

HTML5: Form elements and attributes

New Form Elements

Tag	Description
<datalist>	Defines pre-defined options for input controls
<keygen>	Defines a key-pair generator field (for forms)
<output>	Defines the result of a calculation

New Input Types

New Input Types	New Input Attributes
<ul style="list-style-type: none"> • Color • date • datetime • datetime-local • email • month • number • range • search • tel • time • url • week 	<ul style="list-style-type: none"> • autocomplete • autofocus • form • formaction • formenctype • formmethod • formnovalidate • formtarget • height and width • list • min and max • multiple • pattern (regexp) • placeholder • required • step

HTML5 Form Elements

HTML5 <datalist> Element

The <datalist> tag specifies a list of pre-defined options for an <input> element.

The <datalist> tag is used to provide an "autocomplete" feature on <input> elements. Users will see a drop-down list of pre-defined options as they input data.

Use the <input> element's list attribute to bind it together with a <datalist> element.

Example

```
<!DOCTYPE html>
<html>
<body>
<form >
  <input list= "browsers" name="browser">
  <datalist id= "browsers" >
    <option value="Internet Explorer">
    <option value="Firefox">
    <option value="Chrome">
    <option value="Opera">
    <option value="Safari">
  </datalist>
  <input type="submit">
</form>
</body>
</html>
```

Result

The image shows a browser rendering of the HTML code above. It features a text input field with a small downward-pointing triangle (dropdown arrow) on its right side. To the right of the input field is a button labeled "Submit".

NOTE: The **list** attribute of the <input> element, must refer to the **id** attribute of the <datalist> element.

HTML5 <keygen> Element

The <keygen> tag specifies a key-pair generator field used for forms.

When the form is submitted, the private key is stored locally, and the public key is sent to the server.

Example

```
<!DOCTYPE html>
<html>
<body>

<form action="demo_keygen.asp" method="get">
  Username: <input type="text" name="usr_name">
  Encryption: <keygen name="security">
             <input type="submit">
</form>

<p><strong>Note:</strong> The keygen tag is not supported in Internet Explorer.</p>

</body>
</html>
```

Result

Username: Encryption: 1024 (Medium Grade) ▼

Note: The keygen tag is not supported in Internet Explorer.

HTML5 < output > Element

The <output> tag represents the result of a calculation.

The <output> element is the semantically correct element for displaying the results of a calculation from form elements.

- Attributes include [for](#), [form](#) and [name](#), in addition to the global attributes.
- It does not have the [value](#) attribute. Rather, the textnode between the opening and closing tags make up the value. The default being the empty string.
- It really doesn't need the value attribute, since the name/value pair are NOT submitted along with the form
- For the most part, it's just a simple semantic element that any browser supports in display but not necessarily in function: similar to a in appearance, but with added functionality.
- The [for](#) attribute takes a space-separated (not comma-separated) list of ID's of elements that went into calculation.
- The [form](#) attribute associates the <output> with a form, which is useful if it is not nested within it.
- If the form is [reset](#), the value will return to its default value.
- Example usage: 1) subtotal, tax and total in a shopping cart, 2) output of a calculator, 3) current value of a [range](#) input.

Example:

```

<!DOCTYPE html>
<html>
<body>
<form oninput= "x.value=parseInt(a.value) + parseInt(b.value)" >0
<input type="range" id="a" value="50"> 100 +
<input type="number" id="b" value="50">
= <output name="x" for="a b"></output>
</form>
</body> </html>
    
```

New Input Types

Value	Description
color	Defines a color picker
date	Defines a date control (year, month and day (no time))
datetime	The input type datetime has been removed from the HTML standard. Use datetime-local instead.
datetime-local	Defines a date and time control (year, month, day, hour, minute, second, and fraction of a second (no time zone))
email	Defines a field for an e-mail address
file	Defines a file-select field and a "Browse..." button (for file uploads)
hidden	Defines a hidden input field
image	Defines an image as the submit button
month	Defines a month and year control (no time zone)
number	Defines a field for entering a number
range	Defines a control for entering a number whose exact value is not important (like a slider control)
reset	Defines a reset button (resets all form values to default values)
search	Defines a text field for entering a search string
tel	Defines a field for entering a telephone number
time	Defines a control for entering a time (no time zone)
url	Defines a field for entering a URL
week	Defines a week and year control (no time zone)

