

## [MS-CSS21E]:

# Internet Explorer Extensions to Cascading Style Sheets (CSS) 2.1 and DOM Level 2 Style Specifications

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## Revision Summary

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# 1 Introduction

This document describes extensions provided by Microsoft web browsers for the *Cascading Style Sheets Level 2 Revision 1 (CSS 2.1) Specification* [[CSS-Level2-2009](#)], published 8 September 2009, and *Document Object Model (DOM) Level 2 Style Specification* [[DOM Level 2 - Style](#)], published 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](mailto:dochelp@microsoft.com). We will assist you in finding the relevant information.

[CSS-Level2-2009] Bos, B., Celik, T., Hickson, I., and Wium Lie, H., Eds., "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 - Style] W3C, "Document Object Model (DOM) Level 2 Style Specification Version 1.0", W3C Recommendation, November 2000, <http://www.w3.org/TR/2000/REC-DOM-Level-2-Style-20001113/>

[MS-CSS21] Microsoft Corporation, "[Internet Explorer Cascading Stylesheets \(CSS\) 2.1 Standards Support Document](#)".

[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

[DOM Level 2 - Core] W3C, "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] W3C, "Document Object Model (DOM) Level 2 HTML Specification Version 1.0", W3C Recommendation, January 2003, <http://www.w3.org/TR/2003/REC-DOM-Level-2-HTML-20030109/>

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

[ECMA-262/5] ECMA International, "Standard ECMA-262 ECMAScript Language Specification", 5th Edition (December 2009), <http://www.ecma-international.org/publications/files/ECMA-ST-ARCH/ECMA-262%205th%20edition%20December%202009.pdf>

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

[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-DOM2EE] Microsoft Corporation, "[Internet Explorer Extensions to the Document Object Model \(DOM\) Level 2 Events Specification](#)".

[MS-DOM2E] Microsoft Corporation, "[Internet Explorer Document Object Model \(DOM\) Level 2 Events Standards Support Document](#)".

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

[MS-ES5EX] Microsoft Corporation, "[Internet Explorer Extensions to the ECMA-262 ECMAScript Language Specification \(Fifth Edition\)](#)".

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

[MSDN-DefaultBehaviors] Microsoft Corporation, "Default Behaviors Reference", DHTML Behaviors, [http://msdn.microsoft.com/en-us/library/ms531081\(VS.85\).aspx](http://msdn.microsoft.com/en-us/library/ms531081(VS.85).aspx)

[MSDN-VisualFilters] Microsoft Corporation, "Visual Filters and Transitions Reference", [http://msdn.microsoft.com/en-us/library/ms532853\(VS.85\).aspx](http://msdn.microsoft.com/en-us/library/ms532853(VS.85).aspx)

### 1.3 Extension Overview (Synopsis)

The extensions described in this document were selected for their applicability to [\[CSS-Level2-2009\]](#) and [\[DOM Level 2 - Style\]](#).

The additional style attributes of **CSSStyleDeclaration** are organized based on sections of [\[CSS-Level2-2009\]](#) as follows:

#### Section 14, Colors and Backgrounds

- [background-position-x](#) (-ms-background-position-x)
- [background-position-y](#) (-ms-background-position-y)

#### Section 16, Text

- [layout-flow](#) (-ms-layout-flow)
- [layout-grid](#) (-ms-layout-grid)
- [layout-grid-char](#) (-ms-layout-grid-char)
- [layout-grid-line](#) (-ms-layout-grid-line)
- [layout-grid-mode](#) (-ms-layout-grid-mode)

- [layout-grid-type](#) (-ms-layout-grid-type)
- [text-underline-position](#) (-ms-text-underline-position)

## Section 18, User Interface

- [accelerator](#) (-ms-accelerator)
- [-ms-interpolation-mode](#)
- [scrollbar-3dlight-color](#) (-ms-scrollbar-3dlight-color)
- [scrollbar-arrow-color](#) (-ms-scrollbar-arrow-color)
- [scrollbar-base-color](#) (-ms-scrollbar-base-color)
- [scrollbar-darkshadow-color](#) (-ms-scrollbar-darkshadow-color)
- [scrollbar-face-color](#) (-ms-scrollbar-face-color)
- [scrollbar-highlight-color](#) (-ms-scrollbar-highlight-color)
- [scrollbar-shadow-color](#) (-ms-scrollbar-shadow-color)
- [scrollbar-track-color](#) (-ms-scrollbar-track-color)
- [-webkit-tap-highlight-color](#)
- [-webkit-text-fill-color](#)
- [zoom](#) (-ms-zoom)

\*\* Names in parentheses are synonyms available in IE8 Mode and IE9 Mode.

The additional DOM attributes and methods can be organized similarly, based on function.

## Document Object Model

- [CSSStyleDeclaration.getAttribute\(\)](#)
- [CSSStyleDeclaration.removeAttribute\(\)](#)
- [CSSStyleDeclaration.setAttribute\(\)](#)

## Dynamic Styles

- [CSSStyleRule.readOnly](#)
- [CSSStyleSheet.addImport\(\)](#)
- [CSSStyleSheet.addPageRule\(\)](#)
- [CSSStyleSheet.addRule\(\)](#)
- [CSSStyleSheet.id](#)
- [CSSStyleSheet.imports](#)
- [CSSStyleSheet.isAlternate](#)
- [CSSStyleSheet.isPrefAlternate](#)
- [CSSStyleSheet.owningElement](#)



- [CSSStyleSheet.pages](#)
- [CSSStyleSheet.readOnly](#)
- [CSSStyleSheet.removeImport\(\)](#)
- [CSSStyleSheet.removeRule\(\)](#)
- [CSSStyleSheet.rules](#)
- [StyleSheetPage.pseudoClass](#)
- [StyleSheetPage.selector](#)
- [StyleSheetPageList.item\(\)](#)
- [StyleSheetPageList.length](#)

