



ARIA: accessibly enhancing webpages and web applications

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Introduction

Accessible Rich Internet Applications (ARIA) is a web technology to allow screen readers and other Accessibility Technology Tools to assist at least blind, hard of seeing and Dyslexic users to more easily find information and use webpages and web applications on the Internet.

ARIA for web authors consists of a collection of attributes that can be used in a Document Object Model (DOM), HyperText Markup Language (HTML) and eXtensible Markup Language (XML) based documents such as HTML 5.

Web Browsers that support ARIA will understand the extra meaningful information and be able to pass that to Assistive Technology Tools such as Screen Readers.

Focusing on elements

To assist with AJAX and other Web Application element ordering and using the keyboard, keypad, touchpad to focus on each interactive element; you can use the [tabindex](#) attribute on all elements. A number value of **1** or higher provides priority: 1 being the highest. Generally the value would be zero providing the order according to where the element is in the document structure (after [tabindex="1"](#) and higher). With a value of **-1** and lower disables the ability to tab to the element.

By default native links and form controls in webpages and web applications have the equivalent of [tabindex="0"](#). All others are [tabindex="-1"](#). But now you can set the tab support and even set ordering priority for those elements that usually did not and enables keyboard, keypad, touchpad interactive support to those elements and custom JavaScript based controls.

Roles

An element in a webpage or web application either has an obvious role or a more generic role. You can add a more specific or semantic (meaningful) role to an element by adding a [role](#) attribute to it.

The current types of roles, and so the values of the [role](#) attribute, are:

User Input Roles

checkbox

"A checkbox, accessible name required"

combobox

"A combobox, (sub roles: listbox), accessible name required"

listbox

"A listbox, (sub roles: option), accessible name required"

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option

"An option, accessible name required"

radio

"A radio button, accessible name required"

radiogroup

"Radio group, (sub roles: radio), accessible name required"

slider

"A slider, accessible name required, child elements are presentational"

spinbutton

"A spinbutton, accessible name required"

textbox

"Text box, accessible name required"

User Interface Roles

button

"A button, accessible name required, child elements are presentational"

link

"A hyperlink, accessible name required"

menu

"A menu, (sub roles: menuitem, menuitemcheckbox, menuitemradio), accessible name required"

menubar

"A menu bar"

menuitem

"A menu item, accessible name required"

menuitemcheckbox

"A checkbox menu item, accessible name required"

menuitemradio

"A radio menu item, accessible name required"

tablist

"A tab group: list of tabs referring to tabpanels, (sub roles: tab)"

tabpanel

"A content container referenced by a tab, accessible name required"

tab

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"A tab in a tabbed content group"

toolbar

"A toolbar"

tooltip

"Popup advisory information, accessible name required"

tree

"A tree group, (sub roles: treeitem), accessible name required"

treegrid

"An expandable grid (sub roles: row), accessible name required"

treeitem

"An item in a tree group, accessible name required"

Document Structure Roles

article

"An article or discussion post"

columnheader

"A column header, accessible name required"

definition

"A definition of something"

directory

"A list of references such as a table of contents"

document

"A document or webpage instead of a web application, accessible name required"

grid

"Tabular Data, (sub roles: row), accessible name required"

gridcell

"A cell, accessible name required"

group

"A group"

heading

"A heading, accessible name required"

img

"A group of decorative images for a large decorative image, accessible"

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name required, child elements are presentational"

list

"A list group, (sub roles: group, listitem)"

listitem

"A list item, accessible name required"

math

"Represents mathematical expressions, child elements are presentational"

note

"Related Notes"

presentation

"Decorative object: no semantics"

region

"A region that will be in a summary of features"

row

"A row, (sub roles: gridcell)"

rowheader

"A row header, accessible name required"

separator

"A separator, child elements are presentational"

Application Structure Roles

alert

"An alert message (live: assertive)"

alertdialog

"An alert dialog (live: assertive)"

dialog

"A dialog window, accessible name required"

log

"Container where old items may disappear, (live: polite), accessible name required"

marquee

"Quickly changeable information, (live)"

progressbar

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"Progress status, accessible name required, child elements are presentational"

status

"Non alert messages, (live: polite)"

timer

"Temporal progress, accessible name required"

Landmark Roles

application

"A web application as opposed to a webpage or document, accessible name required"

banner

"Container that has the top-level heading or website heading"

complementary

"Supplementary information that does not need the main information"

contentinfo

"Metadata of the main document or page or application, etc"

main

"Main content"

navigation

"Navigational group"

search

"A search tool"

Global States and Properties

Any element, whether or not they have a [role](#) attribute, may use any of the global state or property attributes to provide certain information or reference certain information. These global states and properties are:

aria-atomic

"If a region is updated is all of the region announced or just the updated part."

