[MS-DOM4]:
Microsoft Edge / Internet Explorer DOM4 Standards Support Document

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## Revision Summary

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<td>3/22/2016</td>
<td>1.0</td>
<td>New</td>
<td>Released new document.</td>
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<td>1.1</td>
<td>Minor</td>
<td>Clarified the meaning of the technical content.</td>
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1 Introduction

This document describes the level of support provided by Microsoft web browsers for the W3C DOM4 specification [W3C-DOM4], published 19 November 2015. The [W3C-DOM4] specification defines a platform-neutral model for events and node trees.

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.


1.2.2 Informative References

None.

1.3 Microsoft Implementations

The following Microsoft web browser versions implement some portion of the [W3C-DOM4] specification:

- Microsoft Edge

Each browser version may implement multiple document rendering modes. The modes vary from one to another in support of the standard. The following table lists the document modes supported by each browser version.

<table>
<thead>
<tr>
<th>Browser Version</th>
<th>Document Modes Supported</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft Edge</td>
<td>EdgeHTML Mode</td>
</tr>
</tbody>
</table>

For each variation presented in this document there is a list of the document modes and browser versions that exhibit the behavior described by the variation. All combinations of modes and versions that are not listed conform to the specification. For example, the following list for a variation indicates that the variation exists in three document modes in all browser versions that support these modes:

Quirks Mode, IE7 Mode, and IE8 Mode (All Versions)
1.4 Standards Support Requirements

To conform to [W3C-DOM4], a user agent must implement all required portions of the specification. Any optional portions that have been implemented must also be implemented as described by the specification. Normative language is usually used to define both required and optional portions. (For more information, see [RFC2119].)

The following table lists the sections of [W3C-DOM4] and whether they are considered normative or informative.

<table>
<thead>
<tr>
<th>Sections</th>
<th>Normative/Informative</th>
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<td>1-2</td>
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<td>Informative</td>
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<tr>
<td>A, B</td>
<td>Informative</td>
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</table>

1.5 Notation

The following notations are used in this document to differentiate between notes of clarification, variation from the specification, and points of extensibility.

<table>
<thead>
<tr>
<th>Notation</th>
<th>Explanation</th>
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<tbody>
<tr>
<td>C####</td>
<td>This identifies a clarification of ambiguity in the target specification. This includes imprecise statements, omitted information, discrepancies, and errata. This does not include data formatting clarifications.</td>
</tr>
<tr>
<td>V####</td>
<td>This identifies an intended point of variability in the target specification such as the use of MAY, SHOULD, or RECOMMENDED. (See [RFC2119].) This does not include extensibility points.</td>
</tr>
<tr>
<td>E####</td>
<td>Because the use of extensibility points (such as optional implementation-specific data) can impair interoperability, this profile identifies such points in the target specification.</td>
</tr>
</tbody>
</table>

For document mode and browser version notation, see also section 1.3.
2 Standards Support Statements

This section contains all variations and clarifications for the Microsoft implementation of [W3C-DOM4].

- Section 2.1 describes normative variations from the MUST requirement of the specification.
- Section 2.2 describes clarifications of the MAY and SHOULD requirements.
- Section 2.3 considers error handling aspects of the implementation.
- Section 2.4 considers security aspects of the implementation.

2.1 Normative Variations

The following subsections describe normative variations from the MUST requirements of [W3C-DOM4].

