

# Accessible Rich Internet Applications with Flash, Flex, and AIR

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## What are RIA?

- Web-based applications with desktop-like functionality
- A slippery-slope definition...
  
- Users deserve to enjoy the same high level of access to any application, whether on the web or desktop.

# FLASH, FLEX, AND AIR

# The Flash Platform

- The Adobe Flash platform consists of Adobe Flash Player, Adobe Flex, and Adobe AIR



- Adobe Flash Player provides support for assistive technologies.
  - Many accessibility features need to be enabled by developers
  - In some cases, accessibility work is handled by default, others require additional effort.
  - Screen reader, magnifier, and keyboard only users should have an expectation of access to Flash content.



- Adobe Flex provides a set of Flash-based controls
- 28 accessible control types in Flex 3
- Flex controls have built-in assistive technology support and keyboard access.
- JAWS users benefit from available scripts (for JAWS 10 and older), these are being gradually phased out.
- Developers still need to attend to key accessibility issues.



- Adobe AIR is Adobe's new runtime – allowing developers the ability to develop cross-platform experiences that include Flash, Flex, HTML, and PDF content.
- AIR has enjoyed tremendous popularity among developers.
- The next major version of AIR will include support for assistive technologies.



- AIR will provide accessibility information that the Flash Player exposes for assistive technologies.
- Accessibility AIR applications will need to be built with content that displays in the Flash Player only.
- AIR applications can include HTML but in the next release the HTML content will not be accessible.
- Adobe is working with assistive technology vendors, including Freedom Scientific (JAWS) and NVAccess (NVDA) to ensure that the end-user experience is well-supported.



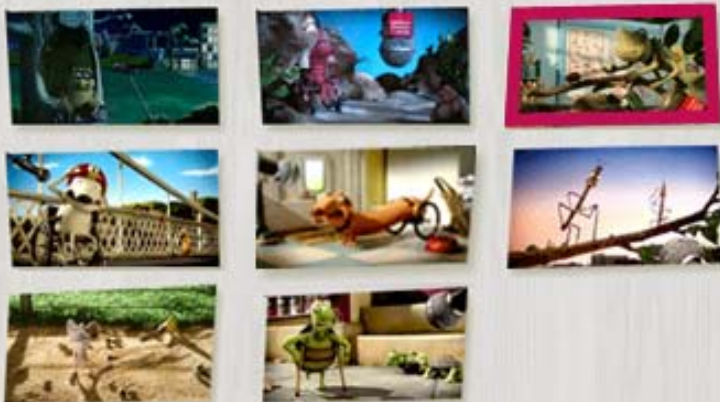


# EXAMPLES

- Offers transcripts, subtitles, and sign language

## Play the Ads

### Select a TV Ad



Select a Radio Ad ▶ 1|2|3|4|5|6|7|8|9

View the scripts ▶ TV Ads: 1|2|3|4|5|6|7|8  
▶ Radio Ads: 1|2|3|4|5|6|7|8|9





← Back



← Back



# Accessible Flash with Video at US Dept. of Education

- Flash with accessible video controls and captions at U.S. Department of Education public service announcement.
- <http://federalstudentaid.ed.gov/mystory/>

*Home*    *About "My Story"*    *Media Info*



*Home*    *About "My Story"*    *Media Info*

A screenshot of a video player showing a man's face. The video title is "Decided". Below the video is a black bar with white text: "WHEN I FIRST DECIDED TO GO". At the bottom left of the video player are a yellow play button and a grey back button. To the right of the video player is the text "Jared's Story" in a handwritten font. Below this is a paragraph: "Jared knew he wanted more out of life than a dead-end job. With the help and encouragement of his mother, this older student discovered that college – and his goal of a job in journalism – was well within reach." Below the paragraph is a blue link: "Read Jared's Story". In the top right corner of the text area is a blue link: "&lt; Back".