### **Visual Formatting**

- [CSSStyleDeclaration.pixelBottom](#)
- [CSSStyleDeclaration.pixelHeight](#)
- [CSSStyleDeclaration.pixelLeft](#)
- [CSSStyleDeclaration.pixelRight](#)
- [CSSStyleDeclaration.pixelTop](#)
- [CSSStyleDeclaration.pixelWidth](#)
- [CSSStyleDeclaration.posBottom](#)
- [CSSStyleDeclaration.posHeight](#)
- [CSSStyleDeclaration.posLeft](#)
- [CSSStyleDeclaration.posRight](#)
- [CSSStyleDeclaration.posTop](#)
- [CSSStyleDeclaration.posWidth](#)
- [CSSStyleDeclaration.styleFloat](#)

### **Text**

- [CSSStyleDeclaration.textDecorationBlink](#)
- [CSSStyleDeclaration.textDecorationLineThrough](#)
- [CSSStyleDeclaration.textDecorationNone](#)
- [CSSStyleDeclaration.textDecorationOverline](#)
- [CSSStyleDeclaration.textDecorationUnderline](#)

### **Special Functions**

- [CSSStyleDeclaration.getExpression\(\)](#)
- [CSSStyleDeclaration.removeExpression\(\)](#)

- [CSSStyleDeclaration.setExpression\(\)](#)
- [CSSStyleDeclaration.toString\(\)](#)

### 1.3.1 Organization of This Documentation

This document is organized as follows:

- **Interfaces:** The extensions are listed according to interface at the highest level.
- **Attributes, Methods, Collections:** The interface members are described at the next levels.

### 1.4 Relationship to Standards and Other Extensions

The following documents provide additional extensions.

- [\[MS-HTML401E\]](#): Extensions to [\[HTML\]](#) and the [\[DOM Level 2 - HTML\]](#) specifications.
- [\[MS-DOM2CE\]](#) and [\[MS-DOM2CEX\]](#): Extensions to the [\[DOM Level 2 - Core\]](#) specification for Windows Internet Explorer and Microsoft XML Core Services.
- [\[MS-DOM2EE\]](#): Extensions to the [\[MS-DOM2E\]](#) specification.
- [\[MS-ES3EX\]](#): Extensions to the ECMAScript [\[ECMA-262-1999\]](#) specification.
- [\[MS-ES5EX\]](#): Extensions to the ECMAScript [\[ECMA-262/5\]](#) specification.

### 1.5 Applicability Statement

This document specifies a set of extensions to the [\[CSS-Level2-2009\]](#) and [\[DOM Level 2 - Style\]](#) specifications. The extensions in this document provide access to some features that are unique to Windows Internet Explorer 7, Windows Internet Explorer 8, Windows Internet Explorer 9, Windows Internet Explorer 10, Internet Explorer 11, Internet Explorer 11 for Windows 10, and Microsoft Edge.

## 2 Extensions

This section specifies additional attributes and methods to elements from [\[CSS-Level2-2009\]](#) and [\[DOM Level 2 - Style\]](#) that are available in Windows Internet Explorer 7, Windows Internet Explorer 8, Windows Internet Explorer 9, Windows Internet Explorer 10, Internet Explorer 11, Internet Explorer 11 for Windows 10, and Microsoft Edge.

The extensions are as follows:

- [Additional Properties](#)
- [Property Aliases](#)
- Extensions to the [CSSStyleDeclaration](#) Interface
- Extensions to the [CSSStyleRule](#) Interface
- Extensions to the [CSSStyleSheet](#) Interface
- [StyleSheetPage](#) Interface (a Microsoft extension)
- [StyleSheetPageList](#) Interface (a Microsoft extension)

### 2.1 Additional Properties

This section lists CSS properties that are implemented by Microsoft web browsers in addition to those described in [\[CSS-Level2-2009\]](#).

These properties also contribute attributes to the **CSS2Properties** interface defined in [\[DOM Level 2 - Style\]](#). Although this interface was not specifically implemented in Windows Internet Explorer, it is closely related to the **CSSStyleDeclaration** prototype object defined by Internet Explorer 8.

#### 2.1.1 Attributes

The **CSSStyleDeclaration** interface has been extended with the following attributes:

- [accelerator](#)
- [background-position-x](#)
- [background-position-y](#)
- [behavior](#)
- [filter](#)
- [layout-flow](#)
- [layout-grid](#)
- [layout-grid-char](#)
- [layout-grid-line](#)
- [layout-grid-mode](#)
- [layout-grid-type](#)
- [-ms-content-zoom-chaining](#)

- [-ms-content-zooming](#)
- [-ms-content-zoom-limit](#)
- [-ms-content-zoom-limit-max](#)
- [-ms-content-zoom-limit-min](#)
- [-ms-content-zoom-snap](#)
- [-ms-content-zoom-snap-points](#)
- [-ms-content-zoom-snap-type](#)
- [-ms-high-contrast-adjust](#)
- [-ms-ime-align](#)
- [-ms-interpolation-mode](#)
- [-ms-user-select](#)
- [scrollbar-3dlight-color](#)
- [scrollbar-arrow-color](#)
- [scrollbar-base-color](#)
- [scrollbar-darkshadow-color](#)
- [scrollbar-face-color](#)
- [scrollbar-highlight-color](#)
- [scrollbar-shadow-color](#)
- [scrollbar-track-color](#)
- [text-kashida-space](#)
- [text-underline-position](#)
- [-webkit-tap-highlight-color](#)
- [-webkit-text-fill-color](#)
- [-webkit-user-modify](#)
- [zoom](#)

#### 2.1.1.1 accelerator

**accelerator** of type `DOMString`, **read/write**

Sets or retrieves a string that indicates whether the object represents a keyboard shortcut. The object returns `true` if it is a keyboard shortcut; `false` otherwise.

When the option to "Hide keyboard navigation indicators until I use the Alt key" is enabled in the user's Display Properties, accelerators are not underlined until the user presses the ALT key.

<b>accelerator</b>	
Value:	true   false
Initial:	false
Applies to:	block-level elements and inline blocks
Inherited:	no
Percentages:	N/A
Media:	<a href="#">visual</a>
Computed value:	As specified

### 2.1.1.2 background-position-x

**backgroundPositionX** of type `DOMString`, **read/write**

Sets or retrieves the x-coordinate of the **backgroundPosition** property. The string value can be in the form of an absolute units designator (cm, mm, in, pt, pc, px) or a relative units designator (em, ex, ch, rem, vw, vh, and vmin). It can also be in the form of a percentage or a horizontal alignment value.