2.1.1 [W3C-DOM4] Section 3.2 Interface Event

V0003: The isTrusted attribute is not unforgeable

The specification states:

```javascript
3.2 Interface Event
... interface Event {
...    [Unforgeable] readonly attribute boolean isTrusted;
... };
```

IE11 Mode (Internet Explorer 11)

The isTrusted attribute is not unforgeable:

```javascript
readonly attribute boolean isTrusted;
```

V0002: The timeStamp attribute is of type unsigned long long, not DOMTimeStamp

The specification states:

```javascript
3.2 Interface Event
... interface Event {
...    readonly attribute DOMTimeStamp timeStamp;
... };
```

IE11 Mode (Internet Explorer 11)

The timeStamp attribute is of type unsigned long long, not DOMTimeStamp:

```javascript
readonly attribute unsigned long long timeStamp;
```
V0001: The NONE const is not supported

The specification states:

```javascript
3.2 Interface Event
... interface Event {
  ... const unsigned short NONE = 0;
  ... }
```

**All document modes (Internet Explorer 11)**

The NONE const is not supported.

V0004: The defaultPrevented flag is not unset when an event is initialized

The specification states:

```javascript
3.2 Interface Event
... To initialize an event, with type, bubbles, and cancelable, run these steps:
  1. Set the initialized flag.
  2. Unset the stop propagation flag, stop immediate propagation flag, and canceled flag.
  3. Set the isTrusted attribute to false.
  4. Set the target attribute to null.
  5. Set the type attribute to type.
  6. Set the bubbles attribute to bubbles.
  7. Set the cancelable attribute to cancelable.
```

**All document modes (All versions)**

The defaultPrevented flag is not unset when an event is initialized: step 2 does not unset the flag when the canceled flag is unset.

V0005: The stop propagation flag is not unset when an event is initialized

The specification states:

```javascript
3.2 Interface Event
... To initialize an event, with type, bubbles, and cancelable, run these steps:
  1. Set the initialized flag.
  2. Unset the stop propagation flag, stop immediate propagation flag, and canceled flag.
  3. Set the isTrusted attribute to false.
  4. Set the target attribute to null.
  5. Set the type attribute to type.
  6. Set the bubbles attribute to bubbles.
  7. Set the cancelable attribute to cancelable.
```

**All document modes (All versions)**

The stop propagation flag is not unset when an event is initialized.
2.1.2 [W3C-DOM4] Section 3.6 Interface EventTarget

V0006: When dispatchEvent is passed a null value it throws an InvalidArgument error

The specification states:

3.6 Interface EventTarget

... interface EventTarget {
    ... boolean dispatchEvent(Event event);
};

All document modes (All versions)

When dispatchEvent is passed a null value it throws an InvalidArgument error instead of TypeError.

2.1.3 [W3C-DOM4] Section 4.2.2 Interface NonElementParentNode

V0007: The getElementById method returns Element, not nullable Element

The specification states:

4.2.2 Interface NonElementParentNode

... interface NonElementParentNode {
    Element? getElementById(DOMString elementId);
};

All document modes (All versions)

The getElementById method returns Element, not nullable Element:

    Element getElementById(DOMString elementId);

V0008: The DocumentFragment interface does not implement the NonElementParentNode interface

The specification states:

4.2.2 Interface NonElementParentNode

... interface NonElementParentNode {
    ...
};

... DocumentFragment implements NonElementParentNode;

All document modes (All versions)

The DocumentFragment interface does not implement the NonElementParentNode interface.
2.1.4 [W3C-DOM4] Section 4.2.3 Interface ParentNode

V0009: The Document and DocumentFragment interfaces do not implement the firstElementChild, lastElementChild, and childElementCount attributes

The specification states:

```
4.2.3 Interface ParentNode
    ...
    interface ParentNode {
        ...           
        readonly attribute Element? firstElementChild;
        readonly attribute Element? lastElementChild;
        readonly attribute unsigned long childElementCount;
        ...
    }
```

Document implements ParentNode;
DocumentFragment implements ParentNode;

All document modes (All versions)

The Document and DocumentFragment interfaces do not implement the firstElementChild, lastElementChild, and childElementCount attributes.