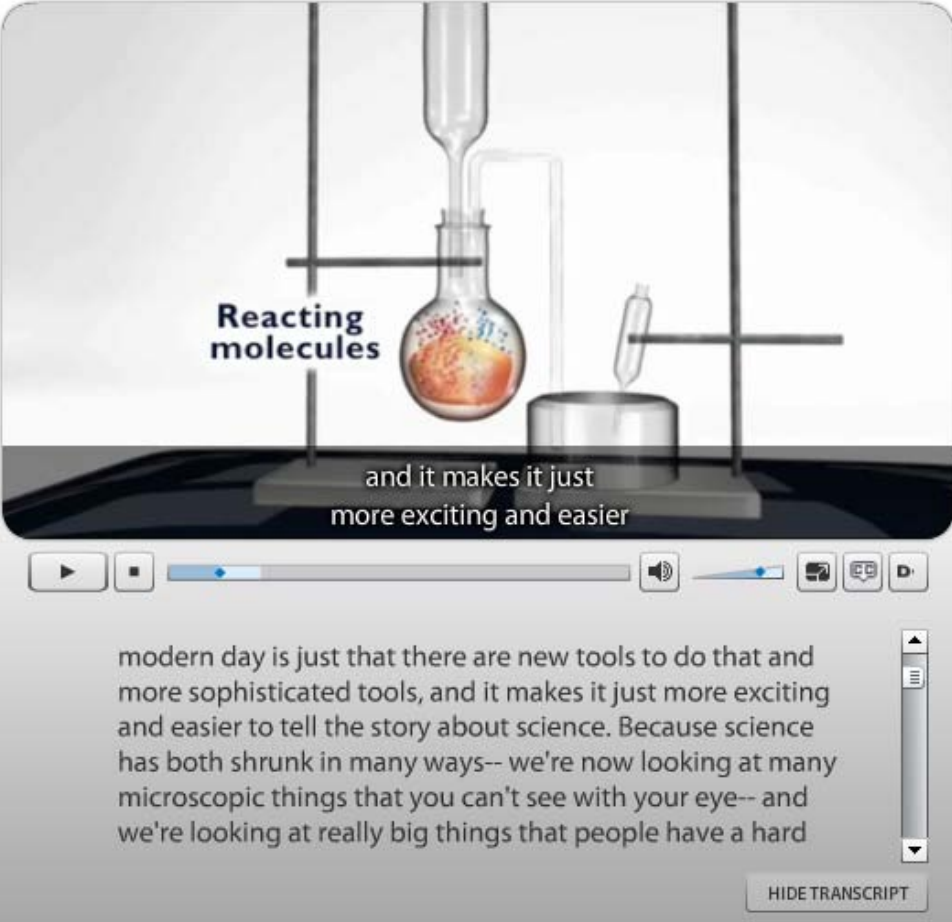


# Accessible Video Application

- Video demo meets WCAG 2.0 AA
- Supports
  - Screen reader users
  - Screen magnifier users
  - Keyboard users
  - Deaf/Hard of Hearing users
  - Deaf-Blind users
  - Users needing alternative contrast

PRESS "D" TO TOGGLE DESCRIPTIVE AUDIO

HIGH CONTRAST



and it makes it just more exciting and easier

modern day is just that there are new tools to do that and more sophisticated tools, and it makes it just more exciting and easier to tell the story about science. Because science has both shrunk in many ways-- we're now looking at many microscopic things that you can't see with your eye-- and we're looking at really big things that people have a hard

HIDE TRANSCRIPT

# THE USER'S ROLE

# The User's Role

- Let developers know if their application doesn't work for you
- Let developers know if their application works well
- Don't turn Flash off - give it a try
- Let Adobe and assistive technology vendors know what works

