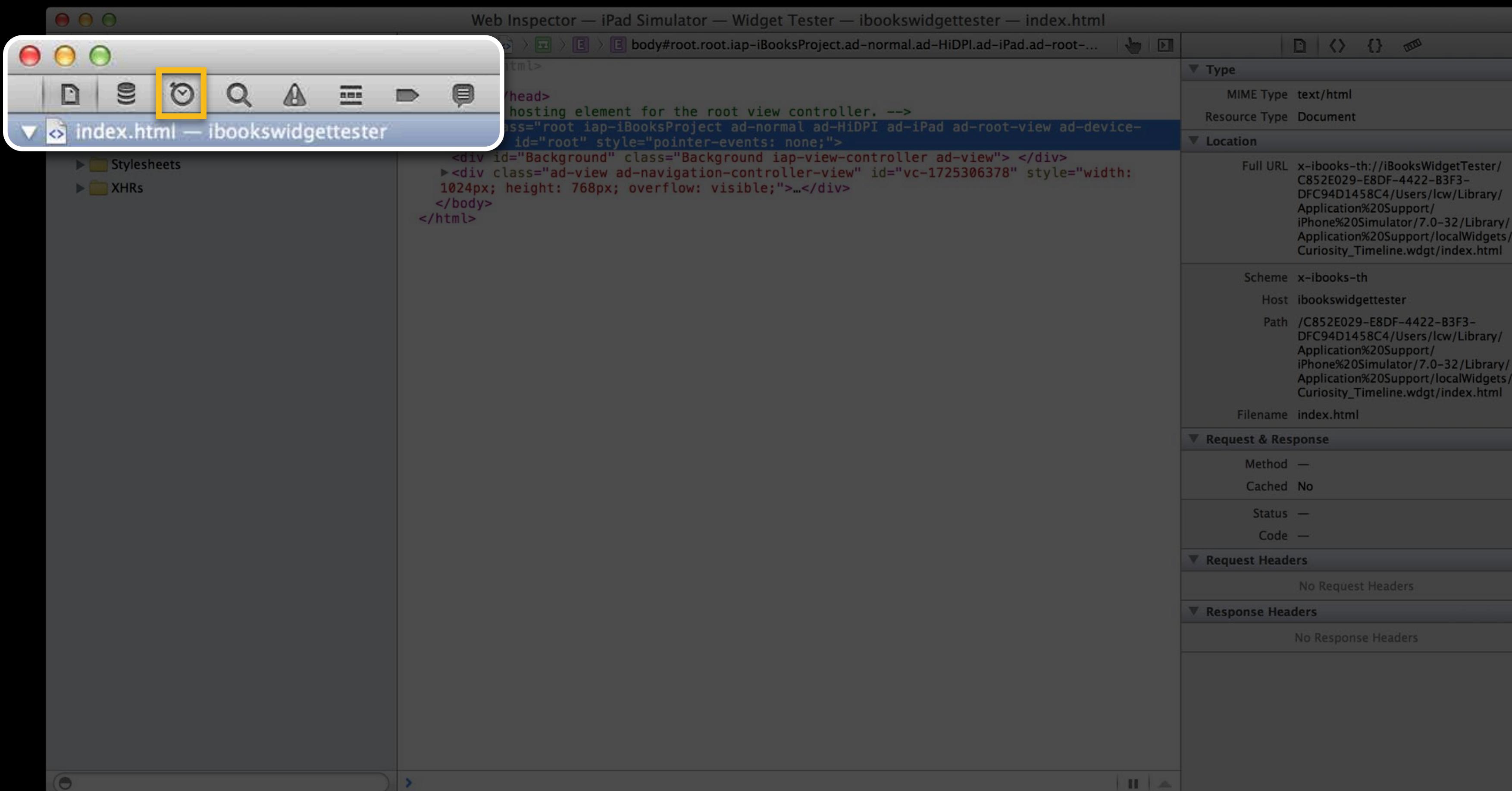
Web Inspector

CPU profiling



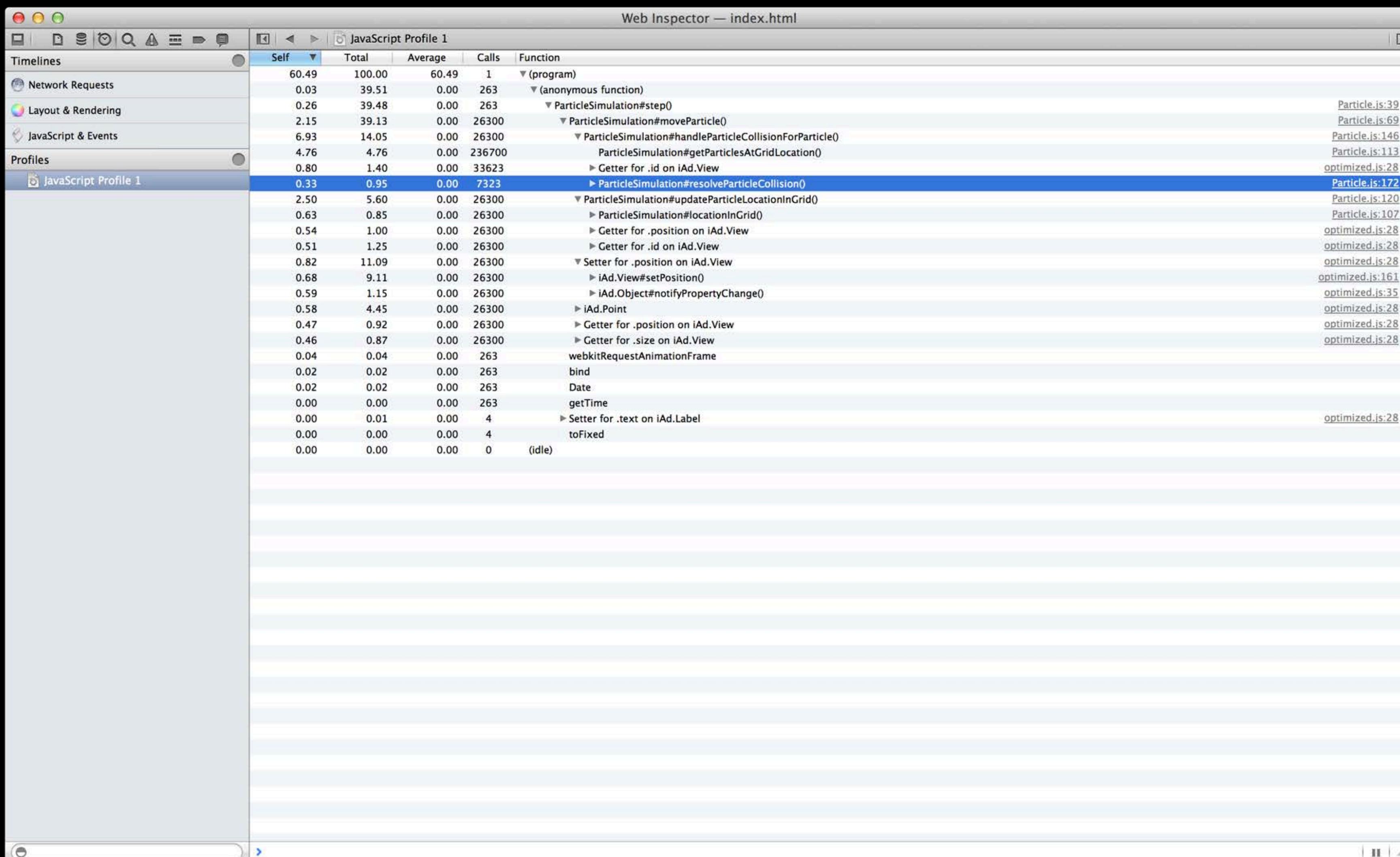
Web Inspector

CPU profiling



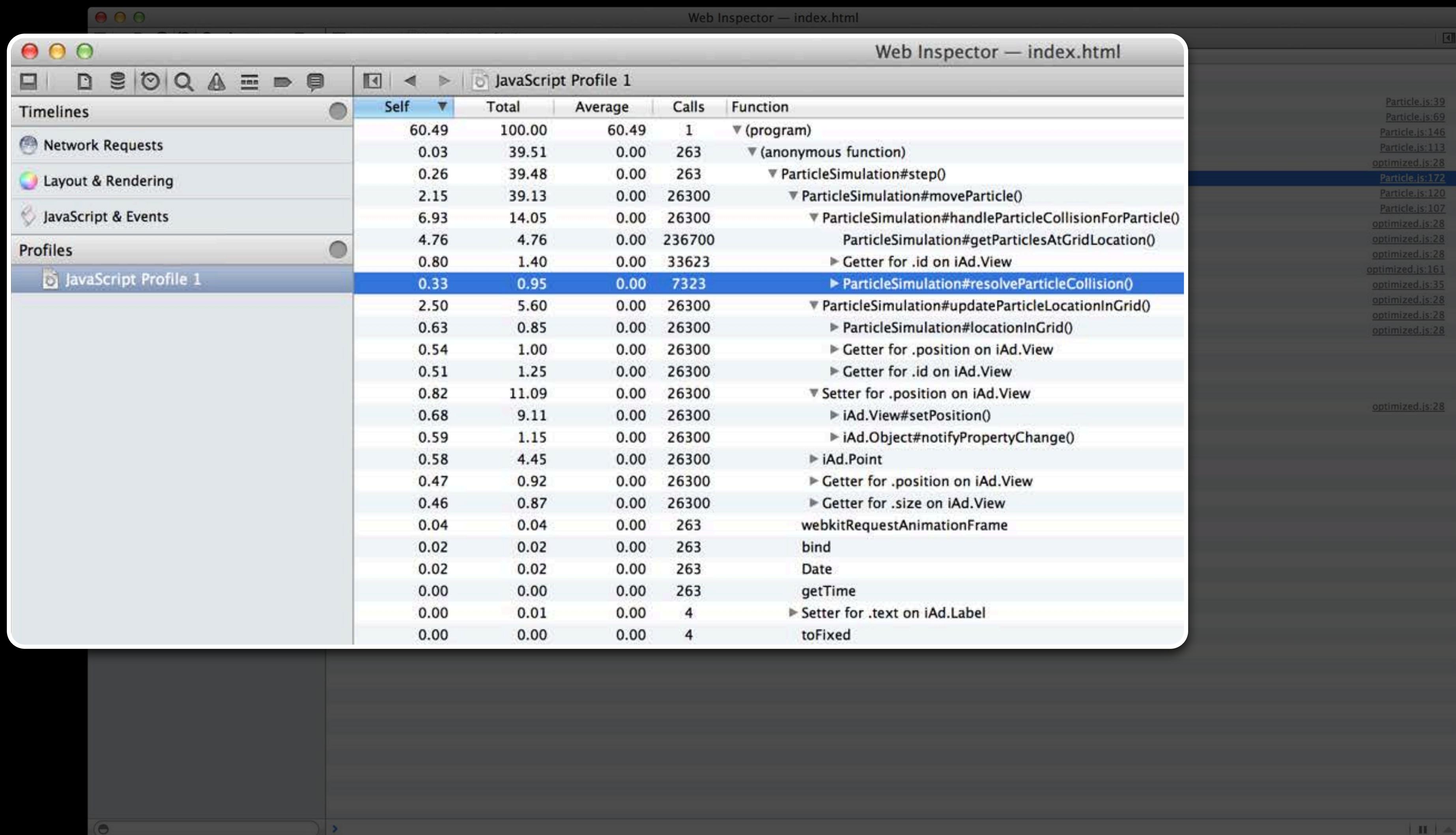
