HTML5 Canvas
Accessibility

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Browser Accessibility API Mapping – WAI-ARIA-Enabled Checkbox

Example 8 - Checkbox group using ARIA CSS selectors for visual state

Sandwich Condiments

- All condiments
- Lettuce
- Tomato
- Mustard
- Sprouts

Checkbox to: MSAA/IAccessible2 in Firefox and Chrome
Test Tool: AccProbe
Internet full of Pesky Cats: Canvas Accessibility – Meh!
Canvas Accessibility Problem: On its own is just a bitmap

- Problems
  - Know nothing about drawn objects
  - Drawn objects are not keyboard accessible
  - Can’t follow OS drawing ring focus conventions
  - Can’t track caret or text selection

Same problems we had with GUIs like Windows in 1990-1991
Strategy for Canvas Accessibility

• Use canvas fallback content (Canvas DOM sub-tree) to
  – Represent canvas UI elements
  – Use native HTML and WAI-ARIA to provide semantic representation
  – Populate platform accessibility API using fallback elements
  – Place fallback elements in the standard keyboard navigation order

• Expand Canvas 2D APIs to drive magnification
Canvas Accessibility Conceptualization (use of fallback content)

<canvas>

Fallback Content (canvas subtree)

<label id="labelA" for="showA">
  <input id="showA" type="checkbox"/>
  Show As
</label>

<label id="labelB" for="showB">
  <input id="showB" type="checkbox"/>
  Show Bs
</label>

Accessible Objects in Canvas

### Accessible for showA
- **Role**: checkbox
- **State**: unchecked
- **Name**: ShowAs
- **Actions**: click

### Accessible for showB
- **Role**: checkbox
- **State**: unchecked
- **Name**: ShowBs
- **Actions**: click

Browser

Canvas fallback element bounds
Internet Explorer and UIA Automation Verify Test Tool
Canvas 2D API extensions to support screen magnification

- `drawSystemFocusRing` and `drawCustomFocusRing`

- Caret/selection tracking proposal in lieu of LibreOffice and Mozilla PDF Reader work.
  
  **Controversial:** canvas is not the best technology for rich text.

- Text Metrics text baseline extension

- Hit test proposals (`setElementPath`, `addHitRegion`)

- New `scrollPathIntoView` insufficient for magnifiers
Workshop Problems

- Two Checkboxes
- Button
- Ratings Control
- Fan dial
- Button Zooming Example
- See Me WCAG
<table>
<thead>
<tr>
<th>Accessibility Feature</th>
<th>IE 10</th>
<th>Firefox 13 trunk</th>
<th>Safari 5.1.2</th>
<th>Chrome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fallback keyboard Navigation</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Fallback to platform accessibility API</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>drawSystemFocusRing</td>
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</tr>
<tr>
<td>drawCustomFocusRing</td>
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</tr>
<tr>
<td>setElementPath</td>
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<tr>
<td>TextMetrics text baseline property</td>
<td></td>
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