

## [MS-DOM2TR]:

# Internet Explorer Document Object Model (DOM) Level 2 Traversal and Range Standards Support Document

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## Revision Summary

Date	Revision History	Revision Class	Comments
9/8/2010	0.1	New	Released new document.
2/10/2011	1.0	Minor	Clarified the meaning of the technical content.
2/22/2012	3.0	Major	Significantly changed the technical content.
7/25/2012	3.1	Minor	Clarified the meaning of the technical content.
6/26/2013	4.0	Major	Significantly changed the technical content.
3/31/2014	4.0	None	No changes to the meaning, language, or formatting of the technical content.
1/22/2015	5.0	Major	Updated for new product version.
7/7/2015	5.1	Minor	Clarified the meaning of the technical content.
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# 1 Introduction

This document describes the level of support provided by Microsoft web browsers for the *Document Object Model (DOM) Level 2 Traversal and Range Specification* [[DOM Level 2 - Traversal Range](#)] Version 1.0, W3C Recommendation 13 November 2000.

The [[DOM Level 2 - Traversal Range](#)] specification may contain guidance for authors of webpages and browser users, in addition to user agents (browser applications). Statements found in this document apply only to normative requirements in the specification targeted to user agents, not those targeted to authors.

## 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](mailto:dochelp@microsoft.com). We will assist you in finding the relevant information.

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

[[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

None.

## 1.3 Microsoft Implementations

The following Microsoft web browser versions implement some portion of the [[DOM Level 2 - Traversal Range](#)] specification:

- Windows Internet Explorer 9
- Windows Internet Explorer 10
- Internet Explorer 11
- Internet Explorer 11 for Windows 10
- 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 in each browser version that support the specification.

Browser Version	Document Modes Supported
Internet Explorer 9	IE9 Mode
Internet Explorer 10	IE9 Mode IE10 Mode
Internet Explorer 11	IE9 Mode IE10 Mode IE11 Mode
Internet Explorer 11 for Windows 10	IE9 Mode IE10 Mode IE11 Mode
Microsoft Edge	EdgeHTML Mode

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:

*IE9 Mode, IE10 Mode, and IE11 Mode (All Versions)*

## 1.4 Standards Support Requirements

To conform to [\[DOM Level 2 - Traversal Range\]](#), 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 [\[DOM Level 2 - Traversal Range\]](#) and whether they are considered normative or informative.

Sections	Normative/Informative
1	Normative
2	Normative

## 1.5 Notation

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

Notation	Explanation
C####	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.
V####	Identifies an intended point of variability in the target specification such as the use of MAY, SHOULD,

Notation	Explanation
	or RECOMMENDED. (See <a href="#">RFC2119</a> .) This does not include extensibility points.
E####	Identifies extensibility points (such as optional implementation-specific data) in the target specification, which can impair interoperability.

For document mode and browser version notation, see section [1.3](#).

## 2 Standards Support Statements

This section contains a full list of variations, clarifications, and extension points in the Microsoft implementation of [\[DOM Level 2 - Traversal Range\]](#).

- Section [2.1](#) includes only those variations that violate a MUST requirement in the target specification.
- Section [2.2](#) describes further variations from MAY and SHOULD requirements.
- Section [2.4](#) identifies variations in error handling.
- Section [2.5](#) identifies variations that impact security.

### 2.1 Normative Variations

The following subsections detail the normative variations from MUST requirements in [\[DOM Level 2 - Traversal Range\]](#).

#### 2.1.1 [DOM Level 2 - Traversal Range] Section 1.2, Formal Interface Definition

V0001:

The specification states:

```
filter of type NodeFilter, readonly
    The NodeFilter used to screen nodes.
```

*IE9 Mode, IE10 Mode, IE11 Mode, and EdgeHTML Mode (All Versions)*

The **filter** property returns a function pointer to the **NodeFilter** callback.