Web Inspector

CPU profiling



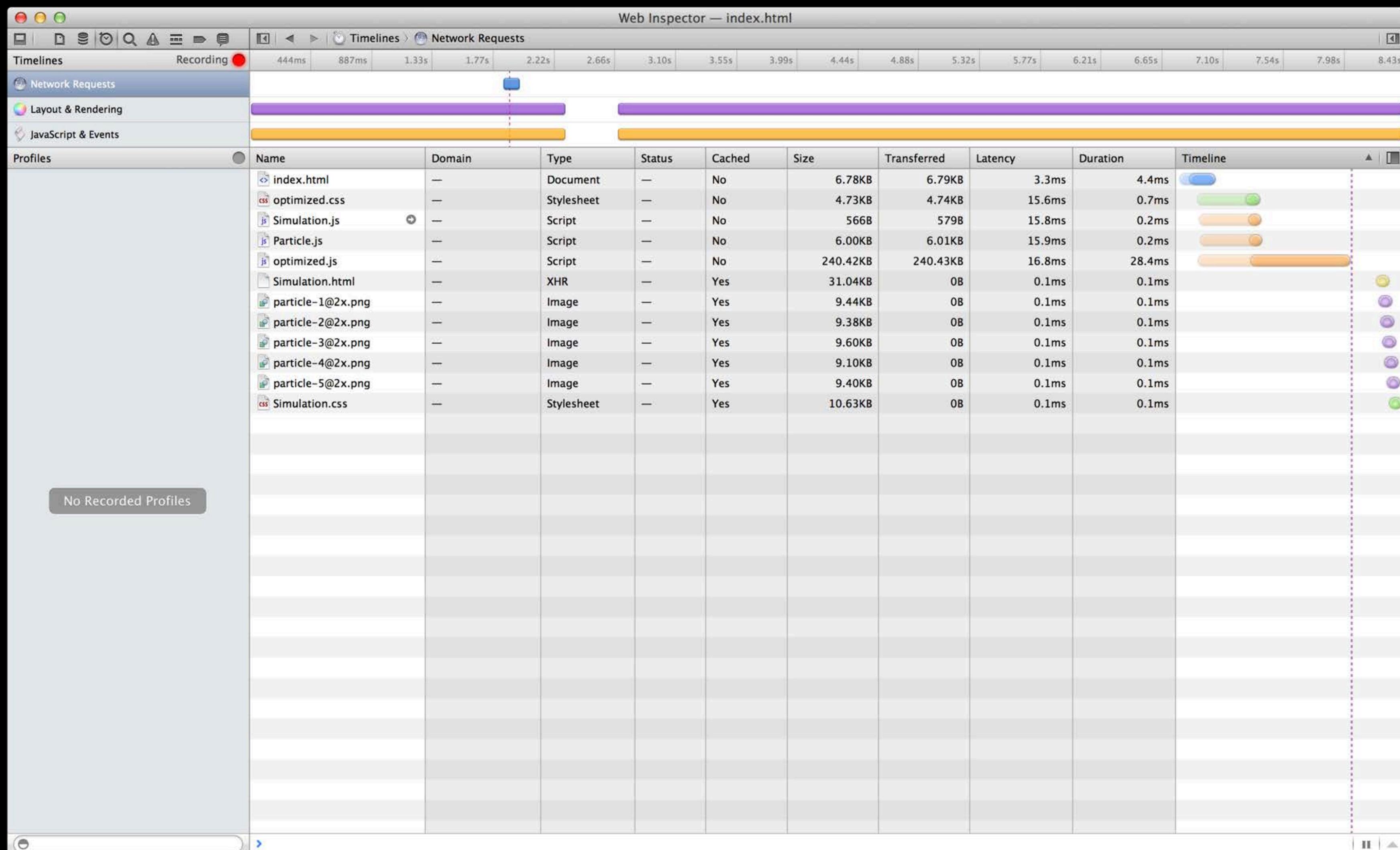
Web Inspector

CPU profiling



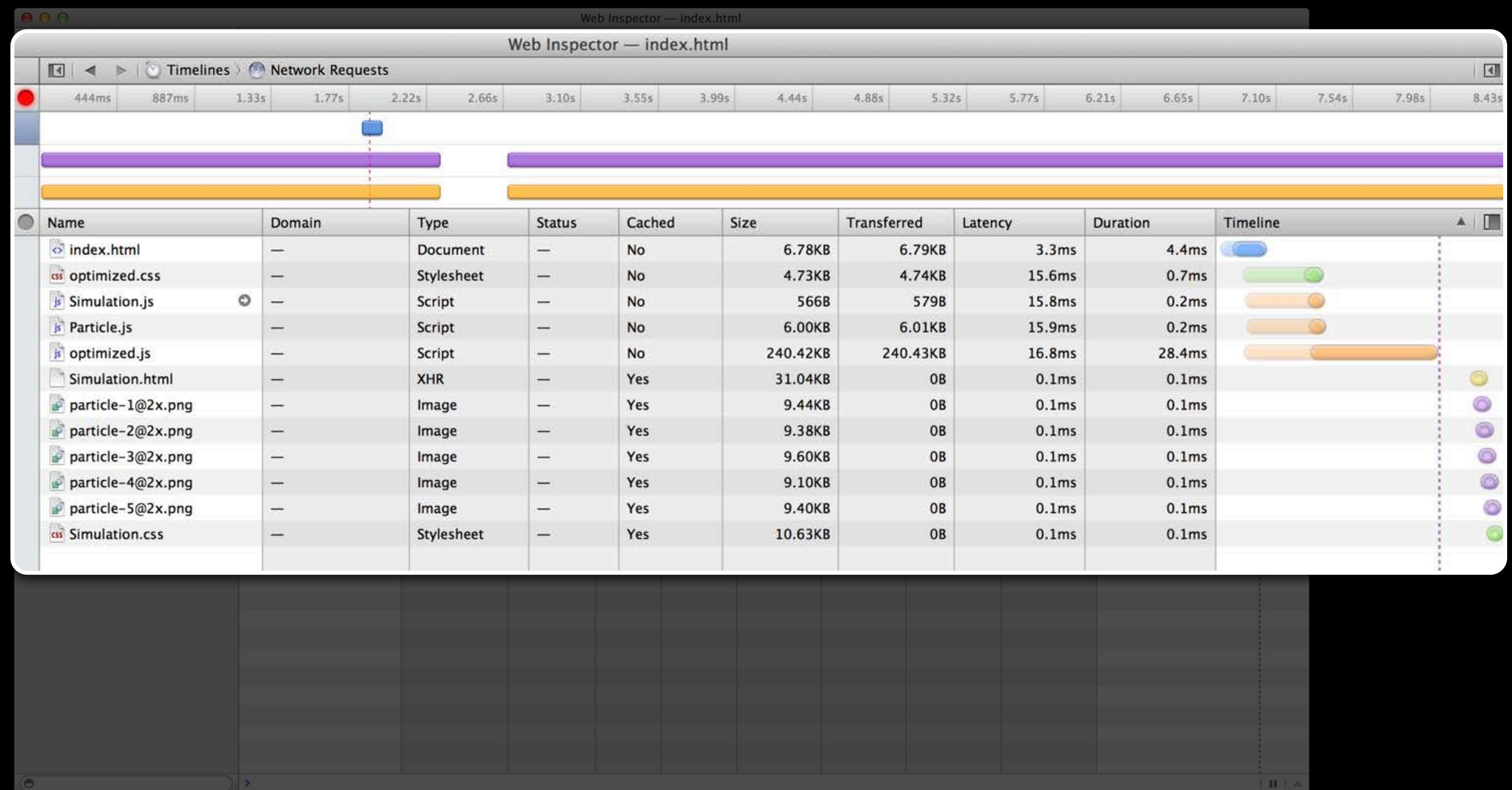
Web Inspector

