[MS-DOM2EE]:

Internet Explorer Extensions to the Document Object Model (DOM) Level 2 Events Specification

Intellectual Property Rights Notice for Open Specifications Documentation

- **Technical Documentation.** Microsoft publishes Open Specifications documentation ("this documentation") for protocols, file formats, data portability, computer languages, and standards support. Additionally, overview documents cover inter-protocol relationships and interactions.
- **Copyrights**. This documentation is covered by Microsoft copyrights. Regardless of any other terms that are contained in the terms of use for the Microsoft website that hosts this documentation, you can make copies of it in order to develop implementations of the technologies that are described in this documentation and can distribute portions of it in your implementations that use these technologies or in your documentation as necessary to properly document the implementation. You can also distribute in your implementation, with or without modification, any schemas, IDLs, or code samples that are included in the documentation. This permission also applies to any documents that are referenced in the Open Specifications documentation.
- **No Trade Secrets**. Microsoft does not claim any trade secret rights in this documentation.
- **Patents**. Microsoft has patents that might cover your implementations of the technologies described in the Open Specifications documentation. Neither this notice nor Microsoft's delivery of this documentation grants any licenses under those patents or any other Microsoft patents. However, a given Open Specifications document might be covered by the Microsoft [Open Specifications Promise](#) or the [Microsoft Community Promise](#). If you would prefer a written license, or if the technologies described in this documentation are not covered by the Open Specifications Promise or Community Promise, as applicable, patent licenses are available by contacting iplg@microsoft.com.
- **License Programs**. To see all of the protocols in scope under a specific license program and the associated patents, visit the [Patent Map](#).
- **Trademarks**. The names of companies and products contained in this documentation might be covered by trademarks or similar intellectual property rights. This notice does not grant any licenses under those rights. For a list of Microsoft trademarks, visit www.microsoft.com/trademarks.
- **Fictitious Names**. The example companies, organizations, products, domain names, email addresses, logos, people, places, and events that are depicted in this documentation are fictitious. No association with any real company, organization, product, domain name, email address, logo, person, place, or event is intended or should be inferred.

Reservation of Rights. All other rights are reserved, and this notice does not grant any rights other than as specifically described above, whether by implication, estoppel, or otherwise.

Tools. The Open Specifications documentation does not require the use of Microsoft programming tools or programming environments in order for you to develop an implementation. If you have access to Microsoft programming tools and environments, you are free to take advantage of them. Certain Open Specifications documents are intended for use in conjunction with publicly available standards specifications and network programming art and, as such, assume that the reader either is familiar with the aforementioned material or has immediate access to it.

Support. For questions and support, please contact dochelp@microsoft.com.

Revision Summary

Date	Revision History	Revision Class	Comments
9/8/2010	0.1	New	Released new document.
10/13/2010	0.2	Minor	Clarified the meaning of the technical content.
2/10/2011	1.0	None	Introduced no new technical or language changes.
2/22/2012	2.0	Major	Significantly changed the technical content.
7/25/2012	2.1	Minor	Clarified the meaning of the technical content.
6/26/2013	3.0	Major	Significantly changed the technical content.
3/31/2014	3.0	None	No changes to the meaning, language, or formatting of the technical content.
7/7/2015	4.0	Major	Updated for new product version.
11/2/2015	4.0	None	No changes to the meaning, language, or formatting of the technical content.
3/22/2016	4.1	Minor	Clarified the meaning of the technical content.
11/2/2016	4.1	None	No changes to the meaning, language, or formatting of the technical content.
3/14/2017	4.1	None	No changes to the meaning, language, or formatting of the technical content.
10/3/2017	4.1	None	No changes to the meaning, language, or formatting of the technical content.

Table of Contents

1   Introduction

This document describes extensions provided by Microsoft web browsers for the *Document Object Model (DOM) Level 2 Events Specification Version 1.0* [DOM Level 2 - Events], W3C Recommendation 13 November, 2000.

Section 2 of this specification is normative. All other sections and examples in this specification are informative.