<b>background-position-x</b>	
Value:	<length>   <percentage>   [ left    center    right ]
Initial:	0%
Applies to:	All elements
Inherited:	no
Percentages:	Width or height of the element
Media:	<a href="#">visual</a>
Computed value:	As specified

### 2.1.1.3 background-position-y

**backgroundPositionY** of type `DOMString`, **read/write**

Sets or retrieves the y-coordinate of the **backgroundPosition** property. The string value can be in the form of an absolute units designator (cm, mm, in, pt, pc, px) or a relative units designator (em, ex, ch, rem, vw, vh, and vmin). It can also be in the form of a percentage or a vertical alignment value.

<b>background-position-y</b>	
Value:	<length>   <percentage>   [ top    center    bottom ]
Initial:	0%

<b>background-position-y</b>	
Applies to:	All elements
Inherited:	no
Percentages:	Width or height of the element
Media:	<a href="#">visual</a>
Computed value:	As specified

#### 2.1.1.4 behavior

**behavior** of type `DOMString`, **read/write**

Sets or retrieves the location of the Dynamic HTML (DHTML) behavior. In a script implementation, the location can be an absolute or relative URL. In a binary implementation, the location is the **id** attribute specified for an **object** element. Default behaviors are identified by the string `#default#` plus behavior name.

<b>behavior</b>	
Value:	<uri>
Initial:	none
Applies to:	block-level elements, table elements, and inline blocks
Inherited:	no
Percentages:	N/A
Media:	<a href="#">visual</a>
Computed value:	As specified

Values have the following meanings:

##### **url(location)**

Script implementation of DHTML behavior, where `location` is absolute or relative URL.

##### **url(#id)**

Binary implementation of DHTML behavior, where `id` is the specified **id** attribute of the **OBJECT** element.

##### **url(#default#behaviorName)**

Internet Explorer built-in default behavior, identified by `behaviorName`. For more information, see [\[MSDN-DefaultBehaviors\]](#).

**Note** `behavior` is not supported in IE11 Mode (All Versions).

#### 2.1.1.5 filter

*Quirks Mode, IE7 Mode, IE8 Mode, and IE9 Mode (All Versions)*

**filter** of type `DOMString`, **read/write**

Sets or retrieves the filter or collection of filters applied to the object. Delimit multiple values with commas (,). In Internet Explorer 8, enclose the values in single quotation marks (') or double quotation marks (") when using **-ms-filter**.

<b>filter</b>	
Value:	progid:<filterName>([param1, param2, ...])
Initial:	none
Applies to:	block-level elements, table elements, and inline blocks
Inherited:	no
Percentages:	N/A
Media:	<a href="#">visual</a>
Computed value:	As specified

Values have the following meanings:

**filterName**

Any filter listed in [\[MSDN-VisualFilters\]](#).

**param**

Parameter values as defined by the named filter.

An object must have layout for the filter to render. The **hasLayout** feature of quirks mode and IE7 mode is described in [\[MS-CSS21\]](#), Appendix C: hasLayout.

### 2.1.1.6 layout-flow

**Note:** Not available in EdgeHTML Mode

**layoutFlow** of type `DOMString`, **read/write**

Sets or retrieves the direction and flow of the content in the object.

The default value for this attribute is `horizontal`. In this mode, content in the object flows from left to right, and the next horizontal line is positioned underneath the previous line. This layout is used in most Roman-based documents. The other possible value for this attribute is `vertical-ideographic`. In this mode, content in the object flows from top to bottom, and the next vertical line appears to the left of the previous one. This layout is used in East Asian typography.

<b>layout-flow</b>	
Value:	horizontal   vertical-ideographic
Initial:	horizontal
Applies to:	All elements
Inherited:	yes
Percentages:	N/A

<b>layout-flow</b>	
Media:	<a href="#">visual</a>
Computed value:	As specified

Values have the following meanings:

### **horizontal**

Content in the object flows from left to right, top to bottom.

### **vertical-ideographic**

Content flows from top to bottom, and next vertical line appears to the left of the previous one.

### **2.1.1.7 layout-grid**

**Note:** Not available in EdgeHTML Mode

**layoutGrid** of type `DOMString`, **read/write**

Sets or retrieves the composite document grid properties that specify the layout of text characters.

The property has a default value of both `loose none none`.

<b>layout-grid</b>	
Value:	[<'layout-mode'> [<'layout-type'> [<'layout-line'> [<'layout-char'>]]]]
Initial:	both loose none none
Applies to:	block-level elements, and table elements
Inherited:	yes
Percentages:	N/A
Media:	<a href="#">visual</a>
Computed value:	As specified

### **2.1.1.8 layout-grid-char**

**layoutGridChar** of type `DOMString`, **read/write**

Sets or retrieves the size of the character grid used for rendering the text content of an element. This property has a default value of `none`. The other possible values are `length`, `percentage`, and `auto`.

<b>layout-grid-char</b>	
Value:	<code>none   auto   &lt;length&gt;   &lt;percentage&gt;</code>
Initial:	<code>none</code>
Applies to:	block-level elements, and table elements



<b>layout-grid-char</b>	
Inherited:	yes
Percentages:	Refer to parent object
Media:	<a href="#">visual</a>
Computed value:	As specified

Values have the following meaning:

**none**

Default. No character grid is set.

**auto**

Largest character in the font is used to set the character grid.

**<length>**

Floating-point number, followed by units designator.

**<percentage>**

Integer, followed by percent sign (%).

**2.1.1.9 layout-grid-line**

**layoutGridLine** of type `DOMString`, **read/write**

Sets or retrieves the line height value used for rendering the text content of an element. This property has a default value of `none`. The other possible values are `length`, `percentage`, and `auto`.

<b>layout-grid-line</b>	
Value:	<code>none   auto   &lt;length&gt;   &lt;percentage&gt;</code>
Initial:	<code>none</code>
Applies to:	block-level elements, and table elements
Inherited:	yes
Percentages:	Refer to parent object
Media:	<a href="#">visual</a>
Computed value:	As specified

Values have the following meanings:

**none**

Default. No line grid is set.

**auto**

Largest character in the font is used to set the line height.

### <length>

Floating point number, followed by units designator.

### <percentage>

Integer, followed by percent sign (%).

