

Building Advanced iBooks HTML 5 Widgets and iAd Rich Media Ads

iAd Producer

Session 611

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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

Objects Overview Splash iPad (Retina) 38% Page Appear

General

Media

Audio Video WebGL

Multi-Cell

Carousel Cover Flow Gallery

Grid Multi-View Panorama

Stack 360°

Dynamic Content

Drawing HTML Map

Store

Search Objects

Assets Objects Actions Layers

Code Preview

0.0 imageBackground Fade In

1.0 trip-ship-trans Position

Play Audio RocketBlast.mp3

End Total Duration 18.82s

Play Audio

RocketBlast.mp3

Must finish before starting next action

Start With Previous Action

Delay 0s



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



JS



HTML



CSS



JS



HTML



CSS



JS



HTML

CSS Customization

Styling objects

The screenshot shows the Xcode interface for a project named "Curiosity Timeline". The main canvas displays a timeline for the year 2004, with a section titled "Proposals" featuring a photograph of the Curiosity rover on Mars. Below the image, text reads: "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." The right sidebar is open to the "Image" object's inspector, showing the following settings:

- Outlet:** curiosity
- CSS Class:** (empty)
- Image:** 1.jpg
- Original Size:** (dropdown)
- Center:** (dropdown)
- Responds to Touch Events

STYLES

- Image:** (dropdown)
- Border:** Solid, 1px
- Drop Shadow:** 3px
- Reflection:** None
- Opacity:** 100%
- Mask:** None
- Filters:** None

INTERACTION

- Events:** No Events

The bottom of the interface shows the Xcode toolbar with icons for Assets, Objects, Actions, Layers, Code, Preview, Inspector, and Action Lists.

CSS Customization

Styling objects

The screenshot shows the Xcode interface for a project named "Curiosity Timeline". The main canvas displays a mobile app interface with a "Proposals" section for "APRIL 2004". The section features a central image of the Curiosity rover on Mars, with a text block below it stating: "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." Below the text is a timeline with markers for the years 2004, 2005, 2006, and 2007. The right sidebar is open to the "Image" object's inspector, showing the following settings:

- Outlet:** curiosity
- CSS Class:** (empty)
- Image:** 1.jpg
- Original Size:** (dropdown)
- Center:** (dropdown)
- Responds to Touch Events
- Layout:** (dropdown)
- STYLES:**
 - Image:** (dropdown)
 - Border:** Solid, 1px
 - Drop Shadow:** 3px
 - Reflection:** None
 - Opacity:** 100%
 - Mask:** None
 - Filters:** None
- INTERACTION:**
 - Events:** No Events

The bottom of the Xcode interface shows a toolbar with icons for Assets, Objects, Actions, Layers, Code, Preview, Inspector, and Action Lists.

CSS Customization

Styling objects

The screenshot displays the Xcode interface for a project named "Curiosity Timeline". The main canvas shows a mobile app interface with a dark, starry background. A section titled "APRIL 2004" features the word "Proposals" in large white text. Below this is a square image of the Curiosity rover on Mars, highlighted with a yellow border. Underneath the image, there is a paragraph of text: "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." At the bottom of the app view, a horizontal timeline shows years from 2004 to 2007, with a white dot indicating the current position at 2004.

The right sidebar is titled "Image" and contains the following sections:

- Properties:** Outlet: curiosity; CSS Class: (empty); Image: 1.jpg; Original Size: (dropdown); Center: (dropdown); Responds to Touch Events.
- Layout:** (dropdown menu).
- STYLES:** Image: (dropdown); Border: Solid, 1px; Drop Shadow: 3px; Reflection: None; Opacity: 100%; Mask: None; Filters: None.
- INTERACTION:** Events: No Events.

The bottom toolbar includes icons for Assets, Objects, Actions, Layers, Code, Preview, Inspector, and Action Lists.

CSS Customization

Styling objects

The screenshot shows the Xcode interface for a project named "Curiosity Timeline". The main canvas displays a mobile app interface with a "Proposals" section for "APRIL 2004". The section features a central image of the Curiosity rover on Mars, with a dashed border indicating it is selected for styling. Below the image, there is a paragraph of text: "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." At the bottom of the app view, a timeline shows years from 2004 to 2007, with a dot under 2004.

The right sidebar shows the "Image" object's properties and styles:

- Properties:**
 - Outlet: curiosity
 - CSS Class: (empty)
 - Image: 1.jpg
 - Original Size: (dropdown)
 - Center: (dropdown)
 - Responds to Touch Events
- Layout:** (dropdown)
- STYLES:**
 - Image: (dropdown) [gear icon]
 - Border: Solid, 1px
 - Drop Shadow: 3px
 - Reflection: None
 - Opacity: 100%
 - Mask: None
 - Filters: None
- INTERACTION:**
 - Events: No Events

The bottom toolbar includes icons for Assets, Objects, Actions, Layers, Code, Preview, Inspector, and Action Lists.

CSS Customization

Styling objects

The screenshot shows a design tool interface for an iPad application titled "Curiosity Timeline". The main canvas displays a slide for "APRIL 2004" with the heading "Proposals" and a central image of the Curiosity rover on Mars. Below the image is a text block: "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." A timeline at the bottom shows years from 2004 to 2007, with 2004 selected. The right-hand panel, titled "Image", shows the styling options for the selected image. The "STYLES" section is highlighted with a yellow border and includes settings for Image, Border (Solid, 1px), Drop Shadow (3px), Reflection (None), Opacity (100%), Mask (None), and Filters (None). The "INTERACTION" section shows "Events" set to "No Events". The bottom toolbar includes icons for Assets, Objects, Actions, Layers, Code, Preview, Inspector, and Action Lists.

Curiosity Timeline

Overview Introduction + iPad (Retina) 100%

APRIL 2004

Proposals



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.

2004 2005 2006 2007

Assets Objects Actions Layers Code Preview Inspector Action Lists

Image

Properties

Outlet: curiosity

CSS Class

Image: 1.jpg

Original Size Center

Responds to Touch Events

Layout

STYLES

Image

Border: Solid, 1px

Drop Shadow: 3px

Reflection: None

Opacity: 100%

Mask: None

Filters: None

INTERACTION

Events: No Events

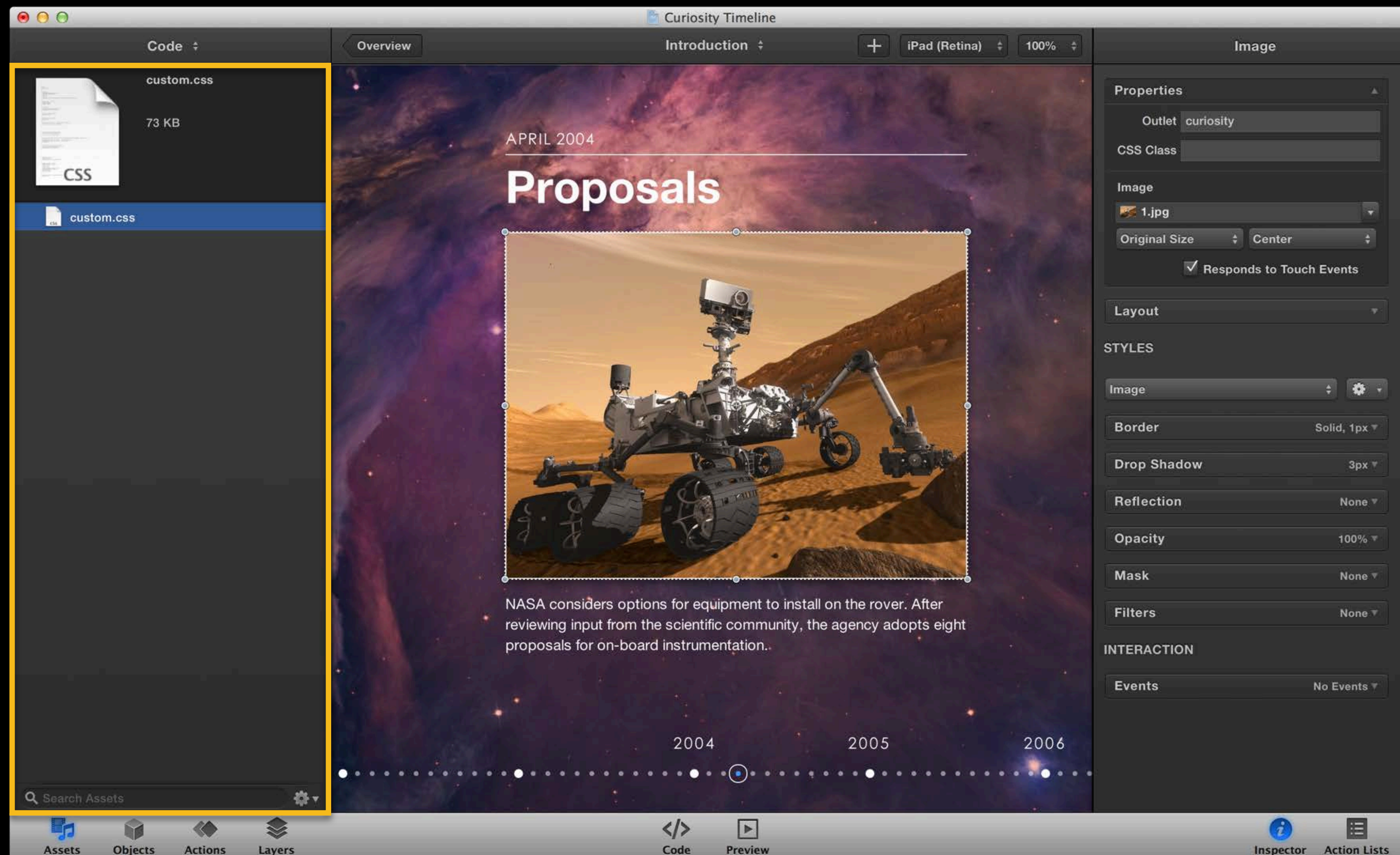
CSS Customization

Using imported file



CSS Customization

Using imported file



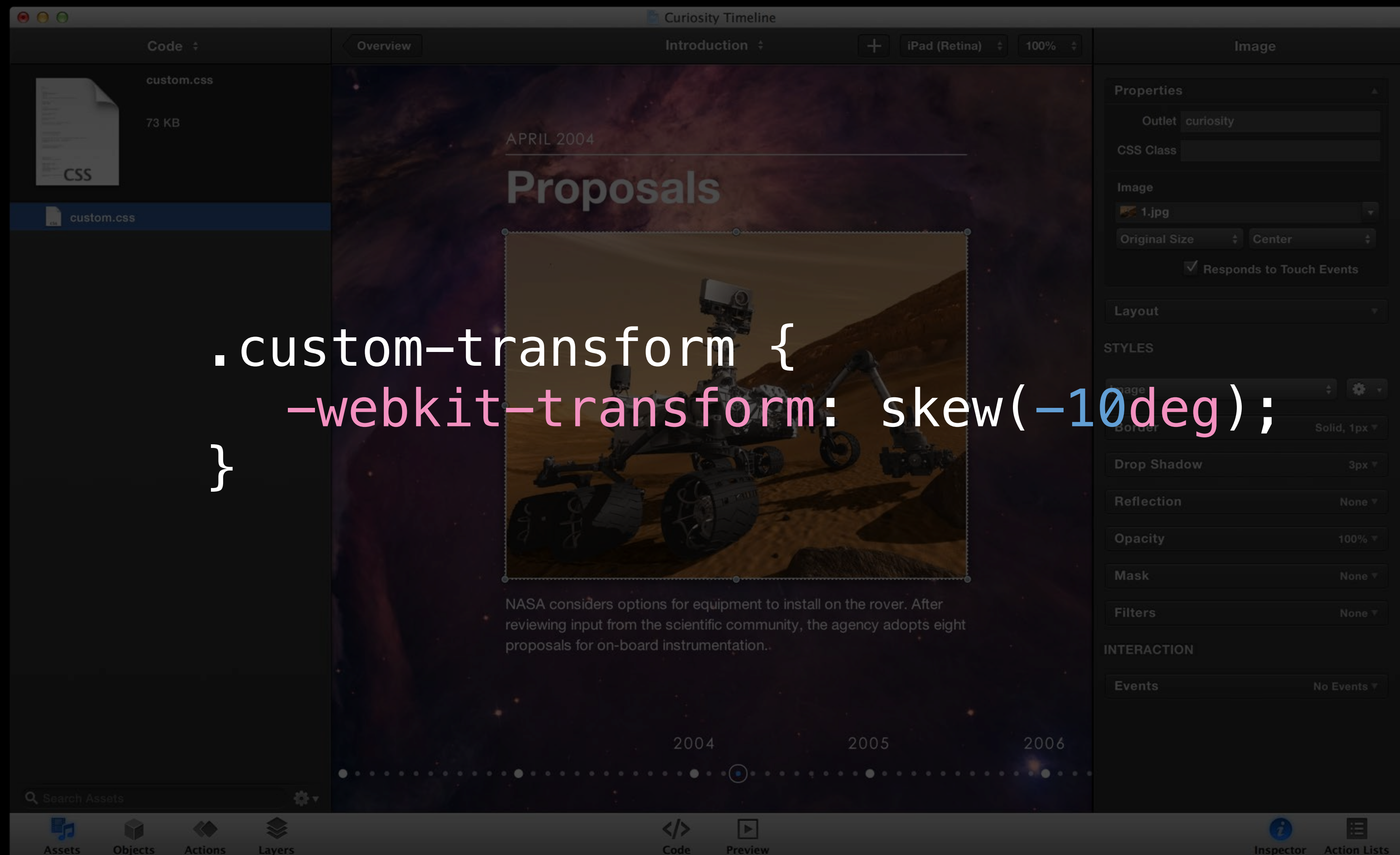
CSS Customization

Using imported file



CSS Customization

Using imported file



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

The screenshot shows an IDE window titled 'Curiosity Timeline'. The left sidebar shows a file named 'custom.css' (73 KB) under a 'CSS' folder. The main preview area shows a timeline for 'APRIL 2004' with a section titled 'Proposals' containing an image of the Curiosity rover. The right sidebar shows the 'Image' properties panel for the selected image, including 'Outlet: curiosity', 'CSS Class', 'Image: 1.jpg', 'Original Size', 'Center', and 'Responds to Touch Events'. The bottom of the IDE has a toolbar with icons for Assets, Objects, Actions, Layers, Code, Preview, Inspector, and Action Lists.

CSS Customization

Using imported file



CSS Customization

Using imported file

The screenshot displays a design tool interface for an iPad application titled "Curiosity Timeline". The main canvas shows a "Proposals" section for "APRIL 2004", featuring a large image of the Curiosity rover on Mars. Below the image, there is a text block: "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..". A timeline at the bottom shows the years 2004, 2005, and 2006, with 2004 selected.

The left sidebar shows a "Code" view with a file named "custom.css" (73 KB) selected. The right sidebar contains a "Properties" panel for the selected image, which is highlighted with a white border. The "Properties" panel includes the following settings:

- Outlet: curiosity
- CSS Class: (empty)
- Image: 1.jpg
- Original Size: (dropdown)
- Center: (dropdown)
- Responds to Touch Events

Below the "Properties" panel, there are additional settings for the image, including Border (Solid, 1px), Drop Shadow (3px), Reflection (None), Opacity (100%), Mask (None), and Filters (None). The "INTERACTION" section shows "Events" set to "No Events".

CSS Customization

Using imported file

The screenshot displays a design tool interface for an iPad application. The main canvas shows a 'Proposals' section for 'APRIL 2004' featuring a rover image and a text block: '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..'. A timeline at the bottom shows years 2004, 2005, and 2006. On the left, a 'Code' panel shows an imported 'custom.css' file (73 KB). On the right, a 'Properties' panel is open, highlighting the 'Outlet curiosity' and 'CSS Class' fields. Below the 'Image' section, various styling options like 'Border', 'Drop Shadow', and 'Reflection' are visible, along with an 'INTERACTION' section.

Properties

Outlet `curiosity`

CSS Class

Image

1.jpg

Original Size Center

Responds to Touch Events

Border Solid, 1px

Drop Shadow 3px

Reflection None

Opacity 100%

Mask None

Filters None

INTERACTION

Events No Events

CSS Customization

Using imported file


The screenshot displays a design tool interface for an iPad application. The main canvas shows a 'Proposals' section for 'APRIL 2004' featuring a rover image and a text block: '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..'. A timeline at the bottom shows years 2004, 2005, and 2006. On the left, a 'Code' panel shows an imported 'custom.css' file (73 KB). On the right, a 'Properties' panel is open, with the 'CSS Class' field highlighted in yellow and set to 'custom-transform'. Other visible properties include 'Outlet: curiosity', 'Image: 1.jpg', 'Original Size', 'Center', 'Responds to Touch Events' (checked), 'Border: Solid, 1px', 'Drop Shadow: 3px', 'Reflection: None', 'Opacity: 100%', 'Mask: None', 'Filters: None', and 'INTERACTION: Events: No Events'.

CSS Customization

Using imported file

APRIL 2004

Proposals



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.

2004 2005 2006 2007

CSS Customization

Using code editor



CSS Customization

Using code editor



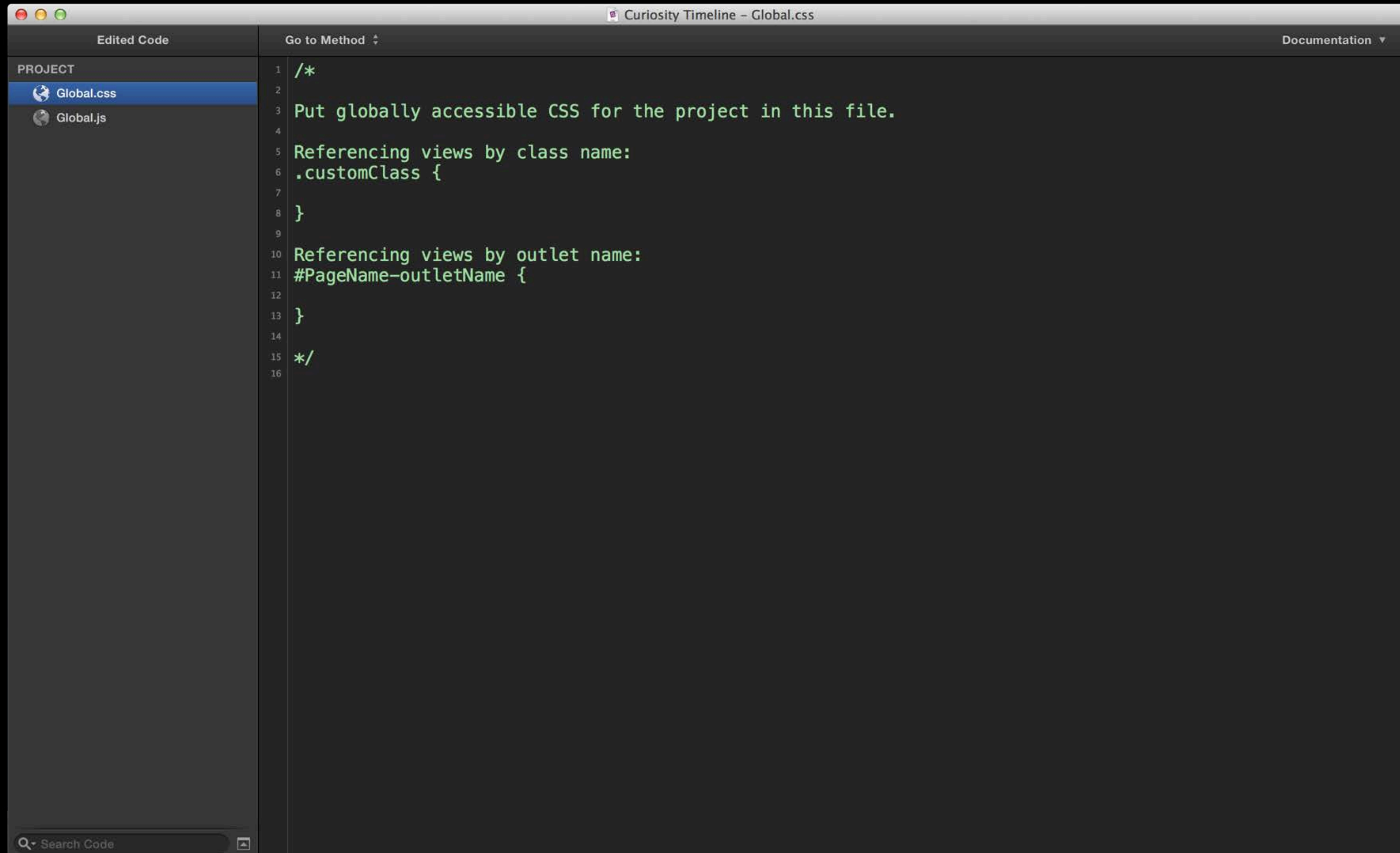
CSS Customization

Using code editor



CSS Customization

Using code editor



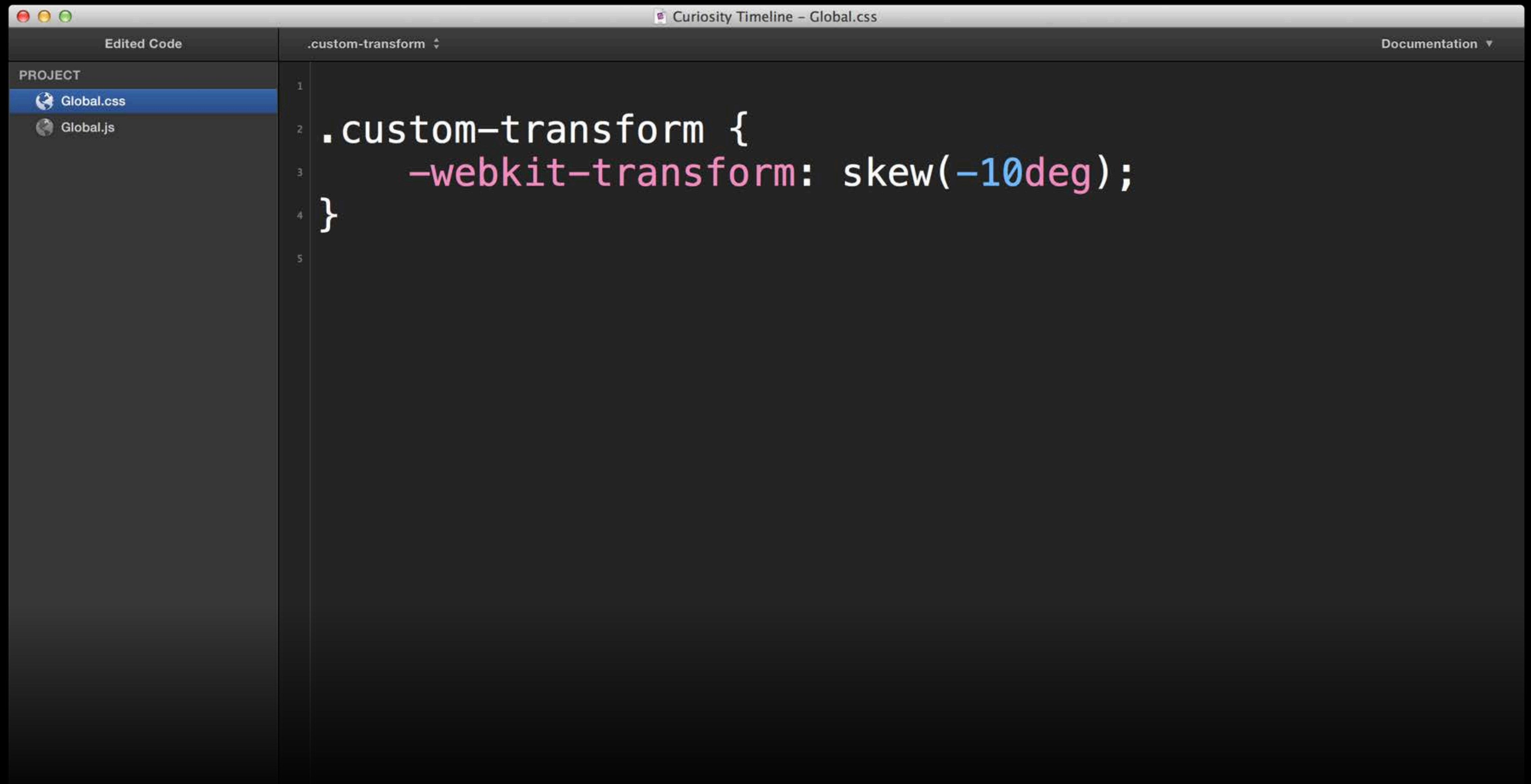
The screenshot shows a code editor window titled "Curiosity Timeline - Global.css". The editor is split into two panes. The left pane, labeled "Edited Code", shows a project structure with "Global.css" selected. The right pane, labeled "Go to Method", shows the content of "Global.css". The code is as follows:

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

At the bottom left of the editor, there is a search bar labeled "Search Code".

CSS Customization

Using code editor



The image shows a screenshot of a code editor window titled "Curiosity Timeline - Global.css". The editor displays the following CSS code:

```
1  
2 .custom-transform {  
3     -webkit-transform: skew(-10deg);  
4 }  
5
```

The code is color-coded: the opening curly brace is white, the property name is pink, the value is blue, and the closing curly brace is white. The editor interface includes a sidebar on the left with a "PROJECT" section containing "Global.css" (selected) and "Global.js". The top bar shows "Edited Code" and "Documentation" options.

