WAI-ARIA Best Practices

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클라이언트개발부 지성봉

What Is WAI-ARIA

WAI

Web Accessibility Initiative

ARIA

Accessible Rich Internet Application

W3C Recommendation

[contents]

Accessible Rich Internet Applications (WAI-ARIA) 1.0

W3C Recommendation 20 March 2014

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http://www.w3.org/TR/2014/REC-wai-aria-20140320/
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Please check the **errata** for any errors or issues reported since publication.

This document is also available as a single page version.

See also **translations**.

Abstract

Accessibility of web content requires semantic information about widgets, structures, and behaviors, in order to allow assistive technologies to convey appropriate information to persons with disabilities. This specification provides an ontology of roles, states, and properties that define accessible user interface elements and can be used to improve the accessibility and interoperability of web content and applications. These semantics are designed to allow an author to properly convey user interface behaviors and structural information to assistive technologies in document-level markup. This document is part of the WAI-ARIA suite described in the WAI-ARIA Overview.

W3C Proposed Recommendation

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Accessible Rich Internet Applications (WAI-ARIA) 1.1

W3C Proposed Recommendation 02 November 2017

This version:
https://www.w3.org/TR/2017/PR-wai-aria-1.1-20171102/

Latest published version:
https://www.w3.org/TR/wai-aria-1.1/

Latest editor's draft:
https://rawgit.com/w3c/aria/master/aria/aria.html

Implementation report:
https://w3c.github.io/test-results/wai-aria/

Previous version:
https://www.w3.org/TR/2016/CR-wai-aria-1.1-20161027/

Latest Recommendation:
https://www.w3.org/TR/2014/REC-wai-aria-20140320/

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Abstract

Accessibility of web content requires semantic information about widgets, structures, and behaviors, in order to allow assistive technologies to convey appropriate information to persons with disabilities. This specification provides an ontology of roles, states, and properties that define accessible user interface elements and can be used to improve the accessibility and interoperability of web content and

Why Use?

Supplement For Native Language Semantics, Not A Replacement

Role, Property, State

Role

Attaching a role gives
assistive technologies information
about how to handle each element

```
<tag role="keyword">
```

```
<div role="navigation">
```

list of role keywords

https://www.w3.org/TR/wai-aria/#x5-4-definition-of-roles

Property, State

Both provide specific information about an object,
and both form part of the definition
of the nature of roles.

```
<tag aria-*="value">
```

```
<button aria-expanded="false" aria-controls="sect1">
```

How To Improve A11y With WAI-ARIA

Step 1

use native HTML

Then, When Use WAI-ARIA?

- the feature is available in HTML but it is not implemented or it is implemented, but accessibility support is not.
- visual design constraints rule out the use of a particular ative element
- feature is not currently available in HTML

Step 2

Add ARIA

Inline Or Via Script?

Step 3

developing keyboard interface

Requirements

- All interactive ARIA controls must be usable with the keyboard.
- If can click or tap or drag or drop or slide or scroll, must also be able to perform an equivalent action using the keyboard
- All interactive widgets must be scripted to respond to standard key strokes or key stroke combinations where applicable

Best Practices

Landmark

Skip To

Main Content
Nav

Page Outline

h1: ARIA Landmarks Example
h1: Banner Landmark
  h2: Design Patterns
  h2: Landmarks
  h2: Related W3C Documents

IA Landmarks Example

y outline the landmarks and/or headings on the page using the following buttons.

Landmarks | Show Headings

- Banner
- Complementary
- Contentinfo
- Form
- Main
- Navigation
- Region
- Search
- Asst. Tech.
- Resources

nner Landmark

`ner` landmark identifies site-oriented content at the ning of each page within a website. Site-oriented t typically includes things such as the logo or y of the site sponsor, and site-specific search tool. A banner usually appears at the top of the page and typically spans the full width.

ARIA 1.1 Specification: `banner` landmark.

Design Patterns

- Each page may have one `banner` landmark.
- The `banner` landmark should be a top-level landmark.
- When a page contains nested `document` and/or `application` roles (e.g. typically through the use of `iframe` and `frame` elements), each `document` or `application` role may have one `banner` landmark.
- If a page includes more than one `banner` landmark, each should have a unique label.

ARIA Techniques | HTML5 Techniques

A `role="banner"` attribute is used to define a `banner` landmark.