## 2.1.1.10 layout-grid-mode

**layoutGridMode** of type `DOMString`, **read/write**

Sets or retrieves whether the text layout grid uses two dimensions. This property has a default value of `both` where both the `line` and `char` grids are enabled. The other possible values are `none`, `line`, and `char`.

layout-grid-mode	
Value:	both   none   line   char
Initial:	both
Applies to:	All elements
Inherited:	yes
Percentages:	N/A
Media:	<a href="#">visual</a>
Computed value:	As specified

Values have the following meaning:

#### **both**

Default. Both char and line grid modes are enabled.

#### **none**

No grid is used.

#### **line**

Only a line grid is used. This is recommended for inline elements, such as **span**.

#### **char**

Only a character grid is used. This is recommended for block-level elements, such as **blockquote**.

## 2.1.1.11 layout-grid-type

**layoutGridType** of type `DOMString`, **read/write**

Sets or retrieves the gridline value used for rendering the text content of an element. This property has a default value of `loose`. The other possible values are `strict` and `fixed`.

layout-grid-type	
Value:	loose   strict   fixed

<b>layout-grid-type</b>	
Initial:	loose
Applies to:	block-level elements, and table elements
Inherited:	yes
Percentages:	N/A
Media:	<a href="#">visual</a>
Computed value:	As specified

Values have the following meanings:

### **loose**

Grid used for Japanese and Korean characters. In this mode, a constant width increment is applied to characters as follows:

- Wide characters and narrow kana characters are incremented to obtain an exact grid fit, as specified by the **layout-grid-char** property.
- Narrow characters, except connected and cursive characters, are incremented by half of the increment amount applied to wide characters.
- Other characters, including connected and cursive characters, are not incremented, and behave as if no character grid is set.

### **strict**

Grid used for Chinese, as well as Japanese (Genko) and Korean characters. Only the ideographs, kanas, and wide characters are snapped to the grid. Other characters are rendered as usual, as though the **layout-grid-mode** attribute is set to `none` or `line` for text spans containing these characters. This mode also disables special text justification and character width adjustments normally applied to the element. Finally, if there is no line-break opportunity in a text span that exceeds the line boundary, the text is pushed to the next line and the last part of the previous line is left blank.

### **fixed**

Grid used for monospaced layout. The layout rules are as follows:

- All non-cursive characters are treated as equal; every character is centered within a single grid space by default.
- Runs of cursive characters are treated as strips; the same as in a strict grid.
- Justification or any other character-width changing behaviors are disabled.

#### **2.1.1.12 -ms-content-zoom-chaining**

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

**msContentZoomChaining** of type `DOMString`, **read/write**

Sets or retrieves the value that determines the zoom behavior when a user hits the zoom limit during a manipulation.

<b>-ms-content-zoom-chaining</b>	
Value:	none   chained
Initial:	none
Applies to:	non-replaced block-level elements and non-replaced inline-block elements
Inherited:	no
Percentages:	N/A
Media:	<a href="#">interactive</a>
Computed value:	N/A

Values have the following meaning:

**none**

Initial value. A bounce effect is shown when the user hits a zoom limit during a manipulation.

**chained**

The nearest zoomable parent element begins zooming when the user hits a zoom limit during a manipulation. No bounce effect is shown.

**2.1.1.13 -ms-content-zooming**

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

**msContentZooming** of type `DOMString`, **read/write**

Sets or retrieves the value that determines whether zooming is enabled.

<b>-ms-content-zooming</b>	
Value:	none   zoom
Initial:	zoom for the top level element, none for all other elements
Applies to:	non-replaced block-level elements and non-replaced inline-block elements
Inherited:	no
Percentages:	N/A
Media:	<a href="#">interactive</a>
Computed value:	N/A

Values have the following meaning:

**none**

Initial value (all elements except top-level). The element is not zoomable.

**zoom**

Initial value (top-level element only). The element is zoomable.

### 2.1.1.14 -ms-content-zoom-limit

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

**msContentZoomLimit** of type `DOMString`, **read/write**

Sets or retrieves the values of the [-ms-content-zoom-limit-min](#) and the [-ms-content-zoom-limit-max](#) properties.

<b>-ms-content-zoom-limit</b>	
Value:	-ms-content-zoom-limit-min -ms-content-zoom-limit-max
Initial:	(see individual properties)
Applies to:	non-replaced block-level elements and non-replaced inline-block elements
Inherited:	no
Percentages:	N/A
Media:	<a href="#">interactive</a>
Computed value:	N/A

Values have the following meaning:

#### **-ms-content-zoom-limit-min**

Value of the -ms-content-zoom-limit-min property.

#### **-ms-content-zoom-limit-max**

Value of the -ms-content-zoom-limit-max property.

### 2.1.1.15 -ms-content-zoom-limit-max

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

**msContentZoomLimitMax** of type `DOMString`, **read/write**

Sets or retrieves the value that determines the maximum zoom factor.

<b>-ms-content-zoom-limit-max</b>	
Value:	<percentage>
Initial:	400%
Applies to:	non-replaced block-level elements and non-replaced inline-block elements
Inherited:	no
Percentages:	N/A
Media:	<a href="#">interactive</a>
Computed value:	N/A

Values have the following meaning:

### <percentage>

The maximum zoom factor, specified as an integer followed by a percent sign (%).

#### 2.1.1.16 -ms-content-zoom-limit-min

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

**msContentZoomLimitMin** of type `DOMString`, **read/write**

Sets or retrieves the value that determines the minimum zoom factor.

<b>-ms-content-zoom-limit-min</b>	
Value:	<percentage>
Initial:	100%
Applies to:	non-replaced block-level elements and non-replaced inline-block elements
Inherited:	no
Percentages:	N/A
Media:	<a href="#">interactive</a>
Computed value:	N/A

Values have the following meaning:

### <percentage>

The minimum zoom factor, specified as an integer followed by a percent sign (%).

#### 2.1.1.17 -ms-content-zoom-snap

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

**msContentZoomSnap** of type `DOMString`, **read/write**

Sets or retrieves the values of the [-ms-content-zoom-snap-type](#) and [-ms-content-zoom-snap-points](#) properties.

