ARIA Labels and Relationships

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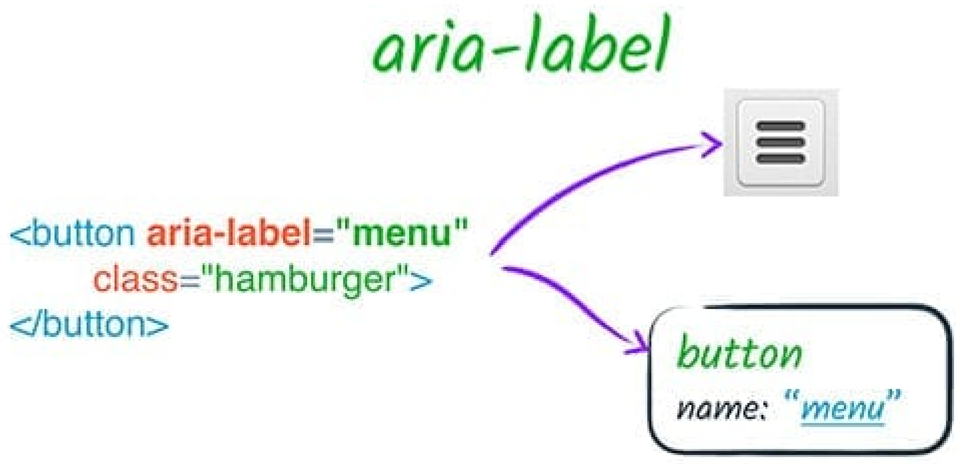
Labels

ARIA provides several mechanisms for adding labels and descriptions to elements. In fact, ARIA is the only way to add accessible help or description text. Let's look at the properties ARIA uses to create accessible labels.

aria-label

`aria-label` allows us to specify a string to be used as the accessible label. This overrides any other native labeling mechanism, such as a `label` element — for example, if a `button` has both text content and an `aria-label`, only the `aria-label` value will be used.

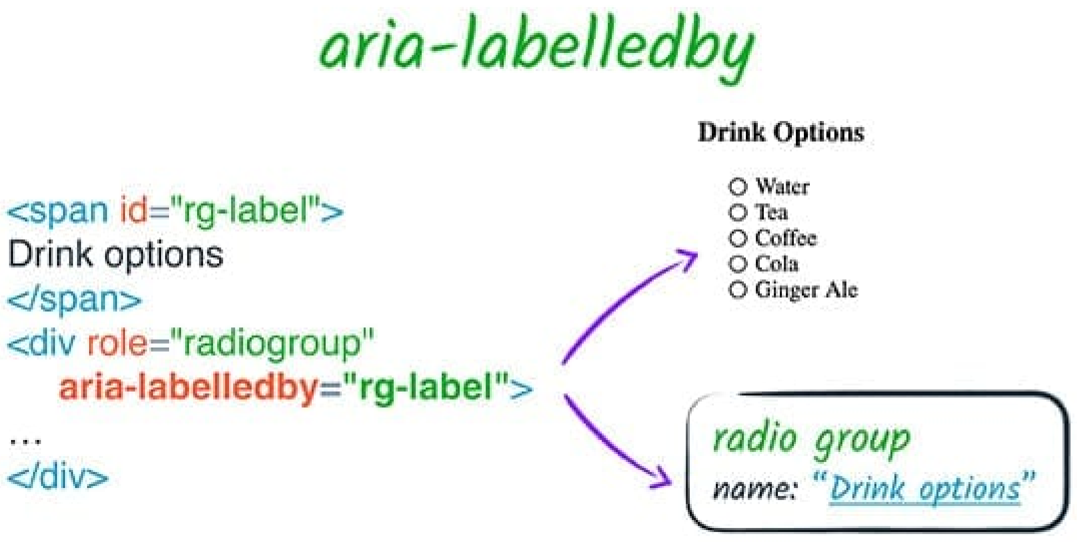
You might use an `aria-label` attribute when you have some kind of visual indication of an element's purpose, such as a button that uses a graphic instead of text, but still need to clarify that purpose for anyone who cannot access the visual indication, such as a button that uses only an image to indicate its purpose.



```
<button aria-label="menu"
        class="hamburger">
</button>
```

aria-labelledby

`aria-labelledby` allows us to specify the ID of another element in the DOM as an element's label.



```
<span id="rg-label">
Drink options
</span>
<div role="radiogroup"
    aria-labelledby="rg-label">
...
</div>
```

This is much like using a **`label`** element, with some key differences.