Values: true, false (Default)

It is a property

aria-busy

"If a live region is finished updating"

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Values: true, false (Default)
It is a state

aria-controls

"This element controls or effects one or more elements"
Values: ID Values
It is a property

aria-describedby

"References one or more elements providing the description for the current element"
Values: ID Values
It is a property

aria-disabled

"Indicates the element is disabled"
Values: true, false (Default)
It is a state

aria-dropeffect

"Indicates what type of effect will take place when completing a drag-and-drop action"
Values: copy, move, reference, execute, popup, none (Default)
It is a state

aria-flowto

"References the next element or elements to construct an accessible reading order"
Values: ID Values
It is a property

aria-grabbed

"Indicate the element has been grabbed in a drag-and-drop action"
Values: true, false, undefined (Default)
It is a state

aria-haspopup

"Indicates the element has a context menu or sub-menu available"
Values: true, false (Default)
It is a property

aria-hidden

"Indicates the element is hidden"
Values: true, false (Default)
It is a state

aria-invalid

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"Indicates the value of the element was incorrect"

Values: true, spelling, grammar, false (Default)

It is a state

aria-label

"If an element cannot be associated with a native accessible label then this can provide an accessible label"

Values: Plain Text

It is a property

aria-labelledby

"References one or more elements that will provide a label or caption for the current element"

Values: ID Values

It is a property

aria-live

"Indicates the element will be updated, live, and how important it is for the user to be prompted of this update"

Values: assertive, polite, off (Default)

It is a property

aria-owns

"If impossible for the DOM to convey this, indicates this element is a parent (directly or indirectly) of one or more elements referenced by the ID values"

Values: ID Values

It is a property

aria-relevant

"Indicates relevance to updates or changes within a region"

Values: all, additions text (Default), text, additions, removals

It is a property

aria-required

"Indicates a non empty user input value is required"

Values: true, false (Default)

It is a property (*It should be a state*)

Specific Role States and Properties

Other states and properties include:

aria-activedescendant

"Identifies one of the child elements that will provide focus for the current multiple component widget or control"

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aria-level

"Provides the numeric level of the current element within the hierarchy"

aria-posinset

"Provides the numeric position of the current element in a list such as an item in a list or tree"

aria-setsize

"Provides the total numeric amount of items in a list such as total number of items in the current list or tree"

aria-sort

"Declares if items in a grid or tree are sorted"

aria-valuemax

"Maximum value of a range such as a slider, progress bar or spinbutton"

aria-valuemin

"Minimum value of a range such as a slider, progress bar or spinbutton"

aria-valuenow

"Current value of a range such as a slider, progress bar or spinbutton"

aria-valuetext

"Human readable version of the current value of a range such as a slider, progress bar or spinbutton"

aria-multiselectable

"States if the current multiple component element such as a selection box or menu can have more than one option selected"

aria-multiline

"Declares that a text box can have more than one line of text"

aria-autocomplete

"Declares if the user input control may automatically provide a list of complete value suggestions"

aria-expanded

"Declares that the current element is expanded or collapsed such as a tree or menu structure"

aria-pressed

"Declares if the button is pressed or not"

aria-readonly

"Declares if the control or its value cannot be edited"

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aria-checked

"Declares if the control or menu item is ticked or not"

If the markup language has elements that natively provide semantic information you should use them. Such as in HTML or XHTML instead of using generic elements and using User Input Roles, use HTML or XHTML form controls as they will already have the general User Input Roles, States and Properties built in. For any other situation, you can use any of these Roles and their specific states and properties:

User Input Roles

checkbox

- aria-checked
Values: true, false, mixed, undefined (Default)
It is a state

combobox

- aria-expanded
Values: true, false, undefined (Default)
It is a state
- aria-activedescendant
Values: ID Value
It is an optional property

listbox

- aria-multiselectable
Values: true, false (Default)
It is an optional property
- aria-expanded
Values: true, false, undefined (Default)
It is an optional state
- aria-activedescendant
Values: ID Value
It is an optional property

option

- aria-checked
Values: true, false, mixed, undefined (Default)
It is an optional state
- aria-selected
Values: true, false, undefined (Default)
It is an optional state

radio

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- aria-checked
Values: true, false, mixed, undefined (Default)
It is a state
- aria-selected
Values: true, false, undefined (Default)
It is an optional state

radiogroup

- aria-expanded
Values: true, false, undefined (Default)
It is an optional state
- aria-activedescendant
Values: ID Value
It is an optional property

slider

- aria-valuemax
Values: Decimal Number
It is a property
- aria-valuemin
Values: Decimal Number
It is a property
- aria-valuenow
Values: Decimal Number
It is a property
- aria-valuetext
Values: Plain Text
It is an optional property

spinbutton

- aria-valuemax
Values: Decimal Number
It is a property
- aria-valuemin
Values: Decimal Number
It is a property
- aria-valuenow
Values: Decimal Number
It is a property
- aria-activedescendant
Values: ID Value
It is an optional property

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- **aria-valuetext**
Values: Plain Text
It is an optional property

textbox

- **aria-autocomplete**
Values: inline, list, both, none (Default)
It is an optional property
- **aria-multiline**
Values: true, false (Default)
It is an optional property
- **aria-readonly**
Values: true, false (Default)
It is an optional property

User Interface Features

button

- **aria-pressed**
Values: true, false, mixed, undefined (Default)
It is an optional state

link

(None.)

menu

- **aria-activedescendant**
Values: ID Value
It is an optional property
- **aria-expanded**
Values: true, false, undefined (Default)
It is an optional state

menubar

- **aria-activedescendant**
Values: ID Value
It is an optional property
- **aria-expanded**
Values: true, false, undefined (Default)
It is an optional state

menuitem

(None.)

menuitemcheckbox

- **aria-checked**

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Values: true, false, mixed, undefined (Default)
It is a state

menuitemradio

- aria-checked
Values: true, false, mixed, undefined (Default)
It is a state
- aria-selected
Values: true, false, undefined (Default)
It is an optional state

tablist

- aria-activedescendant
Values: ID Value
It is an optional property
- aria-expanded
Values: true, false, undefined (Default)
It is an optional state

tabpanel

- aria-expanded
Values: true, false, undefined (Default)
It is an optional state

tab

- aria-expanded
Values: true, false, undefined (Default)
It is an optional state
- aria-selected
Values: true, false, undefined (Default)
It is an optional state

toolbar

- aria-activedescendant
Values: ID Value
It is an optional property
- aria-expanded
Values: true, false, undefined (Default)
It is an optional state

tooltip

- aria-expanded
Values: true, false, undefined (Default)
It is an optional state

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tree

- aria-multiselectable
Values: true, false (Default)
It is an optional property
- aria-activedescendant
Values: ID Value
It is an optional property
- aria-expanded
Values: true, false, undefined (Default)
It is an optional state

treegrid

- aria-activedescendant
Values: ID Value
It is an optional property
- aria-expanded
Values: true, false, undefined (Default)
It is an optional state
- aria-level
Values: Integer (Whole) Number
It is an optional property
- aria-multiselectable
Values: true, false (Default)
It is an optional property
- aria-readonly
Values: true, false (Default)
It is an optional property

treeitem

- aria-checked
Values: true, false, mixed, undefined (Default)
It is a state
- aria-expanded
Values: true, false, undefined (Default)
It is an optional state
- aria-level
Values: Integer (Whole) Number
It is an optional property
- aria-posinset
Values: Integer (Whole) Number
It is an optional property

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- aria-selected
Values: true, false, undefined (Default)
It is an optional state
- aria-setsize
Values: Integer (Whole) Number
It is an optional property