<b>-ms-content-zoom-snap</b>	
Value:	-ms-content-zoom-snap-type    -ms-content-zoom-snap-points
Initial:	(see individual properties)
Applies to:	non-replaced block-level elements and non-replaced inline-block elements
Inherited:	no
Percentages:	N/A
Media:	<a href="#">interactive</a>
Computed value:	N/A

Values have the following meaning:

### **-ms-content-zoom-snap-type**

Value of the -ms-content-zoom-snap-type property.

### **-ms-content-zoom-snap-points**

Value of the -ms-content-zoom-snap-points property.

#### **2.1.1.18 -ms-content-zoom-snap-points**

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

**msContentZoomSnapPoints** of type `DOMString`, **read/write**

Sets or retrieves the values that determine where zoom snap-points are located.

<b>-ms-content-zoom-snap-points</b>	
Value:	snapInterval(<start zoomfactors>, <step zoomfactors>)   snapList(<list zoomfactors>)
Initial:	none
Applies to:	non-replaced block-level elements and non-replaced inline-block elements
Inherited:	no
Percentages:	N/A
Media:	<a href="#">interactive</a>
Computed value:	N/A

Values have the following meaning:

#### **snapInterval(<start zoomfactors>, <step zoomfactors>)**

Specifies where the snap-points will be placed.

- <start zoomfactor> specifies where the first snap-point will be placed. This value is a number followed by a percent sign (%).
- <step zoomfactor> specifies the distance between subsequent snap-points, both zoomed in and zoomed out from the initial snap-point. This value is a number followed by a percent sign (%).

#### **snapList(<list zoomfactors>)**

Specifies the position of individual snap-points as a comma-separated list of zoom factors (expressed as a number followed by a percent sign (%)).

- If any value specified in <list zoomfactors> is less than that specified by the [-ms-content-zoom-limit-min](#) property, the value of **-ms-content-zoom-limit-min** is used.
- If any value specified in <list zoomfactors> is greater than that specified by the [-ms-content-zoom-limit-max](#) property, the value of **-ms-content-zoom-limit-max** is used.

### 2.1.1.19 **-ms-content-zoom-snap-type**

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

**msContentZoomSnapType** of type `DOMString`, **read/write**

Sets or retrieves the value that determines how zooming is affected by defined snap-points.

<b>-ms-content-zoom-snap-type</b>	
Value:	none   proximity   mandatory
Initial:	none
Applies to:	non-replaced block-level elements and non-replaced inline-block elements
Inherited:	no
Percentages:	N/A
Media:	<a href="#">interactive</a>
Computed value:	N/A

Values have the following meaning:

#### **none**

Initial value. Zooming is unaffected by any defined snap-points. After the contact is picked up, the content will continue to move with inertia.

#### **proximity**

The motion of the content after the contact is picked up may be adjusted if the content would normally stop "close enough" to a snap-point. This implies that it is possible for the content zoom factor to end up between snap-points.

#### **mandatory**

The motion of the content after the contact is picked up is always adjusted so that it lands on a snap-point. The snap-point that is selected is the one that is closest to where the content zoom factor would normally stop.

### 2.1.1.20 **-ms-high-contrast-adjust**

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

**msHighContrastAdjust** of type `DOMString`, **read/write**

Sets or retrieves a value that indicates whether to override any Cascading Style Sheets (CSS) properties that would have been set in high contrast mode.

<b>-ms-high-contrast-adjust</b>	
Value:	auto   none
Initial:	auto
Applies to:	All elements



<b>-ms-high-contrast-adjust</b>	
Inherited:	true
Percentages:	N/A
Media:	<a href="#">visual</a>
Computed value:	N/A

Values have the following meaning:

**auto**

Indicates the applicable CSS properties *will* be adjusted when the system is in high contrast mode.

**none**

Indicates the applicable CSS properties will *not* be adjusted when the system is in high contrast mode.

**2.1.1.21 -ms-ime-align**

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

**msImeAlign** of type DOMString, read/write

Sets or retrieves the value that indicates the alignment of the Input Method Editor (IME) candidate window box relative to the element on which the IME composition is active.

<b>-ms-ime-align</b>	
Value:	auto   after
Initial:	auto
Applies to:	All elements
Inherited:	false
Percentages:	N/A
Media:	<a href="#">visual</a>
Computed value:	N/A

Values have the following meaning:

**auto**

Initial value. The IME may align the candidate window in any manner.

**after**

The IME should attempt to align the candidate window below the element (in left-to-right and right-to-left layouts).

**2.1.1.22 -ms-interpolation-mode**

**Note:** Not available in EdgeHTML Mode

**msInterpolationMode** of type `DOMString`, **read/write**

Sets or retrieves the interpolation (resampling) method used to stretch images. This property has no default value.

<b>-ms-interpolation-mode</b>	
Value:	[ nearest-neighbor   bicubic ]
Initial:	depends on user-agent
Applies to:	stretched and zoomed images
Inherited:	no
Percentages:	N/A
Media:	<a href="#">visual</a>
Computed value:	As specified

Values have the following meaning:

**nearest-neighbor**

Use nearest-neighbor (low-quality) interpolation.

**bicubic**

Use bicubic (high-quality) interpolation.

**Note** In Internet Explorer 7 at 100% zoom level, the default interpolation is `nearest-neighbor`; otherwise, `bicubic` mode is used. In Internet Explorer 8, `bicubic` is always used.

**2.1.1.23 -ms-user-select**

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

**msUserSelect** of type `DOMString`, **read/write**

Sets or retrieves a keyword value that indicates where users are able to select text within an element.

<b>-ms-user-select</b>	
Value:	none   element   text
Initial:	text
Applies to:	All elements except replaced elements
Inherited:	false
Percentages:	N/A
Media:	<a href="#">interactive</a>
Computed value:	N/A

Values have the following meaning:

**none**

Blocks selection from starting on that element. It will not block an existing selection from entering the element.

### element

Enables selection to start within the element; however, the selection is contained by the bounds of that element.

### text

Enables selection to start within the element and extend past the element's bounds.

## 2.1.1.24 scrollbar-3dlight-color

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

**scrollbar3dLightColor** of type `DOMString`, **read/write**

Sets or retrieves the color of the top and left edges of the scroll box and scroll arrows of a scroll bar. This property has no default value. Possible values for this attribute are any color name or RGB values.

