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JAVASCRIPT EVENTS AND EVENT HANDLERS

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# JavaScript Events and Event Handlers

11 DECEMBER 2001 / [3 COMMENTS](#)

In this tutorial we're going to take a look at a very handy feature of JavaScript called *events*. By writing code that reacts to events, you can make your web pages much more interactive!

Read on to find out how...

## What are events?

Events allow you to write JavaScript code that reacts to certain situations. Examples

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- The Web page loading
- A form field being changed

Event handlers

To allow you to run your bits of code when these events occur, JavaScript provides us with *event handlers*. All the event handlers in JavaScript start with the word on, and each event handler deals with a certain type of event. Here’s a list of all the event handlers in JavaScript, along with the objects they apply to and the events that trigger them:

Event handler	Applies to:	Triggered when:
onAbort	Image	The loading of the image is cancelled.

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<b>onBlur</b>	Layer, Password, Radio, Reset, Select, Submit, Text, TextArea, Window	loses focus (e.g. by clicking outside it or pressing the TAB key).	<a href="#">Speed Up Your WordPress Website: 11 Simple Steps to a Faster Site</a>
<b>onChange</b>	FileUpload, Select, Text, TextArea	The data in the form element is changed by the user.	<a href="#">Reboot!</a> <a href="#">Wordfence Tutorial: How to Keep Your WordPress Site Safe from Hackers</a>
<b>onClick</b>	Button, Document, Checkbox, Link, Radio, Reset, Submit	The object is clicked on.	<a href="#">How to Make Awesome-Looking Images for Your Website</a>
<b>onDbClick</b>	Document, Link	The object is double-	

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<b>onDragDrop</b>	Window	dropped into the browser.
<b>onError</b>	Image, Window	A JavaScript error occurs.
<b>onFocus</b>	Button, Checkbox, FileUpload, Layer, Password, Radio, Reset, Select, Submit, Text, TextArea, Window	The object in question gains focus (e.g. by clicking on it or pressing the TAB key).
<b>onKeyDown</b>	Document, Image, Link, TextArea	The user presses a key.
<b>onKeyPress</b>	Document, Image, Link,	The user presses or

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<b>onKeyUp</b>	Image, Link, TextArea	releases a key.
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<b>onLoad</b>	Image, Window	The whole page has finished loading.
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<b>onMouseDown</b>	Button, Document, Link	The user presses a mouse button.
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<b>onMouseMove</b>	None	The user moves the mouse.
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<b>onMouseOut</b>	Image, Link	The user moves the mouse away from the object.
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the object.

**onMouseUp**

Button,  
Document, Link

The user  
releases a  
mouse  
button.

**onMove**

Window

The user  
moves the  
browser  
window or  
frame.

**onReset**

Form

The user  
clicks the  
form's Reset  
button.

**onResize**

Window

The user  
resizes the  
browser  
window or  
frame.

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field.

The user  
clicks the  
form's  
Submit  
button.

**onSubmit**    Form

The user  
leaves the  
page.

**onUnload**    Window

## Using an event handler

To use an event handler, you usually place the event handler name within the HTML tag of the object you want to work with, followed by `= "SomeJavaScriptCode"`, where *SomeJavaScriptCode* is the JavaScript you would like to execute when the event occurs.

For example:

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*Although the original JavaScript event handler name contains capital letters ("onClick"), you should use all lowercase in the HTML itself ("onclick") if you want your markup to follow the XHTML specification (which we do!). All element names and attributes must be lowercase in XHTML.*

## The Event object

The Event object is created automatically whenever an event occurs. There are a number of properties associated with the Event object that can be queried to provide additional information about the event:

### Event.data

Used by the onDragDrop event. Returns an array of URLs of dropped objects.



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with the event.

## `Event.modifiers`

Returns a string listing any modifier keys that were held down during a key or mouse event. The modifier key values are: `ALT_MASK`, `CONTROL_MASK`, `SHIFT_MASK` and `META_MASK`.

## `Event.pageX`

## `Event.pageY`

These properties hold the X and Y pixel coordinates of the cursor relative to the page, at the time of the event.

## `Event.screenX`

## `Event.screenY`

These properties hold the X and Y pixel coordinates of the cursor relative to the screen, at the time of the event.

## `Event.target`

Returns a string representing the object that initiated the event.