CSS Customization

Using code editor



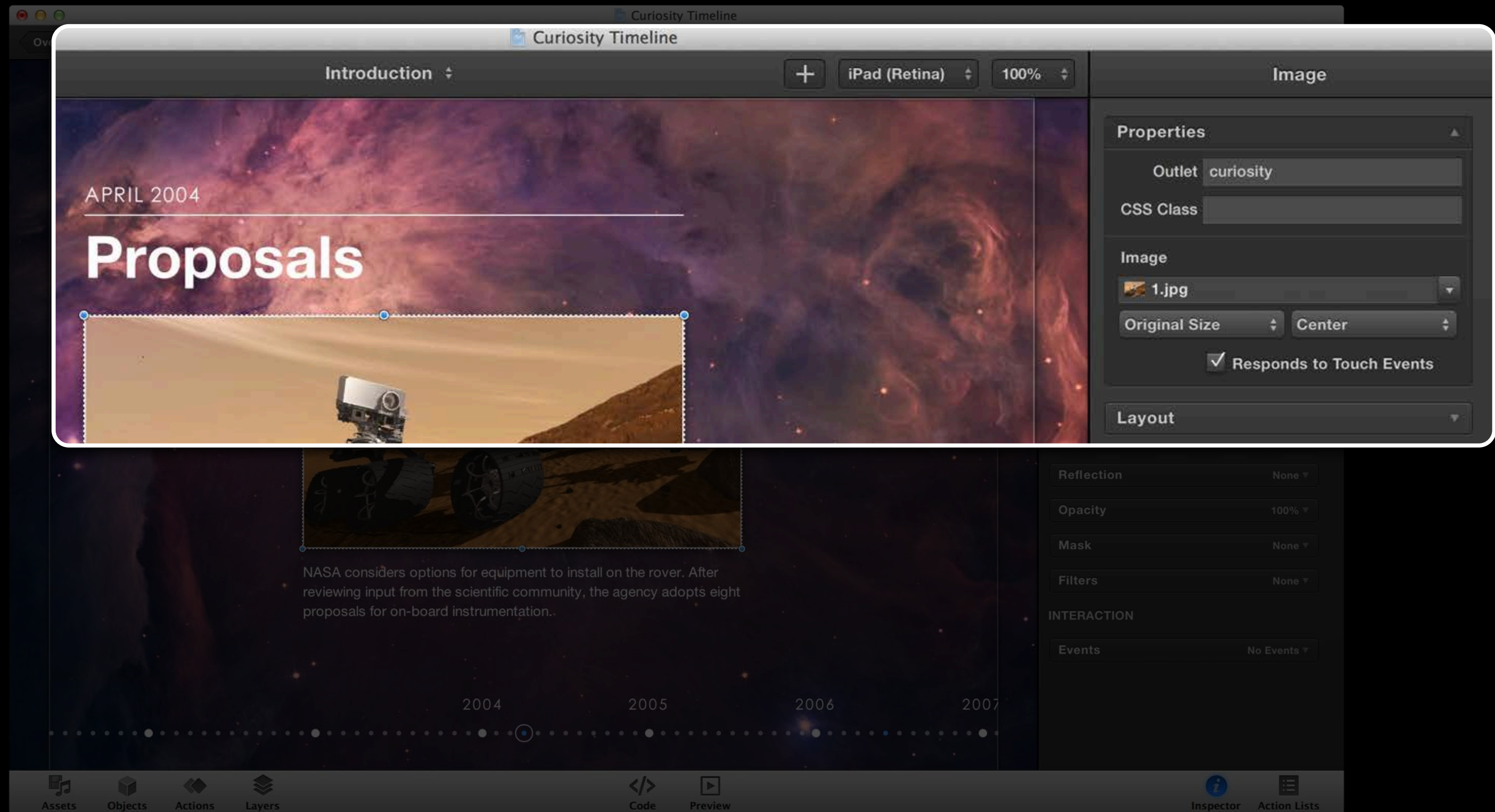
CSS Customization

Using code editor



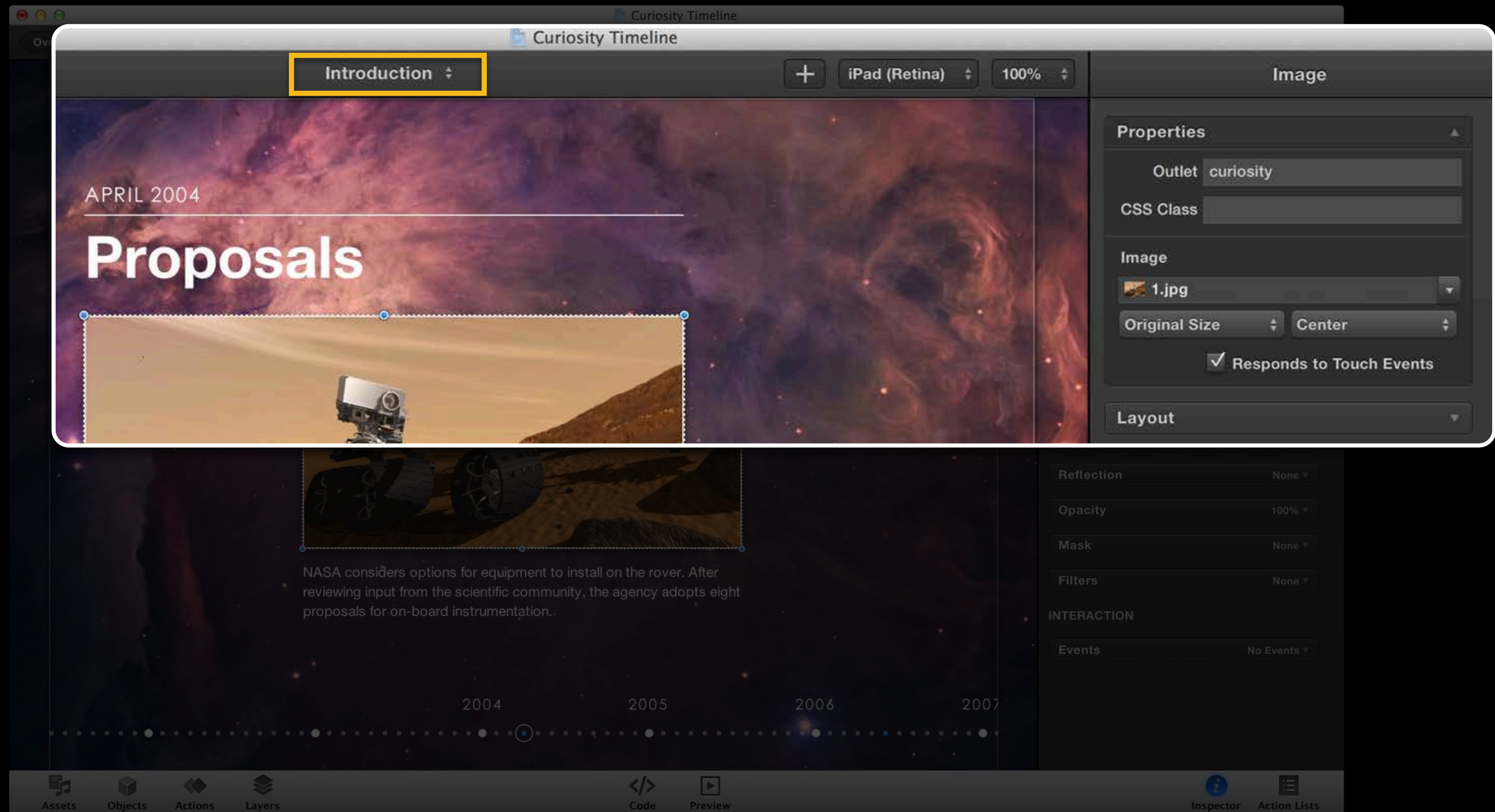
CSS Customization

Using code editor



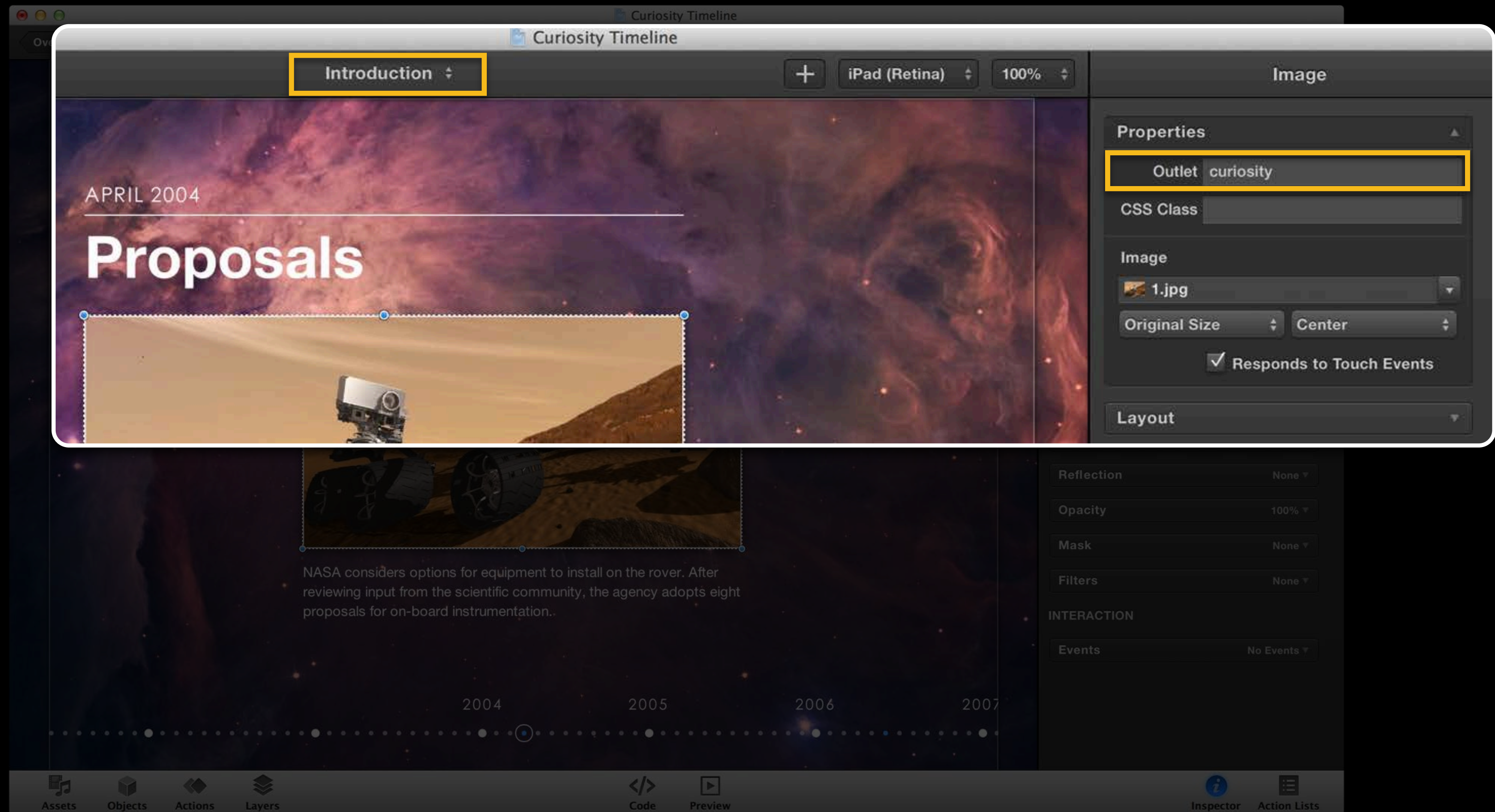
CSS Customization

Using code editor



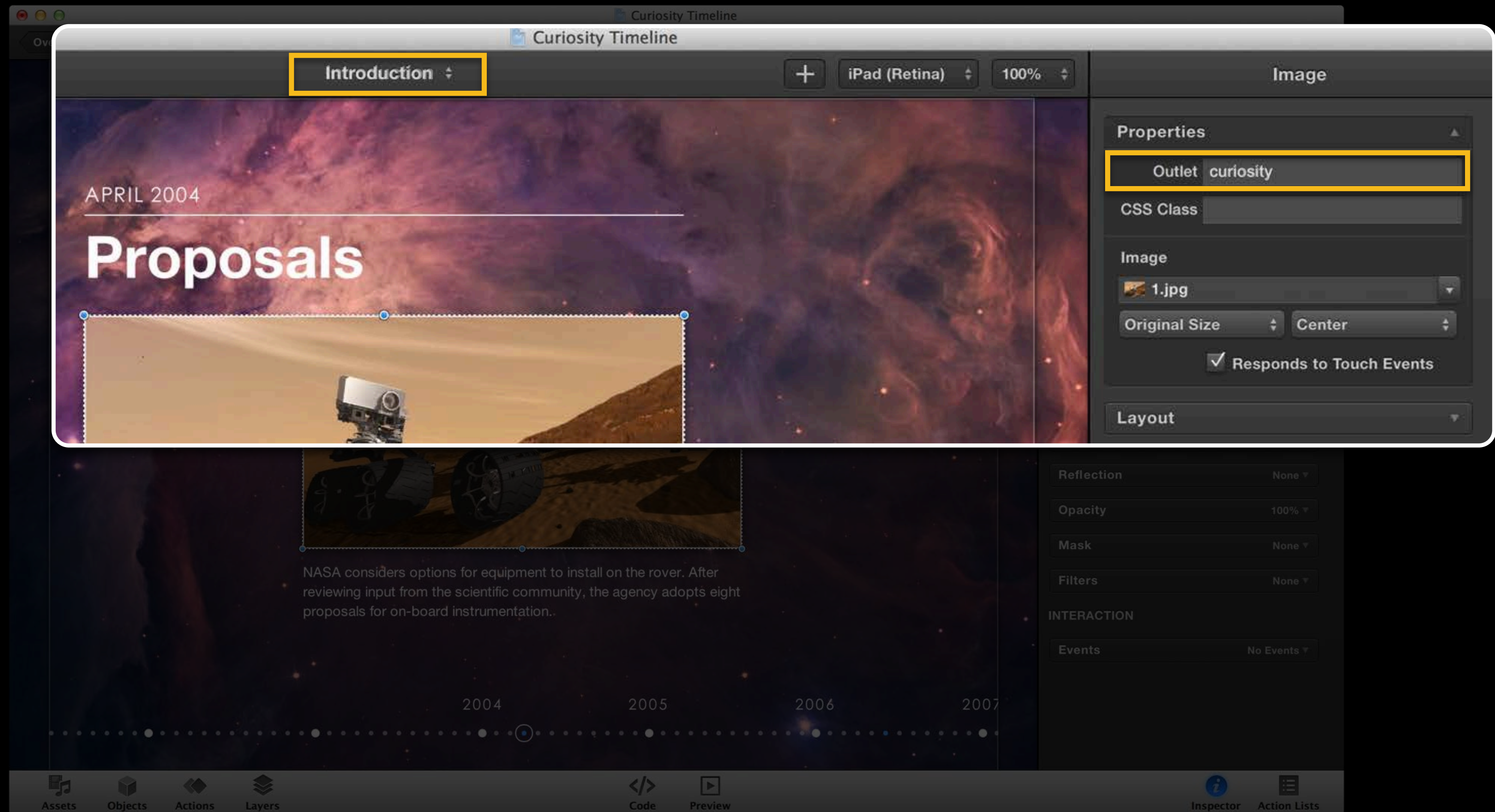
CSS Customization

Using code editor



CSS Customization

Using code editor

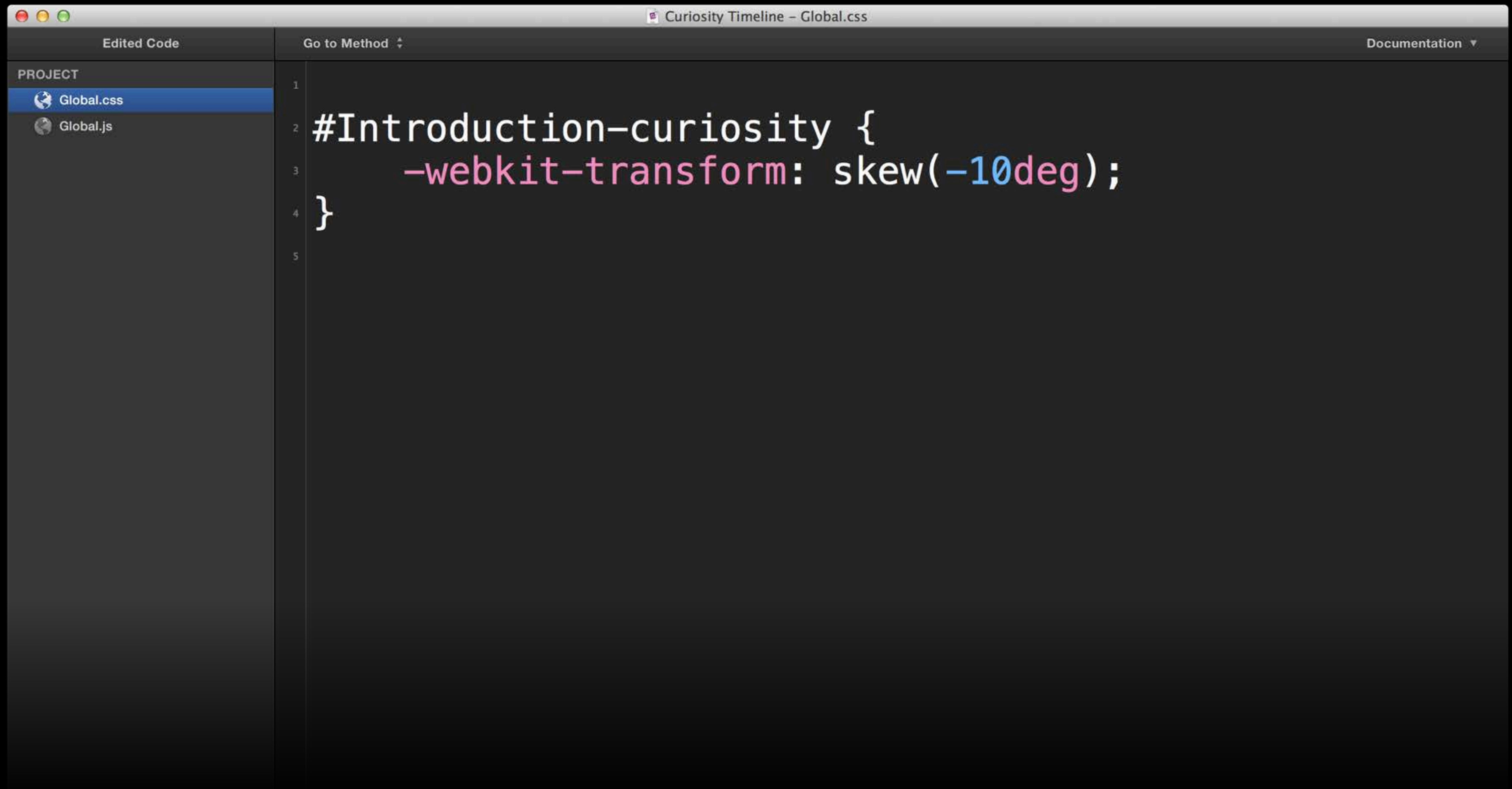


Introduction curiosity

Introduction - curiosity

CSS Customization

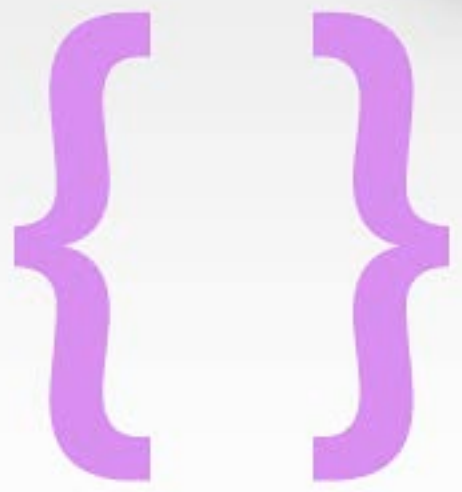
Using code editor



The image shows a code editor window titled "Curiosity Timeline - Global.css". The editor displays the following CSS code:

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

The code is color-coded: the selector is white, the opening brace is white, the property name is pink, the value is blue, and the closing brace is white. The editor interface includes a sidebar on the left with a "PROJECT" section containing "Global.css" (selected) and "Global.js". The top bar has "Edited Code" on the left, "Go to Method" in the center, and "Documentation" on the right.



CSS



JS



HTML



CSS



JS



HTML

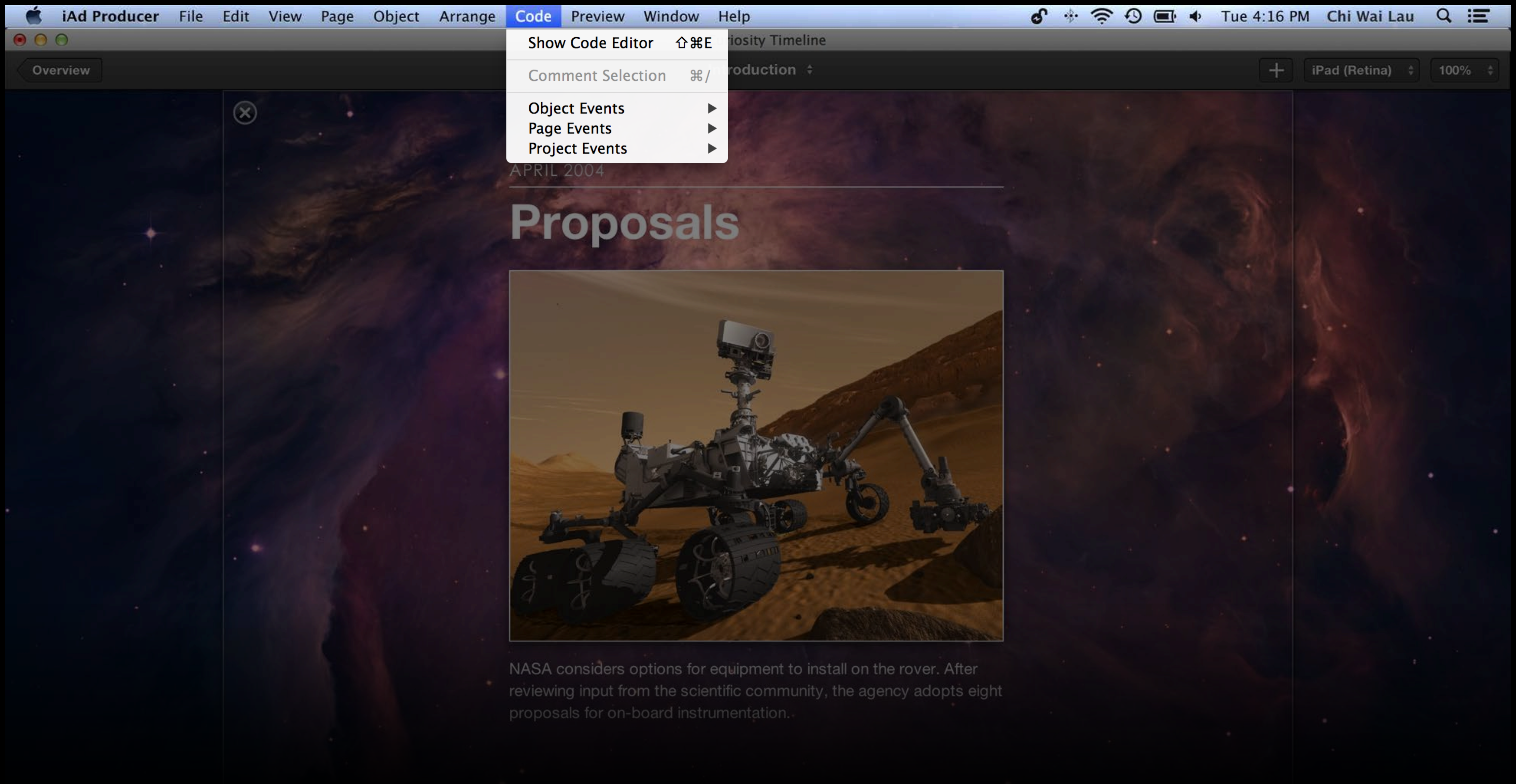
JS Customization

The next level

The screenshot shows a web browser window titled "Curiosity Timeline". The page is in "Introduction" mode and is displayed on an "iPad (Retina)" at 100% zoom. The main content area features a background image of a Mars rover on a reddish planet surface. The text "APRIL 2004" is displayed above the word "Proposals". Below this, there is a smaller image of the rover. The text below the image reads: "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." At the bottom of the page, a timeline shows the years 2004, 2005, 2006, and 2007, with a dot under 2004 indicating the current position. The browser's bottom toolbar includes icons for Assets, Objects, Actions, Layers, Code, Preview, Inspector, and Action Lists.