ARIA Example

```
<div role="banner">
  <h1>page title identifying
website<h1>
  .... banner content....
</div>
```

Landmarks

The following are landmarks defined on the page:

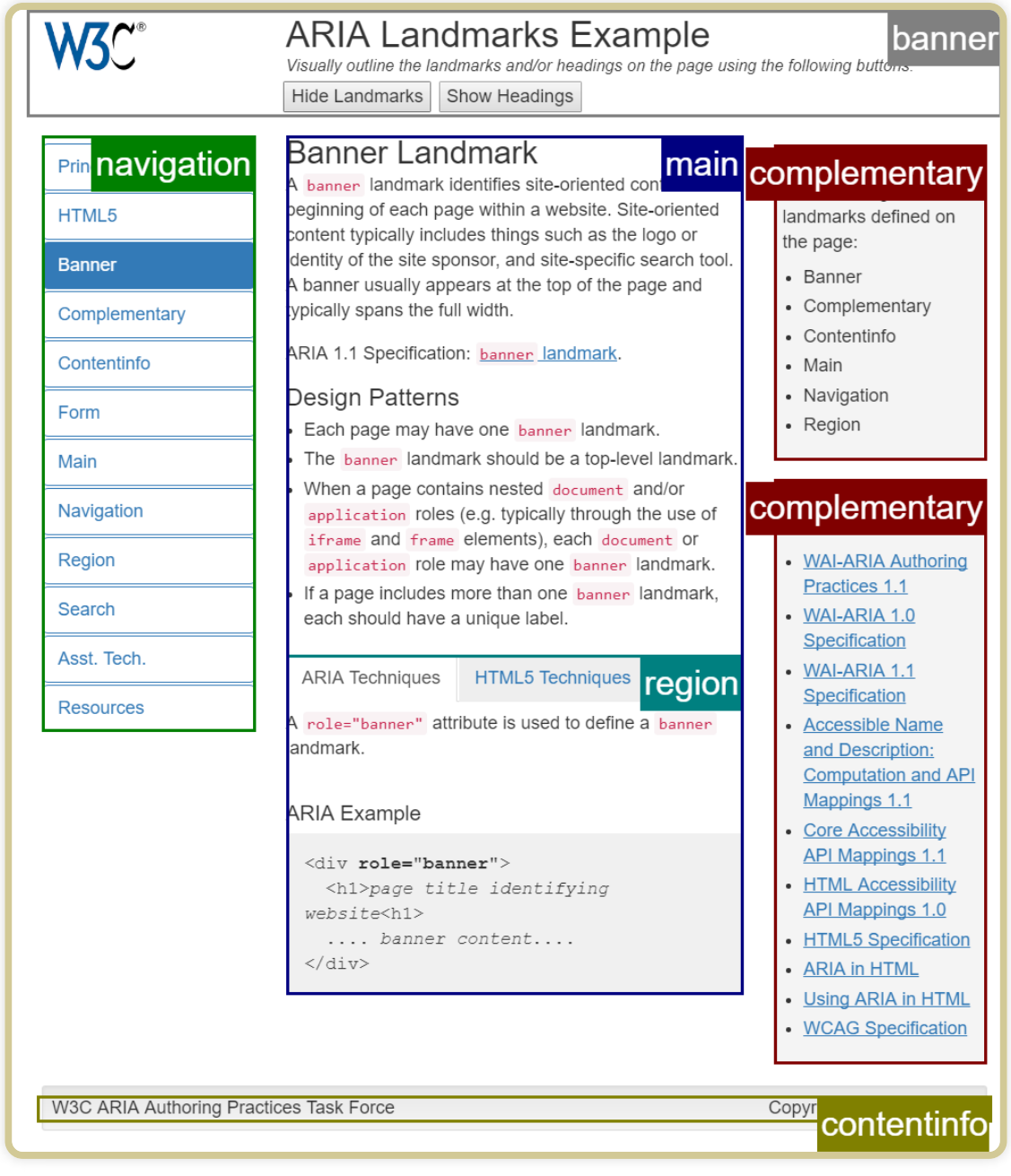
- Banner
- Complementary
- Contentinfo
- Main
- Navigation
- Region

Related W3C Documents

- WAI-ARIA Authoring Practices 1.1
- WAI-ARIA 1.0 Specification
- WAI-ARIA 1.1 Specification
- Accessible Name and Description: Computation and API Mappings 1.1
- Core Accessibility API Mappings 1.1
- HTML Accessibility API Mappings 1.0
- HTML5 Specification
- ARIA in HTML
- Using ARIA in HTML
- WCAG Specification

Legecy

```
<div class="header">
  <h1>ARIA Landmarks Example</h1>
</div>
<div class="navigation">
  <ul><li><a>...</a></li>...</ul>
</div>
<div class="main">
  <h2>Banner Landmark</h2>
  <div class="tab-container">
    ...
  </div>
</div>
<div class="sidebar">
  <h2>Landmarks</h2>
</div>
<div class="sidebar">
  <h2>Related W3C Documents</h2>
</div>
<div class="footer">
  Copyright
</div>
```