V0012: The querySelector function is of type Element, not nullable Element

The specification states:

```
4.2.3 Interface ParentNode
    ...
    interface ParentNode {
        ...
        Element? querySelector(DOMString selectors);
        ...
    }
```

All document modes (All versions)

The querySelector function is of type Element, not nullable Element:

```
Element querySelector(DOMString selectors);
```

V0013: The querySelectorAll function does not define itself as [NewObject]

The specification states:

```
4.2.3 Interface ParentNode
    ...
    interface ParentNode {
        ...           
        [NewObject] NodeList querySelectorAll(DOMString selectors);
    }
```
All document modes (All versions)

The `querySelectorAll` function does not define itself as `[NewObject]`:

```javascript
NodeList querySelectorAll(DOMString selectors);
```

V0010: The `firstElementChild` and `lastElementChild` attributes are of type `Element`, not nullable `Element`.

The specification states:

```javascript
interface ParentNode {
    readonly attribute Element? firstElementChild;
    readonly attribute Element? lastElementChild;
    ...
};
```

All document modes (All versions)

The `firstElementChild` and `lastElementChild` attributes are of type `Element`, not nullable `Element`:

```javascript
readonly attribute Element firstElementChild;
readonly attribute Element lastElementChild;
```

V0011: The `children` attribute is not correctly implemented in the `Document`, `DocumentFragment`, and `Element` interfaces.

The specification states:

```javascript
interface ParentNode {
    [SameObject] readonly attribute HTMLCollection children;
    ...
};
```

All document modes (All versions)

The `children` attribute is not correctly implemented in the `Document`, `DocumentFragment`, and `Element` interfaces.

2.1.5 [W3C-DOM4] Section 4.2.4 Interface NonDocumentTypeChildNode

V0015: The `CharacterData` interface does not implement the `NonDocumentTypeChildNode` interface.

The specification states:
4.2.4 Interface NonDocumentTypeChildNode
...
interface NonDocumentTypeChildNode {
    ...}
...CharacterData implements NonDocumentTypeChildNode;

All document modes (All versions)

The CharacterData interface does not implement the NonDocumentTypeChildNode interface.

V0014: The previousElementSibling and nextElementSibling attributes are of type Element, not nullable Element

The specification states:

4.2.4 Interface NonDocumentTypeChildNode
...
interface NonDocumentTypeChildNode {
    readonly attribute Element? previousElementSibling;
    readonly attribute Element? nextElementSibling;
};

IE11 Mode (Internet Explorer 11)

The previousElementSibling and nextElementSibling attributes are of type Element, not nullable Element:

   readonly attribute Element previousElementSibling;
   readonly attribute Element nextElementSibling;

2.1.6 [W3C-DOM4] Section 4.5.1 Interface DOMImplementation

V0016: The hasFeature method takes two arguments

The specification states:

4.5.1 Interface DOMImplementation
User agents must create a DOMImplementation object whenever a document is created and associate it with that document.
...
interface DOMImplementation {
    ...
    boolean hasFeature(); // useless; always returns true
};

IE11 Mode (All versions)

The hasFeature method takes two arguments, not zero:

   boolean hasFeature(DOMString? feature, DOMString? version);
2.1.7 [W3C-DOM4] Section 4.8 Interface Element

V0019: The `getElementsByClassName` method is not supported on the Element instance

The specification states:

```javascript
4.8 Interface Element
...
interface Element : Node {
    ...
    HTMLCollection getElementsByClassName(DOMString classNames);
};
```

All document modes (All versions)

The `getElementsByClassName` method is not supported on the `Element` instance (however, it is available on the `HTMLElement` interface).

V0017: The `namespaceURI`, and `localName` attributes, and the `attributes` attribute, are inherited from the Node interface

The specification states:

```javascript
4.8 Interface Element
...
interface Element : Node {
    readonly attribute DOMString? namespaceURI;
    ...;
    readonly attribute DOMString localName;
    ...;
    [SameObject] readonly attribute NamedNodeMap attributes;
    ...
};
```

All document modes (All versions)

The `namespaceURI`, and `localName` attributes, and the `attributes` attribute, are inherited from the `Node` interface instead of being defined on the `Element` interface.