JS Customization

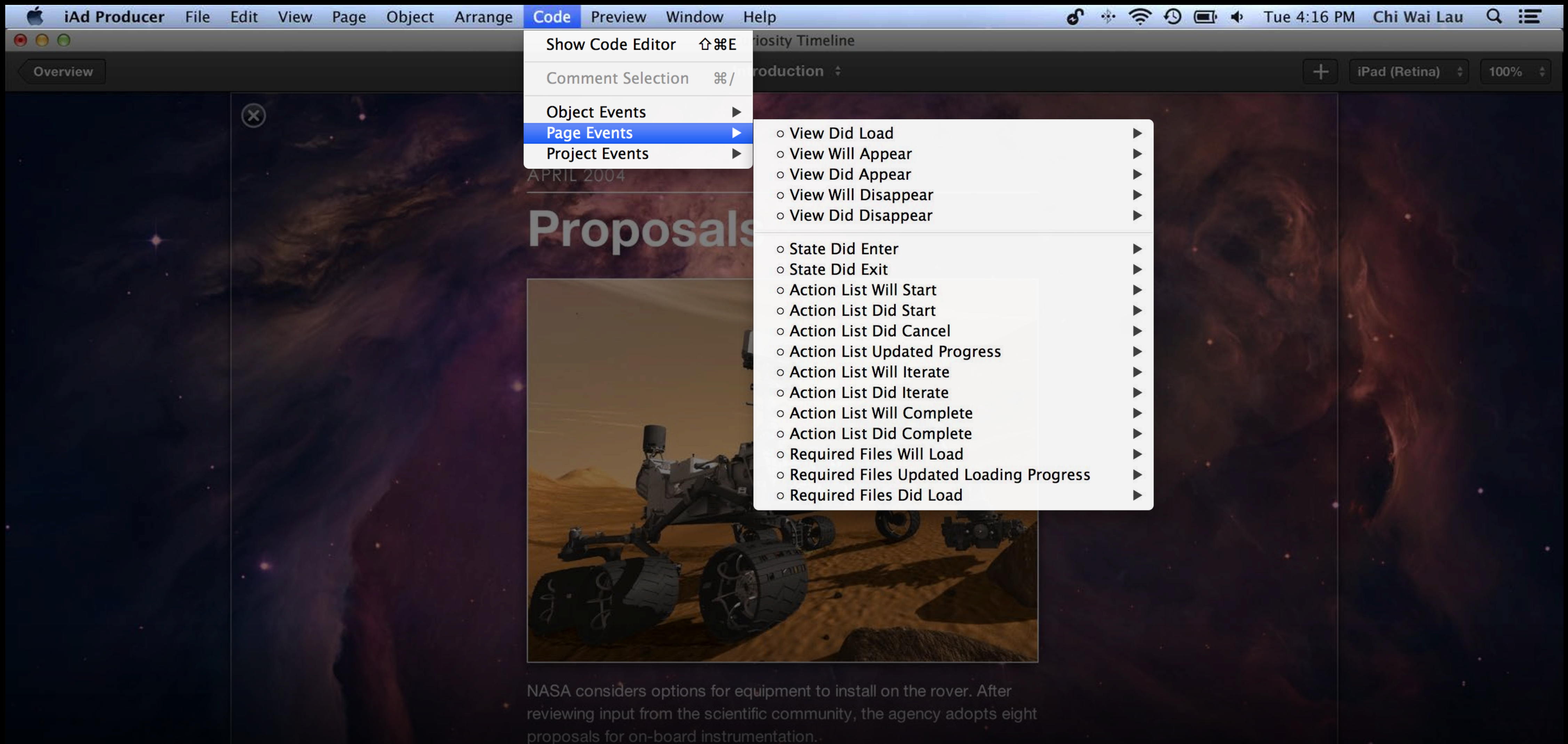
Events and callbacks



The screenshot shows the iAd Producer application interface. The top menu bar includes 'iAd Producer', 'File', 'Edit', 'View', 'Page', 'Object', 'Arrange', 'Code', 'Preview', 'Window', and 'Help'. The 'Code' menu is open, displaying the following options: 'Show Code Editor' (⌘⇧E), 'Comment Selection' (⌘/), 'Object Events' (▶), 'Page Events' (▶), and 'Project Events' (▶). The main workspace shows a preview of a webpage with a dark, space-themed background. The text 'APRIL 2004' is visible above the heading 'Proposals'. Below the heading is a photograph of a Mars rover on a reddish, rocky terrain. Underneath the image, there is a paragraph of text: '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



The screenshot shows the iAd Producer application interface. The 'Code' menu is open, displaying a list of events and callbacks. The background is a preview of an advertisement for NASA Mars rovers, featuring a rover on a desert planet and the text 'Proposals'.

Menu items:

- Show Code Editor ⌘⇧E
- Comment Selection ⌘/
- Object Events ▶
- Page Events ▶
- Project Events ▶

Sub-menu items (under Page Events):

- View Did Load ▶
- View Will Appear ▶
- View Did Appear ▶
- View Will Disappear ▶
- View Did Disappear ▶
- State Did Enter ▶
- State Did Exit ▶
- Action List Will Start ▶
- Action List Did Start ▶
- Action List Did Cancel ▶
- Action List Updated Progress ▶
- Action List Will Iterate ▶
- Action List Did Iterate ▶
- Action List Will Complete ▶
- Action List Did Complete ▶
- Required Files Will Load ▶
- Required Files Updated Loading Progress ▶
- Required Files Did Load ▶

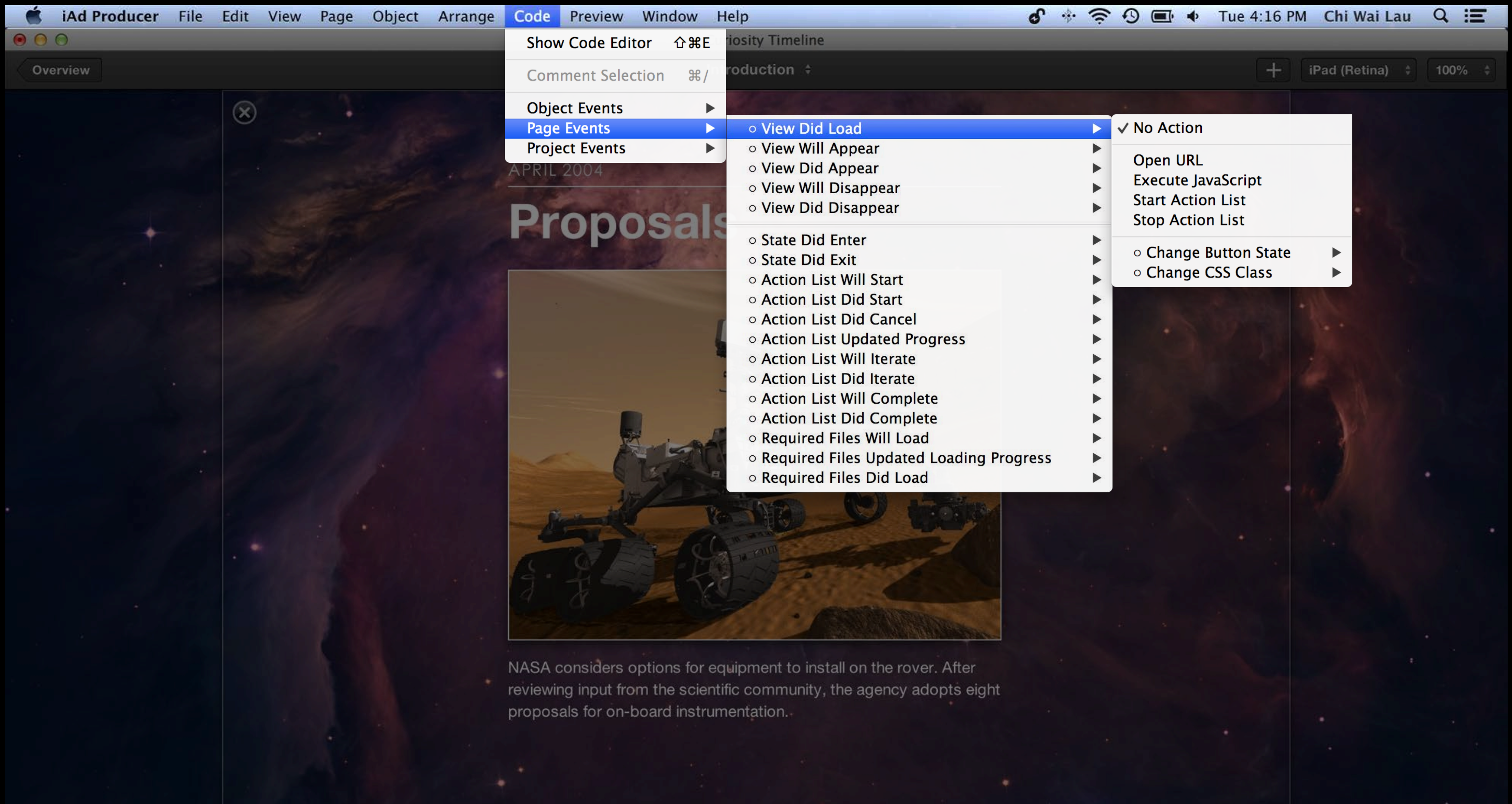
Background text: APRIL 2004, Proposals

Background image: A Mars rover on a desert planet.

Background text: 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



The screenshot shows the iAd Producer application interface. The 'Code' menu is open, and 'Page Events' is selected. A secondary menu is displayed, listing various JavaScript events and their associated actions. The background shows a preview of a mobile advertisement for NASA, featuring a Mars rover and the text 'Proposals'.

Code Menu:

- Show Code Editor ⌘⇧E
- Comment Selection ⌘/
- Object Events ▶
- Page Events ▶**
- Project Events ▶

Page Events Sub-menu:

- View Did Load ▶
- View Will Appear ▶
- View Did Appear ▶
- View Will Disappear ▶
- View Did Disappear ▶
- State Did Enter ▶
- State Did Exit ▶
- Action List Will Start ▶
- Action List Did Start ▶
- Action List Did Cancel ▶
- Action List Updated Progress ▶
- Action List Will Iterate ▶
- Action List Did Iterate ▶
- Action List Will Complete ▶
- Action List Did Complete ▶
- Required Files Will Load ▶
- Required Files Updated Loading Progress ▶
- Required Files Did Load ▶

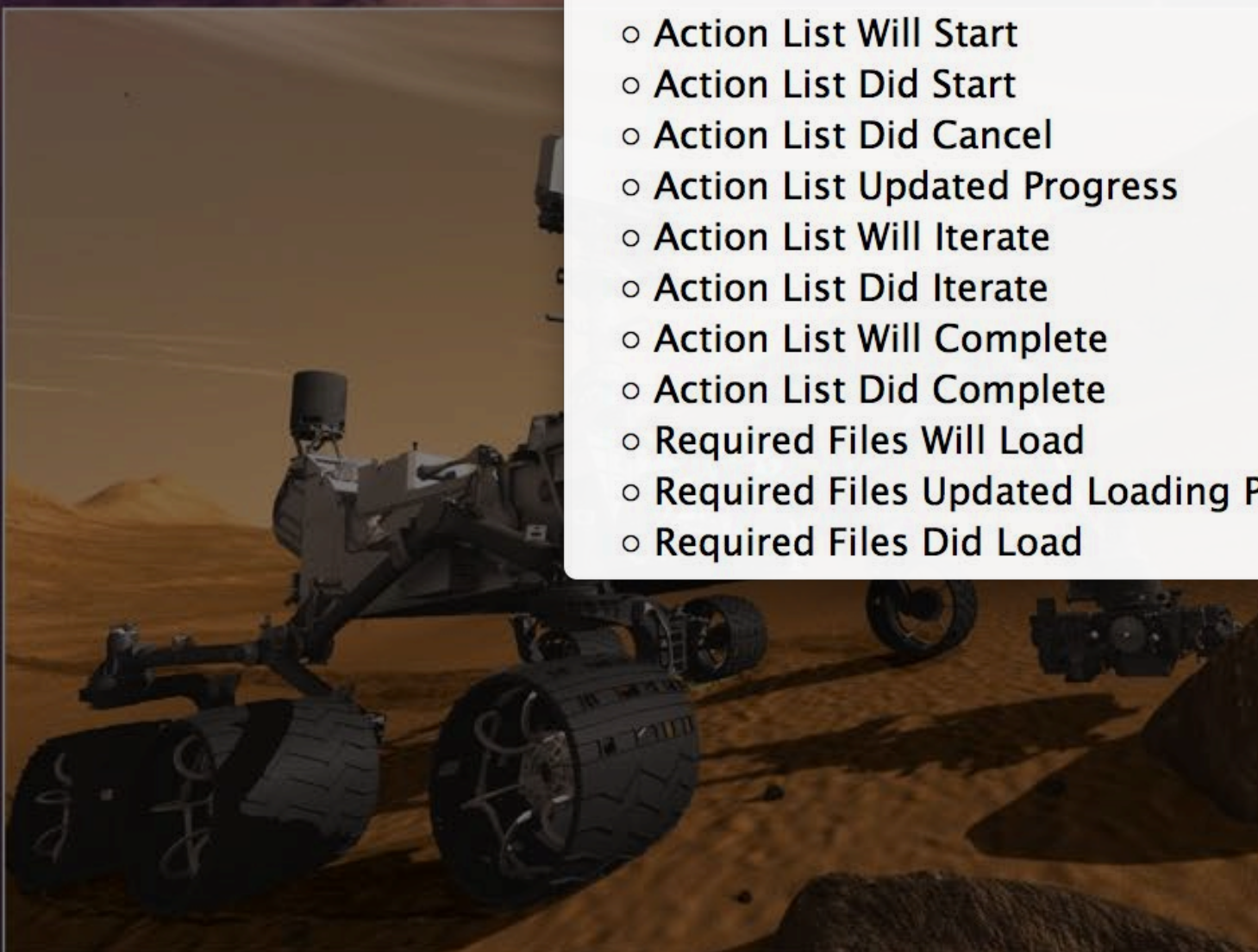
Actions for View Did Load:

- ✓ No Action
- Open URL
- Execute JavaScript
- Start Action List
- Stop Action List
- Change Button State ▶
- Change CSS Class ▶

Background Content:

APRIL 2004

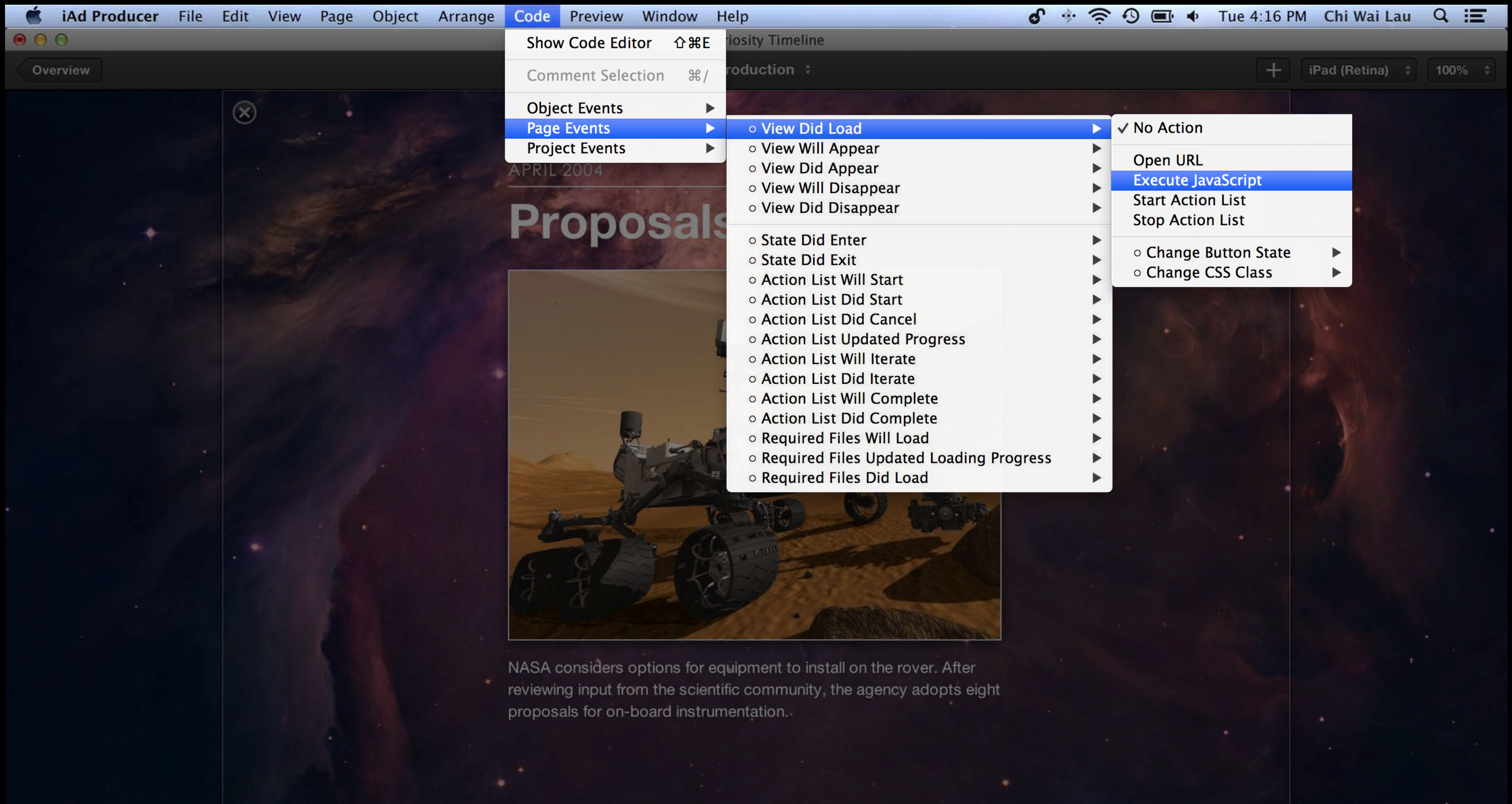
Proposals



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



The screenshot shows the iAd Producer application interface. The 'Code' menu is open, and the 'Page Events' sub-menu is selected. Within the 'Page Events' sub-menu, the 'View Did Load' event is selected, and its corresponding action list is open. The 'Execute JavaScript' action is highlighted in blue. The background of the application shows a preview of a mobile advertisement with a Mars rover and the text 'Proposals'.

Menu structure shown in the screenshot:

- Code
 - Show Code Editor ⌘⇧E
 - Comment Selection ⌘/
 - Object Events ▶
 - Page Events ▶**
 - View Did Load ▶ **Execute JavaScript**
 - View Will Appear ▶
 - View Did Appear ▶
 - View Will Disappear ▶
 - View Did Disappear ▶
 - State Did Enter ▶
 - State Did Exit ▶
 - Action List Will Start ▶
 - Action List Did Start ▶
 - Action List Did Cancel ▶
 - Action List Updated Progress ▶
 - Action List Will Iterate ▶
 - Action List Did Iterate ▶
 - Action List Will Complete ▶
 - Action List Did Complete ▶
 - Required Files Will Load ▶
 - Required Files Updated Loading Progress ▶
 - Required Files Did Load ▶
 - Project Events ▶

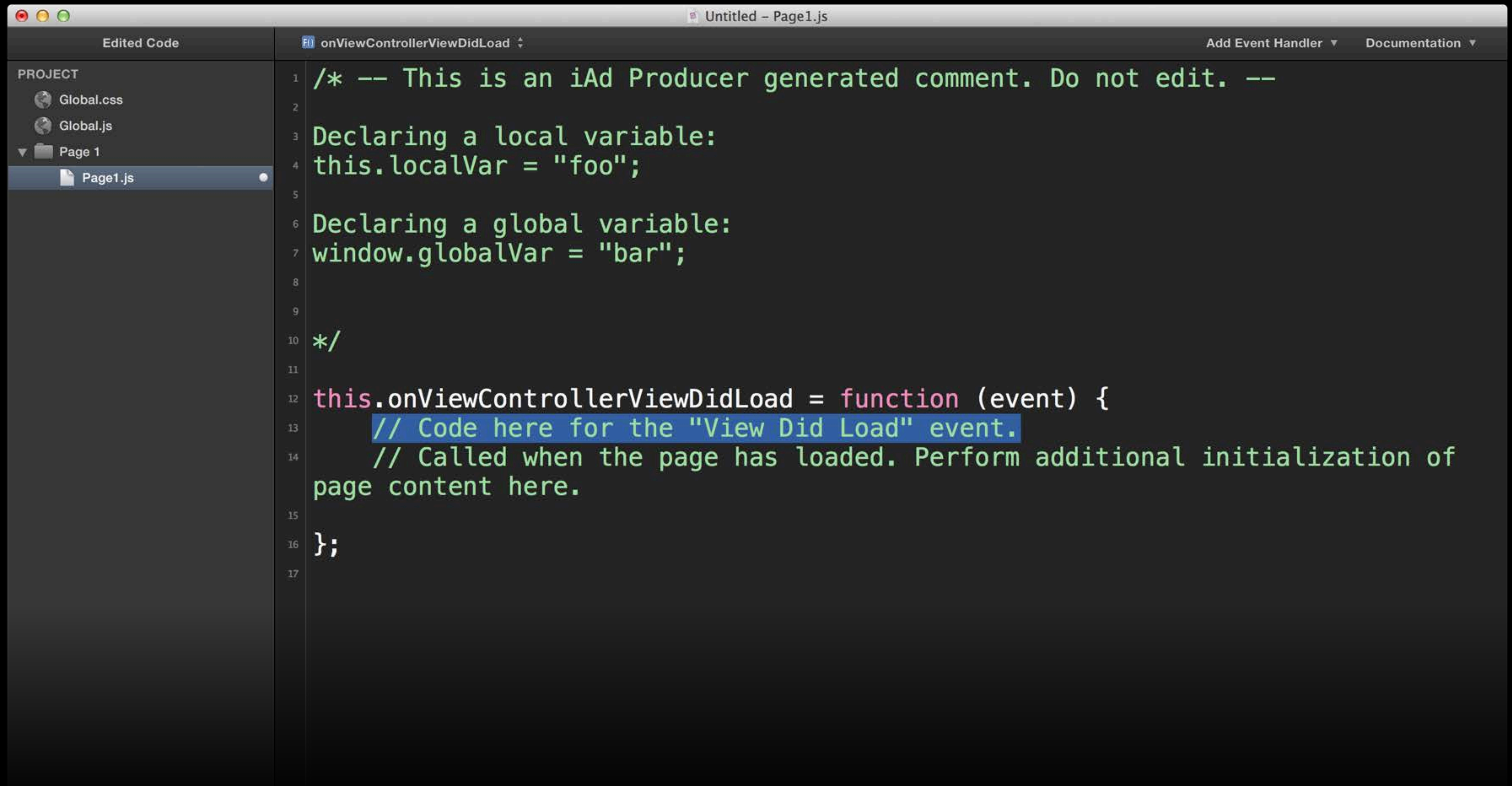
Action list for 'View Did Load':

- ✓ No Action
- Open URL
- Execute JavaScript**
- Start Action List
- Stop Action List
- Change Button State ▶
- Change CSS Class ▶

Background text: APRIL 2004
Proposals
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



```
Untitled - Page1.js
Add Event Handler
Documentation

PROJECT
  Global.css
  Global.js
  Page 1
    Page1.js

1 /* -- This is an iAd Producer generated comment. Do not edit. --
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.onViewDidLoad = 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
```


XMLHttpRequest

iAd.XHRLoader

JS Customization

Loading remote content with iAd.XHRLoader

```
iAd.XHRLoader(url)
```


JS Customization

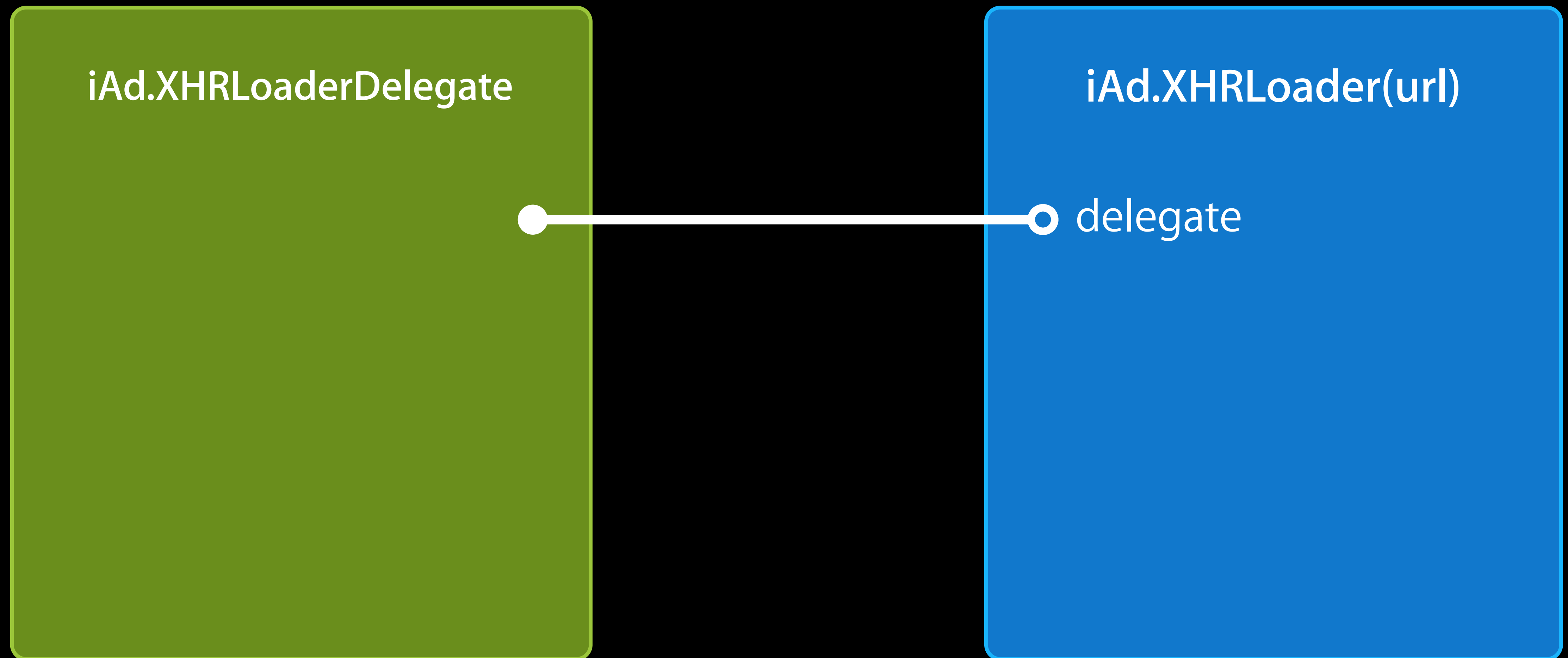
Loading remote content with iAd.XHRLoader

iAd.XHRLoader(url)