Network traffic

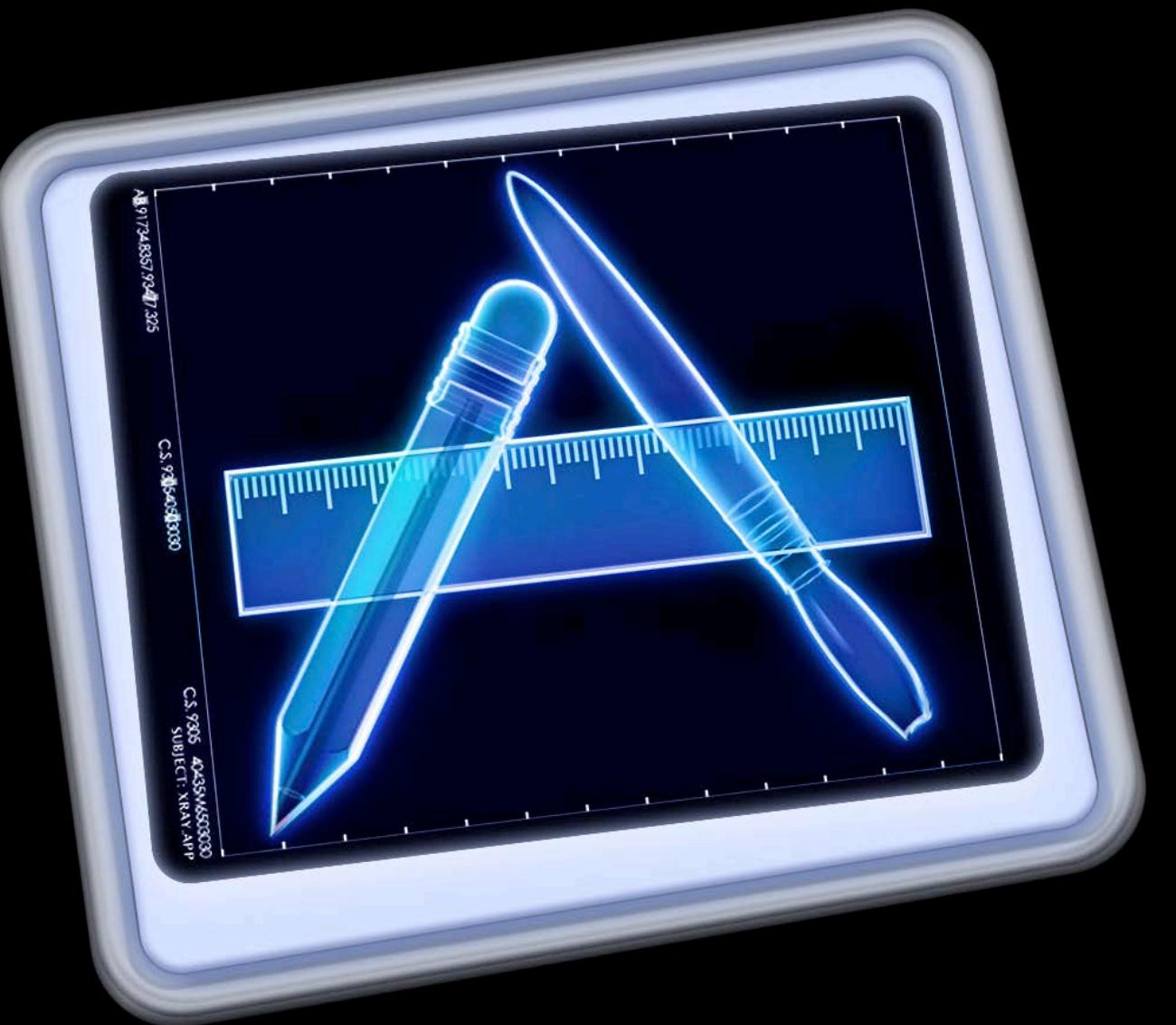


Web Inspector

Network traffic



Instruments



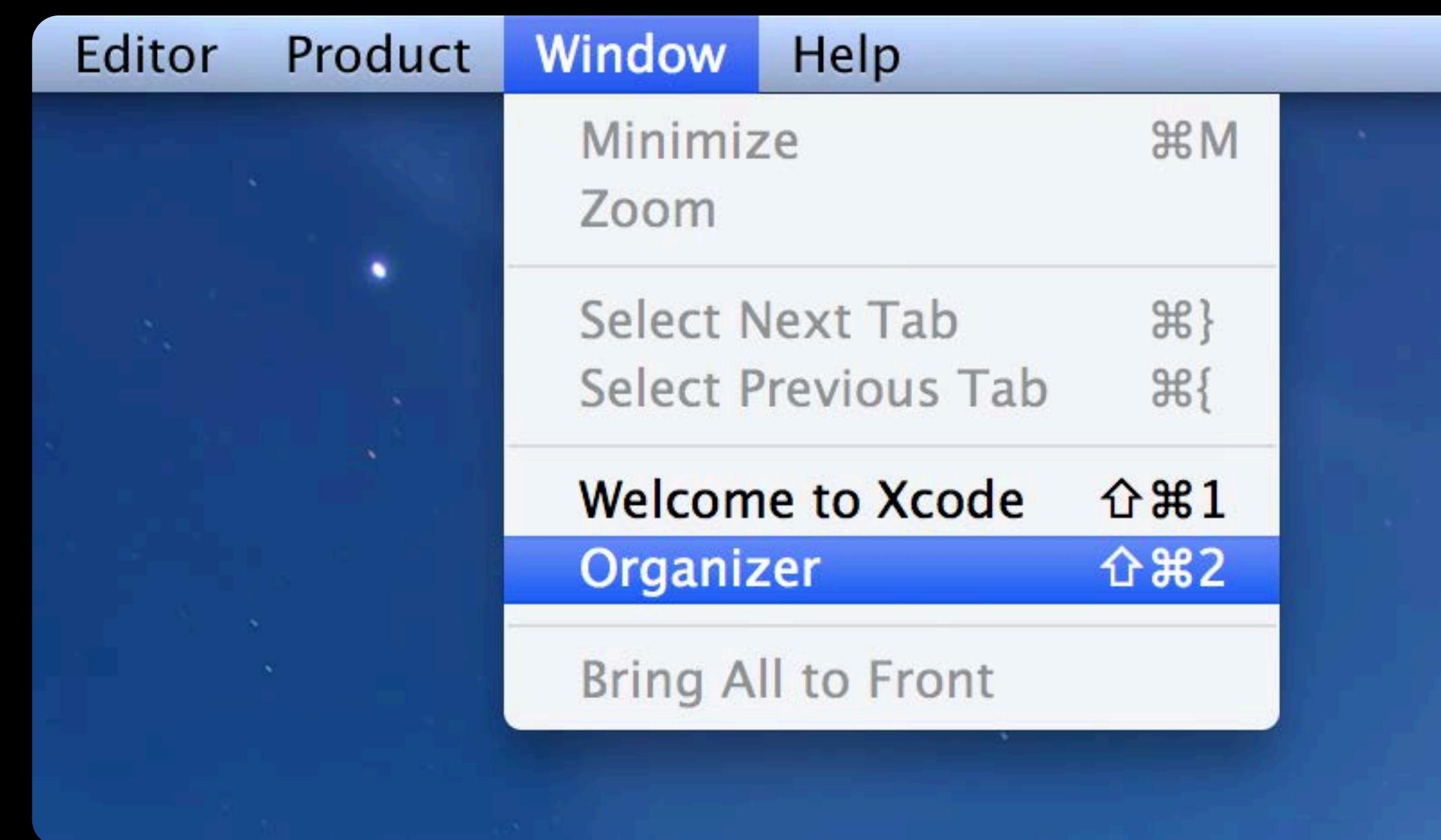
Instruments

Setup