# THE DEVELOPER'S ROLE



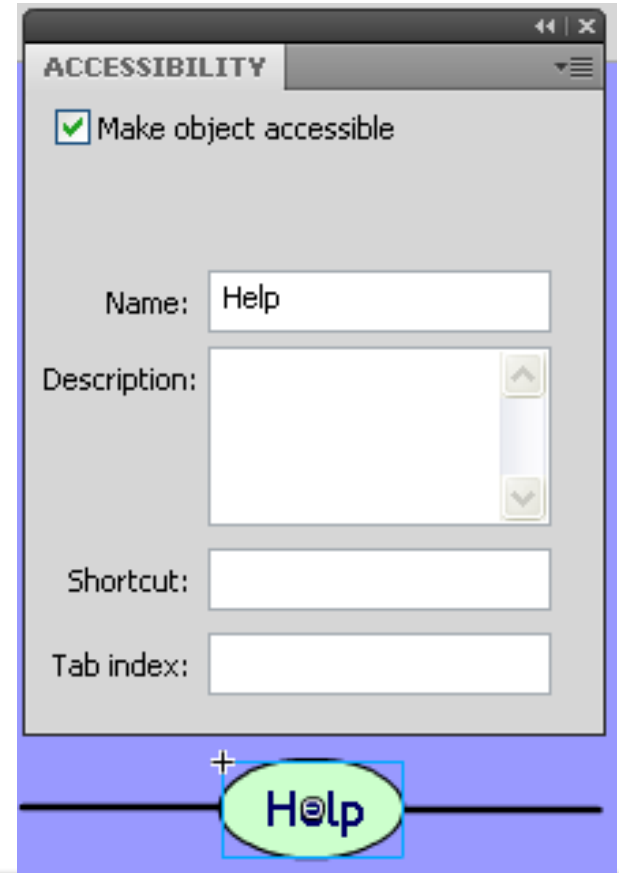
## Make accessible applications.

Following WCAG 2.0 is a great start

- Too much to cover completely... a few familiar highlights.
  - "Non-text content"
  - "Alternatives for time-based media"
  - "Meaningful sequence"
  - "Minimum Contrast"
  - "Resize text"
  - "Name, Role, Value"

## WCAG 2.0: "Non-Text Content"

- Flash allows authors to define equivalents for images and other non-text content.
- Accomplished with the Accessibility panel (shift+F11) – the easiest way
- Accomplished via ActionScript – the most powerful and flexible way



## Assigning equivalents in Flash's scripting language - ActionScript 3

- Equivalents are referred to as "Name" in the accessibility API
- To assign a name to the Help button:

```
this.help_btn.accessibilityProperties = new AccessibilityProperties();  
this.help_btn.accessibilityProperties.name = "Help";
```

- If changing a name dynamically, the accessibility information is updated by adding:

```
Accessibility.updateProperties();
```

## WCAG 2.0: "Alternatives for Time-Based Media"

- Deaf users can't hear audio (captions)
- Blind users can't see the video (need audio description)



## Flash CS4 Makes Accessible Video Easy

- DFXP Captions with FLVPlaybackCaptioning component
- Accessible controls by default
- Example: <http://www.creaturediscomforts.org>
- Example: [http://www.kingtut.org/flash/video/tut\\_cc.html](http://www.kingtut.org/flash/video/tut_cc.html)
  
- Adobe's work with the Open Media Player Project (Strobe) is also worth a look.