1. **`aria-labelledby`** may be used on any element, not just labelable elements.
2. While a **`label`** element refers to the thing it labels, the relationship is reversed in the the case of **`aria-labelledby`** — the thing being labeled refers to the thing that labels it.
3. Only one label element may be associated with a labelable element, but **`aria-labelledby`** can take a list of IDREFs to compose a label from multiple elements. The label will be concatenated in the order that the IDREFs are given.

4. You can use `aria-labelledby` to refer to elements that are hidden and would otherwise not be in the accessibility tree. For example, you could add a hidden `span` next to an element you want to label, and refer to that with `aria-labelledby`.
5. However, since ARIA only affects the accessibility tree, `aria-labelledby` does not give you the familiar label-clicking behavior you get from using a `label` element.

Importantly, `aria-labelledby` overrides **all** other name sources for an element. So, for example, if an element has both an `aria-labelledby` and an `aria-label`, or an `aria-labelledby` and a native HTML `label`, the `aria-labelledby` label always takes precedence.

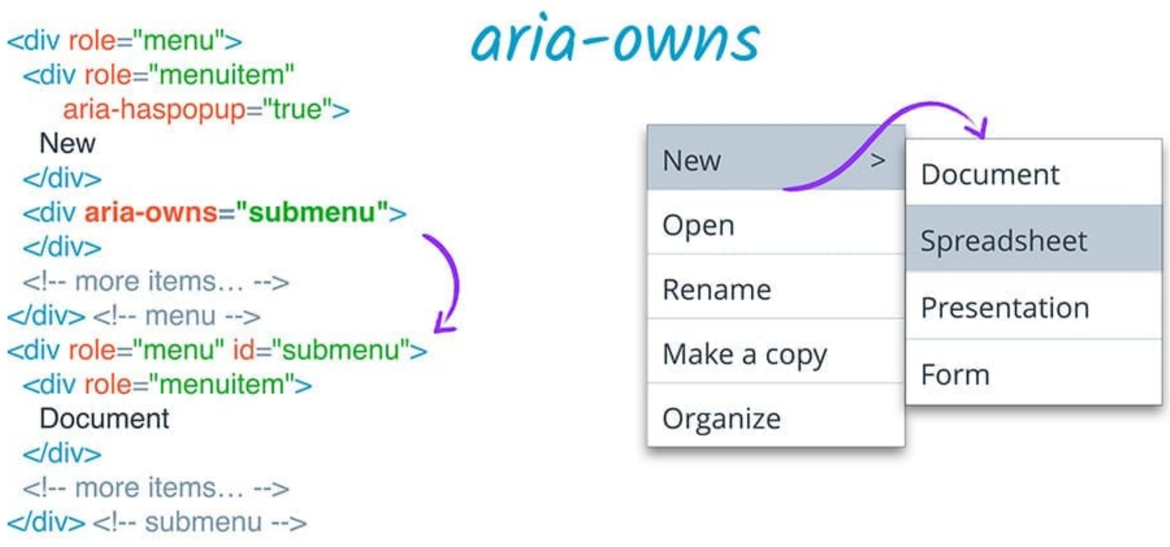
Relationships

`aria-labelledby` is an example of a *relationship attribute*. A relationship attribute creates a semantic relationship between elements on the page regardless of their DOM relationship. In the case of `aria-labelledby`, that relationship is "this element is labelled by that element".

The ARIA specification lists eight relationship attributes. Six of these, `aria-activedescendant`, `aria-controls`, `aria-describedby`, `aria-labelledby`, and `aria-owns`, take a reference to one or more elements to create a new link between elements on the page. The difference in each case is what that link means and how it is presented to users.