<b>scrollbar-3dlight-color</b>	
Value:	<color>
Initial:	depends on user-agent
Applies to:	scroll bars of element or window
Inherited:	yes
Percentages:	N/A
Media:	<a href="#">visual</a>
Computed value:	As specified

## 2.1.1.25 scrollbar-arrow-color

**Note:** *Not available in EdgeHTML Mode*

**scrollbarArrowColor** of type `DOMString`, **read/write**

Sets or retrieves the color of the arrow elements of a scroll arrow. This property has no default value. Possible values for this attribute are any color name or RGB values.

<b>scrollbar-arrow-color</b>	
Value:	<color>
Initial:	depends on user-agent
Applies to:	scroll bars of element or window
Inherited:	yes
Percentages:	N/A

<b>scrollbar-arrow-color</b>	
Media:	<a href="#">visual</a>
Computed value:	As specified

### 2.1.1.26 scrollbar-base-color

**Note:** Not available in EdgeHTML Mode

**scrollbarBaseColor** of type `DOMString`, **read/write**

Sets or retrieves the color of the main elements of a scroll bar, which include the scroll box, track, and scroll arrows. This property has no default value. Possible values for this attribute are any color name or RGB values.

<b>scrollbar-base-color</b>	
Value:	<color>
Initial:	depends on user-agent
Applies to:	scroll bars of element or window
Inherited:	yes
Percentages:	N/A
Media:	<a href="#">visual</a>
Computed value:	As specified

### 2.1.1.27 scrollbar-darkshadow-color

**Note:** Not available in EdgeHTML Mode

**scrollbarDarkShadowColor** of type `DOMString`, **read/write**

Sets or retrieves the color of the gutter of a scroll bar. This property has no default value. Possible values for this attribute are any color name or RGB values.

<b>scrollbar-darkshadow-color</b>	
Value:	<color>
Initial:	depends on user-agent
Applies to:	scroll bars of element or window
Inherited:	yes
Percentages:	N/A
Media:	<a href="#">visual</a>
Computed value:	As specified

### 2.1.1.28 scrollbar-face-color

**Note:** Not available in EdgeHTML Mode

**scrollbarFaceColor** of type `DOMString`, **read/write**

Sets or retrieves the color of the scroll box and scroll arrows of a scroll bar. This property has no default value. Possible values for this attribute are any color name or RGB values.

scrollbar-face-color	
Value:	<color>
Initial:	depends on user-agent
Applies to:	scroll bars of element or window
Inherited:	yes
Percentages:	N/A
Media:	<a href="#">visual</a>
Computed value:	As specified

### 2.1.1.29 scrollbar-highlight-color

**Note:** Not available in EdgeHTML Mode

**scrollbarHighlightColor** of type `DOMString`, **read/write**

Sets or retrieves the color of the top and left edges of the scroll box and scroll arrows of a scroll bar. This property has no default value. Possible values for this attribute are any color name or RGB values.

scrollbar-highlight-color	
Value:	<color>
Initial:	depends on user-agent
Applies to:	scroll bars of element or window
Inherited:	yes
Percentages:	N/A
Media:	<a href="#">visual</a>
Computed value:	As specified

### 2.1.1.30 scrollbar-shadow-color

**Note:** Not available in EdgeHTML Mode

### **scrollbarShadowColor** of type `DOMString`, **read/write**

Sets or retrieves the color of the bottom and right edges of the scroll box and scroll arrows of a scroll bar. This property has no default value. Possible values for this attribute are any color name or RGB values.

<b>scrollbar-shadow-color</b>	
Value:	<color>
Initial:	depends on user-agent
Applies to:	scroll bars of element or window
Inherited:	yes
Percentages:	N/A
Media:	<a href="#">visual</a>
Computed value:	As specified

### **2.1.1.31 scrollbar-track-color**

**Note:** Not available in EdgeHTML Mode

### **scrollbarTrackColor** of type `DOMString`, **read/write**

Sets or retrieves the color of the track element of a scroll bar. This property has no default value. Possible values for this attribute are any color name or RGB values.

<b>scrollbar-track-color</b>	
Value:	<color>
Initial:	depends on user-agent
Applies to:	scroll bars of element or window
Inherited:	yes
Percentages:	N/A
Media:	<a href="#">visual</a>
Computed value:	As specified

### **2.1.1.32 text-kashida-space**

*All Modes (All Versions)*

### **textKashidaSpace** of type `DOMString`, **read/write**

Deprecated. Sets or retrieves the ratio of kashida expansion to white space expansion when justifying lines of text in the object.

<b>text-kashida-space</b>	
Value:	<percentage>
Initial:	0%
Applies to:	All elements
Inherited:	1
Percentages:	N/A
Media:	<a href="#">visual</a>
Computed value:	N/A

Values have the following meaning:

#### <percentage>

An integer, followed by a %. The value is the ratio of kashida expansion to white space expansion. 100% specifies kashida expansion only, and 0% specifies white space expansion only.

### 2.1.1.33 text-underline-position

**textunderlineposition** of type `DOMString`, **read/write**

Sets or retrieves the position of the underline decoration that is set through the **textDecoration** property of the object. This property has a default value of `auto`. The other possible values are `above`, `below`, and `auto-pos`.

<b>text-underline-position</b>	
Value:	[ auto   above   below   auto-pos ]
Initial:	auto
Applies to:	All elements
Inherited:	yes
Percentages:	N/A
Media:	<a href="#">visual</a>
Computed value:	As specified

Values have the following meaning:

#### **auto**

Decoration appears above the text if the **lang** attribute is set to `ja`, which is the language code abbreviation for Japanese, and the **-ms-writing-mode** attribute is set to `tb-rl`, which causes vertical inline text progression. If not, the decoration appears below the text.

#### **above**

Decoration appears above the text.

#### **below**

Decoration appears below the text.

### auto-pos

Same as `auto`.

### 2.1.1.34 -webkit-tap-highlight-color

**webkitTapHighlightColor** of type `DOMString`, **read/write**

Sets or retrieves the highlight color shown when the user taps a link or a JavaScript clickable element.