# The Developer's Role

- YouTube offers multiple language captioning/subtitling support

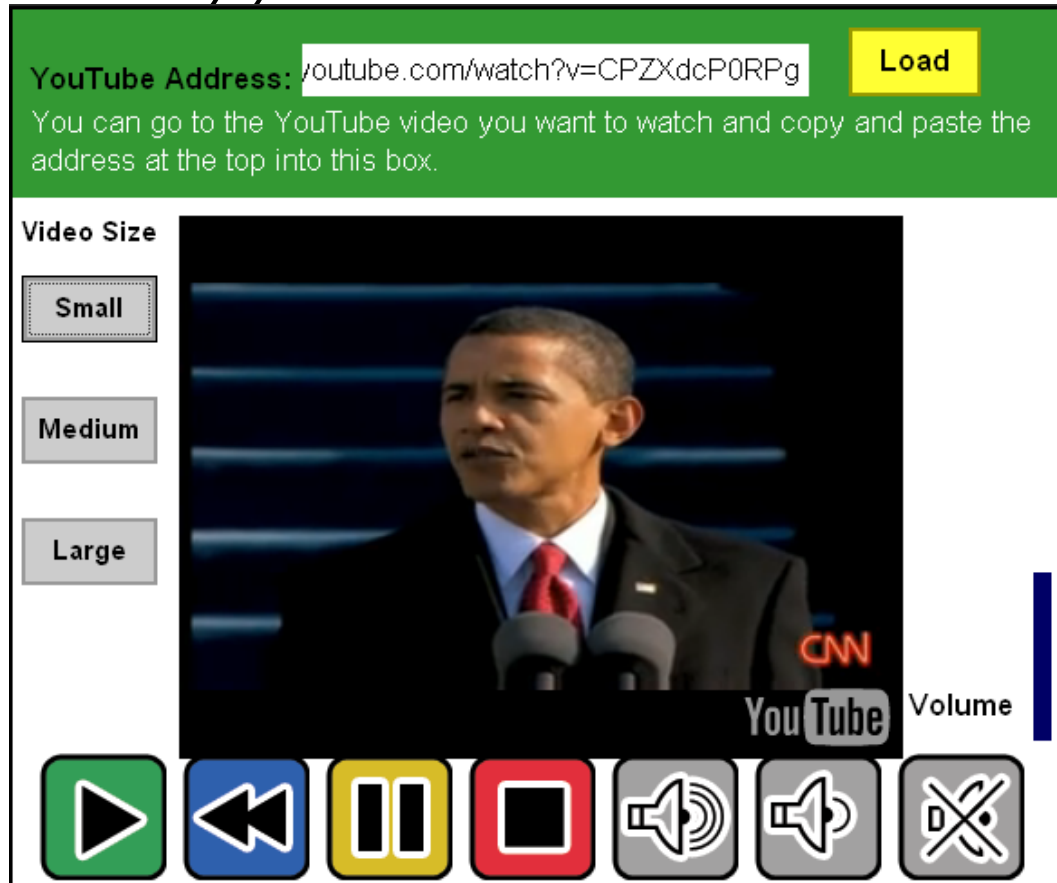


# The Developer's Role



# The Developer's Role

- Alternative Viewing of YouTube Videos - Accessible HTML controls using Flash Player's JavaScript API
- <http://icant.co.uk/easy-youtube/>





# The Developer's Role

The screenshot displays the CNET TV website interface. At the top left is the CNET TV logo. A navigation bar contains links for 'Today on CNET', 'Product videos', 'CNET Tech Shows', and 'News Videos'. On the left side, a 'What's Hot' sidebar lists trending topics: 'Buzz Report' (with a sub-link for 'Twitter backlash'), 'Internet Explorer 8', and 'iPhone' (with a sub-link for 'iPhone OS 3.0'). Below this is an advertisement for AT&T. The main video player shows a woman speaking, with the text 'GADGET OF THE WEEK' overlaid on the right. A caption at the bottom of the video reads 'The Gadget of the Week is the Dell Adamo.' The video player includes a progress bar, a timestamp of 0:21 / 4:04, and a control bar with icons for play, stop, previous, next, full screen, closed captions (CC), email, download, share, and subscribe. An HD toggle is set to 'On'.

## WCAG 2.0: "Meaningful Sequence"

- Flash content needs to be read by screen readers in a logical order.
- Authors can achieve a logical reading order via:
  - Simple linear layouts
  - Control of reading order with tabIndex property for all objects needing to be read.
- aDesigner provides a simple way to test reading order.
- <http://www.eclipse.org/actf/downloads/tools/aDesigner/index.php>

## WCAG 2.0: "Resize Text"

- Many users need enlarged text to easily read and interact with content.
- Flash provides built-in zooming, but this is not ideal for users.
- Flash files can be sized with **em** units to allow for native browser resizing of the entire Flash movie
- Browsers that support zooming (IE7, FF3) also zoom in on Flash content.
- Authors can take advantage of Flash's CSS support to offer text resizing.
- Demo