Instruments

Setup



Instruments

Setup



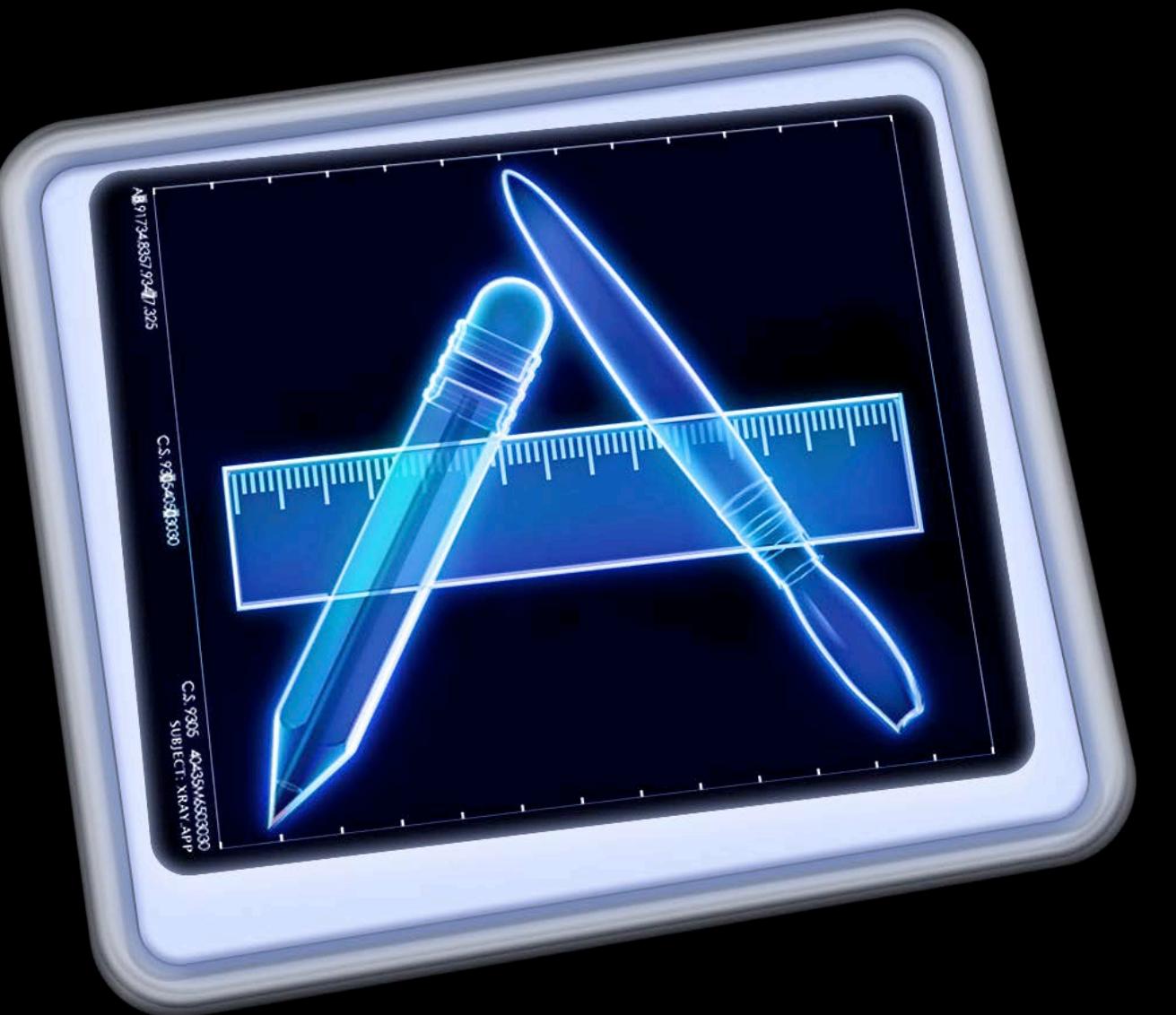
Instruments

Setup



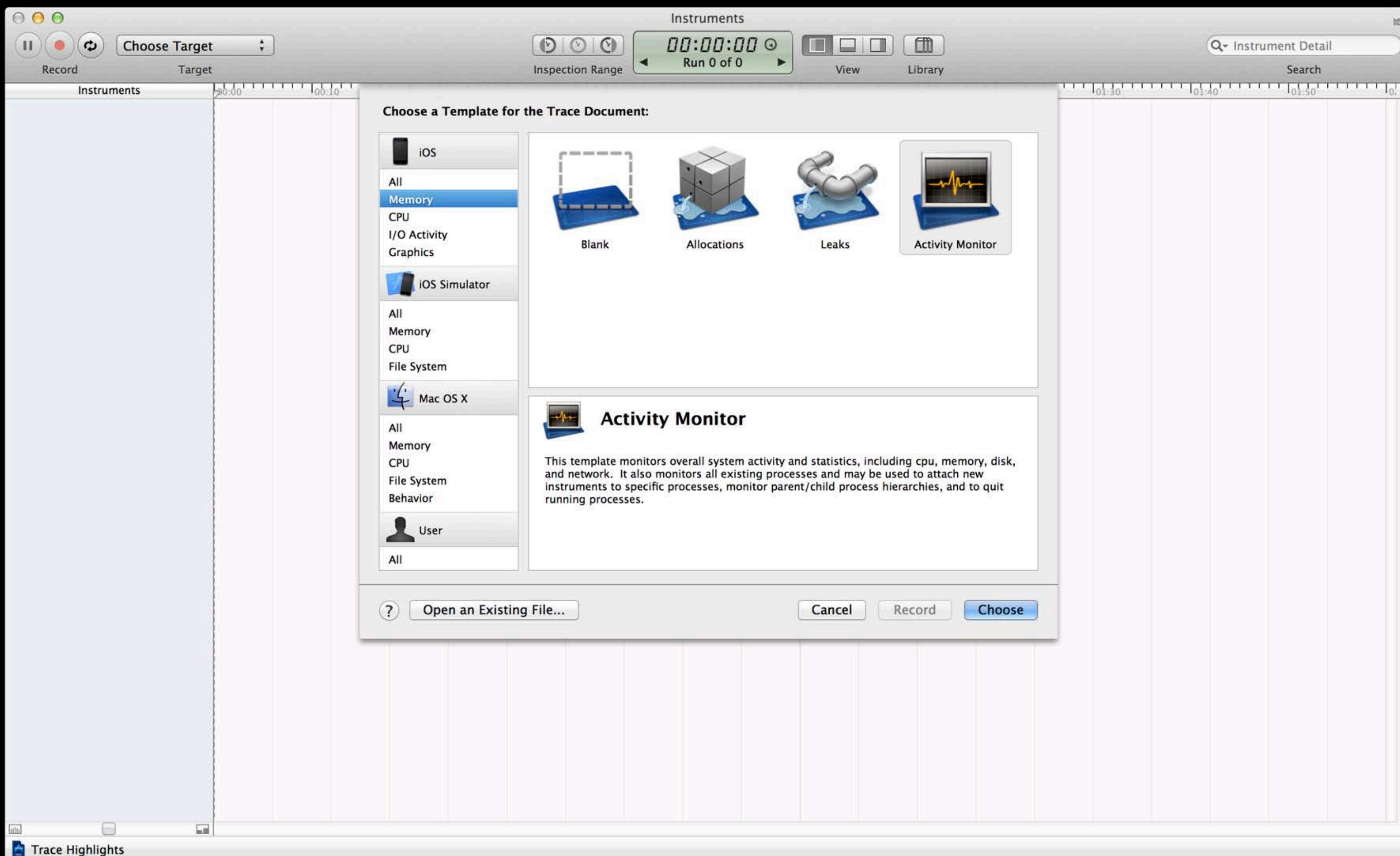
Instruments

Setup