○ delegate

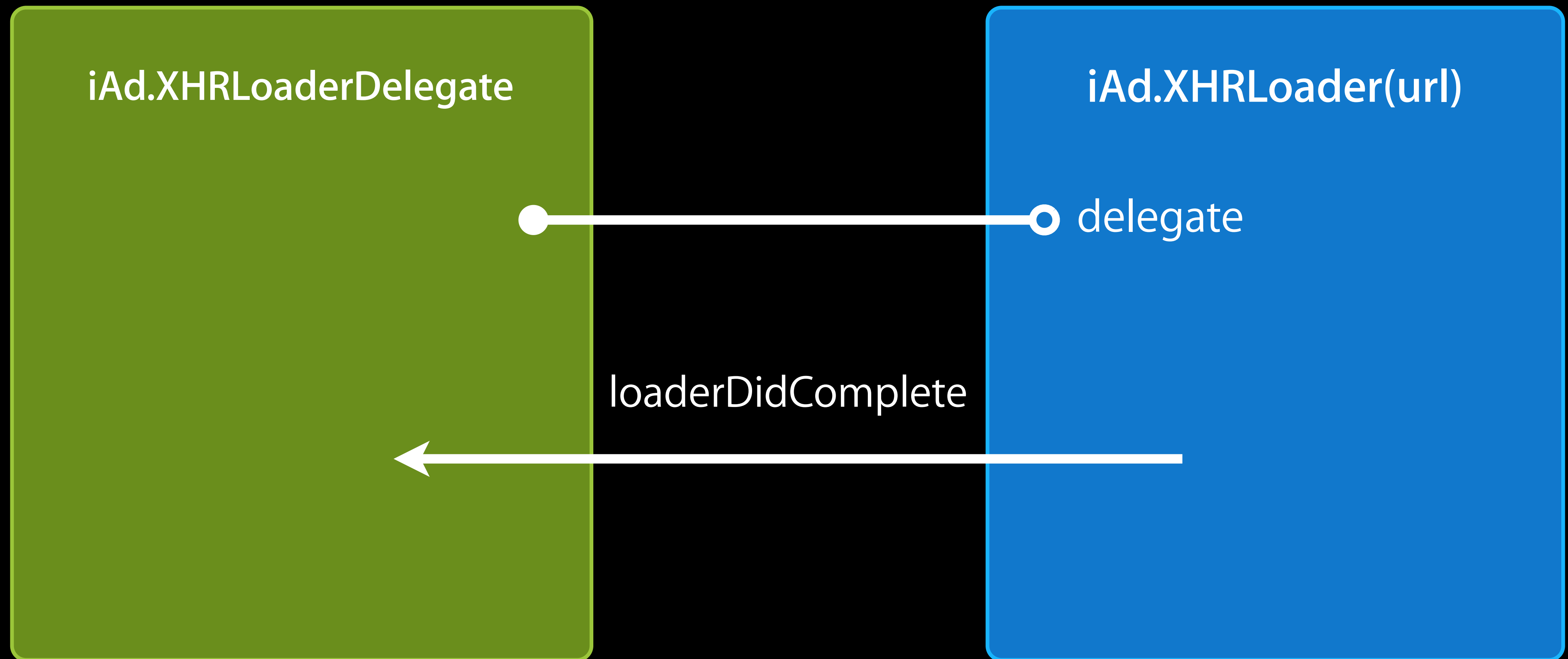
JS Customization

Loading remote content with iAd.XHRLoader



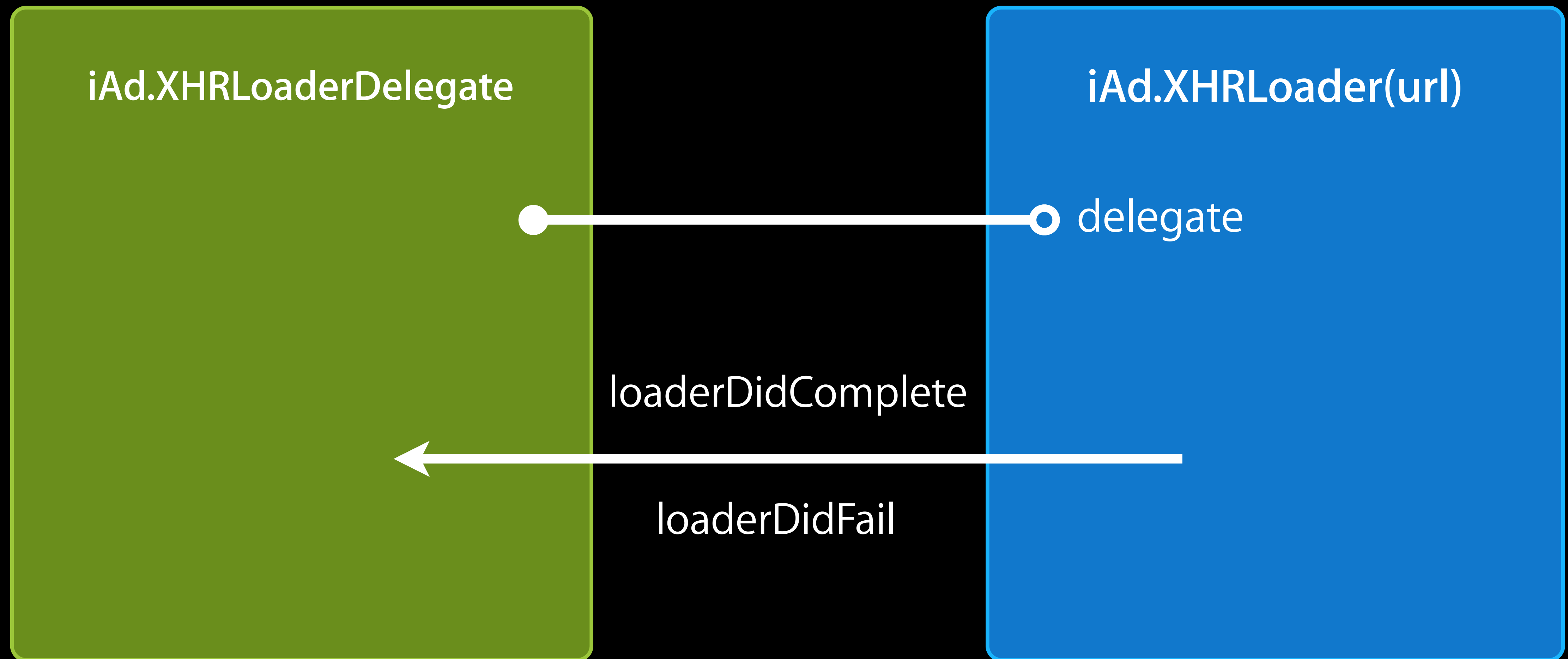
JS Customization

Loading remote content with iAd.XHRLoader



JS Customization

Loading remote content with iAd.XHRLoader



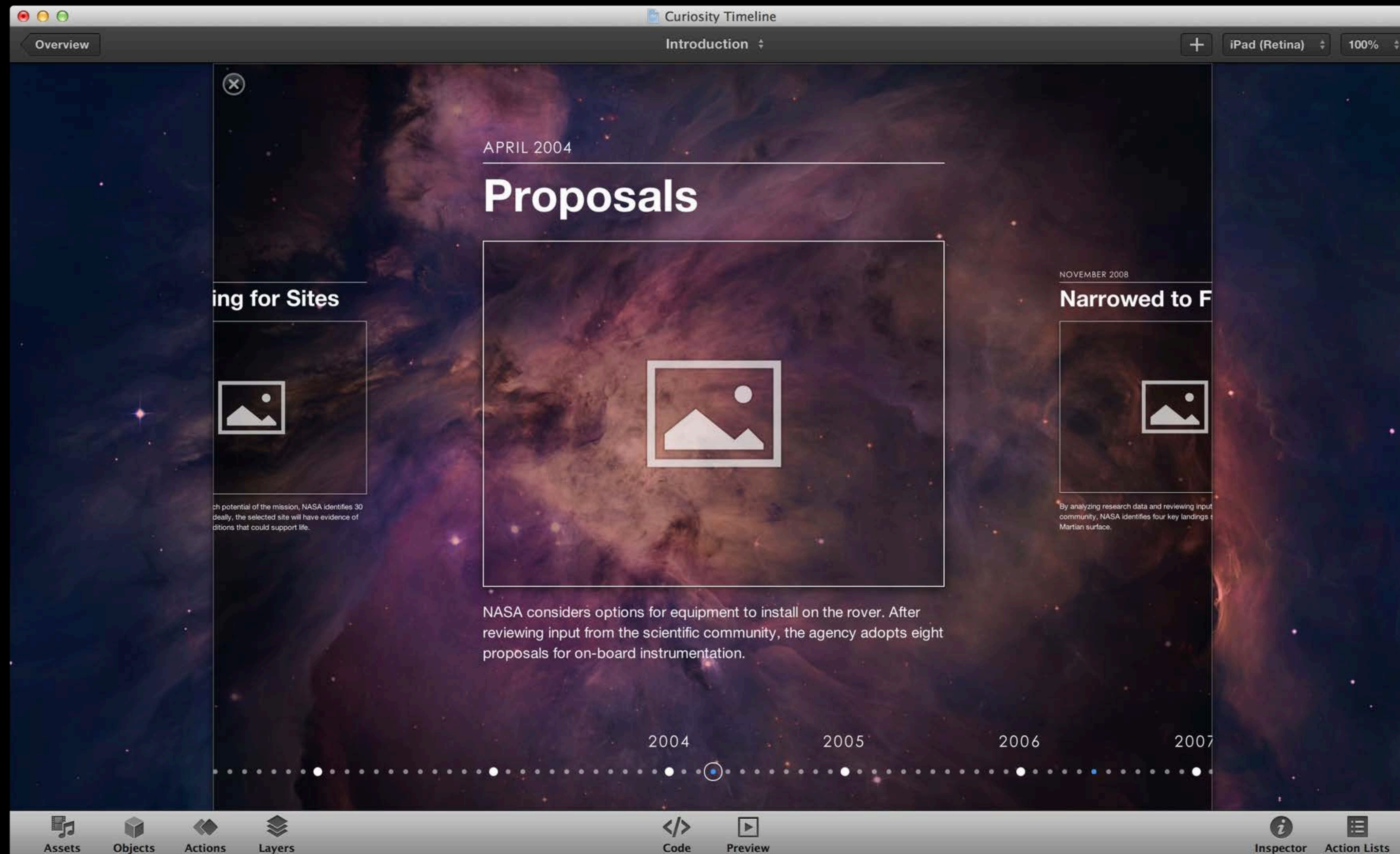
JS Customization

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
9 // Called when the XHR call failed
10 this.loaderDidFail = function (loader, error) {
11     alert("Load failed with error: " + error);
12 };
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
```


JS Customization

Loading dynamic content in multi-cell objects



JS Customization

Loading dynamic content in multi-cell objects



Multi-Cell Object

JS Customization

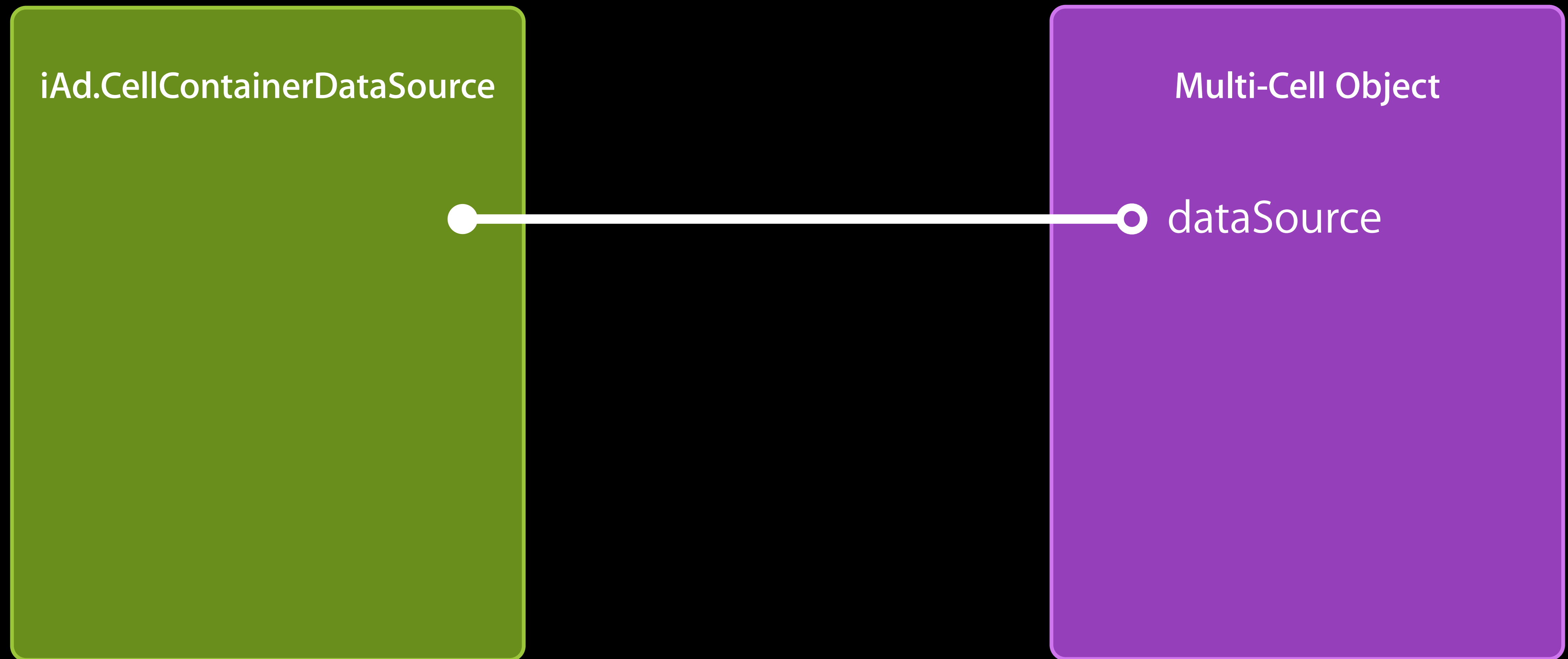
Loading dynamic content in multi-cell objects

Multi-Cell Object

○ dataSource

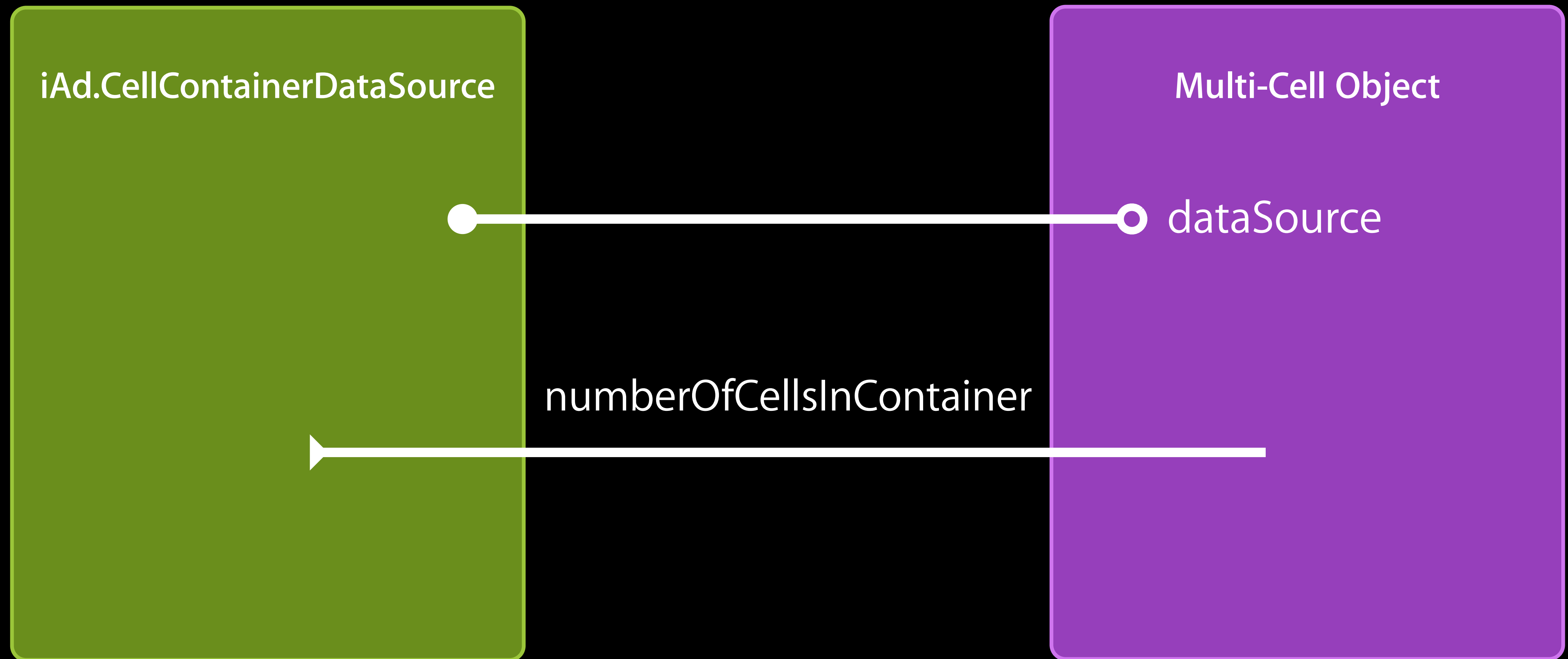
JS Customization

Loading dynamic content in multi-cell objects



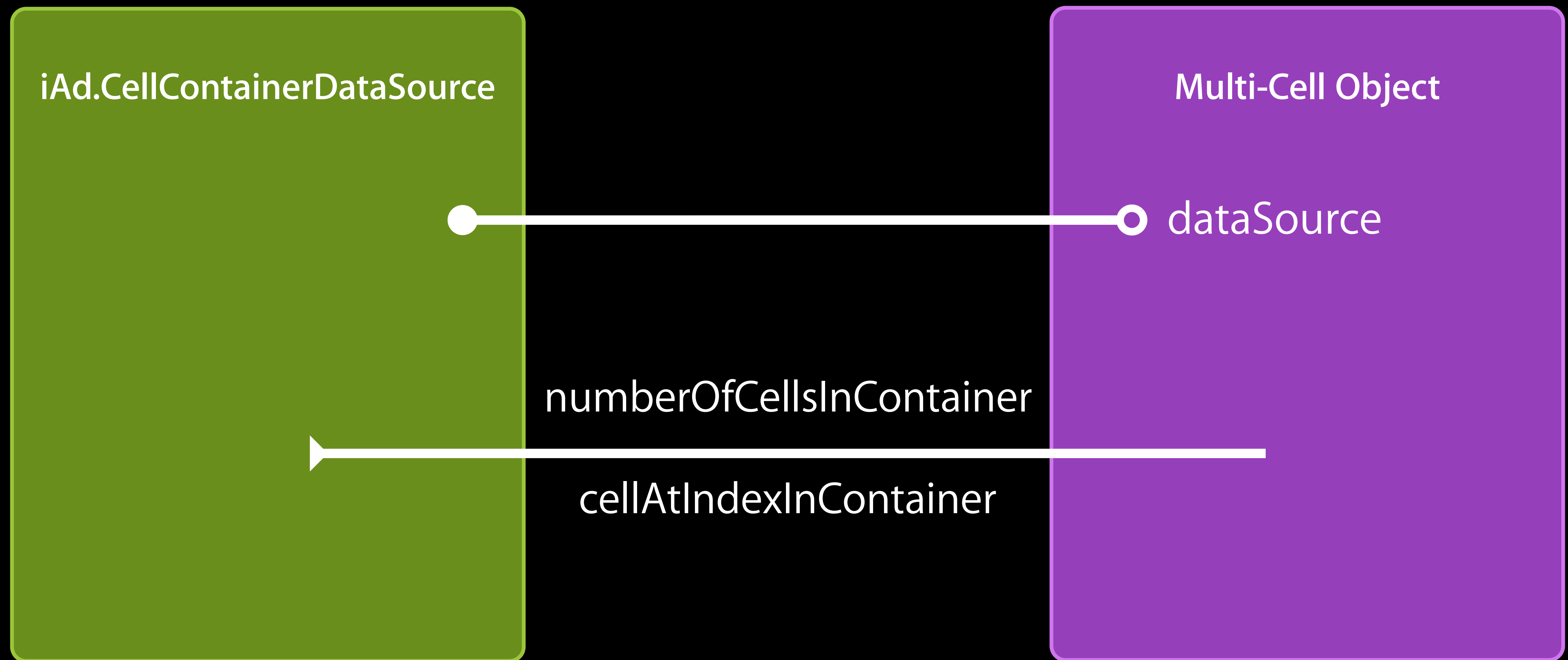
JS Customization

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



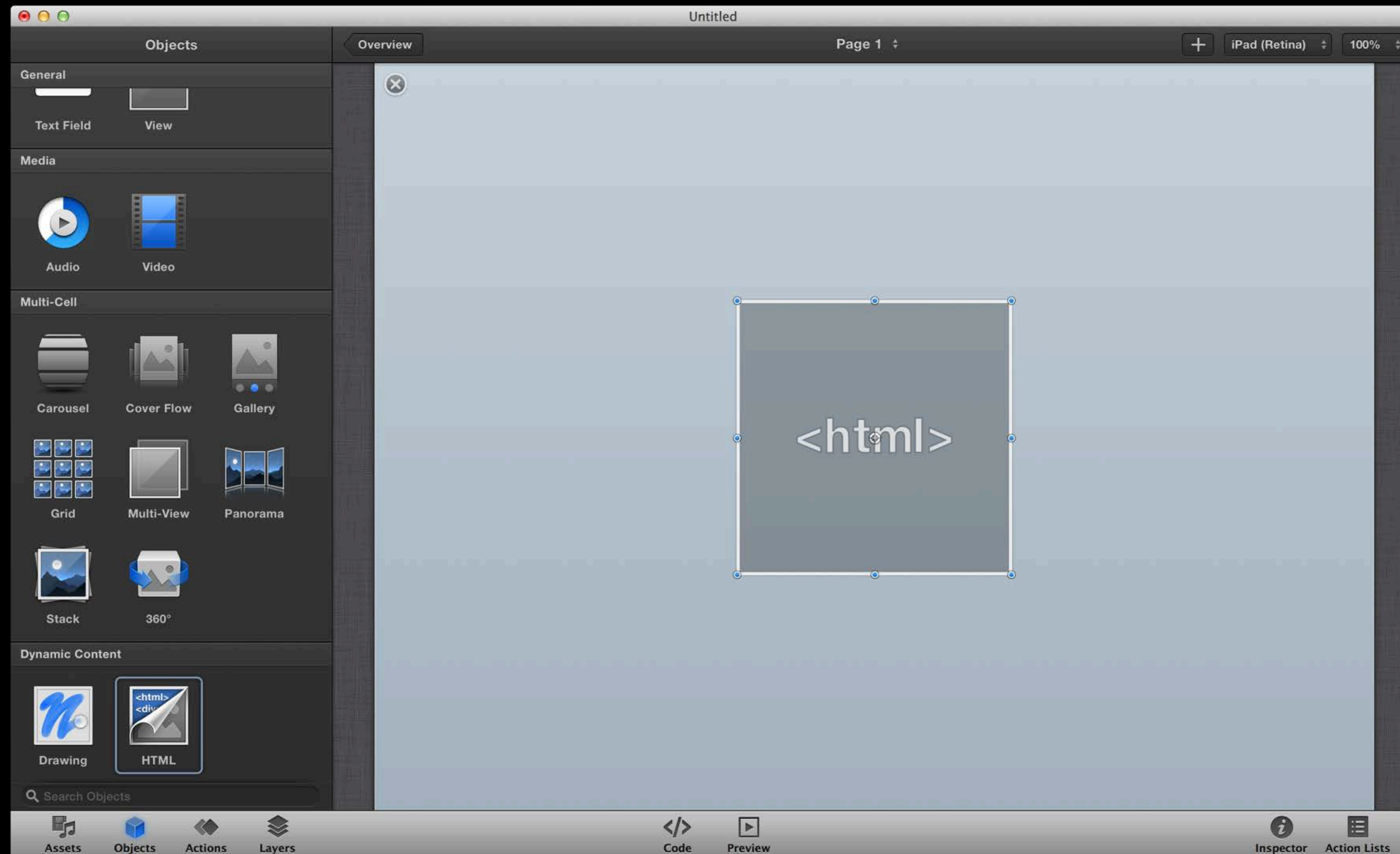
HTML Customization

Embedded objects



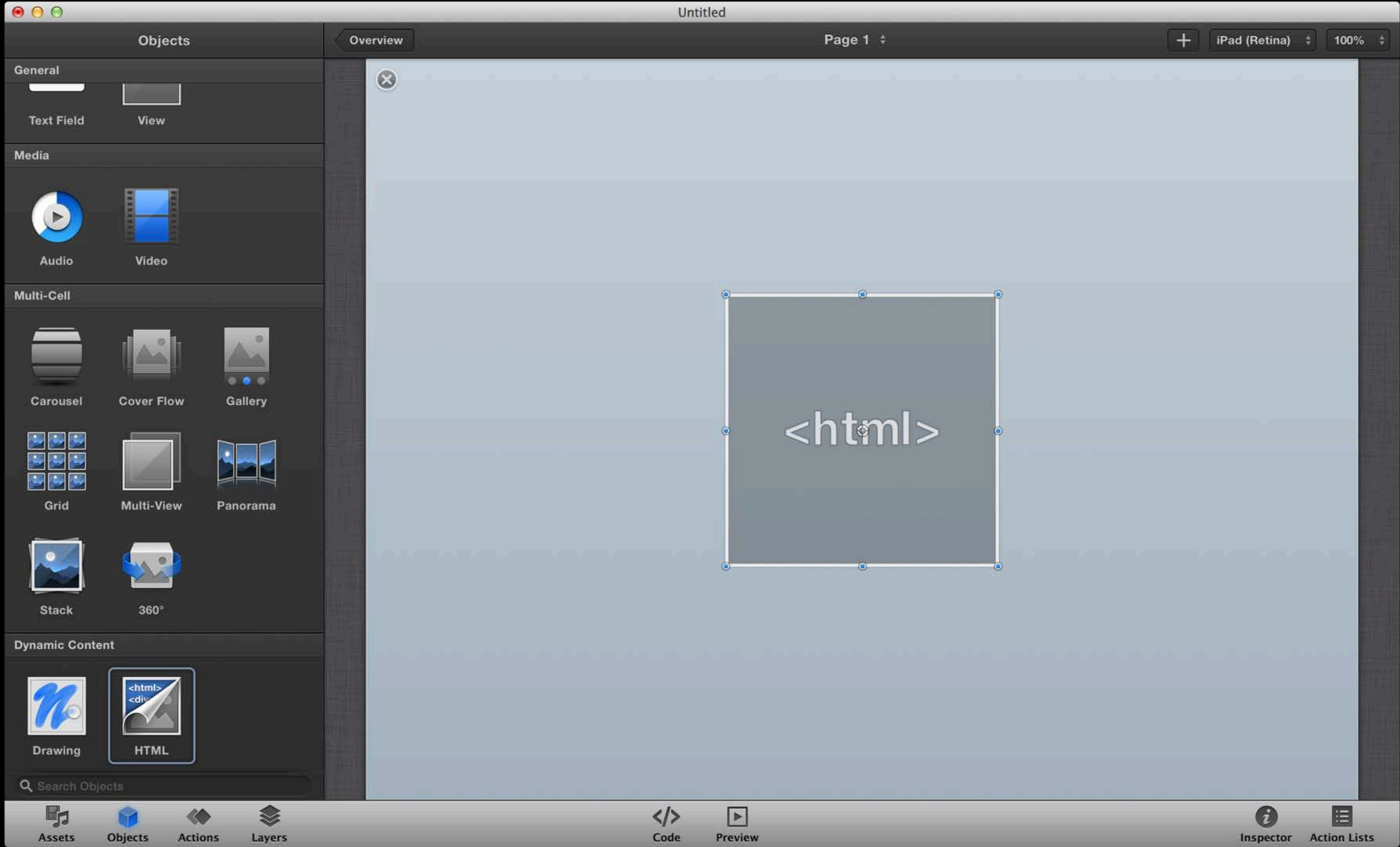
HTML Customization

Embedded objects



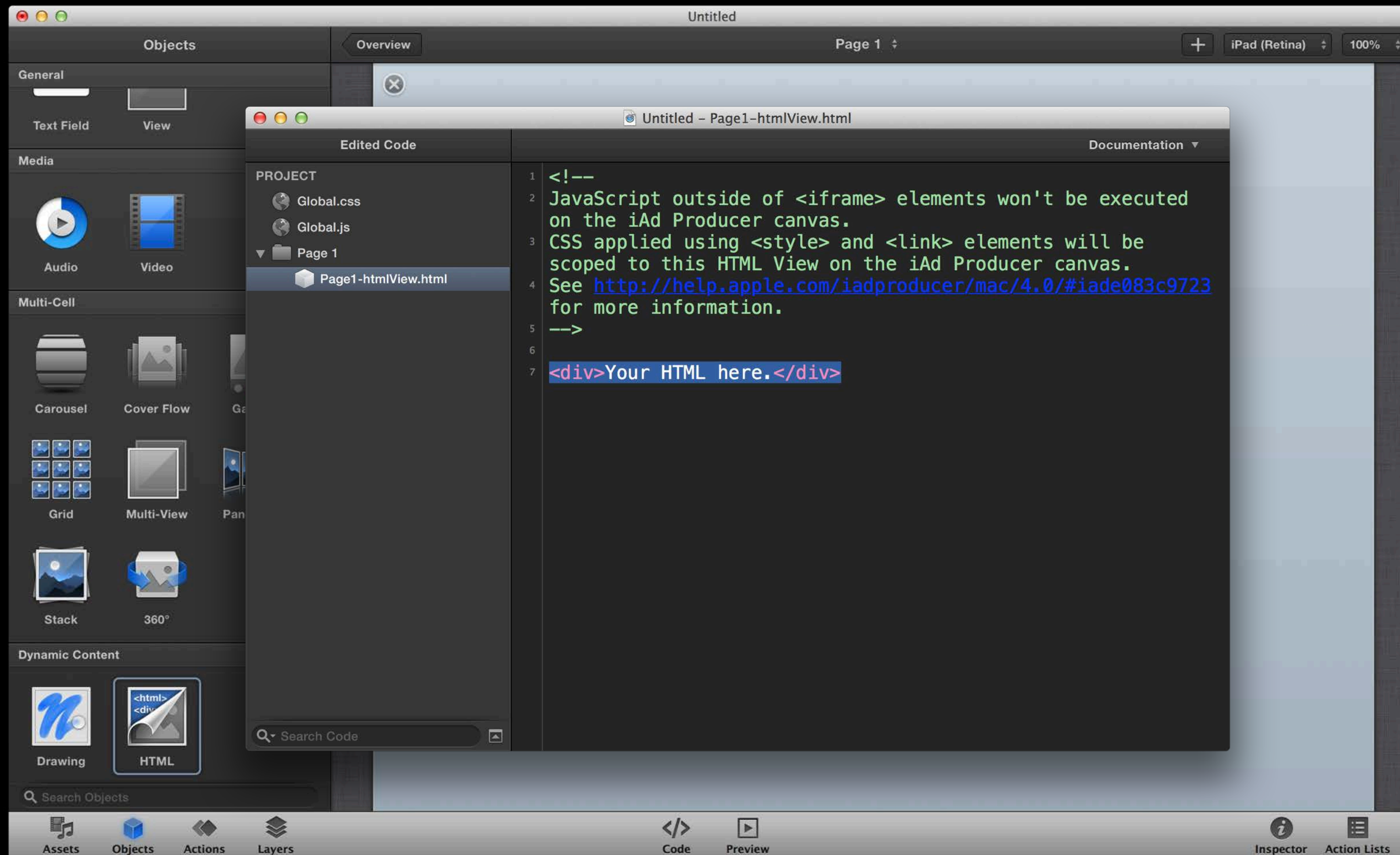
HTML Customization

Embedded objects



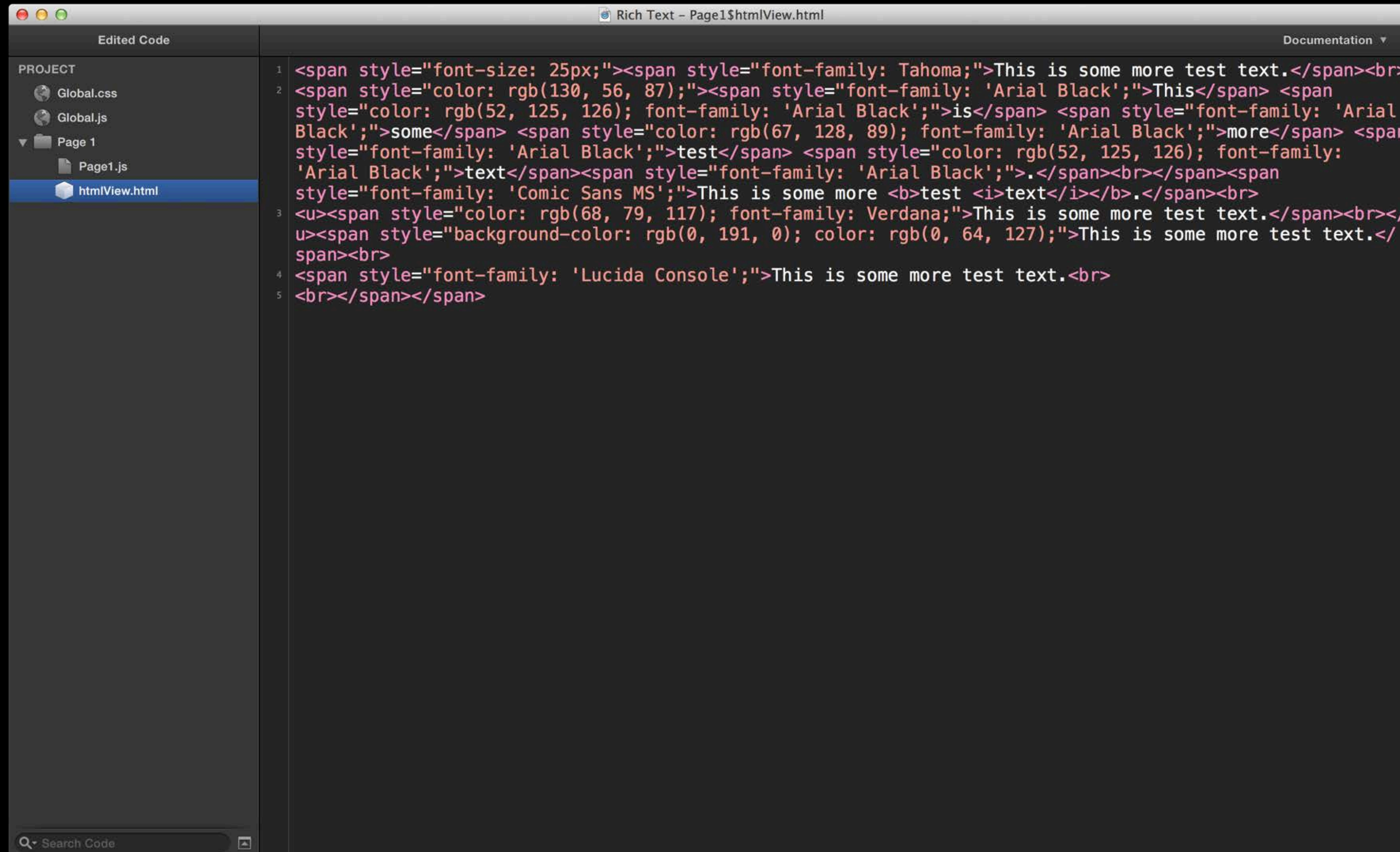
HTML Customization

Embedded objects



HTML Customization

Formatted text

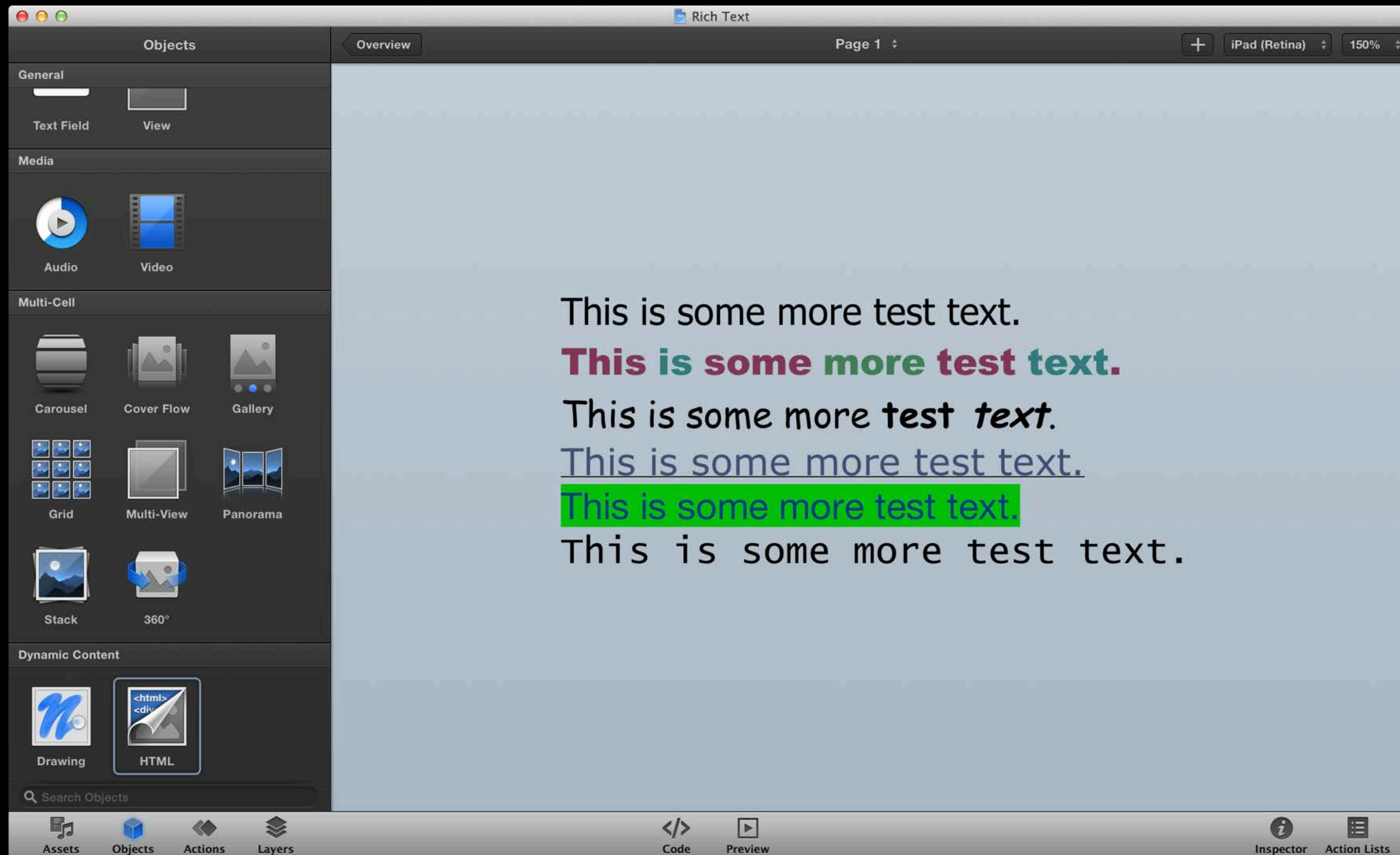


The image shows a code editor window titled "Rich Text - Page1\$htmlView.html". The editor displays HTML code for text formatting. The code is as follows:

```
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>
5 <br></span></span>
```

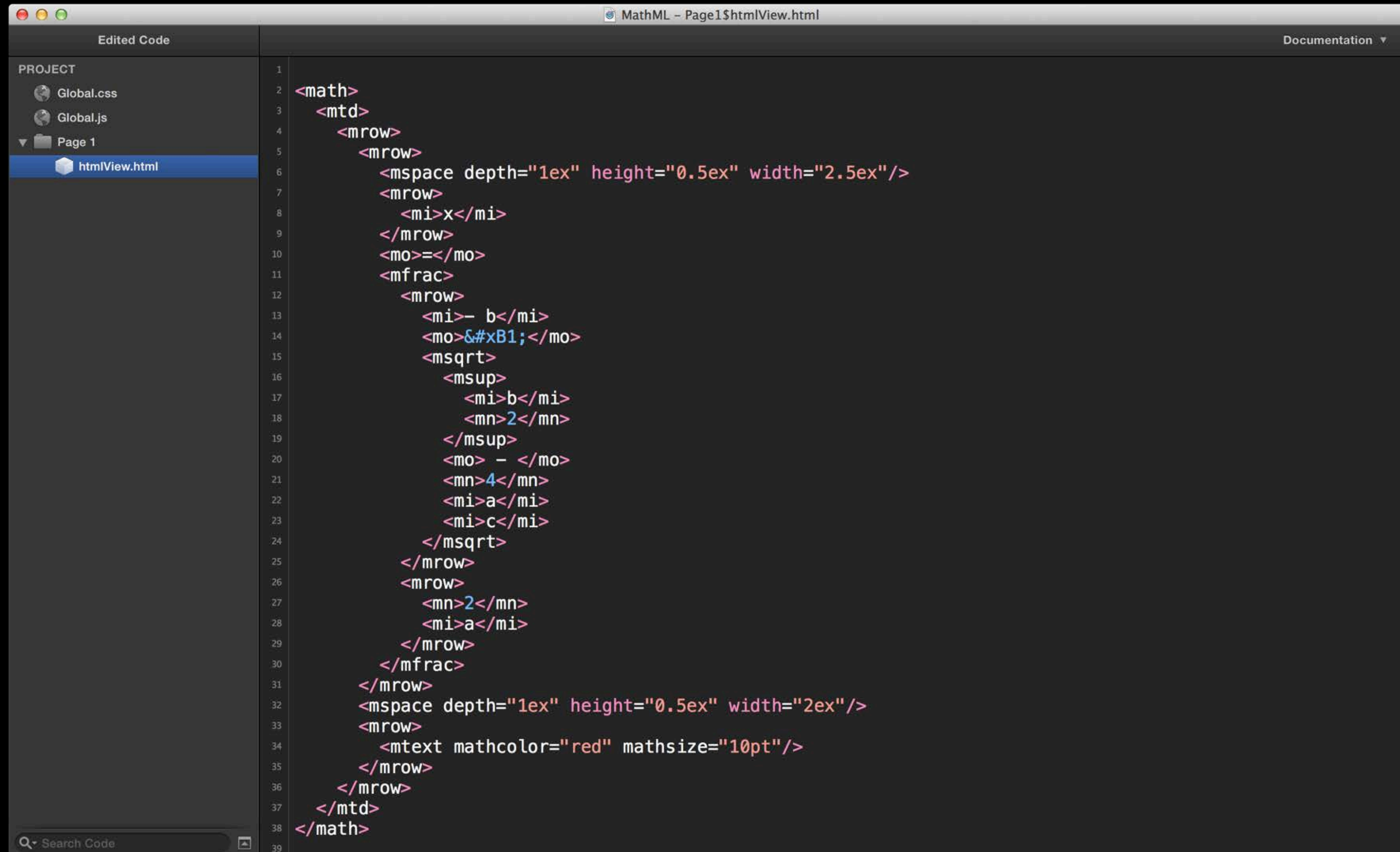
HTML Customization

Formatted text



HTML Customization

MathML



The image shows a code editor window titled "MathML - Page1\$htmlView.html". The editor 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 <mrow>
27 <mn>2</mn>
28 <mi>a</mi>
29 </mrow>
30 </mfrac>
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>
```

HTML Customization

MathML

The screenshot displays the MathML editor interface. The main workspace shows the quadratic formula $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ rendered in a serif font. The left sidebar contains a 'Objects' panel with categories: General (Text Field, View), Media (Audio, Video), Multi-Cell (Carousel, Cover Flow, Gallery, Grid, Multi-View, Panorama, Stack, 360°), and Dynamic Content (Drawing, HTML). The bottom toolbar includes icons for Assets, Objects, Actions, Layers, Code, Preview, Inspector, and Action Lists. The top status bar shows 'Page 1', 'iPad (Retina)', and '400%' zoom.

HTML Customization

Embedded objects

The screenshot shows a web browser window titled "Curiosity Timeline". The browser's address bar shows "Timeline" and the device is set to "iPad (Retina)" at "100%" zoom. The page content is set against a space-themed background with a nebula. The main content area features a timeline with a central event for "APRIL 2004" titled "Proposals". This event includes a large image of the Curiosity rover descending with its parachutes. Below the image, text reads: "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." To the left of the main content, there is a sidebar with a section titled "ing for Sites" and a small image of Mars. To the right, there is another section titled "Narrowed to F" with a map of Mars showing landing sites: Phoenix, Viking 1, Mawrth Vallis, Pathfinder, Opportunity, Holden, and Eberswalde. Below the map, text reads: "By analyzing research data and reviewing input from the scientific community, NASA identifies four key landing sites on the Martian surface." At the bottom of the page, a timeline navigation bar shows years from 2004 to 2007, with a blue dot indicating the current position at 2004. The browser's bottom toolbar contains icons for "Assets", "Objects", "Actions", "Layers", "Code", "Preview", "Inspector", and "Action Lists".

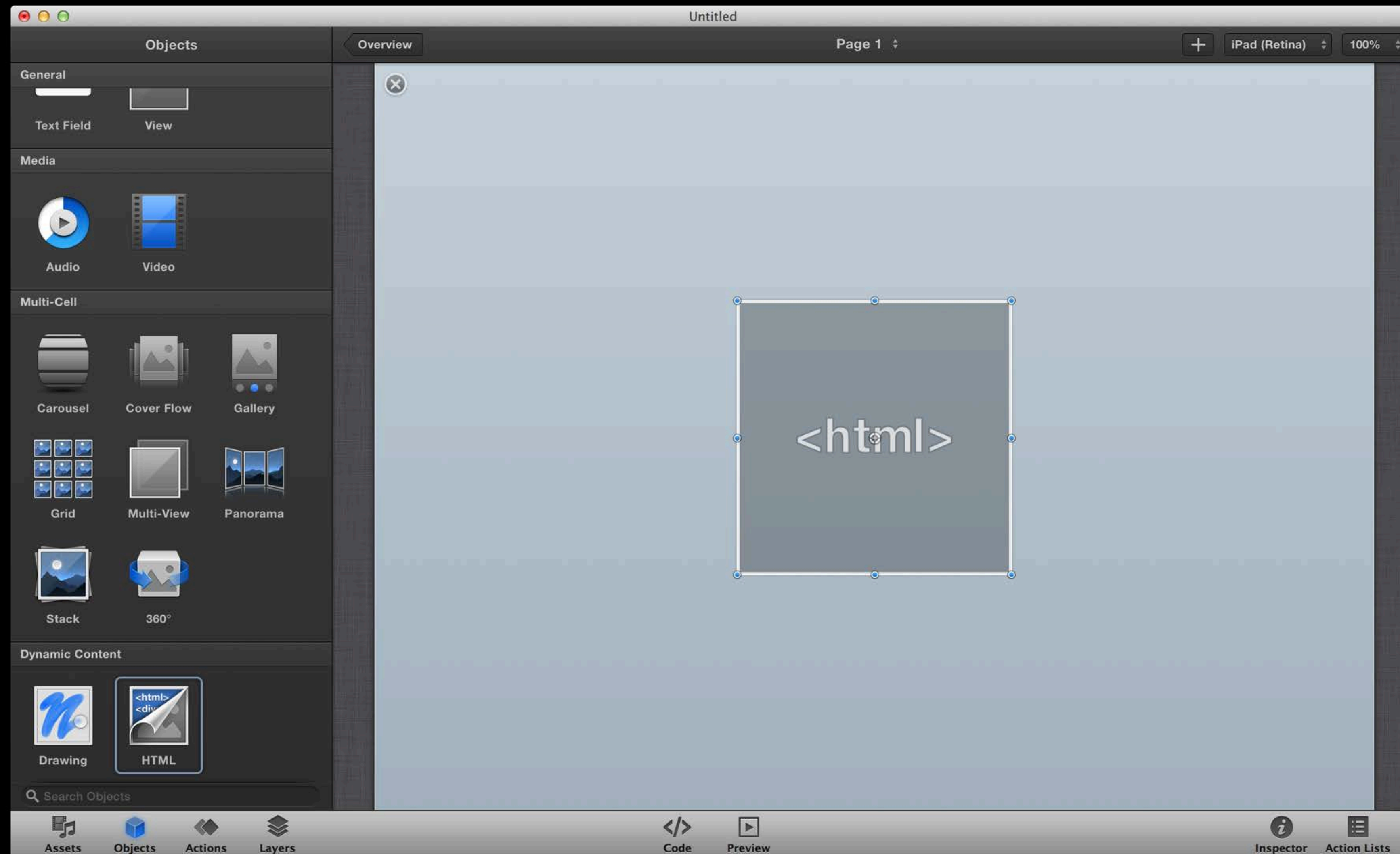
HTML Customization

Embedded objects

The screenshot shows a web browser window titled "Curiosity Timeline" with a zoom level of 100%. The main content area features a timeline with a central video player. The video player is currently displaying a scene of the Curiosity rover on the Martian surface, with a large play button overlay. To the left of the video, there is a section titled "Searching for Sites" with a small image of the Martian horizon. To the right, there is a section titled "Narrowed to Four" with a map of Mars showing landing sites: Phoenix, Viking 1, Mawrth Vallis, Pathfinder, Opportunity, Holden, and Eberswalde. Below the video, there is a text block: "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." The timeline at the bottom shows years from 2004 to 2007, with a blue dot indicating the current position in 2004. The browser's bottom toolbar includes icons for Assets, Objects, Actions, Layers, Code, Preview, Inspector, and Action Lists.