1.1   Glossary

MAY, SHOULD, MUST, SHOULD NOT, MUST NOT: These terms (in all caps) are used as defined in [RFC2119]. All statements of optional behavior use either MAY, SHOULD, or SHOULD NOT.

1.2   References

Links to a document in the Microsoft Open Specifications library point to the correct section in the most recently published version of the referenced document. However, because individual documents in the library are not updated at the same time, the section numbers in the documents may not match. You can confirm the correct section numbering by checking the Errata.

1.2.1   Normative References

We conduct frequent surveys of the normative references to assure their continued availability. If you have any issue with finding a normative reference, please contact dochelp@microsoft.com. We will assist you in finding the relevant information.

[DOM Level 2 - Events] World Wide Web Consortium, "Document Object Model (DOM) Level 2 Events Specification Version 1.0", W3C Recommendation 13 November 2000, http://www.w3.org/TR/2000/REC-DOM-Level-2-Events-20001113/

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997, http://www.rfc-editor.org/rfc/rfc2119.txt

1.2.2   Informative References

[CSS-Level2-2009] World Wide Web Consortium, "Cascading Style Sheets Level 2 Revision 1 (CSS 2.1) Specification", W3C Candidate Recommendation 08 September 2009, http://www.w3.org/TR/2009/CR-CSS2-20090908/

[DOM Level 2 - Core] World Wide Web Consortium, "Document Object Model (DOM) Level 2 Core Specification Version 1.0", W3C Recommendation 13 November 2000, http://www.w3.org/TR/DOM-Level-2-Core/

[DOM Level 2 - HTML] World Wide Web Consortium, "Document Object Model (DOM) Level 2 HTML Specification Version 1.0", W3C Recommendation 09 January 2003, http://www.w3.org/TR/2003/REC-DOM-Level-2-HTML-20030109/

[DOM Level 2 - Style] World Wide Web Consortium, "Document Object Model (DOM) Level 2 Style Specification Version 1.0", W3C Recommendation 13 November 2000, http://www.w3.org/TR/2000/REC-DOM-Level-2-Style-20001113/

[ECMA-262-1999] Ecma International, "ECMAScript Language Specification", Standard ECMA-262 3rd Edition - December 1999, http://www.ecma-international.org/publications/files/ECMA-ST-ARCH/ECMA-262,%203rd%20edition,%20December%201999.pdf

[HTML] World Wide Web Consortium, "HTML 4.01 Specification", W3C Recommendation 24 December 1999, http://www.w3.org/TR/html4/

[MS-CSS21E] Microsoft Corporation, "Internet Explorer Extensions to Cascading Style Sheets (CSS) 2.1 and DOM Level 2 Style Specifications".

[MS-DOM2CEX] Microsoft Corporation, "Microsoft XML Extensions to the Document Object Model (DOM) Level 2 Core Specification".

[MS-DOM2CE] Microsoft Corporation, "Internet Explorer Extensions to the Document Object Model (DOM) Level 2 Core Specification".

[MS-ES3EX] Microsoft Corporation, "Microsoft JScript Extensions to the ECMAScript Language Specification Third Edition".

[MS-HTML401E] Microsoft Corporation, "Internet Explorer Extensions to HTML 4.01 and DOM Level 2 HTML Specifications".

1.3   Extension Overview (Synopsis)

The extensions that are described in this document are selected for their applicability to [DOM Level 2 - Events].

1.3.1   Organization of This Documentation

The following sections describe additional attributes for the following interfaces:

- **Event**

- **MouseEvent**

1.4   Relationship to Standards and Other Extensions

The following documents provide information about additional extensions:

- [MS-CSS21E]: Extensions to the [CSS-Level2-2009] and [DOM Level 2 - Style] specifications.

- [MS-HTML401E]: Extensions to the [HTML] and the [DOM Level 2 - HTML] specifications.

- [MS-DOM2CE]: Extensions to the [DOM Level 2 - Core] specification for DOM Level 2 Core Services.