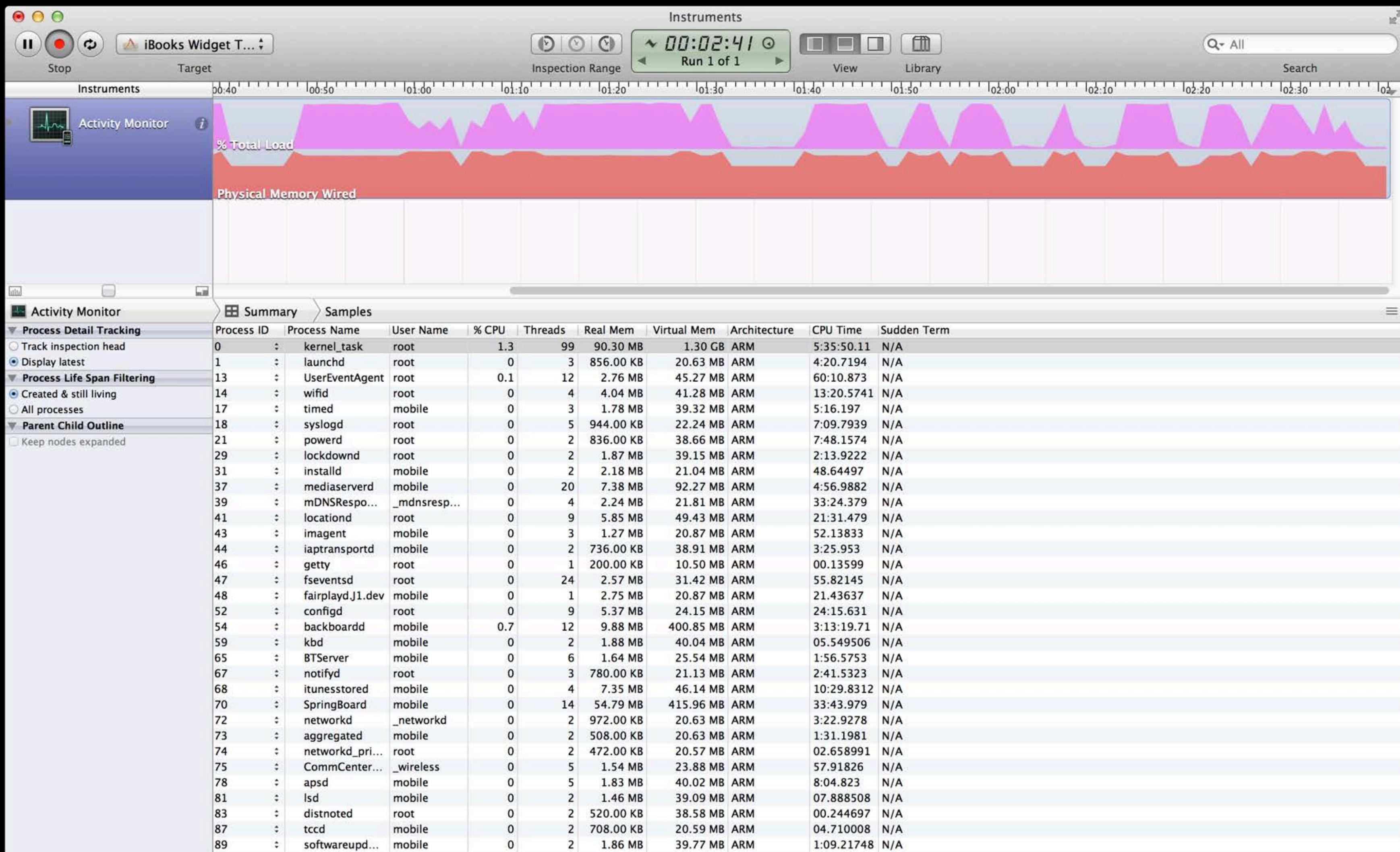
Instruments

Setup



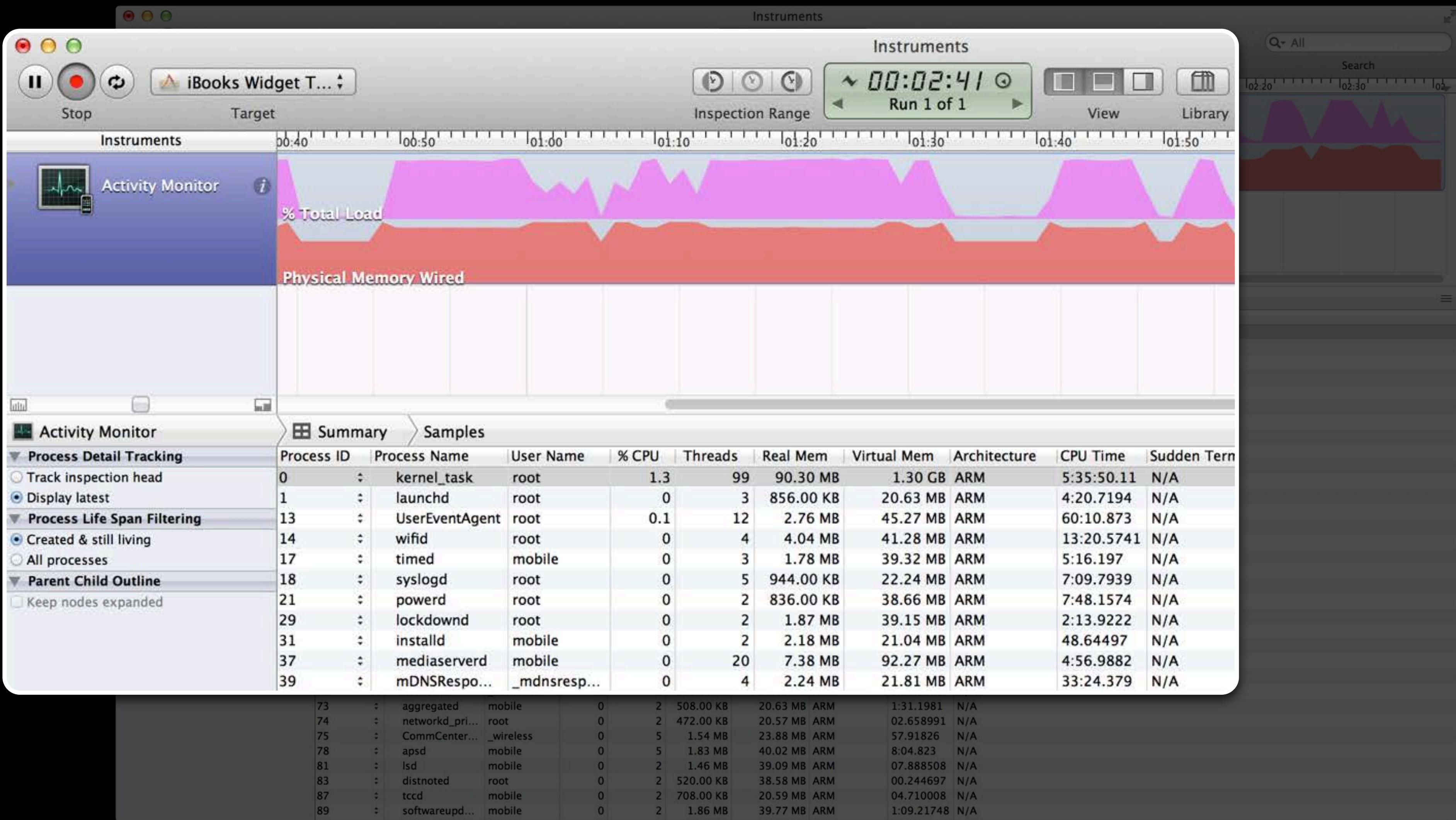
Instruments

Setup



Instruments

Setup



Demo

Performance

Mark Malone
iAd Technology Evangelist

Performance

Best practices



Performance

Best practices

- Test on device



Performance

Best practices

- Test on device
- Always test on device!



