

# JavaScript Events Complete Guide

## 1. Event Listeners

Event listeners are functions that are called when a specific event happens on a DOM element.

Syntax:

```
element.addEventListener(eventType, listenerFunction, options);
```

Example:

```
document.getElementById("btn").addEventListener("click", function() {  
    alert("Button clicked!");  
});
```

## 2. Event Types

Event types are string names used to specify which event you want to listen for.

Examples:

- Mouse Events: "click", "dblclick", "mousedown", "mouseup", "mousemove"
- Keyboard Events: "keydown", "keyup", "keypress" (deprecated)
- Form Events: "submit", "input", "change", "focus", "blur"
- Window Events: "resize", "scroll", "load", "unload"
- Clipboard Events: "copy", "cut", "paste"
- Drag Events: "drag", "drop", "dragstart", "dragover"
- Touch/Pointer Events: "touchstart", "pointerdown", etc.

## 3. Event Objects

When an event occurs, an event object is automatically passed to the listener function. This object contains information about the event.

Examples:

```
document.addEventListener("click", function(event) {  
    console.log(event.clientX, event.clientY);  
});
```

Types of Event Objects:

- MouseEvent: click, dblclick, etc.
- KeyboardEvent: keydown, keyup
- SubmitEvent: form submission
- TouchEvent: mobile touches
- ClipboardEvent, DragEvent, WheelEvent, etc.

Common Properties:

- type, target, currentTarget, bubbles, cancelable
- clientX, clientY (MouseEvent)
- key, code (KeyboardEvent)
- data (InputEvent)
- detail (UIEvent)

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Common Methods:

- preventDefault()
- stopPropagation()
- stopImmediatePropagation()

## 4. Event Listener Options

The third argument of `addEventListener()` can be a boolean or an object with options.

Options:

- capture: (boolean) - use capture phase if true
- once: (boolean) - listener is removed after first call
- passive: (boolean) - hints that the listener won't call `preventDefault()`

Example:

```
element.addEventListener("scroll", function(e) {  
  console.log("Scrolled");  
}, { passive: true });
```

Another example with once:

```
button.addEventListener("click", () => {  
  alert("Clicked once!");  
}, { once: true });
```