V0002:

The specification states:

```
acceptNode
    Test whether a specified node is visible in the logical view of a TreeWalker or NodeIterator.
    This function will be called by the implementation of TreeWalker and NodeIterator; it is not
    normally called directly from user code. (Though you could do so if you wanted to use the
    same filter to guide your own application logic.)

Parameters
    n of type Node
    The node to check to see if it passes the filter or not.

Return Value
    short a constant to determine whether the node is accepted, rejected, or skipped, as defined
    above.

No Exceptions
```

*IE9 Mode, IE10 Mode, IE11 Mode, and EdgeHTML Mode (All Versions)*

The **acceptNode** method can return a hexadecimal string of the form "0x1", which indicates FILTER\_ACCEPT behavior. However, in this case, the string is not converted into the FILTER\_ACCEPT constant value.

V0007:

The specification states:

`createNodeIterator`

Create a new `NodeIterator` over the subtree rooted at the specified node. Parameters  
root of type `Node`

The node which will be iterated together with its children. The iterator is initially positioned just before this node. The `whatToShow` flags and the filter, if any, are not considered when setting this position. The root must not be null.  
`whatToShow` of type `unsigned long`

This flag specifies which node types may appear in the logical view of the tree presented by the iterator. See the description of `NodeFilter` for the set of possible `SHOW_` values.

These flags can be combined using OR.  
filter of type `NodeFilter`

The `NodeFilter` to be used with this `TreeWalker`, or null to indicate no filter.  
entityReferenceExpansion of type `boolean`

The value of this flag determines whether entity reference nodes are expanded.

Return Value

`NodeIterator` The newly created `NodeIterator`.

Exceptions

`DOMException NOT_SUPPORTED_ERR`: Raised if the specified root is null.

*IE9 Mode, IE10 Mode, and IE11 Mode (All Versions)*

The **`NodeIterator`** returned by the **`createNodeIterator`** method has the **`whatToShow`** property value set as `-1` instead of the expected value of `0xFFFFFFFF`.

### 2.1.2 [DOM Level 2 - Traversal Range] Section 2.6, Deleting Content with a Range

V0011:

The specification states:

Note that if deletion of a `Range` leaves adjacent `Text` nodes, they are not automatically merged, and empty `Text` nodes are not automatically removed. Two `Text` nodes should be joined only if each is the container of one of the boundary-points of a `Range` whose contents are deleted. To merge adjacent `Text` nodes, or remove empty `Text` nodes, the `normalize()` method on the `Node` interface should be used.

*IE9 Mode, IE10 Mode, IE11 Mode, and EdgeHTML Mode (All Versions)*

If a `Range` corresponds to a complete `Text` node and **`deleteContents()`** is called, the empty `Text` node is removed from the tree.

### 2.1.3 [DOM Level 2 - Traversal Range] Section 2.12, Range modification under document mutation

V0004:

The specification states:



There are two general principles which apply to Ranges under document mutation: The first is that all Ranges in a document will remain valid after any mutation operation and the second is that, as much as possible, all Ranges will select the same portion of the document after any mutation operation.

### *IE9 Mode, IE10 Mode, and IE11 Mode (All Versions)*

If the boundary points are positioned on the end points of a text node, and if methods such as **replaceWholeText** or **appendData** are used to modify the text node, the boundary points after the operation are incorrect. This error occurs because Windows Internet Explorer cannot distinguish between the first position within a text node and the beginning offset of the text node within its parent.

## **2.2 Clarifications**

There are no additional clarifications to [\[DOM Level 2 - Traversal Range\]](#).

## **2.3 Extensions**

The following subsections describe extensions to the requirements of [\[DOM Level 2 - Traversal Range\]](#).

### **2.3.1 [DOM Level 2 - Traversal Range] Section 2.13, Formal Description of the Range Interface**

E0001:

The specification describes the **Range** interface.

#### *IE10 Mode, IE11 Mode, and EdgeHTML Mode (All Versions)*

The **createContextualFragment()** method has been added to the **Range** interface. The **createContextualFragment()** method parses a string of HTML into a **DocumentFragment** using the starting node of a DOM Range as the parsing context.

## **2.4 Error Handling**

There are no additional considerations for error handling.

## **2.5 Security**

There are no additional security considerations.

### **3 Change Tracking**

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

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