Performance

Best practices

- Test on device
- Always test on device!
- Always test on device!!



Performance

Best practices



Performance

Best practices

- Look for hotspots with Web Inspector



Performance

Best practices

- Look for hotspots with Web Inspector
- Monitor network traffic with Web Inspector



Performance

Best practices

- Look for hotspots with Web Inspector
- Monitor network traffic with Web Inspector
 - Reduce network fetches by image spriting



Performance

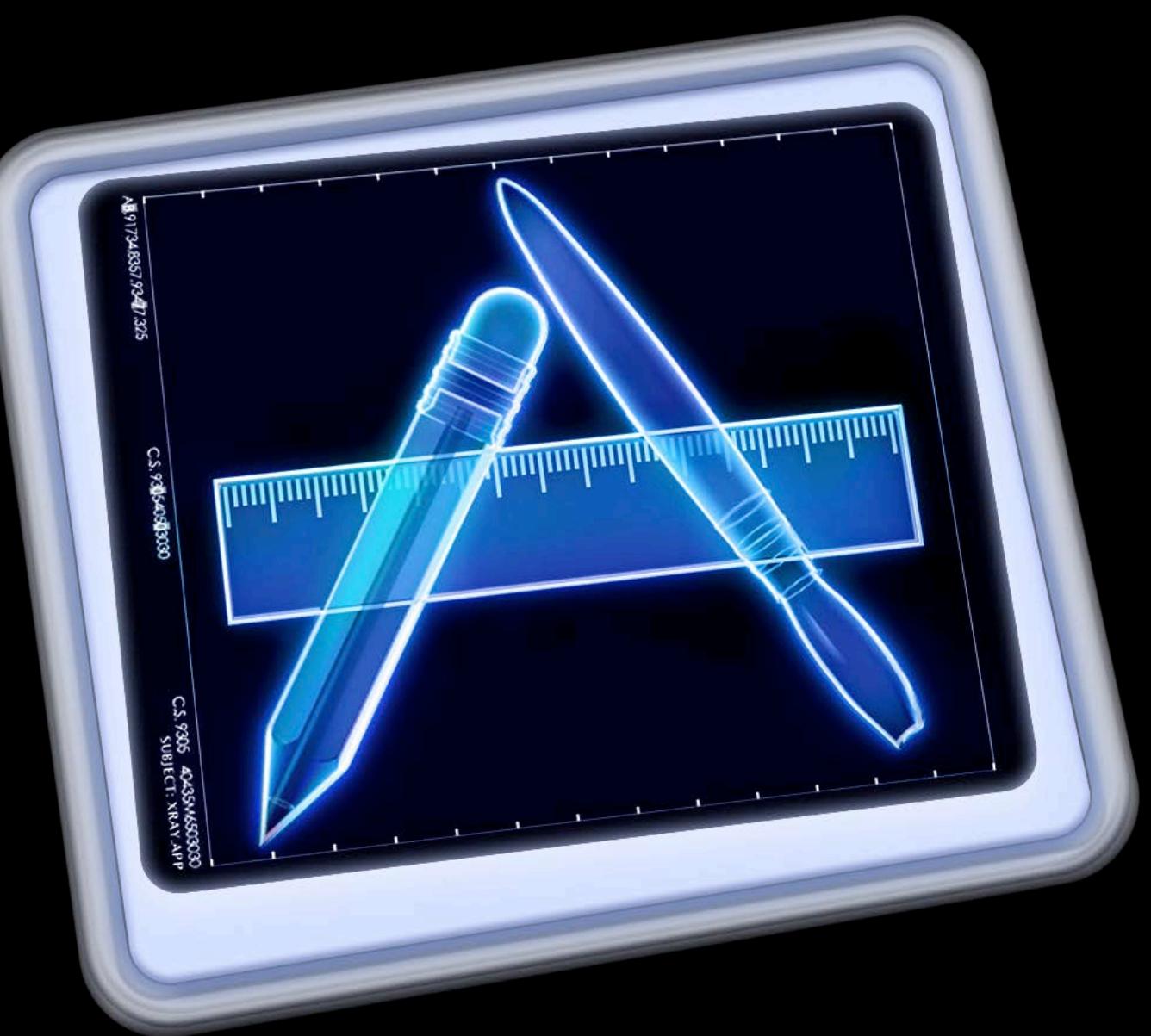
Best practices

- Look for hotspots with Web Inspector
- Monitor network traffic with Web Inspector
 - Reduce network fetches by image spriting
 - Identify unused assets