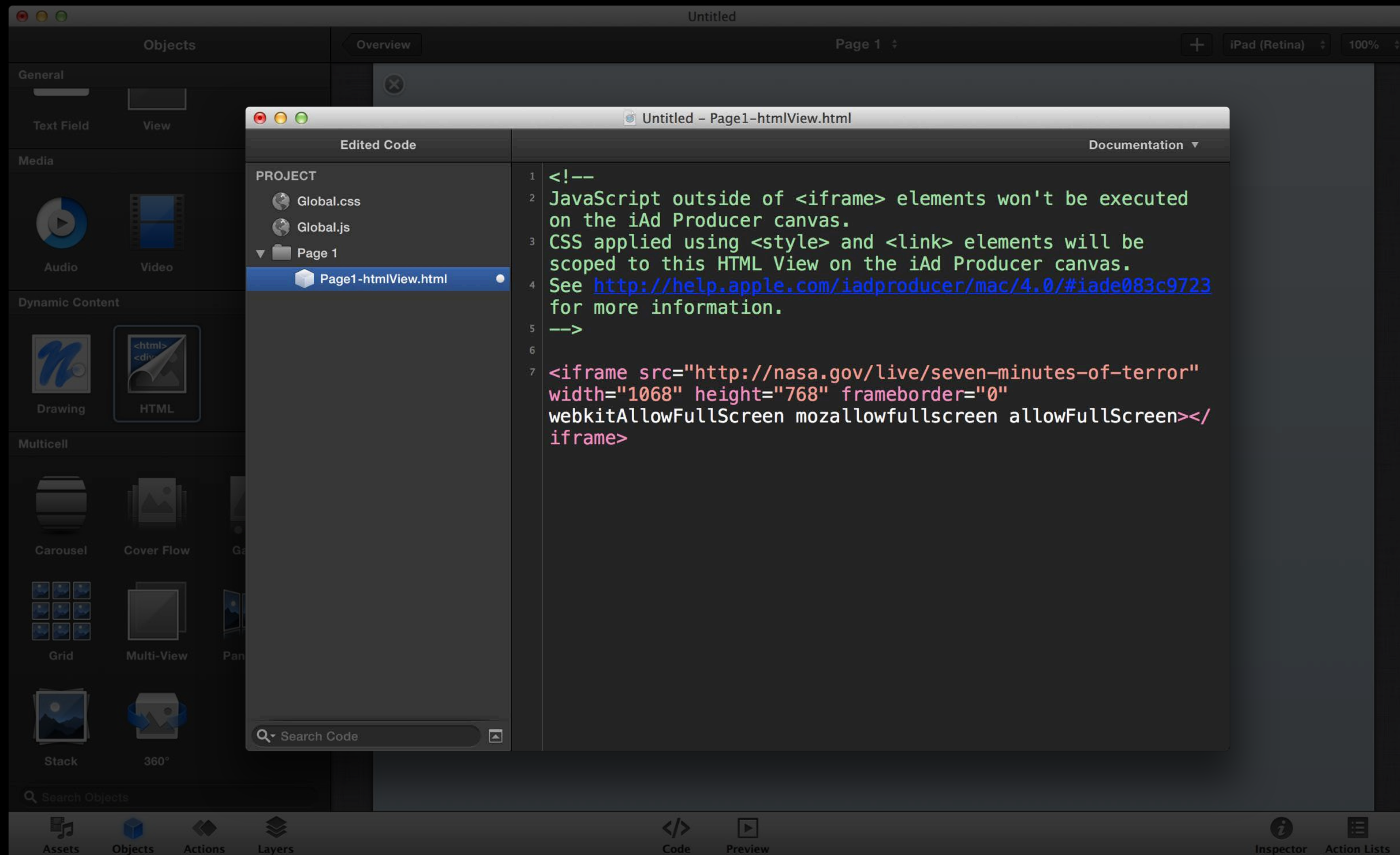
HTML Customization

Embedded objects



HTML Customization

Embedded objects



HTML Customization

Embedded objects





CSS



JS



HTML

Content Customization



CSS



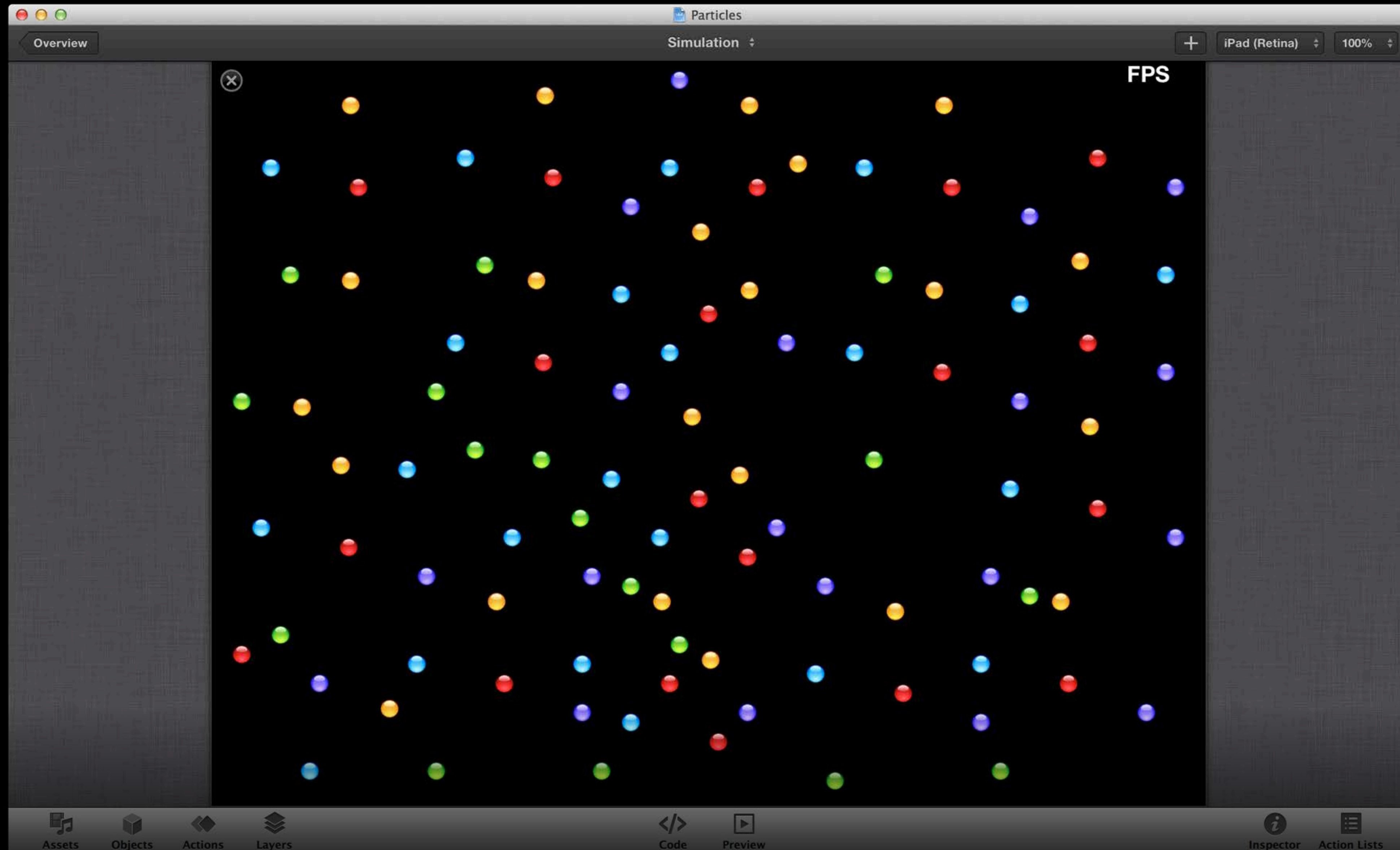
JS



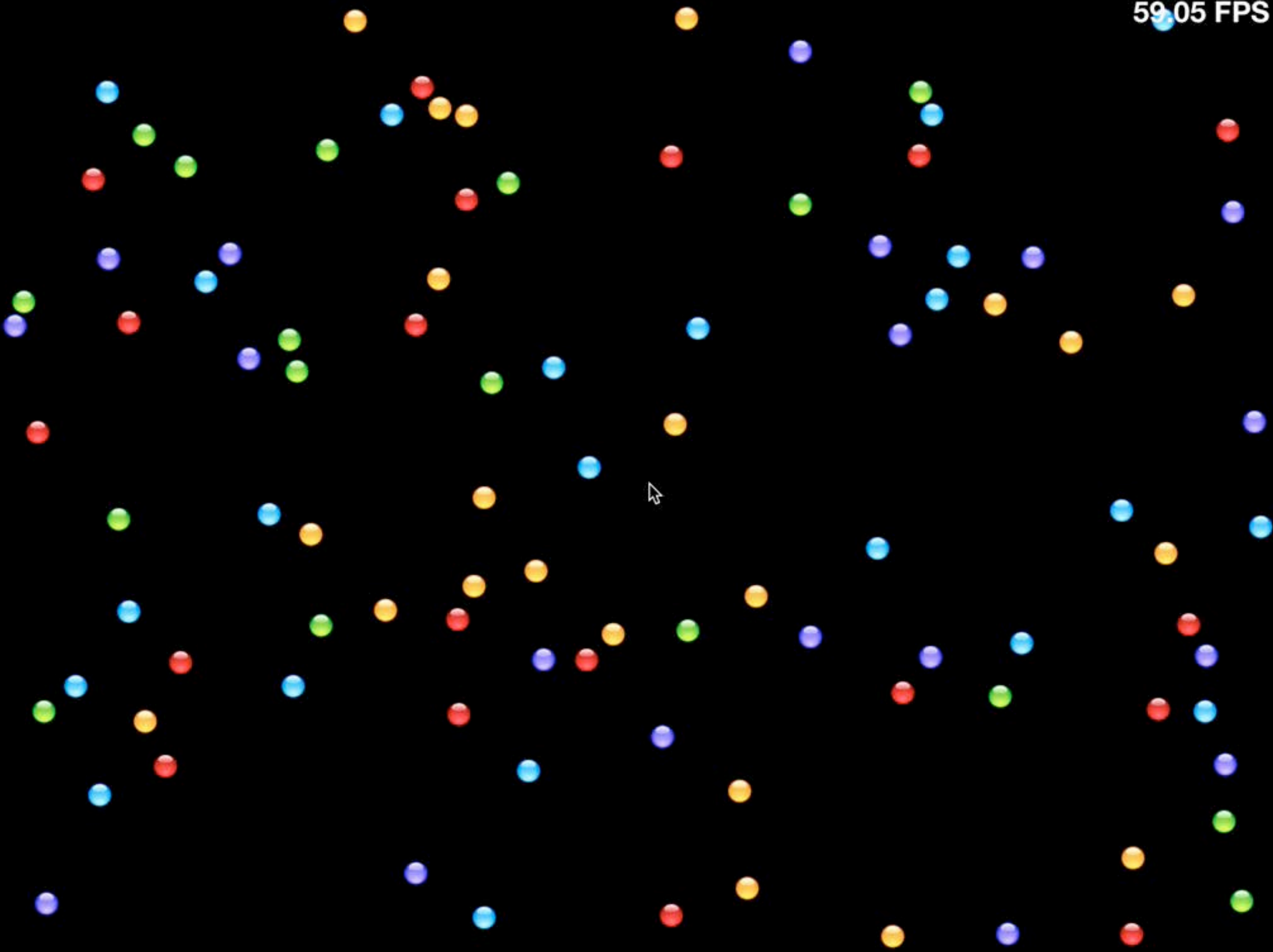
HTML

Performance

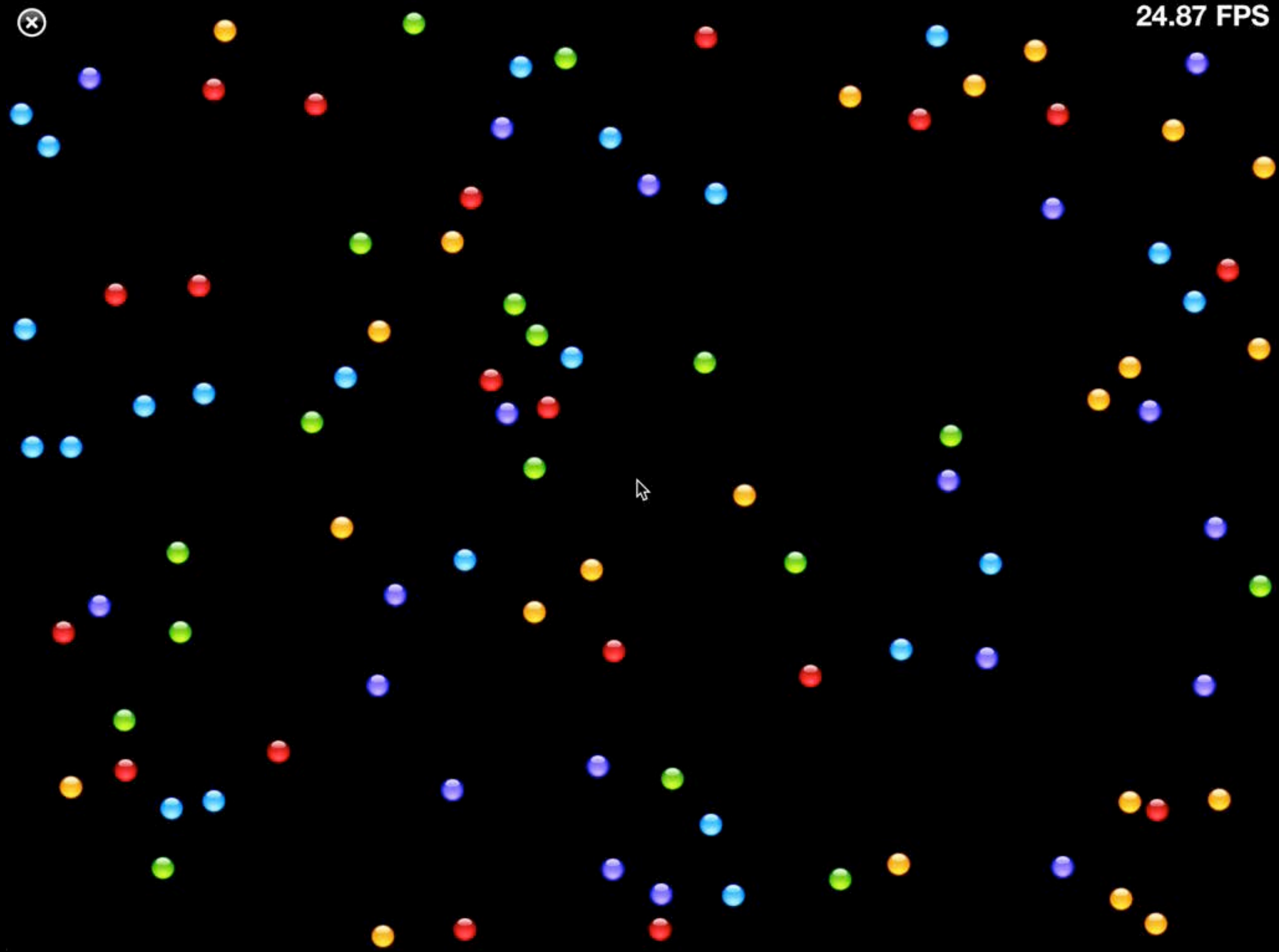
Great Widget Is Done



Mac



iOS Device



Performance

Testing and debugging

Performance

Testing and debugging

- Remote Web Inspector

Performance

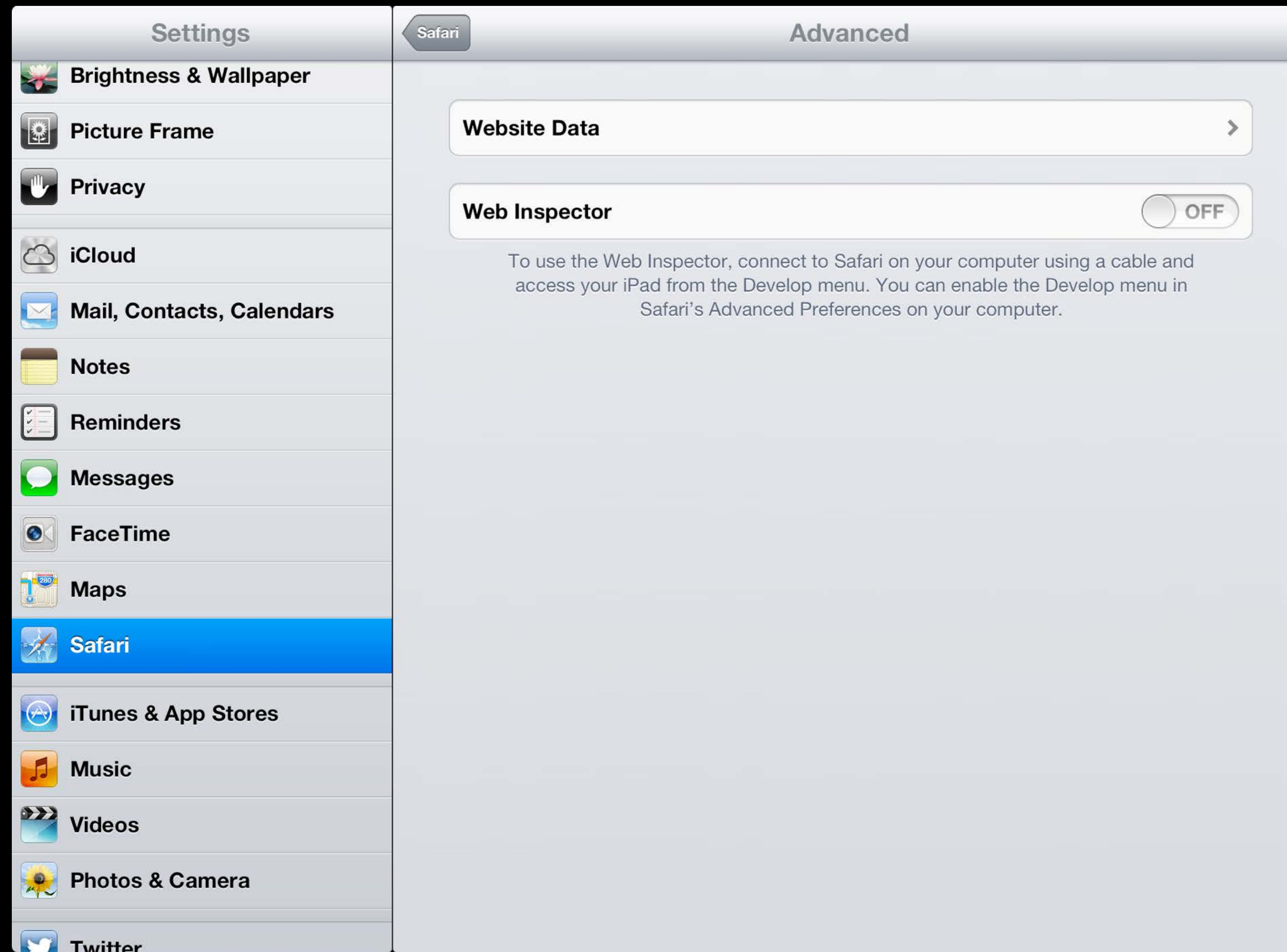
Testing and debugging

- Remote Web Inspector
- Instruments

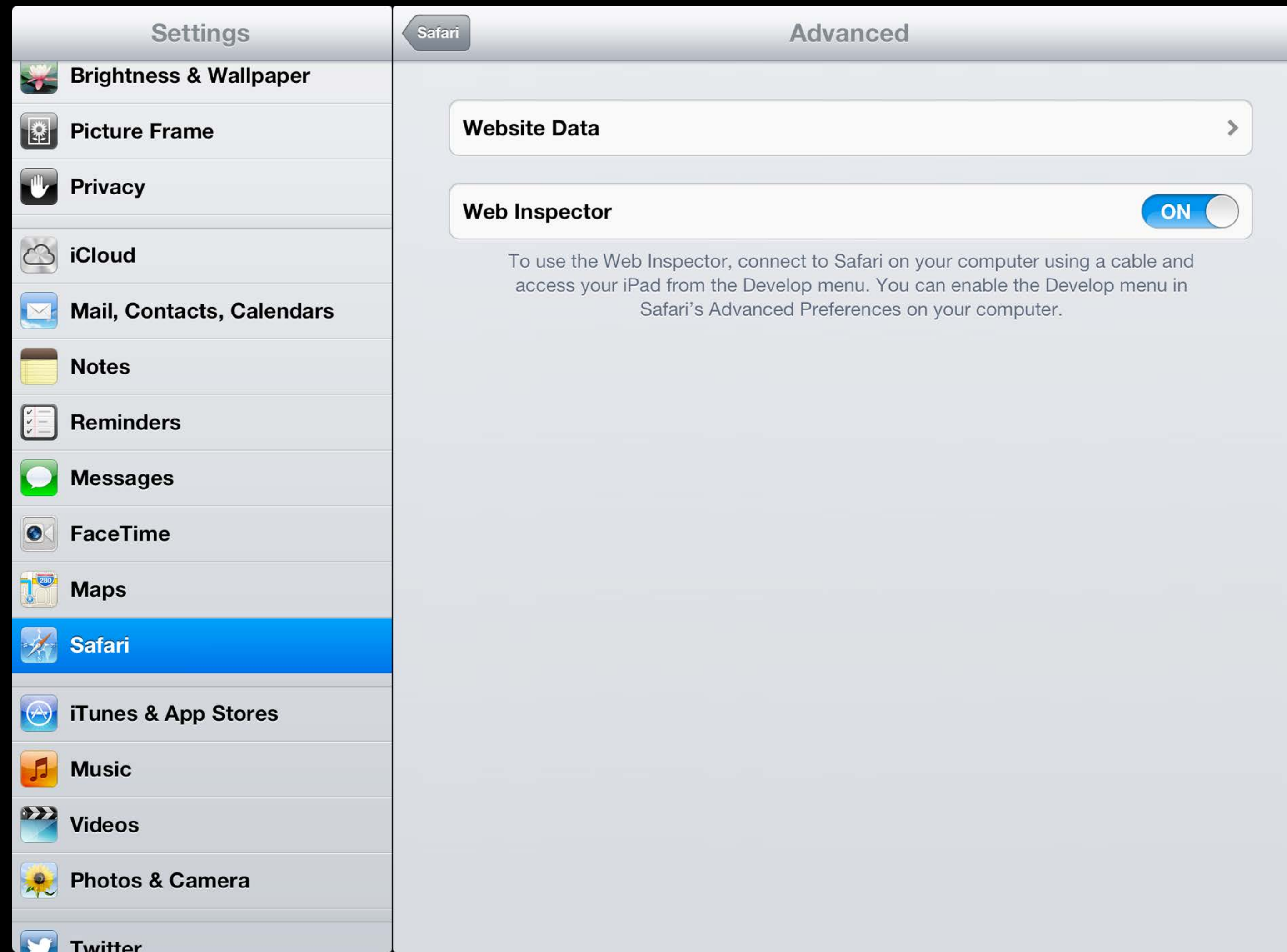
Web Inspector



Web Inspector Setup

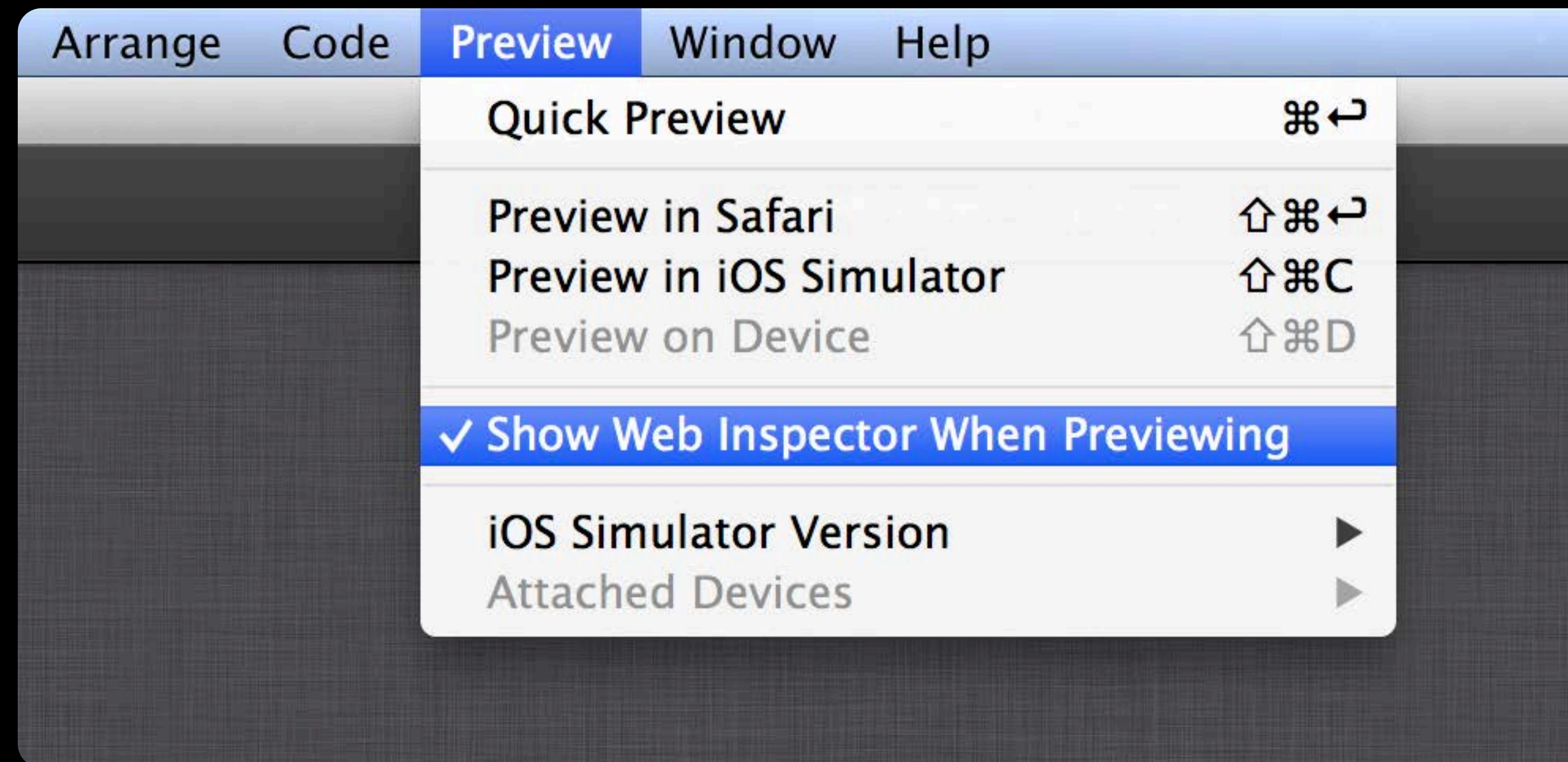


Web Inspector Setup



Web Inspector

Setup



Web Inspector Setup

The screenshot displays the Web Inspector interface for an iPad Simulator. The background shows a webpage titled "APRIL 2004" with a "Proposa" heading and an image of a Mars rover. The Web Inspector window is overlaid on the webpage, showing the source code of the selected element. The source code is as follows:

```
<!DOCTYPE html>
<html>
  <head>...</head>
  <!-- The hosting element for the root view controller. -->
  <body class="root iap-iBooksProject ad-normal ad-HiDPI ad-iPad ad-root-view ad-device-landscape" id="root" style="pointer-events: none;">
    <div id="Background" class="Background iap-view-controller ad-view"> </div>
    <div class="ad-view ad-navigation-controller-view" id="vc-1725306378" style="width: 1024px; height: 768px; overflow: visible;">...</div>
  </body>
</html>
```

The right-hand pane of the Web Inspector shows the following details:

- Type:** MIME Type: text/html, Resource Type: Document
- Location:** Full URL: x-ibooks-th://iBooksWidgetTester/C852E029-E8DF-4422-B3F3-DFC94D1458C4/Users/lcw/Library/Application%20Support/iPhone%20Simulator/7.0-32/Library/Application%20Support/localWidgets/Curiosity_Timeline.wdgt/index.html, Scheme: x-ibooks-th, Host: ibookswidgettester, Path: /C852E029-E8DF-4422-B3F3-DFC94D1458C4/Users/lcw/Library/Application%20Support/iPhone%20Simulator/7.0-32/Library/Application%20Support/localWidgets/Curiosity_Timeline.wdgt/index.html, Filename: index.html
- Request & Response:** Method: —, Cached: No, Status: —, Code: —
- Request Headers:** No Request Headers
- Response Headers:** No Response Headers

Web Inspector

CPU profiling

The screenshot displays the Web Inspector interface for an iPad Simulator. The main pane shows the HTML structure of the page, with the following code visible:

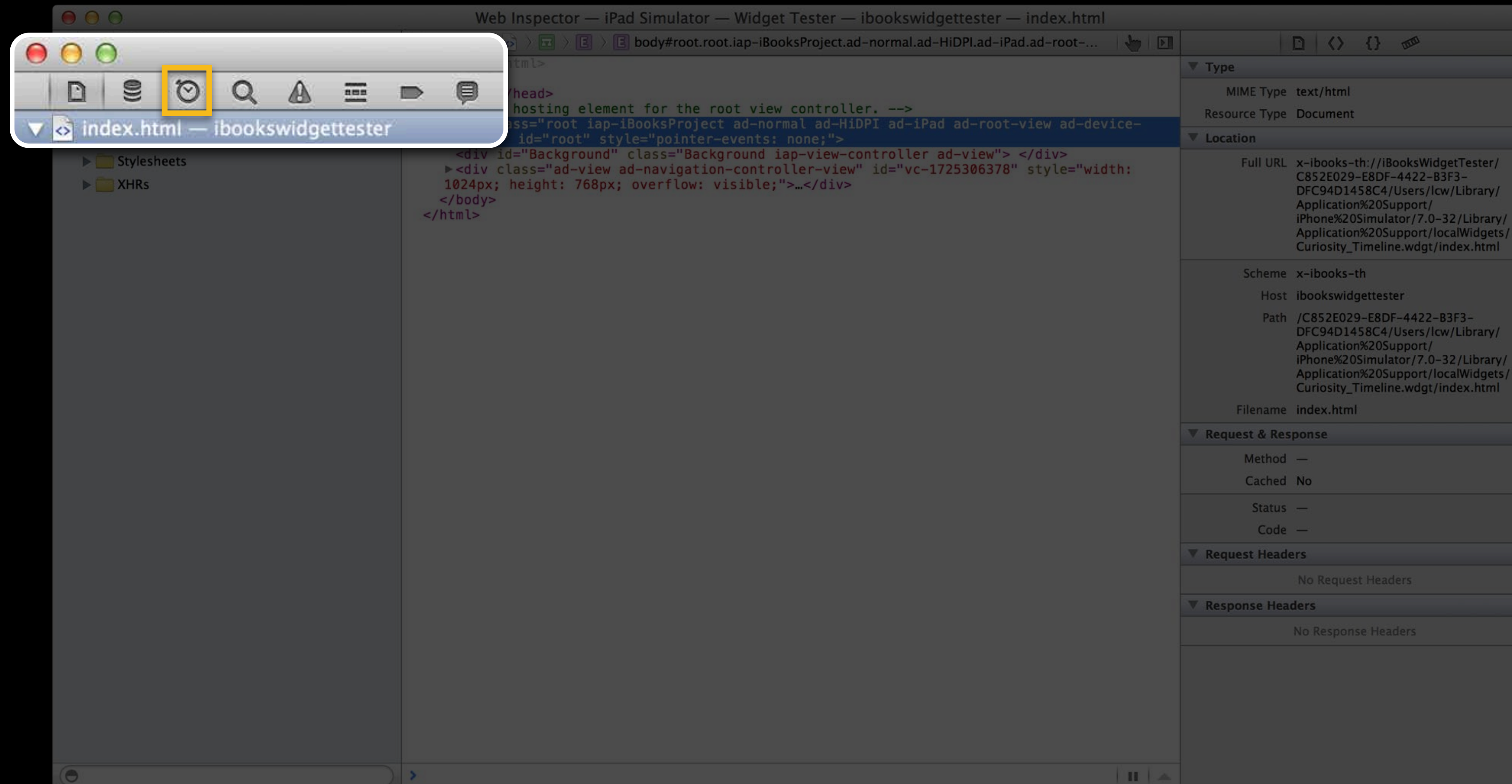
```
<!DOCTYPE html>
<html>
  <head>...</head>
  <!-- The hosting element for the root view controller. -->
  <body class="root iap-iBooksProject ad-normal ad-HiDPI ad-iPad ad-root-view ad-device-landscape" id="root" style="pointer-events: none;">
    <div id="Background" class="Background iap-view-controller ad-view"> </div>
    <div class="ad-view ad-navigation-controller-view" id="vc-1725306378" style="width: 1024px; height: 768px; overflow: visible;">...</div>
  </body>
</html>
```

The right-hand pane provides details for the selected resource:

- Type:** MIME Type: text/html, Resource Type: Document
- Location:** Full URL: x-ibooks-th://iBooksWidgetTester/C852E029-E8DF-4422-B3F3-DFC94D1458C4/Users/lcw/Library/Application%20Support/iPhone%20Simulator/7.0-32/Library/Application%20Support/localWidgets/Curiosity_Timeline.wdgt/index.html; Scheme: x-ibooks-th; Host: ibookswidgettester; Path: /C852E029-E8DF-4422-B3F3-DFC94D1458C4/Users/lcw/Library/Application%20Support/iPhone%20Simulator/7.0-32/Library/Application%20Support/localWidgets/Curiosity_Timeline.wdgt/index.html; Filename: index.html
- Request & Response:** Method: —, Cached: No, Status: —, Code: —
- Request Headers:** No Request Headers
- Response Headers:** No Response Headers

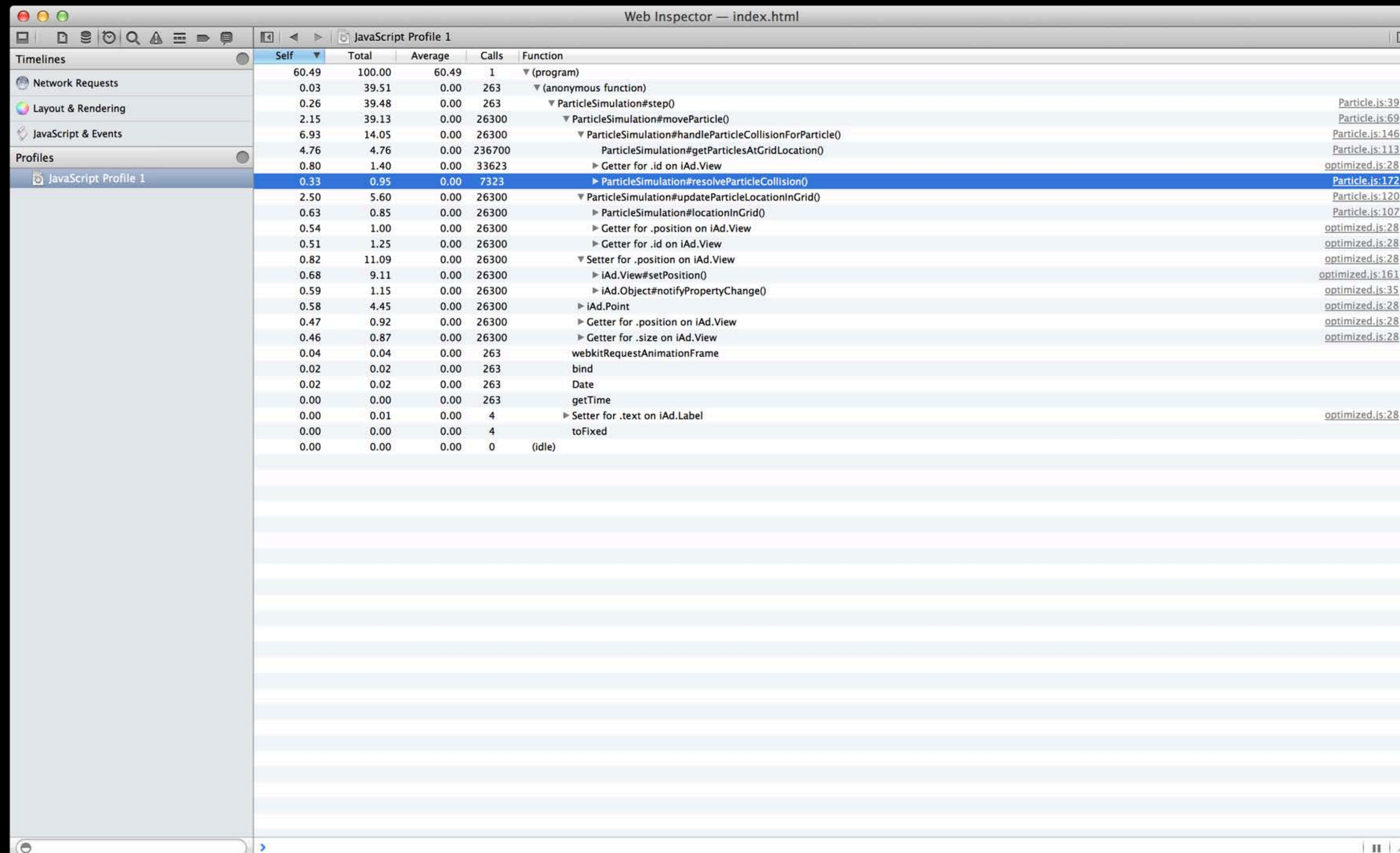
Web Inspector

CPU profiling



Web Inspector

CPU profiling



The screenshot shows the Web Inspector interface with the JavaScript Profile 1 tab selected. The main area displays a table of profiling data with columns for Self, Total, Average, Calls, and Function. The function names are expanded to show the call stack. The 'Self' column is highlighted in blue for the selected row.

Self	Total	Average	Calls	Function
60.49	100.00	60.49	1	(program)
0.03	39.51	0.00	263	(anonymous function)
0.26	39.48	0.00	263	ParticleSimulation#step() Particle.js:39
2.15	39.13	0.00	26300	ParticleSimulation#moveParticle() Particle.js:69
6.93	14.05	0.00	26300	ParticleSimulation#handleParticleCollisionForParticle() Particle.js:146
4.76	4.76	0.00	236700	ParticleSimulation#getParticlesAtGridLocation() Particle.js:113
0.80	1.40	0.00	33623	Getter for .id on iAd.View optimized.js:28
0.33	0.95	0.00	7323	ParticleSimulation#resolveParticleCollision() Particle.js:172
2.50	5.60	0.00	26300	ParticleSimulation#updateParticleLocationInGrid() Particle.js:120
0.63	0.85	0.00	26300	ParticleSimulation#locationInGrid() Particle.js:107
0.54	1.00	0.00	26300	Getter for .position on iAd.View optimized.js:28
0.51	1.25	0.00	26300	Getter for .id on iAd.View optimized.js:28
0.82	11.09	0.00	26300	Setter for .position on iAd.View optimized.js:28
0.68	9.11	0.00	26300	iAd.View#setPosition() optimized.js:161
0.59	1.15	0.00	26300	iAd.Object#notifyPropertyChange() optimized.js:35
0.58	4.45	0.00	26300	iAd.Point optimized.js:28
0.47	0.92	0.00	26300	Getter for .position on iAd.View optimized.js:28
0.46	0.87	0.00	26300	Getter for .size on iAd.View optimized.js:28
0.04	0.04	0.00	263	webkitRequestAnimationFrame
0.02	0.02	0.00	263	bind
0.02	0.02	0.00	263	Date
0.00	0.00	0.00	263	getTime
0.00	0.01	0.00	4	Setter for .text on iAd.Label optimized.js:28
0.00	0.00	0.00	4	toFixed
0.00	0.00	0.00	0	(idle)

Web Inspector

CPU profiling

The screenshot displays the Web Inspector's JavaScript Profile 1, which provides a detailed view of CPU usage during a JavaScript execution. The interface includes a sidebar with 'Timelines' and 'Profiles' sections, and a main table with columns for 'Self', 'Total', 'Average', 'Calls', and 'Function'. The 'JavaScript Profile 1' is selected in the Profiles section. The table lists various functions and their performance metrics, with the most significant entries being 'ParticleSimulation#resolveParticleCollision()' and 'ParticleSimulation#updateParticleLocationInGrid()'. The 'Function' column shows a hierarchical view of the call stack, with expandable/collapsible arrows indicating sub-functions.

Self	Total	Average	Calls	Function
60.49	100.00	60.49	1	▼ (program)
0.03	39.51	0.00	263	▼ (anonymous function)
0.26	39.48	0.00	263	▼ ParticleSimulation#step()
2.15	39.13	0.00	26300	▼ ParticleSimulation#moveParticle()
6.93	14.05	0.00	26300	▼ ParticleSimulation#handleParticleCollisionForParticle()
4.76	4.76	0.00	236700	ParticleSimulation#getParticlesAtGridLocation()
0.80	1.40	0.00	33623	▶ Getter for .id on iAd.View
0.33	0.95	0.00	7323	▶ ParticleSimulation#resolveParticleCollision()
2.50	5.60	0.00	26300	▼ ParticleSimulation#updateParticleLocationInGrid()
0.63	0.85	0.00	26300	▶ ParticleSimulation#locationInGrid()
0.54	1.00	0.00	26300	▶ Getter for .position on iAd.View
0.51	1.25	0.00	26300	▶ Getter for .id on iAd.View
0.82	11.09	0.00	26300	▼ Setter for .position on iAd.View
0.68	9.11	0.00	26300	▶ iAd.View#setPosition()
0.59	1.15	0.00	26300	▶ iAd.Object#notifyPropertyChange()
0.58	4.45	0.00	26300	▶ iAd.Point
0.47	0.92	0.00	26300	▶ Getter for .position on iAd.View
0.46	0.87	0.00	26300	▶ Getter for .size on iAd.View
0.04	0.04	0.00	263	webkitRequestAnimationFrame
0.02	0.02	0.00	263	bind
0.02	0.02	0.00	263	Date
0.00	0.00	0.00	263	getTime
0.00	0.01	0.00	4	▶ Setter for .text on iAd.Label
0.00	0.00	0.00	4	toFixed

Web Inspector

Network traffic

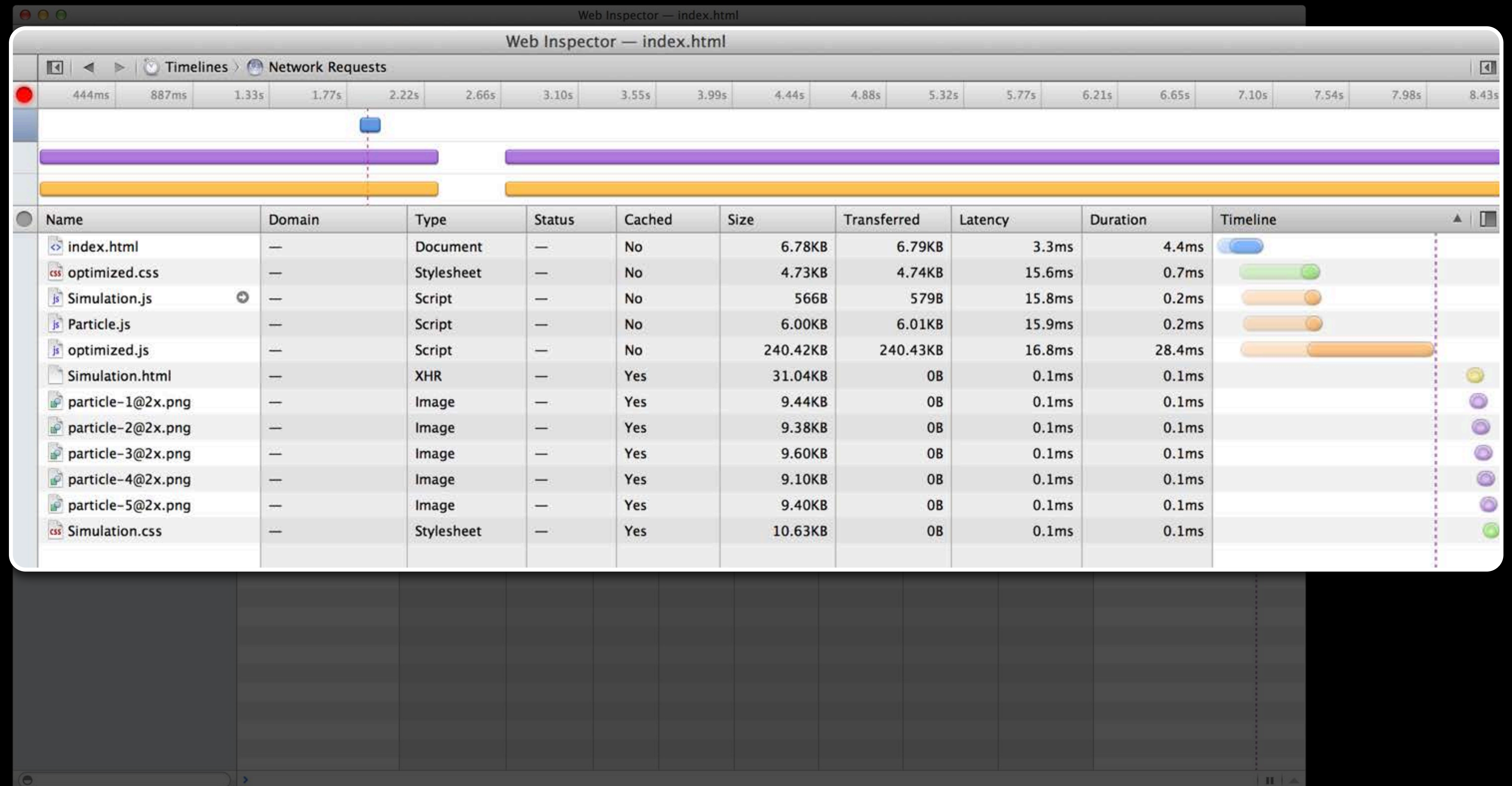
The screenshot displays the Web Inspector interface for 'index.html'. The 'Network Requests' panel is active, showing a list of resources with columns for Name, Domain, Type, Status, Cached, Size, Transferred, Latency, and Duration. A 'Timeline' column on the right shows horizontal bars representing the execution time of each resource. The resources listed are:

Name	Domain	Type	Status	Cached	Size	Transferred	Latency	Duration
index.html	—	Document	—	No	6.78KB	6.79KB	3.3ms	4.4ms
optimized.css	—	Stylesheet	—	No	4.73KB	4.74KB	15.6ms	0.7ms
Simulation.js	—	Script	—	No	566B	579B	15.8ms	0.2ms
Particle.js	—	Script	—	No	6.00KB	6.01KB	15.9ms	0.2ms
optimized.js	—	Script	—	No	240.42KB	240.43KB	16.8ms	28.4ms
Simulation.html	—	XHR	—	Yes	31.04KB	0B	0.1ms	0.1ms
particle-1@2x.png	—	Image	—	Yes	9.44KB	0B	0.1ms	0.1ms
particle-2@2x.png	—	Image	—	Yes	9.38KB	0B	0.1ms	0.1ms
particle-3@2x.png	—	Image	—	Yes	9.60KB	0B	0.1ms	0.1ms
particle-4@2x.png	—	Image	—	Yes	9.10KB	0B	0.1ms	0.1ms
particle-5@2x.png	—	Image	—	Yes	9.40KB	0B	0.1ms	0.1ms
Simulation.css	—	Stylesheet	—	Yes	10.63KB	0B	0.1ms	0.1ms

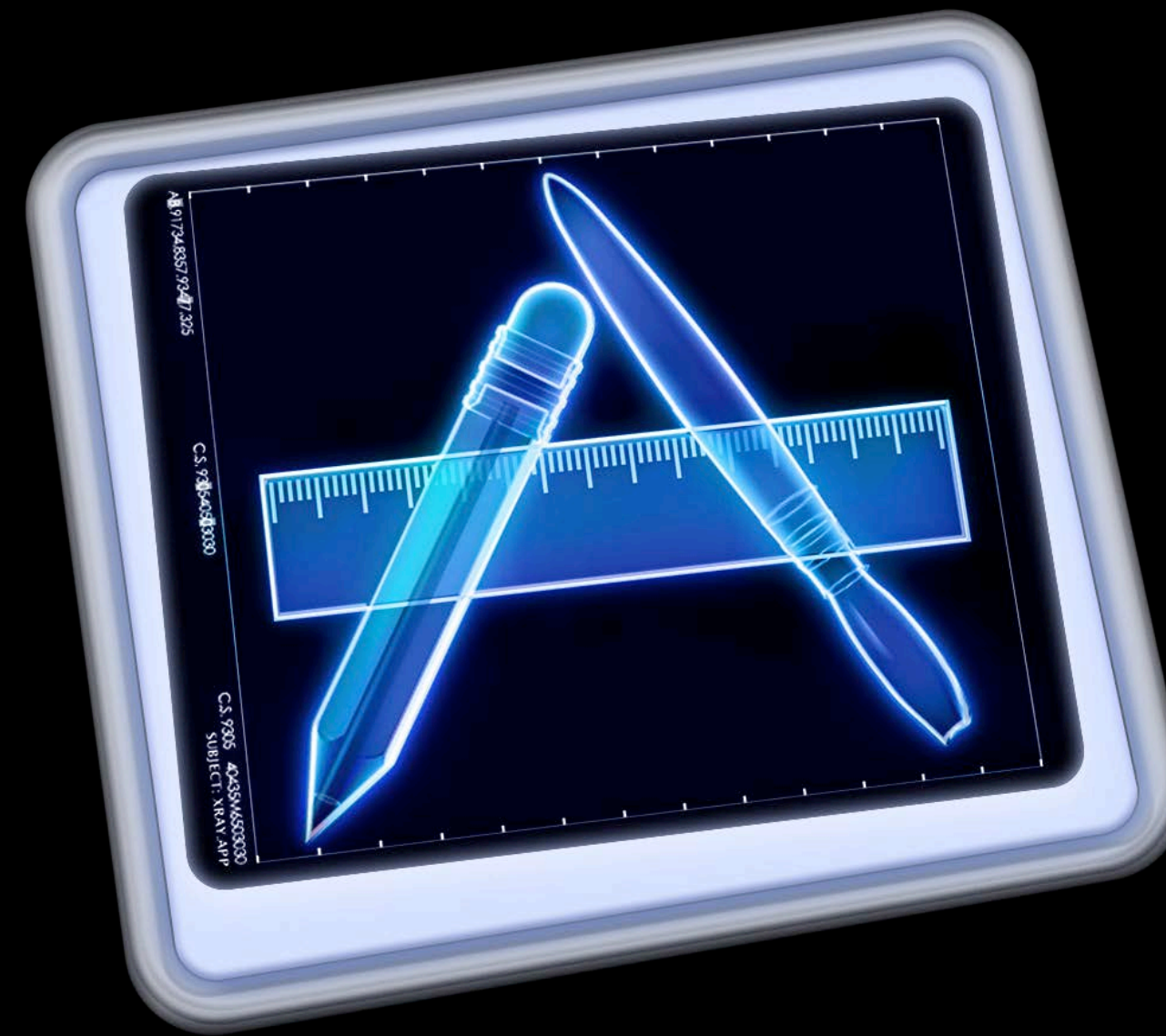
The 'Timeline' column shows horizontal bars for each resource, with a vertical dashed line indicating the current time. The 'Profiles' panel on the left shows 'No Recorded Profiles'.