ARIA Landmarks Example
banner
Visually outline the landmarks and/or headings on the page using the following buttons:
Hide Landmarks
Show Headings
navigation
Prin
HTML5
Banner
Complementary
Contentinfo
Form
Main
Navigation
Region
Search
Asst. Tech.
Resources
Banner Landmark
main
A banner landmark identifies site-oriented con
beginning of each page within a website. Site-oriented
content typically includes things such as the logo or
identity of the site sponsor, and site-specific search tool.
A banner usually appears at the top of the page and
typically spans the full width.
ARIA 1.1 Specification: banner landmark.
Design Patterns
Each page may have one banner landmark.
The banner landmark should be a top-level landmark.
When a page contains nested document and/or application roles (e.g. typically through the use of iframe and frame elements), each document or application role may have one banner landmark.
If a page includes more than one banner landmark, each should have a unique label.
ARIA Techniques
HTML5 Techniques
region
A role="banner" attribute is used to define a banner landmark.
ARIA Example

<h1>page title identifying website<h1>
.... banner content....

complementary
landmarks defined on the page:
Banner
Complementary
Contentinfo
Main
Navigation
Region
complementary
WAI-ARIA Authoring Practices 1.1
WAI-ARIA 1.0 Specification
WAI-ARIA 1.1 Specification
Accessible Name and Description: Computation and API Mappings 1.1
Core Accessibility API Mappings 1.1
HTML Accessibility API Mappings 1.0
HTML5 Specification
ARIA in HTML
Using ARIA in HTML
WCAG Specification
W3C ARIA Authoring Practices Task Force
Copyr
contentinfo

Use Native Language

```
<header>                                    <!-- banner landmark -->
  <h1>ARIA Landmarks Example</h1>
</header>
<nav>                                       <!-- navigation landmark -->
  <ul>...</ul>
</nav>
<main>                                      <!-- main landmark -->
  <h2>Banner Landmark</h2>
  <section>                                 <!-- region landmark -->
    ...
  </section>
</main>
<aside>                                     <!-- complementary landmark -->
  <h2>Landmarks</h2>
</aside>
<aside>                                     <!-- complementary landmark -->
  <h2>Related W3C Documents</h2>
</aside>
<footer>                                    <!-- contentinfo landmark -->
  Copyright
</footer>
```

Use ARIA Techniques

```
<div class="header" role="banner">
  <h1>ARIA Landmarks Example</h1>
</div>
<div class="navigation" role="navigation">
  <ul><li><a>...</a></li>...</ul>
</div>
<div class="main" role="main">
  <h2>Banner Landmark</h2>
  <div class="tab-container" role="region" aria-label="Coding Tequniques">
    ...
  </div>
</div>
<div class="sidebar" role="complementary" aria-labelledby="id3">
  <h2 id="id3">Landmarks</h2>
</div>
<div class="sidebar" role="complementary" aria-labelledby="id4">
  <h2 id="id4">Related W3c Documents</h2>
</div>
<div class="footer" role="contentinfo">
  Copyright
</div>
```

Tab Contents

HTML CSS Javascrip

HTML은 하이퍼텍스트 마크업 언어(HyperText Markup Language) 라는 의미의 웹 페이지를 위한 마크업 언어이다.

Legacy

```
<div class="tab-menu">
  <a href="#tab-panel1">HTML</a>
  <a href="#tab-panel2">CSS</a>
  <a href="#tab-panel3">JavaScript</a>
</div>
<div class="tab-panels">
  <div id="tab-panel1">
    <h3>HTML</h3>
    ...
  </div>
  <div id="tab-panel2">
    <h3>CSS</h3>
    ...
  </div>
  <div id="tab-panel3">
    <h3>JavaScript</h3>
    ...
  </div>
</div>
```

Use ARIA Techniques - Add Roles

```
<div class="tab-menu" role="tablist">
  <a href="#tab-panel1" role="tab">HTML</a>
  <a href="#tab-panel2" role="tab">CSS</a>
  <a href="#tab-panel3" role="tab">JavaScript</a>
</div>
<div class="tab-panels">
  <div id="tab-panel1" role="tabpanel">
    ...
  </div>
  <div id="tab-panel2" role="tabpanel">
    ...
  </div>
  <div id="tab-panel3" role="tabpanel">
    ...
  </div>
</div>
```

Use ARIA Techniques - Add Properties, States

```
<div class="tab-menu" role="tablist">
  <a id="tab1" href="#tab-panel1" role="tab"
     aria-controls="tab-panel1" aria-selected="true">HTML</a>
  <a id="tab2" href="#tab-panel2" role="tab"
     aria-controls="tab-panel2" aria-selected="false">CSS</a>
  <a id="tab3" href="#tab-panel3" role="tab"
     aria-controls="tab-panel3" aria-selected="false">JavaScript</a>
</div>
<div class="tab-panels">
  <div id="tab-panel1" role="tabpanel"
       aria-labelledby="tab1">
    ...
  </div>
  <div id="tab-panel2" role="tabpanel"
       aria-labelledby="tab2" aria-hidden="true">
    ...
  </div>
  <div id="tab-panel3" role="tabpanel"
       aria-labelledby="tab3" aria-hidden="true">
    ...
  </div>
</div>
```