aria-owns

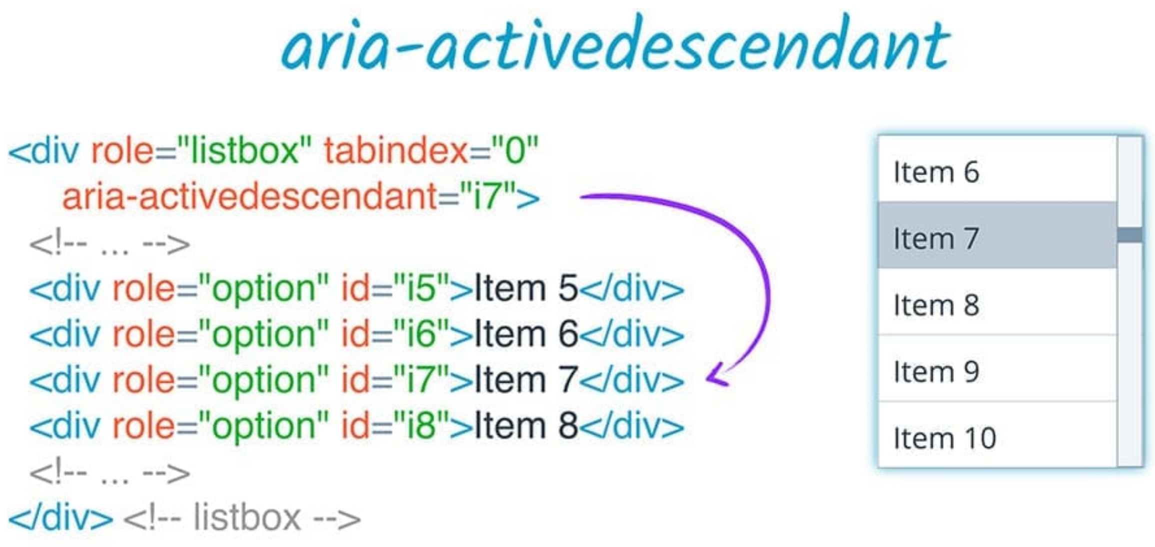
`aria-owns` is one of the most widely used ARIA relationships. This attribute allows us to tell assistive technology that an element that is separate in the DOM should be treated as a child of the current element, or to rearrange existing child elements into a different order. For example, if a pop-up sub-menu is visually positioned near its parent menu, but cannot be a DOM child of its parent because it would affect the visual presentation, you can use `aria-owns` to present the sub-menu as a child of the parent menu to a screen reader.



```
<div role="menu">
  <div role="menuitem"
     aria-haspopup="true">
   New
  </div>
  <div aria-owns="submenu">
  </div>
  <!-- more items... -->
</div> <!-- menu -->
<div role="menu" id="submenu">
  <div role="menuitem">
   Document
  </div>
  <!-- more items... -->
</div> <!-- submenu -->
```

aria-activedescendant

`aria-activedescendant` plays a related role. Just as the active element of a page is the one that has focus, setting the active descendant of an element allows us to tell assistive technology that an element should be presented to the user as the focused element when its parent actually has the focus. For example, in a listbox, you might want to leave page focus on the listbox container, but keep its `aria-activedescendant` attribute updated to the currently selected list item. This makes the currently selected item appear to assistive technology as if it is the focused item.

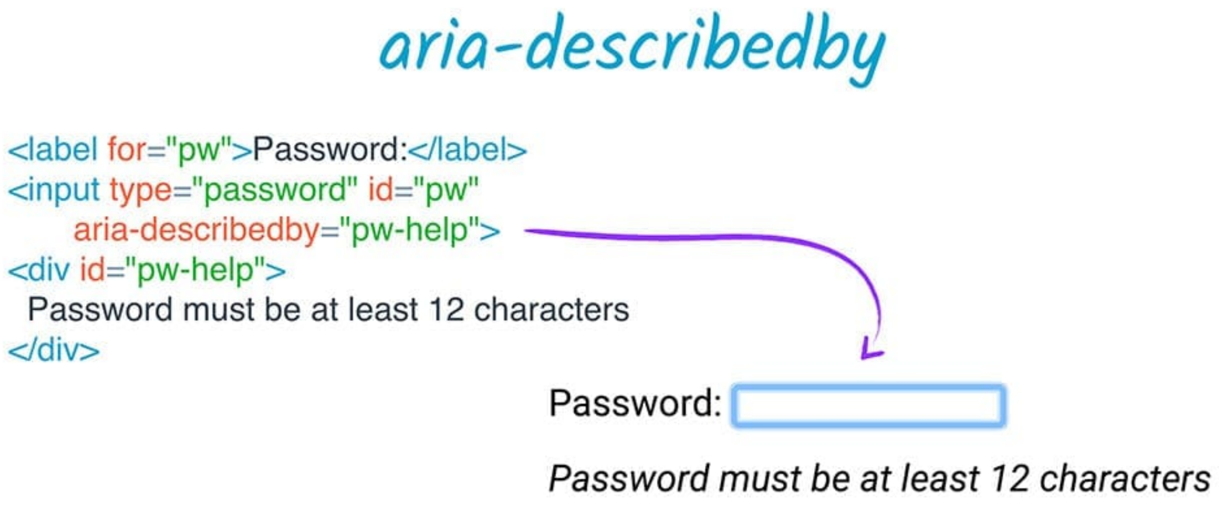


```
<div role="listbox" tabindex="0"
   aria-activedescendant="i7">
 <!-- ... -->
 <div role="option" id="i5">Item 5</div>
 <div role="option" id="i6">Item 6</div>
 <div role="option" id="i7">Item 7</div>
 <div role="option" id="i8">Item 8</div>
 <!-- ... -->
</div> <!-- listbox -->
```