Performance

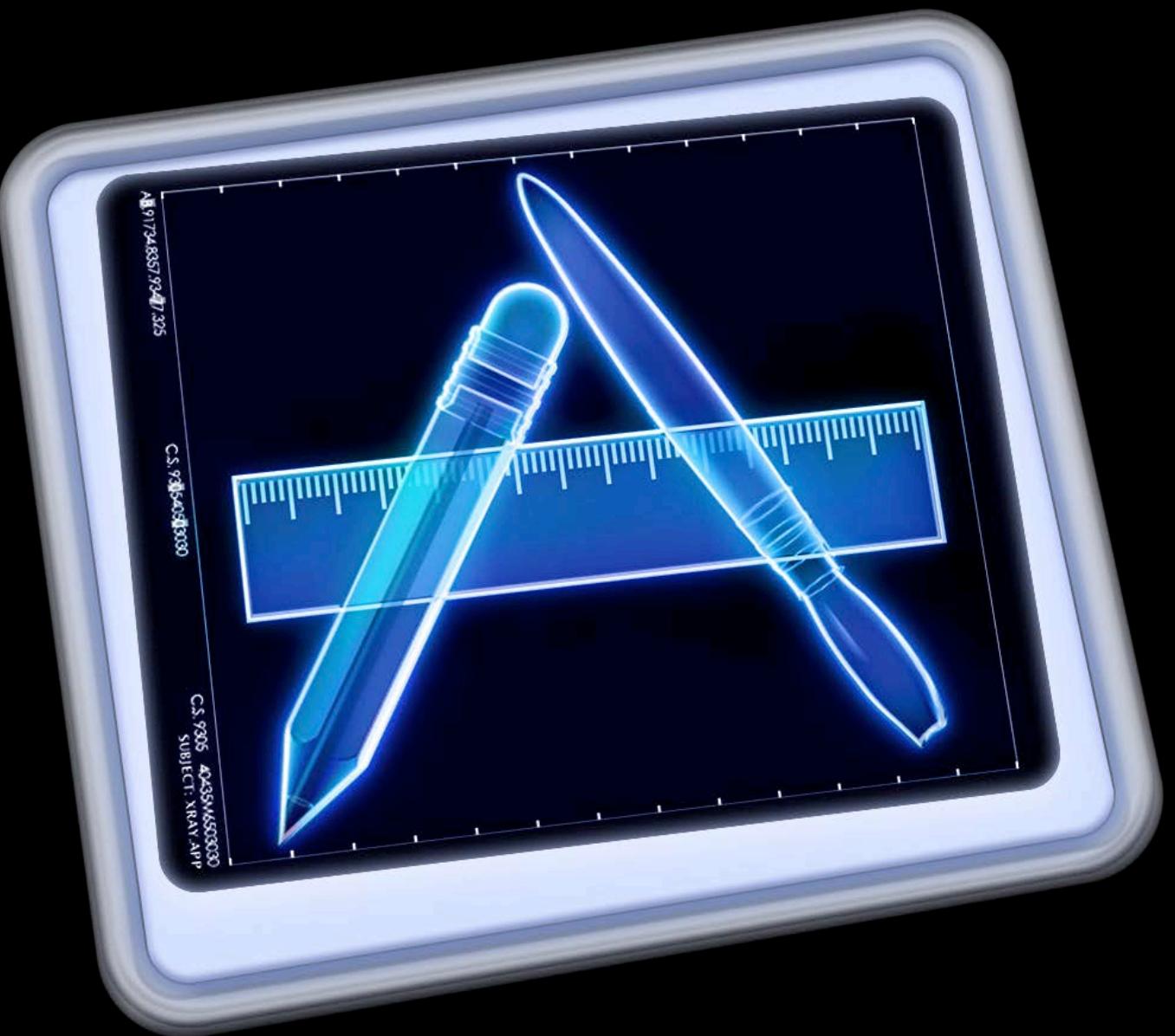
Best practices



Performance

Best practices

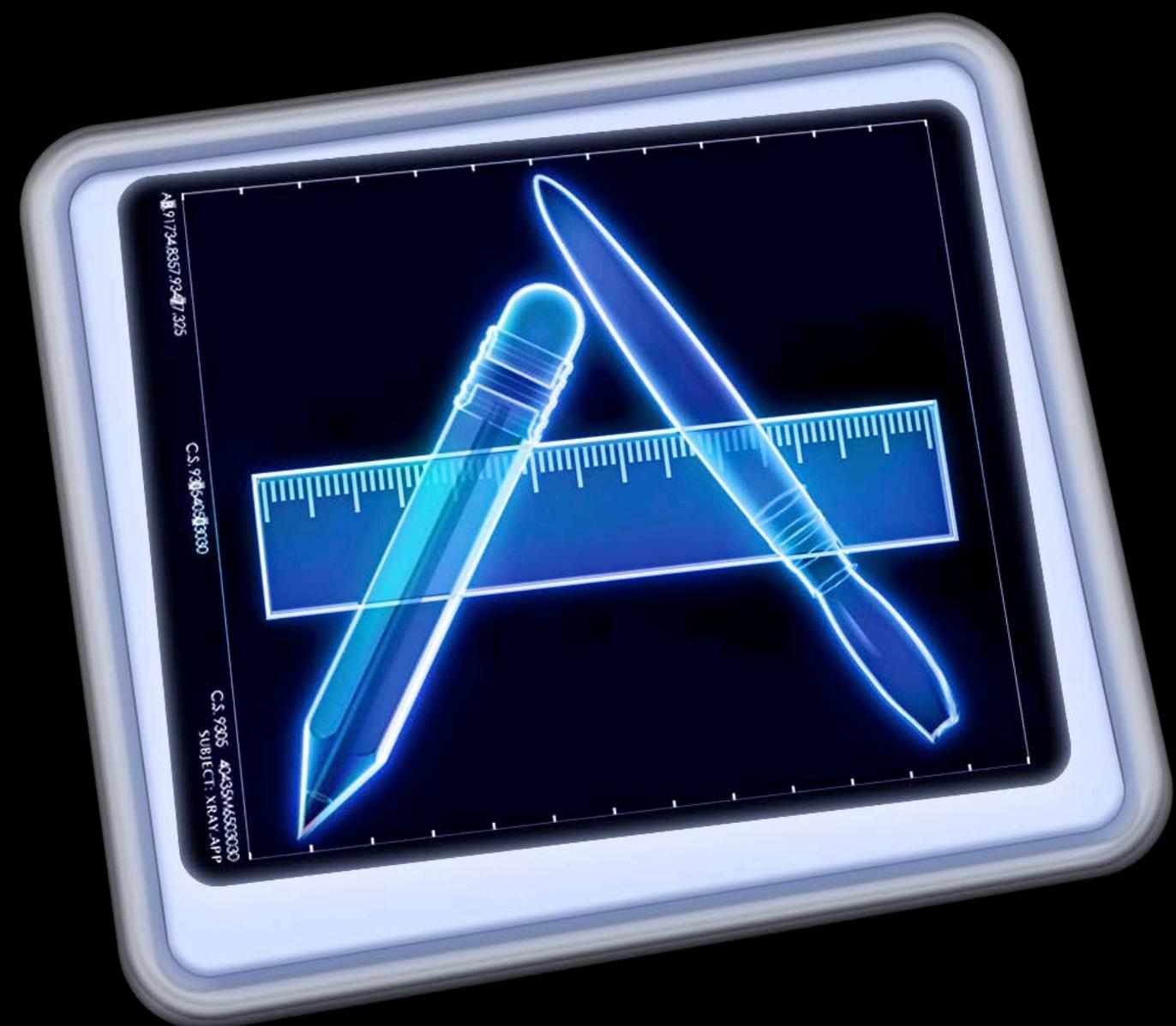
- Measure memory footprint with Instruments



Performance

Best practices

- Measure memory footprint with Instruments
- Save memory by removing hidden elements using display: none



What You've Learned

iBook HTML 5 widgets and iAd rich media ads

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- Built with familiar web technologies

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iBook HTML 5 widgets and iAd rich media ads

- Built with familiar web technologies
- Support customization via HTML/CSS/JS
- Can pull in remote content
- Backed by a powerful toolset



<http://developer.apple.com/iad/iadproducer>

More Information

Mark Malone

iAd Technology Evangelist

mgm@apple.com

Documentation

iAd Producer Help

<http://help.apple.com/iadproducer>

iAd JS Developer Library

<http://developer.apple.com/library/iad>

Apple Developer Forums

<http://devforums.apple.com/community/safari/iad>

Related Sessions

Introduction to iBooks Author Widget and iAd Rich Media Ad Development with iAd Producer 4	Russian Hill Wednesday 11:30AM	
iAd Integration and Best Practices	Russian Hill Thursday 2:00PM	
Getting to Know Web Inspector	Russian Hill Tuesday 10:15AM	
Getting the Most Out of Web Inspector	Russian Hill Tuesday 11:30AM	
Improving Performance and Energy Usage with Instruments	Nob Hill Thursday 11:30PM	

Lab

iAd Technologies Lab

Media Lab A
Thursday 3:15PM