Use ARIA Technique

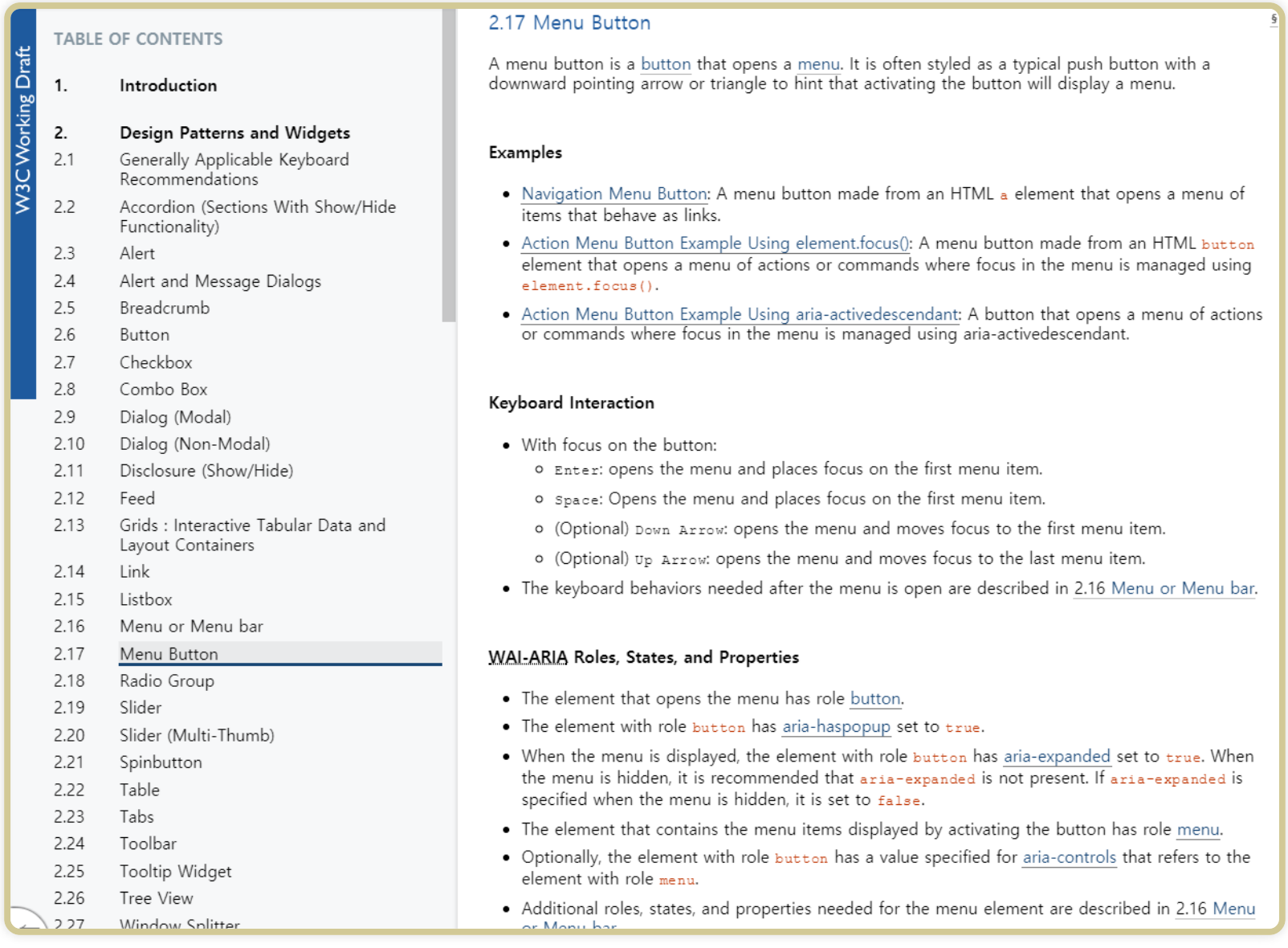
- Developing Keyboard Interface

Keyboard Support

Key	Function
Tab	• when focus moves into the tab list, place focus on active tab element • When the tab list contains the focus, moves focus to the next element in the tab sequence, which is the tabpanel element
Right Arrow	• Moves focus to the next tab. • If focus is on the last tab, moves focus to the first tab. • Activates the newly focused tab
Left Arrow	• Moves focus to the previous tab. • If focus is on the first tab, moves focus to the last tab. • Activates the newly focused tab
Home	Moves focus to the first tab and activates it
End	Moves focus to the last tab and activates it

Should I Implement It Myself?

Yes, If You Can.