aria-describedby

aria-describedby provides an accessible description in the same way that **aria-labelledby** provides a label. Like **aria-labelledby**, **aria-describedby** may reference elements that are otherwise not visible, whether hidden from the DOM, or hidden from assistive technology users. This is a useful technique when there is some extra explanatory text that a user might need, whether it applies only to users of assistive technology or all users.

A common example is a password input field that is accompanied by some descriptive text explaining the minimum password requirements. Unlike a label, this description may or may not ever be presented to the user; they may have a choice of whether to access it, or it may come after all the other information, or it may be pre-empted by something else. For example, if the user is entering information, their input will be echoed back and may interrupt the element's description. Thus, a description is a great way to communicate supplementary, but not essential, information; it won't get in the way of more critical information such as the element's role.

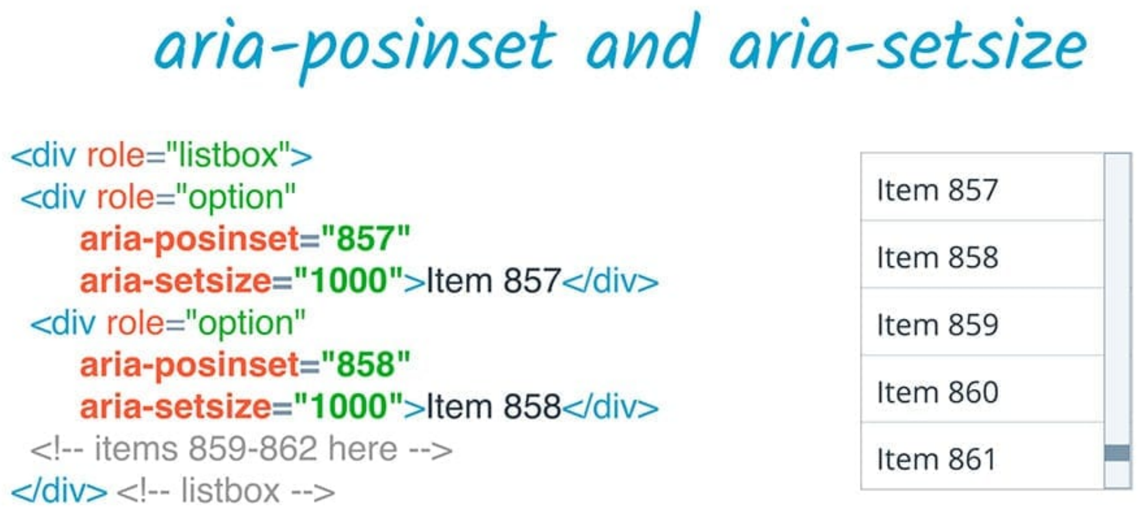


```
<label for="pw">Password:</label>
<input type="password" id="pw"
      aria-describedby="pw-help">
<div id="pw-help">
  Password must be at least 12 characters
</div>
```

aria-posinset & aria-setsize

The remaining relationship attributes are a little different, and work together. **aria-posinset** ("position in set") and **aria-setsize** ("size of set") are about defining a relationship between sibling elements in a set, such as a list.

When the size of a set cannot be determined by the elements present in the DOM — such as when lazy rendering is used to avoid having all of a large list in the DOM at once — **aria-setsize** can specify the actual set size, and **aria-posinset** can specify the element's position in the set. For example, in a set that might contain 1000 elements, you could say that a particular element has an **aria-posinset** of 857 even though it appears first in the DOM, and then use dynamic HTML techniques to ensure that the user can explore the full list on demand.


aria-posinset and aria-setsize

```
<div role="listbox">
 <div role="option"
     aria-posinset="857"
     aria-setsize="1000">Item 857</div>
  <div role="option"
     aria-posinset="858"
     aria-setsize="1000">Item 858</div>
  <!-- items 859-862 here -->
</div> <!-- listbox -->
```

Last updated July 2, 2018.