Web Inspector

Network traffic



Instruments



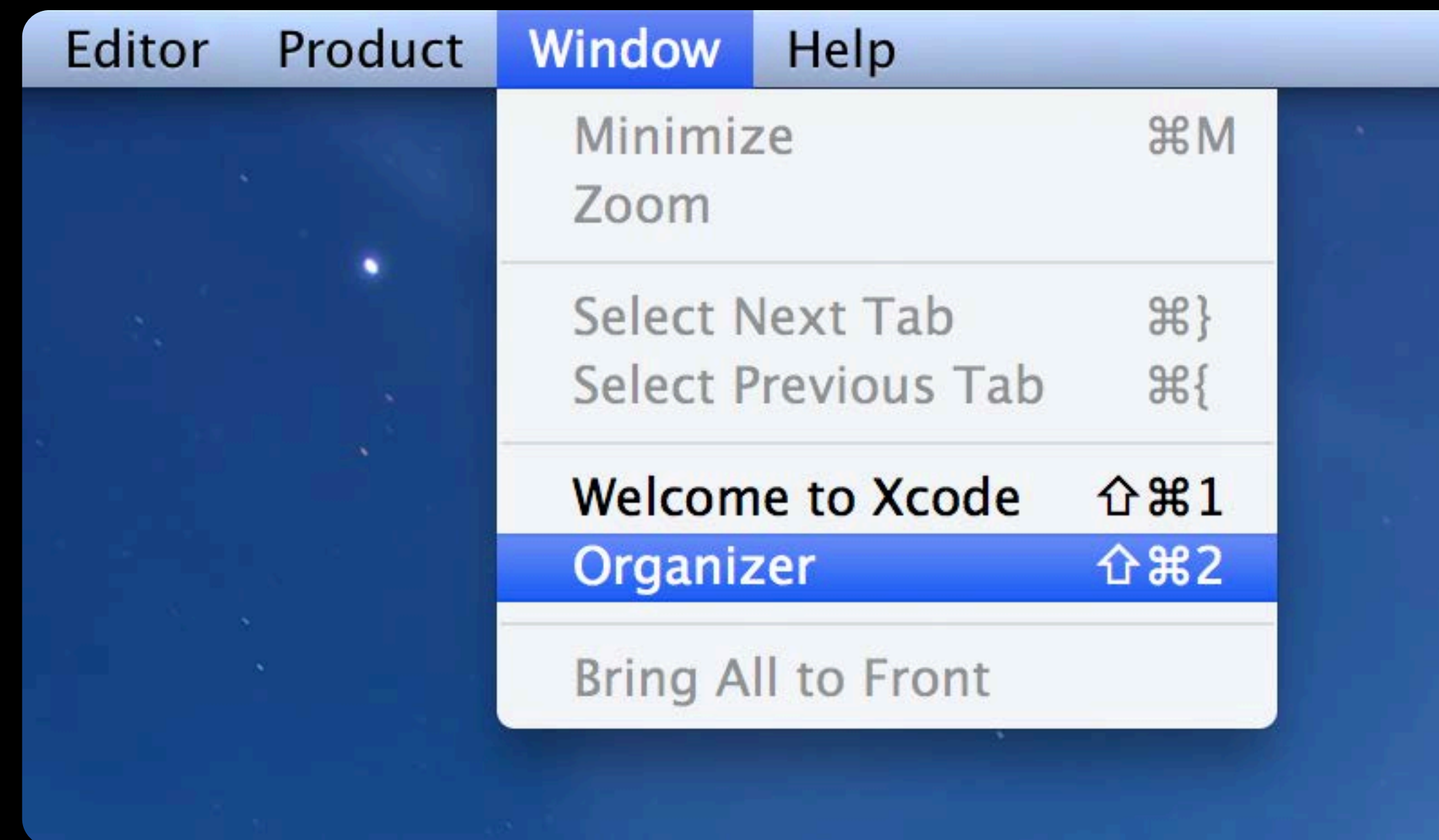
Instruments

Setup



Instruments

Setup



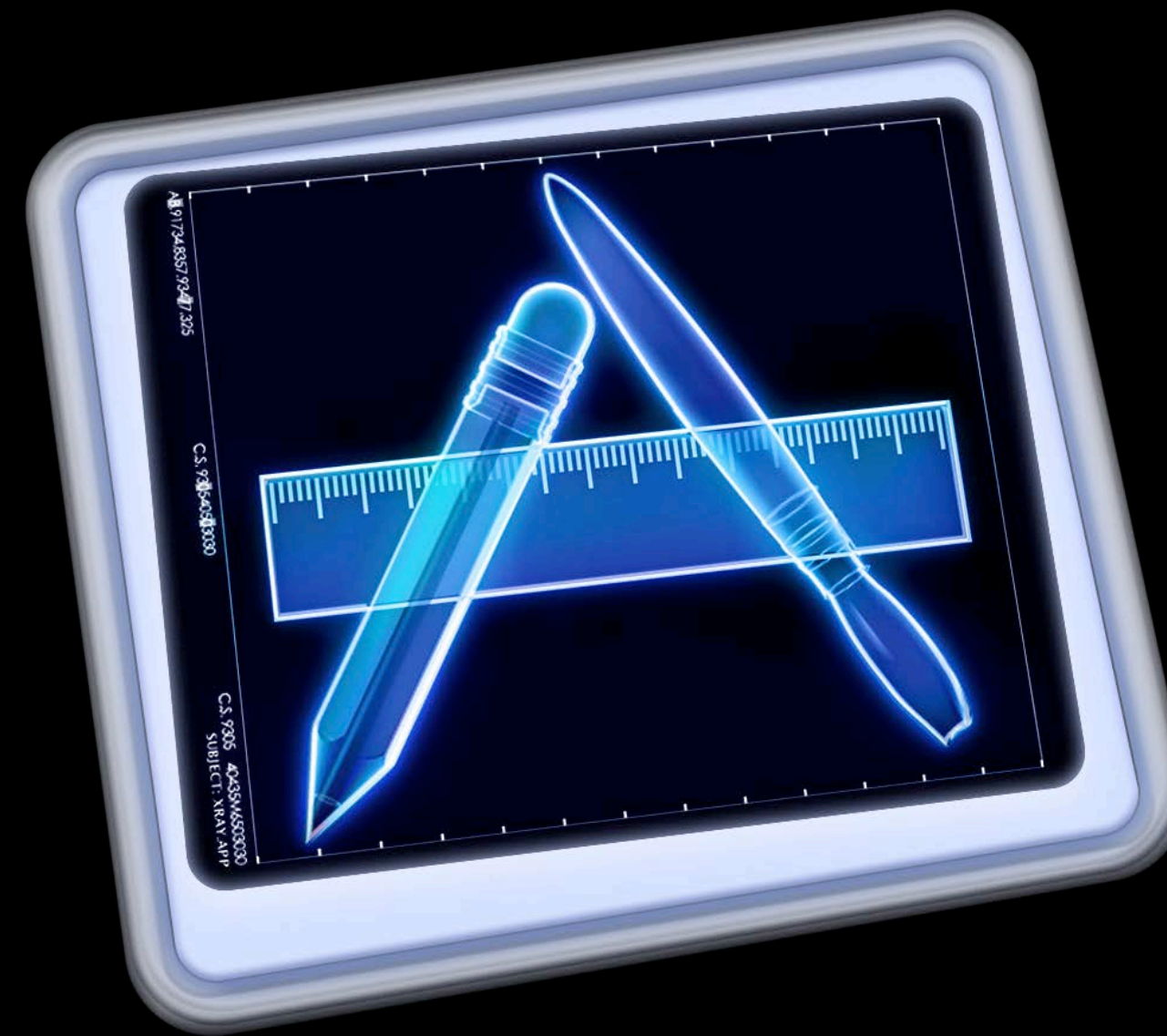
Instruments Setup



Instruments Setup

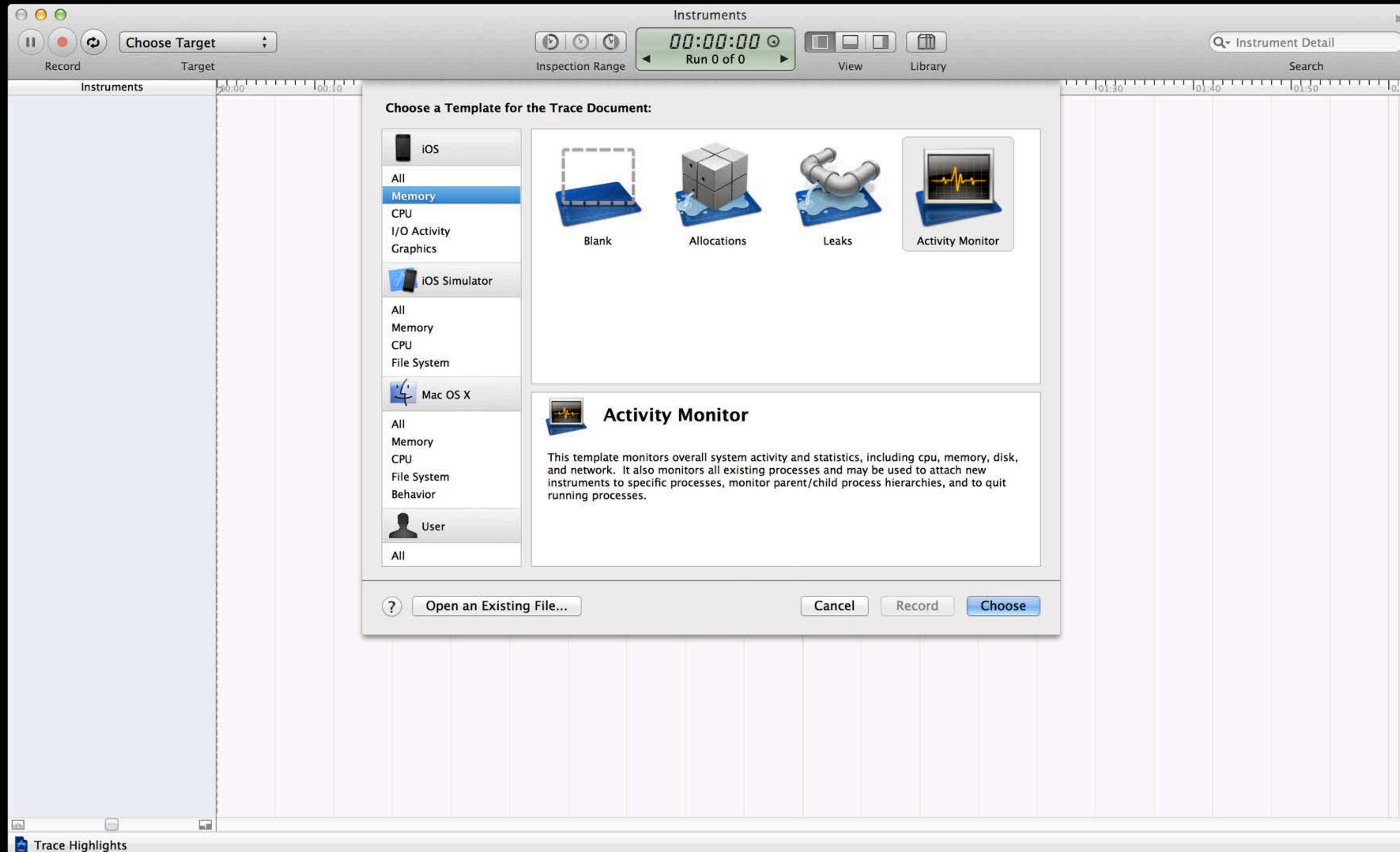


Instruments Setup



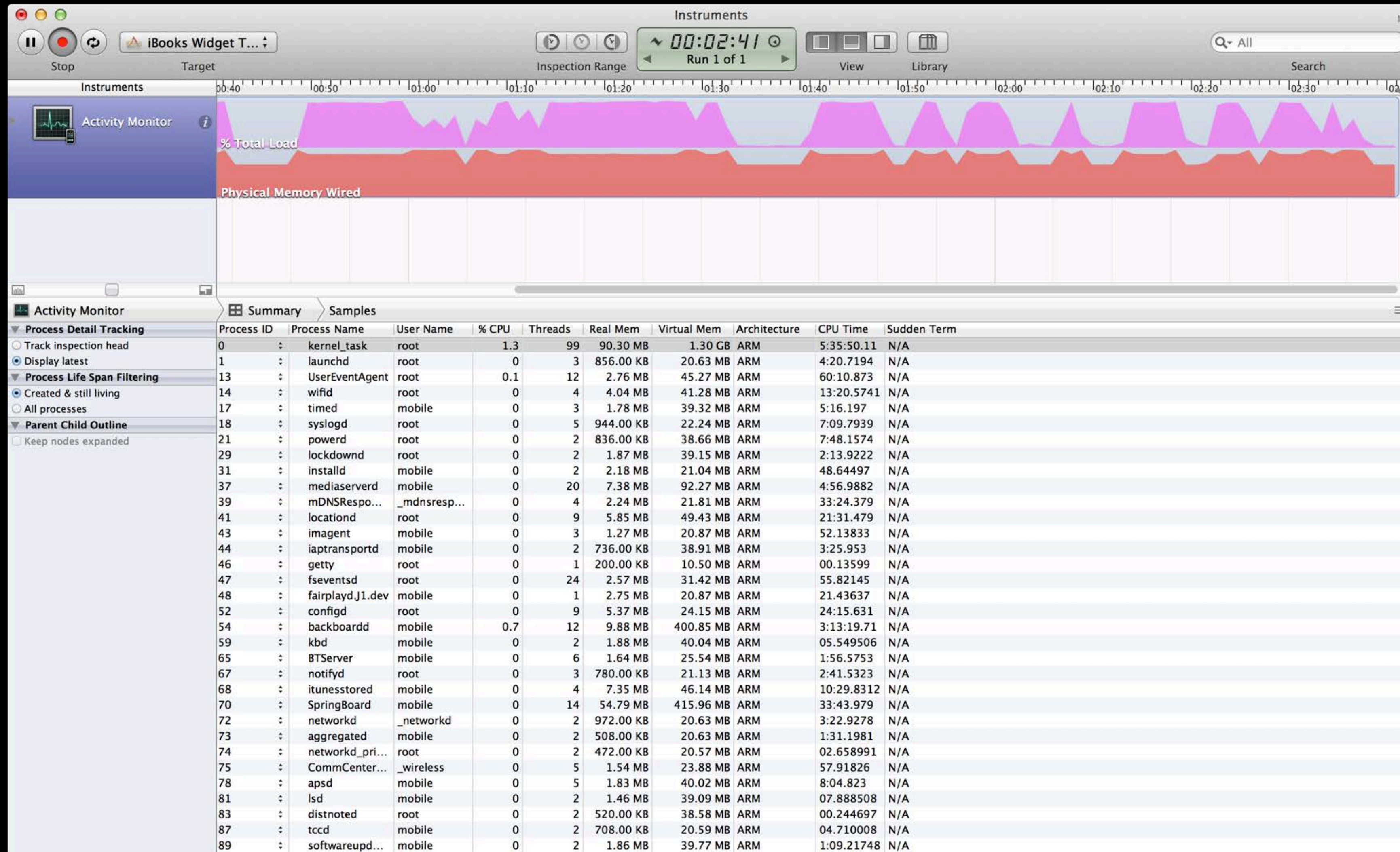
Instruments

Setup



Instruments

Setup



Instruments

Setup

Instruments

Target: iBooks Widget T... | Stop | Inspection Range: 00:40 - 01:50 | View | Library

Timer: 00:02:41 (Run 1 of 1)

Activity Monitor

% Total Load

Physical Memory Wired

Process ID	Process Name	User Name	% CPU	Threads	Real Mem	Virtual Mem	Architecture	CPU Time	Sudden Term
0	kernel_task	root	1.3	99	90.30 MB	1.30 GB	ARM	5:35:50.11	N/A
1	launchd	root	0	3	856.00 KB	20.63 MB	ARM	4:20.7194	N/A
13	UserEventAgent	root	0.1	12	2.76 MB	45.27 MB	ARM	60:10.873	N/A
14	wifid	root	0	4	4.04 MB	41.28 MB	ARM	13:20.5741	N/A
17	timed	mobile	0	3	1.78 MB	39.32 MB	ARM	5:16.197	N/A
18	syslogd	root	0	5	944.00 KB	22.24 MB	ARM	7:09.7939	N/A
21	powerd	root	0	2	836.00 KB	38.66 MB	ARM	7:48.1574	N/A
29	lockdownd	root	0	2	1.87 MB	39.15 MB	ARM	2:13.9222	N/A
31	installd	mobile	0	2	2.18 MB	21.04 MB	ARM	48.64497	N/A
37	mediaserverd	mobile	0	20	7.38 MB	92.27 MB	ARM	4:56.9882	N/A
39	mDNSRespo...	_mdnsresp...	0	4	2.24 MB	21.81 MB	ARM	33:24.379	N/A
73	aggregated	mobile	0	2	508.00 KB	20.63 MB	ARM	1:31.1981	N/A
74	networkd_pri...	root	0	2	472.00 KB	20.57 MB	ARM	02:658991	N/A
75	CommCenter...	_wireless	0	5	1.54 MB	23.88 MB	ARM	57.91826	N/A
78	apsd	mobile	0	5	1.83 MB	40.02 MB	ARM	8:04.823	N/A
81	lsd	mobile	0	2	1.46 MB	39.09 MB	ARM	07.888508	N/A
83	distnoted	root	0	2	520.00 KB	38.58 MB	ARM	00.244697	N/A
87	tccd	mobile	0	2	708.00 KB	20.59 MB	ARM	04.710008	N/A
89	softwareupd...	mobile	0	2	1.86 MB	39.77 MB	ARM	1:09.21748	N/A

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

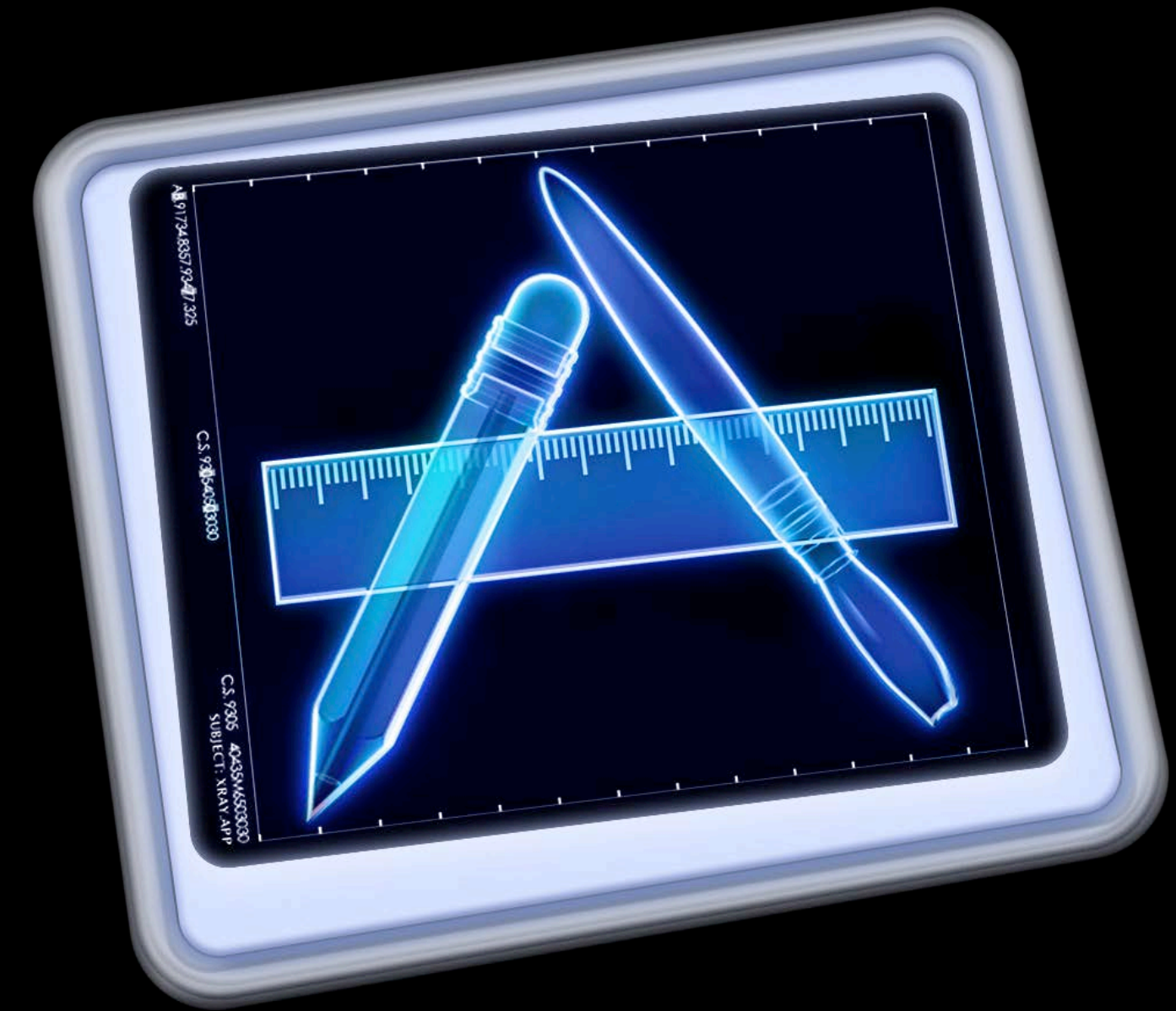
Best practices

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



Performance

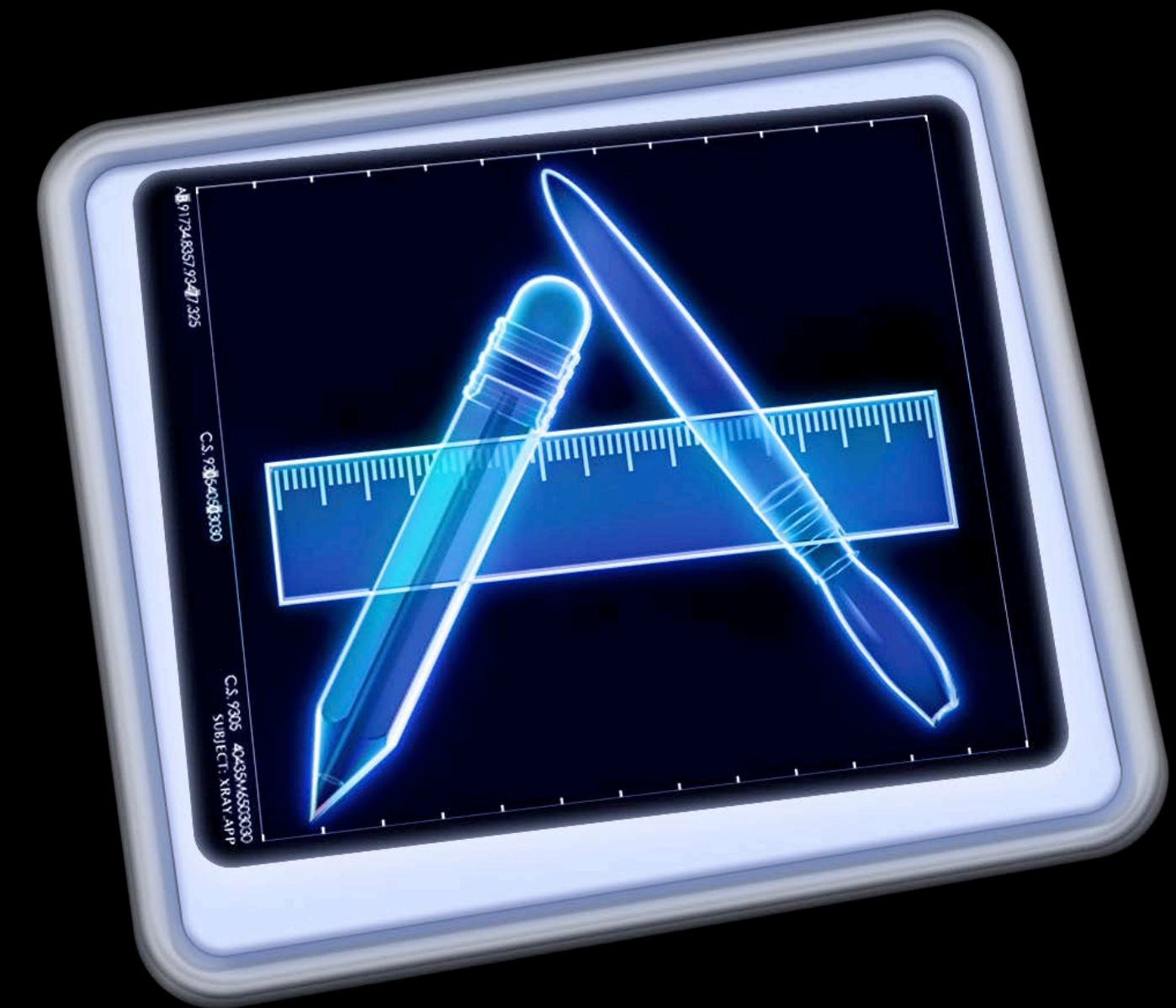
Best practices



Performance

Best practices

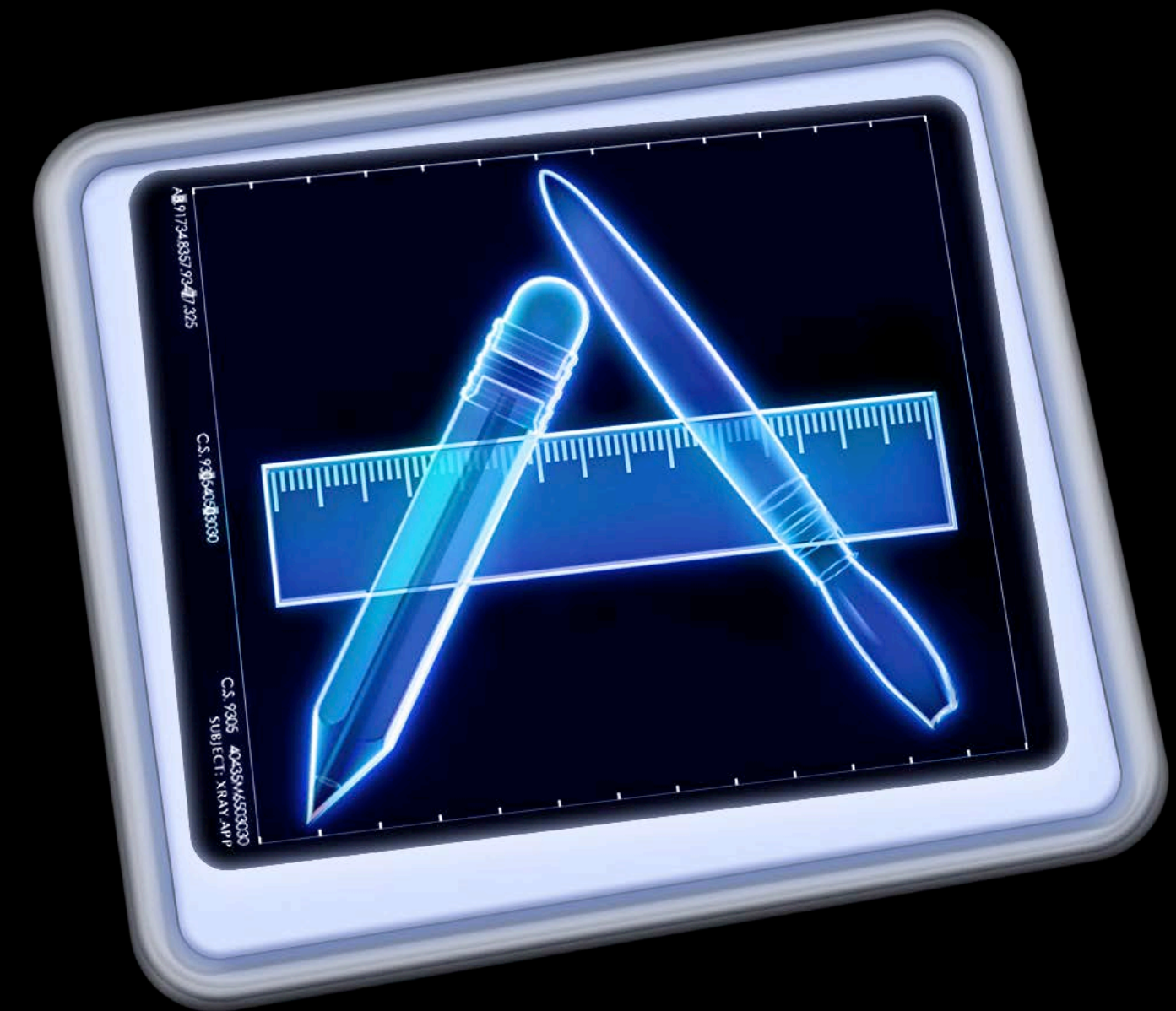
- Measure memory footprint with Instruments



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
- Support customization via HTML/CSS/JS
- Can pull in remote content
- Backed by a powerful toolset



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

More Information

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iAd Technology Evangelist
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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



 WWDC2013