W3C Working Draft

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2.17 Menu Button

A menu button is a button that opens a menu. It is often styled as a typical push button with a downward pointing arrow or triangle to hint that activating the button will display a menu.

Examples

- Navigation Menu Button: A menu button made from an HTML `a` element that opens a menu of items that behave as links.
- Action Menu Button Example Using element.focus(): A menu button made from an HTML `button` element that opens a menu of actions or commands where focus in the menu is managed using `element.focus()`.
- Action Menu Button Example Using aria-activedescendant: A button that opens a menu of actions or commands where focus in the menu is managed using aria-activedescendant.

Keyboard Interaction

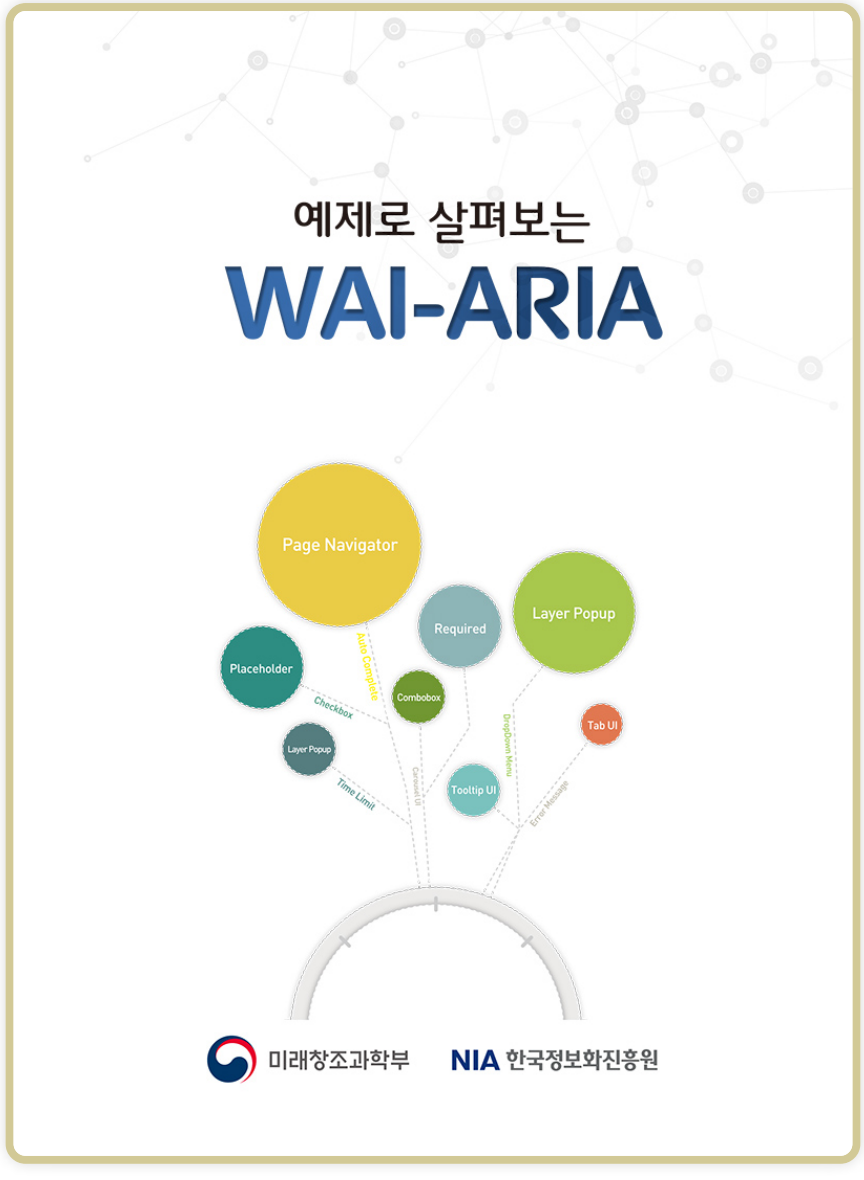
- With focus on the button:
  - `Enter`: opens the menu and places focus on the first menu item.
  - `Space`: Opens the menu and places focus on the first menu item.
  - (Optional) `Down Arrow`: opens the menu and moves focus to the first menu item.
  - (Optional) `Up Arrow`: opens the menu and moves focus to the last menu item.
- The keyboard behaviors needed after the menu is open are described in 2.16 Menu or Menu bar.