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## Event.which

Returns a number representing the mouse button that was pressed (1=left, 2=middle, 3=right) or the ASCII code of the key that was pressed.

## Event.width

Stores the width of the window or frame containing the object connected with the event.

## Event.x

## Event.y

These properties hold the X and Y pixel coordinates of the cursor relative to the layer connected with the event or, for the `onResize` event, the width and height of the object after it was resized. (You can also use `event.layerX` and `event.layerY`, which do the same thing.)

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more commonly used event handlers, and examine how they can be used.

## onChange

onChange is commonly used to validate form fields (see my tutorial on [Form validation with JavaScript](#)) or to otherwise perform an action when a form field's value has been altered by the user. The event handler is triggered when the user changes the field then clicks outside the field or uses the TAB key (i.e. the object loses focus).

## Example

This example code ensures that you type in both your first and your last names. It will bring up an alert box and refocus the text box field if you only type one word into the text box.

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```
<script type="text/javascript">

function validateField ( fieldname )
{
    if ( ( fieldname.value ) &&
        ( ! fieldname.value.match ( " " ) ) )
    {
        alert ( "Please enter your first and last name" );
        fieldname.focus ( );
    }
}
```

Please enter your name:

## onClick

The `onClick` handler is executed when the user clicks with the mouse on the object in question. Because you can use it on many types of objects, from buttons through to checkboxes through to links, it's a great way to create interactive Web pages based on JavaScript.

## Example

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```
<a href="#" onclick="alert('Thanks!')">Click Me!<
```

[Click Me!](#)

## onFocus

onFocus is executed whenever the specified object gains focus. This usually happens when the user clicks on the object with the mouse button, or moves to the object using the TAB key. onFocus can be used on most form elements.

## Example

This example text box contains the prompt “Please enter your email address” that is cleared once the text box has focus.

```
<input type="text" name="email_address"
```

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## onKeyPress

You can use `onKeyPress` to determine when a key on the keyboard has been pressed.

This is useful for allowing keyboard shortcuts in your forms and for providing interactivity and games.

## Example

This example uses the `onKeyPress` event handler for the `Window` object to determine when a key was pressed. In addition, it uses the `which` property of the `Event` object to determine the ASCII code of the key that was pressed, and then displays the pressed key in a text box. If `event.which` is undefined it uses `event.keyCode` instead (Internet Explorer uses `event.keyCode` instead of `event.which`).

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```
<form method="post" name="my_form">
```

The key you pressed was:

```
<input type="text" name="key_display" size="2"/>
```

```
</form>
```

```
<script type="text/javascript">
```

[Try it out!](#)

## onLoad

The onLoad event handler is triggered when the page has finished loading. Common uses of onLoad include the dreaded pop-up advertisement windows, and to start other actions such as animations or timers once the whole page has finished loading.

## Example

This simple example displays an alert box when the page has finished loading:

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My Page

```
</body>
```

```
</html>
```

[Try it out!](#)

## onMouseOut, onMouseOver

The classic use of these two event handlers is for JavaScript rollover images (images, such as buttons, that change when you move your mouse over them). We have a tutorial on just this topic called [Rollover buttons with JavaScript](#).

## Example

Here's a simple example that alters the value of a text box depending on whether the mouse pointer is over a link or not.

```
<form>
```



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```
<a href="" onmouseover="document.getElementById(  
onmouseout="document.getElementById('status').val  
the mouse over me!</a>  
  
</form>
```

Not over the link

[Move the mouse over me!](#)

## onSubmit

The `onSubmit` event handler, which works only with the `Form` object, is commonly used to validate the form before it's sent to the server. In fact we have a whole tutorial on this topic, called [Form validation with JavaScript](#).

## Example

This example asks you to confirm whether you want to submit the form or not when you click on the button. It returns `true` to

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```
<form onsubmit="return confirm('Are You Sure?')"  
  
<input type="submit" name="submit" value="Submit"  
  
</form>
```

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## Comments

JohnnyA says

[17 December 2009 at 3:00 pm](#)

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a larger one on mouseover?

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[matt](#) says

[17 December 2009 at 7:51 pm](#)

Probably, yes. Here's a tutorial on JavaScript rollovers that might help:

<http://www.elated.com/articles/rollover-buttons-with-javascript/>

You'll probably want to increase the width and height of the image in the onmouseover handler, and decrease them again in the onmouseout handler.

Cheers,

Matt

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