<b>-webkit-tap-highlight-color</b>	
Value:	<color>
Initial:	#000000
Applies to:	All elements
Inherited:	no
Percentages:	N/A
Media:	<a href="#">visual</a>
Computed value:	hex

Values have the following meaning:

#### <color>

A supported color value.

### 2.1.1.35 -webkit-text-fill-color

**webkitTextFillColor** of type `DOMString`, **read/write**

Sets or retrieves a fill color for text. If not specified, the color specified by the **<color>**

A supported color value property is used.

<b>-webkit-text-fill-color</b>	
Value:	<color>
Initial:	rgb(0,0,0)
Applies to:	All elements
Inherited:	yes
Percentages:	N/A
Media:	<a href="#">visual</a>
Computed value:	rgb

#### <color>



A supported color value.

### 2.1.1.36 **-webkit-user-modify**

**webkitUserModify** of type `DOMString`, **read/write**

Sets or retrieves a value that determines whether or not the content of an element can be edited by a user.

<b>-webkit-user-modify</b>	
Value:	read-only   read-write   write-only
Initial:	read-only
Applies to:	All elements
Inherited:	true
Percentages:	N/A
Media:	<a href="#">interactive</a>
Computed value:	As specified

Values have the following meaning:

#### **read-only**

Default value. Content is read-only.

#### **read-write**

The user is able to read and write content.

#### **write-only**

The user is able to edit the content, but not to read it.

### 2.1.1.37 **zoom**

**zoom** of type `Integer` or `DOMString`, **read/write**

Sets or retrieves the magnification scale of the object. This property has a default value of `normal`. The other possible values are `number` and `percentage`.

<b>zoom</b>	
Value:	normal   <number>   <percentage>
Initial:	normal
Applies to:	All elements
Inherited:	no
Percentages:	percent of element's normal size
Media:	<a href="#">visual</a>
Computed value:	As specified

Values have the following meaning:

### **normal**

No zoom. The object renders at normal magnification.

### **<number>**

Floating-point number that specifies the scale, where 1.0 is normal.

### **<percentage>**

The value is a percentage of the scale, where 100% is normal.

## **2.2 Property Aliases**

The following table is a list property-alias pairs. For each of these pairs, the property is a CSS property or Microsoft CSS extension, and the alias is the name of a CSS extension implemented by another vendor. When the CSS parser encounters one of these aliases, it treats it exactly as it would treat the corresponding property.

<b>Property</b>	<b>Alias</b>
-webkit-background	background
-webkit-background-attachment	background-attachment
-webkit-background-color	background-color
-webkit-background-image	background-image
-webkit-background-position	background-position
-webkit-background-position-x	background-position-x
-webkit-background-position-y	background-position-y
-webkit-background-repeat	background-repeat
-webkit-filter	filter
webkit-user-select	-ms-user-select

## **2.3 Extensions to the CSSStyleDeclaration Interface**

This section lists extensions to the **CSSStyleDeclaration** interface defined in [\[DOM Level 2 - Style\]](#).

The **CSSStyleDeclaration** interface as implemented in Internet Explorer defines the properties and methods inherited by objects in the **CSSStyleDeclaration** prototype chain.

### **2.3.1 Attributes**

The **CSSStyleDeclaration** interface has been extended with the following attributes:

- [pixelBottom](#)
- [pixelHeight](#)
- [pixelLeft](#)
- [pixelRight](#)
- [pixelTop](#)

- [pixelWidth](#)
- [posBottom](#)
- [posHeight](#)
- [posLeft](#)
- [posRight](#)
- [posTop](#)
- [posWidth](#)
- [styleFloat](#)
- [textDecorationBlink](#)
- [textDecorationLineThrough](#)
- [textDecorationNone](#)
- [textDecorationOverline](#)
- [textDecorationUnderline](#)

### 2.3.1.1 pixelBottom

**Note:** Not available in EdgeHTML Mode

**pixelBottom** of type `integer`, **read/write**

Sets or retrieves the bottom position of the object in relation to the bottom of the next positioned object in the document hierarchy.

The value is interpreted to be in pixels and reflects the value of the `bottom` attribute.

A DHTML expression is a valid value for quirks mode and IE7 mode.

This property has no default value.

### 2.3.1.2 pixelHeight

**Note:** Not available in EdgeHTML Mode

**pixelHeight** of type `integer`, **read/write**

Sets or retrieves the height of the object.

The value is interpreted to be in pixels and reflects the value of the `height` attribute.

A DHTML expression is a valid value for quirks mode and IE7 mode.

This property has no default value.

### 2.3.1.3 pixelLeft

**Note:** Not available in EdgeHTML Mode

**pixelLeft** of type `integer`, **read/write**

Sets or retrieves the left position of the object.

The value is interpreted to be in pixels and reflects the value of the `left` attribute.

A DHTML expression is a valid value for quirks mode and IE7 mode.

This property has no default value.

#### **2.3.1.4 pixelRight**

**Note:** *Not available in EdgeHTML Mode*

**pixelRight** of type `integer`, **read/write**

Sets or retrieves the right position of the object.

The value is interpreted to be in pixels and reflects the value of the `right` attribute.

A DHTML expression is a valid value for quirks mode and IE7 mode.

This property has no default value.

#### **2.3.1.5 pixelTop**

**Note:** *Not available in EdgeHTML Mode*

**pixelTop** of type `integer`, **read/write**

Sets or retrieves the top position of the object.

The value is interpreted to be in pixels and reflects the value of the `top` attribute.

A DHTML expression is a valid value for quirks mode and IE7 mode.

This property has no default value.

#### **2.3.1.6 pixelWidth**

**Note:** *Not available in EdgeHTML Mode*

**pixelWidth** of type `integer`, **read/write**

Sets or retrieves the width of the object.

The value is interpreted to be in pixels and reflects the value of the `width` attribute.

A DHTML expression is a valid value for quirks mode and IE7 mode.

This property has no default value.

#### **2.3.1.7 posBottom**

**Note:** *Not available in EdgeHTML Mode*

**posBottom** of type `float`, **read/write**

Sets or retrieves the bottom position of the object.

The value reflects the value and length units of the `bottom` attribute.

This property always returns zero for nonpositioned items because `bottom` has meaning only when the object is positioned. If the `bottom` attribute is not set, the `posBottom` property returns 0 (zero).