WAI-ARIA Roles, States, and Properties

- The element that opens the menu has role button.
- The element with role `button` has aria-haspopup set to `true`.
- When the menu is displayed, the element with role `button` has aria-expanded set to `true`. When the menu is hidden, it is recommended that `aria-expanded` is not present. If `aria-expanded` is specified when the menu is hidden, it is set to `false`.
- The element that contains the menu items displayed by activating the button has role menu.
- Optionally, the element with role `button` has a value specified for aria-controls that refers to the element with role `menu`.
- Additional roles, states, and properties needed for the menu element are described in 2.16 Menu or Menu bar

WAI-ARIA Authoring Practices 1.1

https://www.w3.org/TR/wai-aria-practices-1.1/

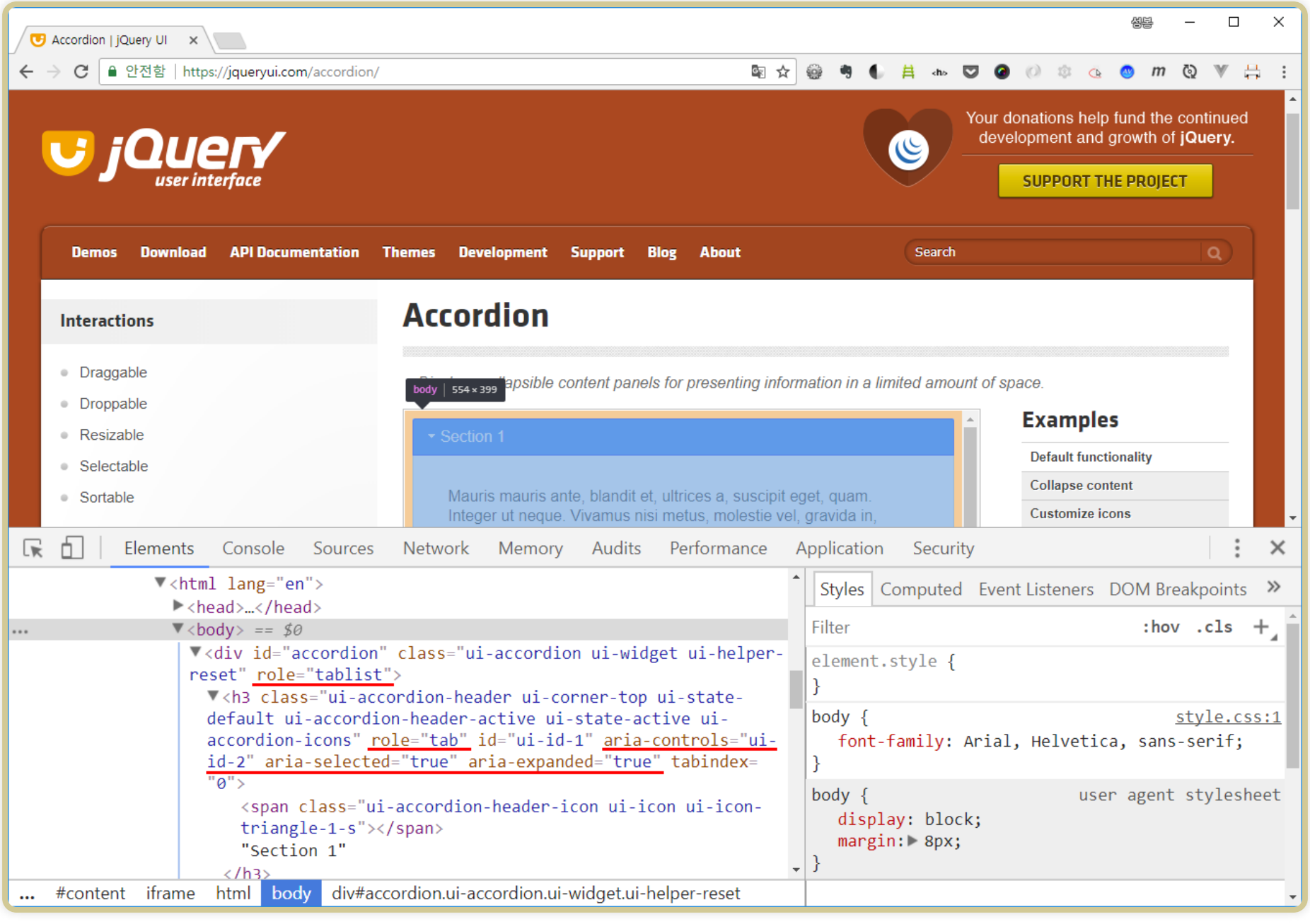


WAI-ARIA 사례집

http://www.wah.or.kr/_Upload/pds2/WAI-ARIA%20사례집(온라인판).pdf

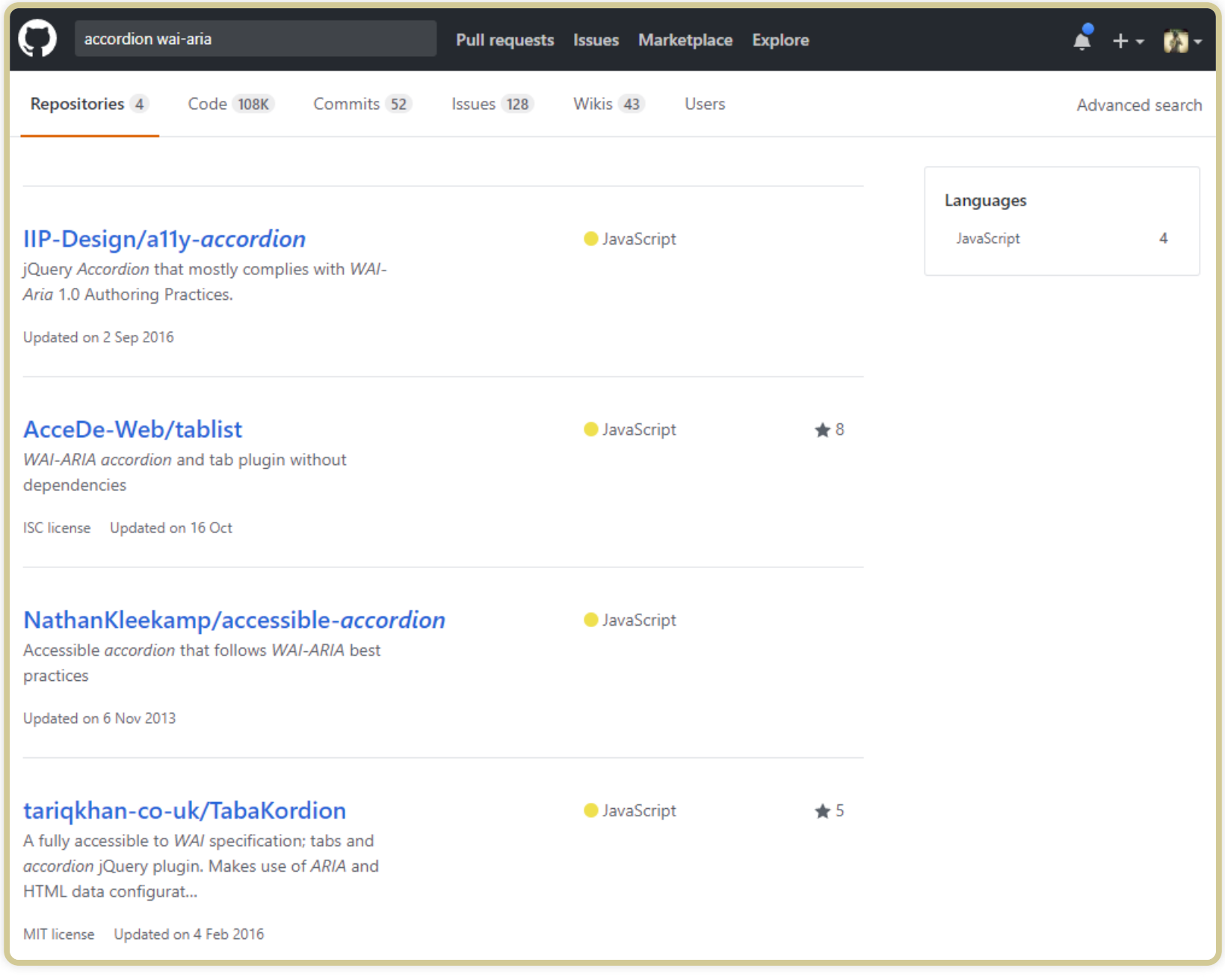
Otherwise

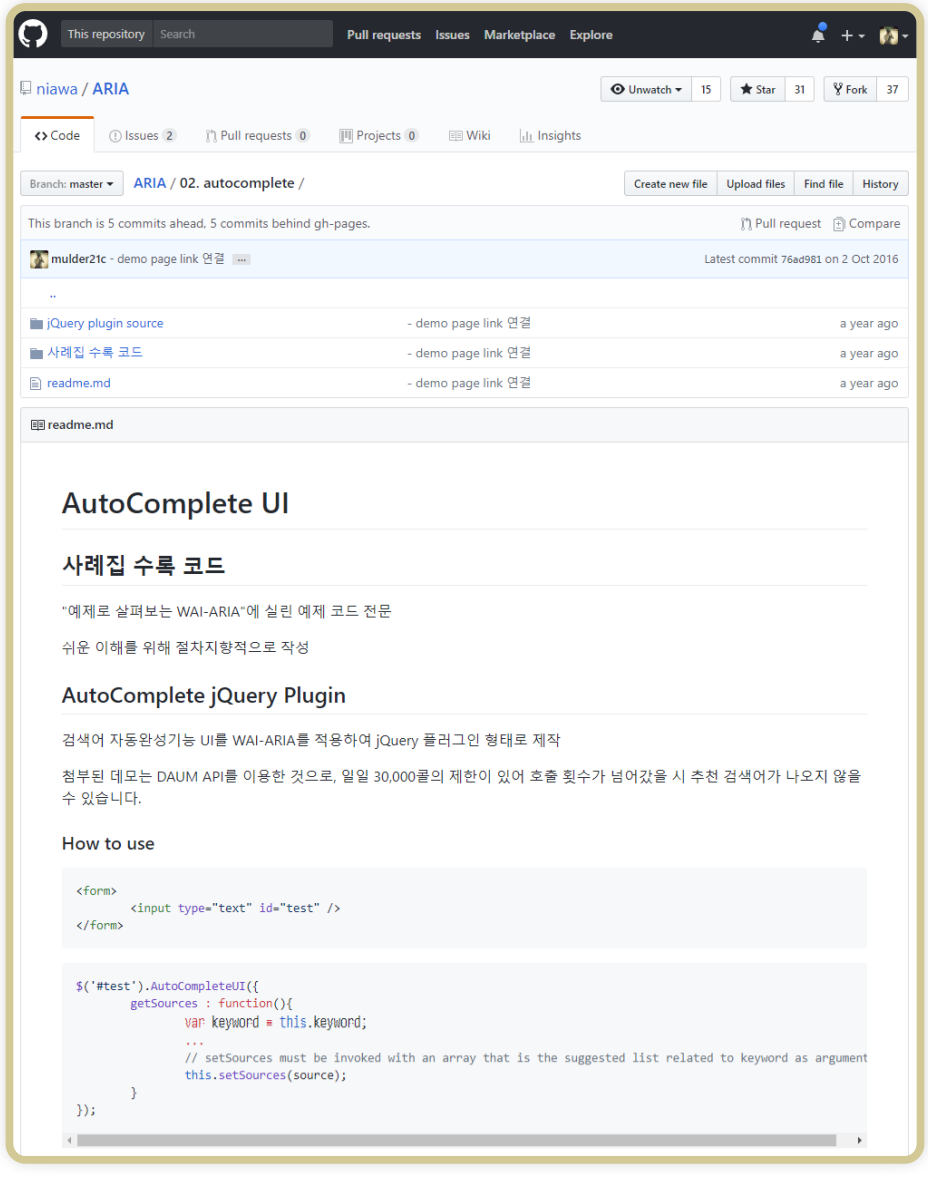
you can use jQueryUI, github, wai-aria 사례집, etc...


Accordion | jQuery UI