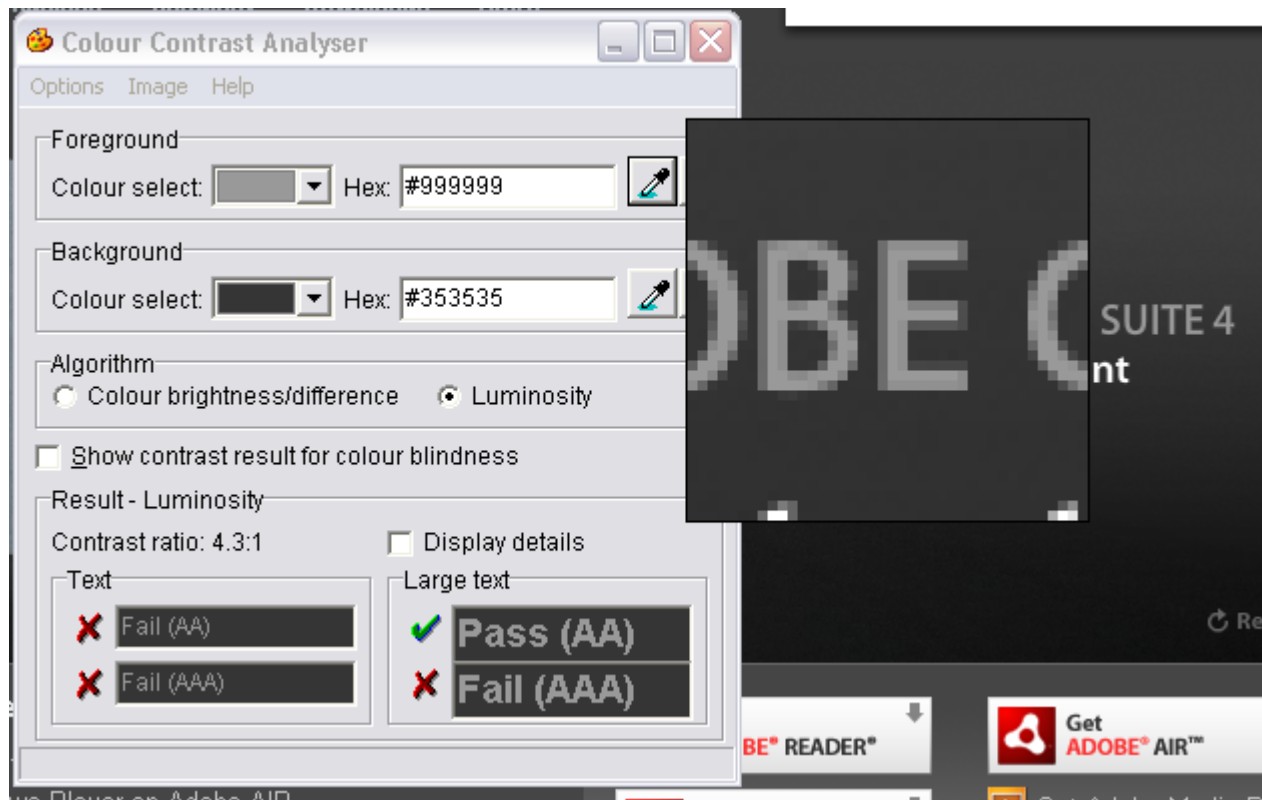
## WCAG 2.0: "Minimum Contrast"

- Color contrast is first and foremost an authoring issue.
- Many users have trouble reading text with low contrast. WCAG specifies...
  - 5:1 contrast ratio for text
  - 3:1 contrast ratio for large text
- Flash provides ActionScript filters which allow authors to offer alternative color schemes.
- Flash support for CSS to allow authors to offer alternative color schemes.