Input type: color

Select a color from a color picker:

Example

```
<!DOCTYPE html>
<html>
<body>
<form action="#">
  Select your favorite color: <input type="color" name="favcolor"><br>
  <input type="submit">
</form>
</body>
</html>
```

Input type: date

Define a date control:

Example

```
<!DOCTYPE html>
<html>
<body>
<form action="#">
  Birthday: <input type="date" name="bday">
  <input type="submit">
</form>
</body>
</html>
```

Input type: datetime

Define a date and time control (with time zone):

Example

```
<!DOCTYPE html>
<html>
<body>
<form action="#">
  Birthday (date and time): <input type="datetime" name="bdaytime">
  <input type="submit">
</form>
</body></html>
```

The input type datetime has been removed from the HTML standard. Use datetime-local instead.

Input type: datetime-local

Define a date and time control (no time zone):

Example

```
<!DOCTYPE html>
<html>
<body>
<form action="#">
  Birthday (date and time): <input type="datetime-local" name="bdaytime">
  <input type="submit">
</form>
</body>
</html>
```

Input type: email

Define a field for an e-mail address (will be automatically validated when submitted):

Example

```
<!DOCTYPE html>
<html>
<body>
<form action="#">
  E-mail: <input type="email" name="usremail">
  <input type="submit">
</form>
</body>
</html>
```

Input type: file

Define a file-select field and a "Browse..." button (for file uploads):

Example

```
<!DOCTYPE html>
<html>
<body>
<form action="#">
  Select a file: <input type="file" name="img">
  <input type="submit">
</form>
</body></html>
```

Input type: hidden

Define a hidden field (not visible to a user).

A hidden field often stores a default value, or can have its value changed by a JavaScript:

Example

```
<!DOCTYPE html>
<html>
<body>
<form action="#">
  First name: <input type="text" name="fname"><br>
  <input type="hidden" name="country" value="Norway">
  <input type="submit" value="Submit">
</form>
</body>
</html>
```

Input type: image

Define an image as a submit button:

Example

```
<!DOCTYPE html>
<html>
<body>
<form action="#">
  First name: <input type="text" name="fname"><br>
  Last name: <input type="text" name="lname"><br>
  <input type="image" src="img_submit.gif" alt="Submit" width="48" height="48">
</form>
</body>
</html>
```

Input type: month

Define a month and year control (no time zone):

Example

```
<!DOCTYPE html>
<html>
<body>
<form action="#">
  Birthday (month and year): <input type="month" name="bdaymonth">
  <input type="submit">
</form>
</body></html>
```

Input type: number

Define a field for entering a number (You can also set restrictions on what numbers are accepted):

Example
<pre> <!DOCTYPE html> <html> <body> <form action="#"> Quantity (between 1 and 5): <input type="number" name="quantity" min="1" max="5"> <input type="submit"> </form> </body> </html> </pre>

Use the following attributes to specify restrictions:

- [max](#) - specifies the maximum value allowed
- [min](#) - specifies the minimum value allowed
- [step](#) - specifies the legal number intervals
- [value](#) - Specifies the default value

Input type: range

Define a control for entering a number whose exact value is not important (like a slider control). You can also set restrictions on what numbers are accepted:

Example
<pre> <!DOCTYPE html> <html> <body> <form action="#"> Points: <input type="range" name="points" min="0" max="10"> <input type="submit"> </form> </body> </html> </pre>

Use the following attributes to specify restrictions:

- [max](#) - specifies the maximum value allowed
- [min](#) - specifies the minimum value allowed
- [step](#) - specifies the legal number intervals
- [value](#) - Specifies the default value

Input type: reset

Define a reset button (resets all form values to default values):

Example

```
<!DOCTYPE html>
<html>
<body>
<form action="#">
  Email: <input type="email" name="email"><br>
  Pin: <input type="text" name="pin" maxlength="4"><br>
  <input type="reset" value="Reset">
  <input type="submit" value="Submit">
</form>
<p>Click on the reset button to reset the form.</p>
</body>
</html>
```

Tip: Use the reset button carefully! It can be annoying for users who accidentally activate the reset button.