안전함 | https://jqueryui.com/accordion/
jQuery user interface
Your donations help fund the continued development and growth of jQuery.
SUPPORT THE PROJECT
Demos Download API Documentation Themes Development Support Blog About
Search
Interactions
Draggable
Droppable
Resizable
Selectable
Sortable
Accordion
body 554 × 399
Section 1
Mauris mauris ante, blandit et, ultrices a, suscipit eget, quam.
Integer ut neque. Vivamus nisi metus, molestie vel, gravida in,
Examples
Default functionality
Collapse content
Customize icons
Elements Console Sources Network Memory Audits Performance Application Security
<html lang="en">
<head>…</head>
<body> == $0

<h3 class="ui-accordion-header ui-corner-top ui-state-default ui-accordion-header-active ui-state-active ui-accordion-icons" role="tab" id="ui-id-1" aria-controls="ui-id-2" aria-selected="true" aria-expanded="true" tabindex="0">

"Section 1"
</h3>
Styles Computed Event Listeners DOM Breakpoints
Filter :hov .cls +
element.style {
}
body { style.css:1
font-family: Arial, Helvetica, sans-serif;
}
body { user agent stylesheet
display: block;
margin: 8px;
}
… #content iframe html body div#accordion.ui-accordion.ui-widget.ui-helper-reset


accordion wai-aria
Pull requests
Issues
Marketplace
Explore
Repositories 4
Code 108K
Commits 52
Issues 128
Wikis 43
Users
Advanced search
IIP-Design/a11y-accordion
jQuery Accordion that mostly complies with WAI-Aria 1.0 Authoring Practices.
Updated on 2 Sep 2016
JavaScript
AcceDe-Web/tablist
WAI-ARIA accordion and tab plugin without dependencies
ISC license
Updated on 16 Oct
JavaScript
8
NathanKleekamp/accessible-accordion
Accessible accordion that follows WAI-ARIA best practices
Updated on 6 Nov 2013
JavaScript
tariqkhan-co-uk/TabaKordion
A fully accessible to WAI specification; tabs and accordion jQuery plugin. Makes use of ARIA and HTML data configurat...
MIT license
Updated on 4 Feb 2016
JavaScript
5
Languages
JavaScript 4



NIA github

https://github.com/niawa/ARIA

References

- WAI-ARIA Specification
  https://www.w3.org/TR/wai-aria
- Using ARIA
  https://www.w3.org/TR/using-aria
- WAI-ARIA Authoring Practices
  https://www.w3.org/TR/wai-aria-practices
- HTML5 Accessibility
  http://www.html5accessibility.com

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