# The Developer's Role

## Color Contrast Analyser Tool

(<http://www.paciellogroup.com/resources/contrast-analyser.html>)

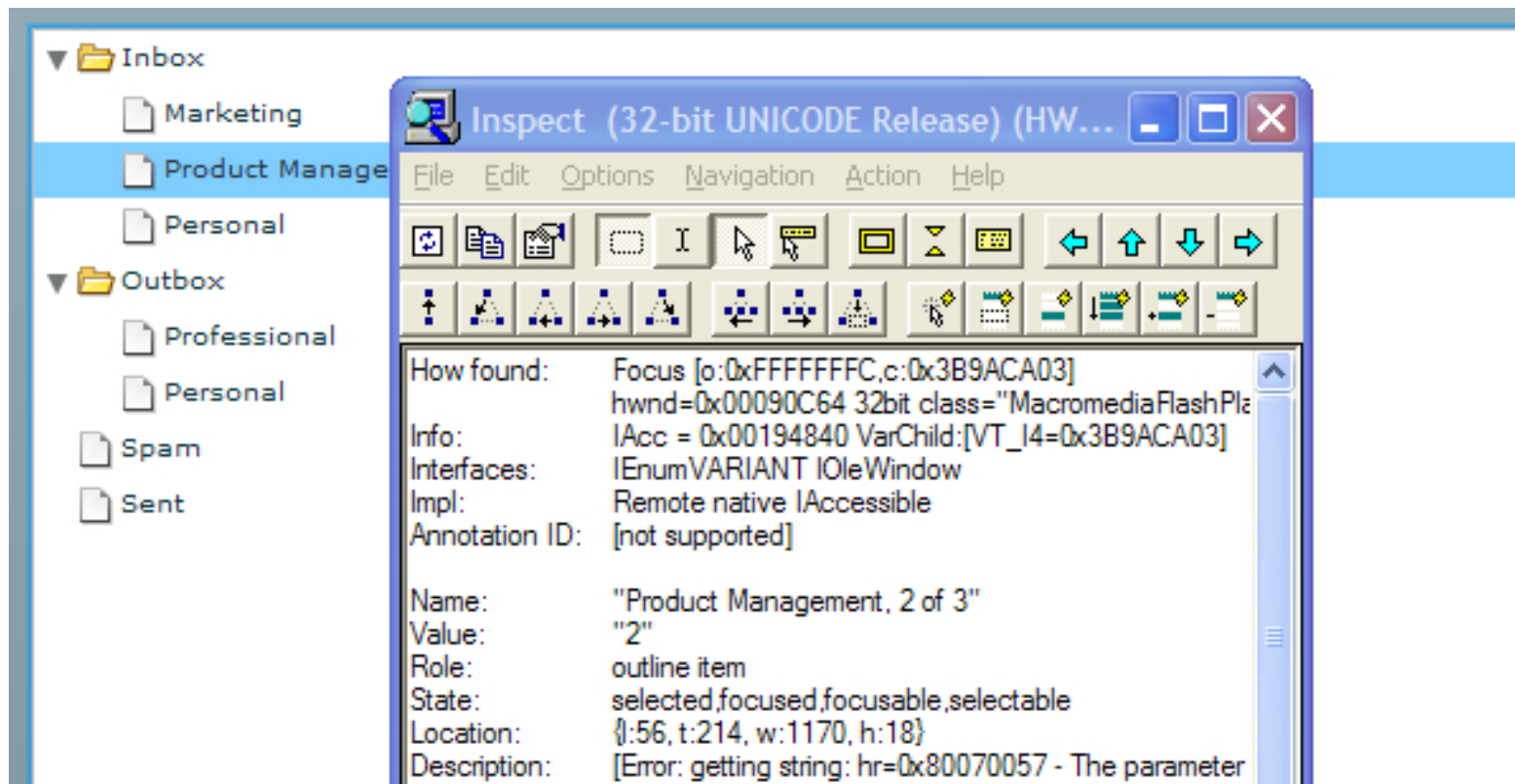


## WCAG 2.0: "Name, Role, Value"

- Flex controls and Flash components support role and value automatically
- Name requires that developers provide the label text and associate it with the control.
- Developers can assign roles, states, and values for custom controls also.

# The Developer's Role

## WCAG 2.0: "Name, Role, Value"



## Adobe Accessibility Links

- Adobe Accessibility Resource Center  
[adobe.com/accessibility](https://adobe.com/accessibility)
- Adobe Accessibility Blog  
[blogs.adobe.com/accessibility](https://blogs.adobe.com/accessibility)



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