- [MS-DOM2CEX]: Extensions to the [HTML] and the [DOM Level 2 - HTML] specifications for Microsoft XML Core Services (MSXML).

- [MS-ES3EX]: Extensions to the ECMAScript [ECMA-262-1999] specification.

1.5   Applicability Statement

This document specifies a set of extensions to the [DOM Level 2 - Events] specification. The extensions in this document provide access to some features that are unique to Windows Internet Explorer 9, Windows Internet Explorer 10, Internet Explorer 11 and Internet Explorer 11 for Windows 10.

2   Extensions

This section specifies additional attributes for interfaces from [DOM Level 2 - Events] that are available in Microsoft web browsers.

The extensions are as follows:

- Extensions to the Event Interface

- Extensions to the MouseEvent Interface

2.1   Extensions to the Event Interface

The **Event** interface as specified in the [DOM Level 2 - Events] specification is extended by the addition of the following attributes:

- **cancelBubble**

- **srcElement**

2.1.1   cancelBubble Attribute

cancelBubble of type `boolean`, **read/write**

Gets or sets a value that indicates whether the current event should bubble up the hierarchy of event handlers. Specifies one of the following values:

- `false` - Bubbling is enabled for this event. The next event handler in the hierarchy receives the event.

- `true` - Bubbling is disabled for this event. The next event handler in the hierarchy does not receive the event.

The default value is `false`.

Using the **cancelBubble** attribute to cancel bubbling for an event does not affect subsequent events.

2.1.2   srcElement Attribute

srcElement of type `Element`, **read-only**

Gets the element that raised the event. The value of the **srcElement** attribute is the element that specifies or receives the event that occurred. When a non-element is the target of an event, the **srcElement** attribute returns `null`.

The **srcElement** attribute is read-only and has no default value.

2.2   Extensions to the MouseEvent Interface

The **MouseEvent** interface as specified in the [DOM Level 2 - Events] is extended by the addition of the following attributes:

- **fromElement**

- **layerX**

- **layerY**

- **toElement**

2.2.1 fromElement Attribute

fromElement of type `Element`, **read-only**

Gets the element from which activation or the mouse pointer is exiting during the event. The **fromElement** attribute is read-only and has no default value.

2.2.2 layerX Attribute

layerX of type `long, read-only`

Gets the horizontal coordinate of the event, relative to the whole document, unless the event occurs inside a positioned element. When the event occurs within a positioned element, the **layerX** attribute gets the horizontal coordinate of the event relative to that positioned element.

The **layerX** attribute is read-only and has no default value.

2.2.3 layerY Attribute

layerY of type `long, read-only`

Gets the vertical coordinate of the event, relative to the whole document, unless the event occurs inside a positioned element. When the event occurs within a positioned element, the **layerY** attribute gets the vertical coordinate of the event relative to that positioned element.

The **layerY** attribute is read-only and has no default value.

2.2.4 toElement Attribute

toElement of type `Element`, **read-only**

Gets the element toward which the user is moving the mouse pointer. The **toElement** attribute is read-only and has no default value.

3   Security Considerations

There are no additional security considerations.

4   Appendix A: Product Behavior

The information in this specification is applicable to the following Microsoft products or supplemental software. References to product versions include updates to those products.

- Windows Internet Explorer 9

- Windows Internet Explorer 10

- Internet Explorer 11

- Internet Explorer 11 for Windows 10

- Microsoft Edge

Exceptions, if any, are noted in this section. If an update version, service pack or Knowledge Base (KB) number appears with a product name, the behavior changed in that update. The new behavior also applies to subsequent updates unless otherwise specified. If a product edition appears with the product version, behavior is different in that product edition.

Unless otherwise specified, any statement of optional behavior in this specification that is prescribed using the terms "SHOULD" or "SHOULD NOT" implies product behavior in accordance with the SHOULD or SHOULD NOT prescription. Unless otherwise specified, the term "MAY" implies that the product does not follow the prescription.

5 Change Tracking

No table of changes is available. The document is either new or has had no changes since its last release.

6   Index

A

C

G

I

N

O

P

R

S

T