Document Structure

article

- aria-expanded
Values: true, false, undefined (Default)
It is an optional state

columnheader

- aria-sort
Values: ascending, descending, none (Default), other
It is an optional property
- aria-expanded
Values: true, false, undefined (Default)
It is an optional state
- aria-level
Values: Integer (Whole) Number
It is an optional property
- aria-readonly
Values: true, false (Default)
It is an optional property
- aria-selected
Values: true, false, undefined (Default)
It is an optional state

definition

- aria-expanded
Values: true, false, undefined (Default)
It is an optional state

directory

- aria-expanded
Values: true, false, undefined (Default)
It is an optional state

document

- aria-expanded
Values: true, false, undefined (Default)
It is an optional state

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grid

- aria-level
Values: Integer (Whole) Number
It is an optional property
- aria-multiselectable
Values: true, false (Default)
It is an optional property
- aria-readonly
Values: true, false (Default)
It is an optional property
- aria-activedescendant
Values: ID Value
It is an optional property
- aria-expanded
Values: true, false, undefined (Default)
It is an optional state

gridcell

- aria-level
Values: Integer (Whole) Number
It is an optional property
- aria-readonly
Values: true, false (Default)
It is an optional property
- aria-selected
Values: true, false, undefined (Default)
It is an optional state
- aria-expanded
Values: true, false, undefined (Default)
It is an optional state

group

- aria-activedescendant
Values: ID Value
It is an optional property
- aria-expanded
Values: true, false, undefined (Default)
It is an optional state

heading

- aria-level
Values: Integer (Whole) Number

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It is an optional property

- aria-expanded
true, false, undefined (Default)
It is an optional state

img

- aria-expanded
Values: true, false, undefined (Default)
It is an optional state

list

- aria-expanded
Values: true, false, undefined (Default)
It is an optional state

listitem

- aria-level
Values: Integer (Whole) Number
It is an optional property
- aria-posinset
Values: Integer (Whole) Number
It is an optional property
- aria-setsize
Values: Integer (Whole) Number
It is an optional property
- aria-expanded
Values: true, false, undefined (Default)
It is an optional state

math

- aria-expanded
Values: true, false, undefined (Default)
It is an optional state

note

- aria-expanded
Values: true, false, undefined (Default)
It is an optional state

presentation

- aria-expanded
Values: true, false, undefined (Default)
It is an optional state

region

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- aria-expanded
Values: true, false, undefined (Default)
It is an optional state

row

- aria-level
Values: Integer (Whole) Number
It is an optional property
- aria-selected
Values: true, false, undefined (Default)
It is an optional state
- aria-activedescendant
Values: ID Value
It is an optional property
- aria-expanded
Values: true, false, undefined (Default)
It is an optional state

rowheader

- aria-sort
Values: ascending, descending, none (Default), other
It is an optional property
- aria-level
Values: Integer (Whole) Number
It is an optional property
- aria-selected
Values: true, false, undefined (Default)
It is an optional state
- aria-expanded
Values: true, false, undefined (Default)
It is an optional state
- aria-readonly
Values: true, false (Default)
It is an optional property

separator

- aria-expanded
Values: true, false, undefined (Default)
It is an optional state

Application Structure

alert

- aria-expanded

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Values: true, false, undefined (Default)
It is an optional state

alertdialog

- aria-expanded
Values: true, false, undefined (Default)
It is an optional state

dialog

- aria-expanded
Values: true, false, undefined (Default)
It is an optional state

log

- aria-expanded
Values: true, false, undefined (Default)
It is an optional state

marquee

- aria-expanded
Values: true, false, undefined (Default)
It is an optional state

progressbar

- aria-valuemax
Values: Decimal Number
It is an optional property
- aria-valuemin
Values: Decimal Number
It is an optional property
- aria-valuenow
Values: Decimal Number
It is an optional property
- aria-valuetext
Values: Plain Text
It is an optional property

status

- aria-activedescendant
Values: ID Value
It is an optional property
- aria-expanded
Values: true, false, undefined (Default)
It is an optional state

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timer

- aria-activedescendant
Values: ID Value
It is an optional property
- aria-expanded
Values: true, false, undefined (Default)
It is an optional state

Landmark Roles

application

- aria-expanded
Values: true, false, undefined (Default)
It is an optional state

banner

- aria-expanded
Values: true, false, undefined (Default)
It is an optional state

complementary

- aria-expanded
Values: true, false, undefined (Default)
It is an optional state

contentinfo

- aria-expanded
Values: true, false, undefined (Default)
It is an optional state

main

- aria-expanded
Values: true, false, undefined (Default)
It is an optional state

navigation

- aria-expanded
Values: true, false, undefined (Default)
It is an optional state

search

- aria-expanded
Values: true, false, undefined (Default)
It is an optional state

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More information about ARIA is available at the [W3C Web Accessibility Initiative's ARIA section](#).

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<http://www.legendscrolls.co.uk/webstandards/>

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