2.1.8 [W3C-DOM4] Section 4.8.1 Interface Attr

V0020: The `namespaceURI` and `localName` attributes are not supported

The specification states:

```javascript
4.8.1 Interface Attr
...
interface Attr {
    readonly attribute DOMString? namespaceURI;
    ...;
    readonly attribute DOMString localName;
    ...
};
```

All document modes (All versions)
The namespaceURI and localName attributes are not supported.

2.1.9 [W3C-DOM4] Section 4.9 Interface CharacterData

V0021: The data attribute when set to null returns null, not EmptyString

The specification states:

```javascript
4.9 Interface CharacterData
... interface CharacterData : Node {
    [TreatNullAs=EmptyString] attribute DOMString data;
... }
```

**All document modes (All versions)**

The data attribute when set to null returns null, not EmptyString.

V0022: The deleteData and replaceData methods throw an IndexSizeError when passed negative values

The specification states:

```javascript
4.9 Interface CharacterData
... interface CharacterData : Node {
    ... void deleteData(unsigned long offset, unsigned long count);
    ... void replaceData(unsigned long offset, unsigned long count, DOMString data);
... }
```

**All document modes (All versions)**

The deleteData and replaceData methods throw an IndexSizeError when passed negative values. They should instead treat negative values as if they were zero.

2.1.10 [W3C-DOM4] Section 4.10 Interface Text

V0023: The Text constructor is not supported

The specification states:

```javascript
4.10 Interface Text
... [Constructor(optional DOMString data = ""), Exposed=Window] interface Text : CharacterData {
    ... }
```

**All document modes (All versions)**
The Text constructor is not supported.

2.1.11 [W3C-DOM4] Section 5.2 Interface Range
V0024: The isPointInRange, comparePoint, and intersectsNode methods are not supported

The specification states:

```
5.2 Interface Range
   ...
   interface Range {
       ...
       boolean isPointInRange(Node node, unsigned long offset);
       short comparePoint(Node node, unsigned long offset);
       boolean intersectsNode(Node node);
   }
```

All document modes (All versions)
The isPointInRange, comparePoint, and intersectsNode methods are not supported.

2.1.12 [W3C-DOM4] Section 6.1 Interface NodeIterator
V0025: The referenceNode and pointerBeforeReferenceNode attributes are not supported

The specification states:

```
6.1 Interface NodeIterator
   ...
   interface NodeIterator {
       ...
       readonly attribute Node referenceNode;
       readonly attribute boolean pointerBeforeReferenceNode;
   }
```

All document modes (All versions)
The referenceNode and pointerBeforeReferenceNode attributes are not supported.

2.2 Clarifications
There are no clarifications of the MAY and SHOULD requirements of [W3C-DOM4].

2.3 Error Handling
There are no additional error handling considerations.
2.4  Security

There are no additional security considerations.
3 Change Tracking

This section identifies changes that were made to this document since the last release. Changes are classified as Major, Minor, or None.

The revision class **Major** means that the technical content in the document was significantly revised. Major changes affect protocol interoperability or implementation. Examples of major changes are:

- A document revision that incorporates changes to interoperability requirements.
- A document revision that captures changes to protocol functionality.

The revision class **Minor** means that the meaning of the technical content was clarified. Minor changes do not affect protocol interoperability or implementation. Examples of minor changes are updates to clarify ambiguity at the sentence, paragraph, or table level.

The revision class **None** means that no new technical changes were introduced. Minor editorial and formatting changes may have been made, but the relevant technical content is identical to the last released version.

The changes made to this document are listed in the following table. For more information, please contact dochelp@microsoft.com.

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<th>Description</th>
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<td>2.1.12 [W3C-DOM4] Section 6.1 Interface NodeIterator</td>
<td>The doc modes were changed for V0025.</td>
<td>Minor</td>
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