Input type: search

Define a search field (like a site search, or Google search):

Example

```
<!DOCTYPE html>
<html>
<body>
<form action="#">
  Search Google: <input type="search" name="googlesearch"><br>
  <input type="submit">
</form>
</body>
</html>
```

Input type: tel

Define a field for entering a telephone number:

Example

```
<!DOCTYPE html>
<html>
<body>
<form action="#">
  Telephone: <input type="tel" name="usrtel"><br>
  <input type="submit">
</form>
</body>
</html>
```

Input type: time

Define a control for entering a time (no time zone):

Example
<pre> <!DOCTYPE html> <html> <body> <form action="#"> Select a time: <input type="time" name="usr_time"> <input type="submit"> </form> </body> </html> </pre>

Input type: url

Define a field for entering a URL:

Example
<pre> <!DOCTYPE html> <html> <body> <form action="#"> Add your homepage: <input type="url" name="homepage">
 <input type="submit"> </form> </body> </html> </pre>

Tip: Safari on iPhone recognizes the url input type, and changes the on-screen keyboard to match it (adds .com option).

Input type: week

Define a week and year control (no time zone):

Example
<pre> <!DOCTYPE html> <html> <body> <form action="demo_form.asp"> Select a week: <input type="week" name="year_week"> <input type="submit"> </form> </body> </html> </pre>

New Form Attribute

The placeholder attribute

HTML5 introduced a new attribute called **placeholder**. This attribute on `<input>` and `<textarea>` elements provides a hint to the user of what can be entered in the field. The placeholder text must not contain carriage returns or line-feeds.

Here is the simple syntax for placeholder attribute –

```
<input type="text" name="search" placeholder="search the web"/>
```

This attribute is supported by latest versions of Mozilla, Safari and Chrome browsers only.

```
<!DOCTYPE HTML>
<html>
  <body>
    <form action="#" >
      Enter email : <input type="email" name="newinput"
placeholder="email@example.com"/>
      <input type="submit" value="submit" />
    </form>
  </body>
</html>
```

This will produce following result :

Enter email :

The required attribute

Now you do not need to have javascript for client side validations like empty text box would never be submitted because HTML5 introduced a new attribute called **required** which would be used as follows and would insist to have a value –

```
<input type="text" name="search" required/>
```

This attribute is supported by latest versions of Mozilla, Safari and Chrome browsers only.

```

<!DOCTYPE HTML>
<html>
  <body>

    <form action="/cgi-bin/html5.cgi" method="get">
      Enter email : <input type="text" name="newinput" required/>
      <p>Try to submit using Submit button</p>
      <input type="submit" value="submit" />
    </form>

  </body>
</html>

```

This will produce following result:

Enter email :

Try to submit using Submit button

The multiple Attribute

The multiple attribute is a Boolean attribute.

When present, it specifies that the user is allowed to enter more than one value in the <input> element.

The multiple attribute works with the following input types: email, and file.

```

<!DOCTYPE html>
<html>
<body>
<form action="action_page.php">
  Select images: <input type="file" name="img" multiple>
  <input type="submit">
</form>
<p>Try selecting more than one file when browsing for files.</p>
</body>

```

The step Attribute

The step attribute specifies the legal number intervals for an <input> element.

Example: if step="3", legal numbers could be -3, 0, 3, 6, etc.

Tip: The step attribute can be used together with the max and min attributes to create a range of legal values.

The step attribute works with the following input types: number, range, date, datetime, datetime-local, month, time and week.

```
<!DOCTYPE html>
<html>
<body>
<form action="#">
  <input type="number" name="points" step="3">
  <input type="submit">
</form>
</body>
</html>
```