A DHTML expression is a valid value for quirks mode and IE7 mode.

This property has no default value.

### 2.3.1.8 `posHeight`

**Note:** Not available in EdgeHTML Mode

**`posHeight`** of type `float`, **read/write**

Sets or retrieves the height of the object.

The value reflects the value and length units of the `height` attribute.

This property always returns zero for nonpositioned items because `height` has meaning only when the object is positioned. If the `height` attribute is not set, the `posHeight` property returns 0 (zero).

A DHTML expression is a valid value for quirks mode and IE7 mode.

This property has no default value.

### 2.3.1.9 `posLeft`

**Note:** Not available in EdgeHTML Mode

**`posLeft`** of type `float`, **read/write**

Sets or retrieves the left position of the object.

The value reflects the value and length units of the `left` attribute.

This property always returns zero for nonpositioned items because `left` has meaning only when the object is positioned. If the `left` attribute is not set, the `posLeft` property returns 0 (zero).

A DHTML expression is a valid value for quirks mode and IE7 mode.

This property has no default value.

### 2.3.1.10 `posRight`

**Note:** Not available in EdgeHTML Mode

**`posRight`** of type `float`, **read/write**

Sets or retrieves the right position of the object.

The value reflects the value and length units of the `right` attribute.

This property always returns zero for nonpositioned items because `right` has meaning only when the object is positioned. If the `right` attribute is not set, the `posRight` property returns 0 (zero).

A DHTML expression is a valid value for quirks mode and IE7 mode.

This property has no default value.

### 2.3.1.11 posTop

**Note:** Not available in EdgeHTML Mode

**posTop** of type `float`, **read/write**

Sets or retrieves the top position of the object.

The value reflects the value and length units of the `top` attribute.

This property always returns zero for nonpositioned items because `top` has meaning only when the object is positioned. If the `top` attribute is not set, the `posTop` property returns 0 (zero).

A DHTML expression is a valid value for quirks mode and IE7 mode.

This property has no default value.

### 2.3.1.12 posWidth

**Note:** Not available in EdgeHTML Mode

**posWidth** of type `float`, **read/write**

Sets or retrieves the width of the object.

The value reflects the value and length units of the `width` attribute.

This property always returns zero for nonpositioned items because `width` has meaning only when the object is positioned. If the `width` attribute is not set, the `posWidth` property returns 0 (zero).

A DHTML expression is a valid value for quirks mode and IE7 mode.

This property has no default value.

### 2.3.1.13 styleFloat

**styleFloat** of type `DOMString`, **read/write**

Sets or retrieves on which side of the object the text will flow. Compare to **cssFloat** in [\[DOM Level 2 - Style\]](#).

#### Possible Values

`none`

Default. Object displays in normal flow.

`left`

Object floats left, and text flows around the right of the object.

`right`

Object floats right, and text flows around the left of the object.

### 2.3.1.14 textDecorationBlink

**textDecorationBlink** of type `Boolean`, **read/write**

Sets or retrieves the Boolean value that indicates whether the **text-decoration** rule is set to `blink`. If `true`, the **textDecoration** rule is set to `blink`. This property has no default value.

### 2.3.1.15 **textDecorationLineThrough**

**textDecorationLineThrough** of type `Boolean`, **read/write**

Sets or retrieves a Boolean value indicating whether the text in the object has a line drawn through it. If `true`, a line is drawn through the affected text. This property has no default value.

### 2.3.1.16 **textDecorationNone**

**textDecorationNone** of type `Boolean`, **read/write**

Sets or retrieves the Boolean value indicating whether the **textDecoration** property for the object has been set to `none`. If `true`, the **textDecoration** property is set to `none`; otherwise, the **textDecoration** property is set to an empty string. This property has no default value.

### 2.3.1.17 **textDecorationOverline**

**textDecorationOverline** of type `Boolean`, **read/write**

Sets or retrieves a Boolean value indicating whether the text in the object has a line drawn over it. If `true`, a line is drawn over the affected text. This property has no default value.

### 2.3.1.18 **textDecorationUnderline**

**textDecorationUnderline** of type `Boolean`, **read/write**

Sets or retrieves a Boolean value indicating whether the text in the object is underlined. If `true`, a line is drawn under the affected text. This property has no default value.

## 2.3.2 **Methods**

The **CSSStyleDeclaration** interface has been extended with the following methods:

- [getAttribute](#)
- [getExpression](#)
- [removeAttribute](#)
- [removeExpression](#)
- [setAttribute](#)
- [setExpression](#)
- [toString](#)

### 2.3.2.1 **getAttribute**

Retrieves the value of the specified attribute.

#### **Syntax**

```
vAttrValue = object.getAttribute(sAttrName [, iFlags])
```

## Parameters

**sAttrName** of type `DOMString`

A required string that specifies the name of the attribute.

**iFlags** of type `integer`

Optional. Integer that specifies one or more of the following flags:

0

Default. Performs a property search that is not case-sensitive, and returns an interpolated value if the property is found.

1

Performs a case-sensitive property search. To find a match, the uppercase and lowercase letters in **sAttrName** must exactly match those in the attribute name.

2

Returns attribute value as a string. This flag does not work for event properties.

4

Returns attribute value as a fully expanded URL. Only works for URL attributes.

## Return Value

If the attribute is not present, this method returns null.

## No Errors

### 2.3.2.2 `getExpression`

*Quirks Mode and IE7 Mode (All Versions)*

Retrieves the expression for the specified property.

## Syntax

```
vExpression = object.getExpression(sPropertyName)
```

## Parameters

**sPropertyName** of type `DOMString`

A required string that specifies the name of the property from which to retrieve the expression.

## Return Value

Returns the expression as a string.



### 2.3.2.3 removeAttribute

Removes an attribute from an object.

#### Syntax

```
bSuccess = object.removeAttribute(sAttrName [, iCaseSensitive])
```

#### Parameters

**sAttrName** of type `DOMString`

A required string that specifies an attribute name.

**iCaseSensitive** of type integer

Optional. Integer that specifies whether to use a case-sensitive search to locate the attribute. Can be one of the following values:

1

The case of `sAttrName` is respected.

0

Match `sAttrName` regardless of case.

#### Return Value

Returns a Boolean with one of the following possible values:

true

The attribute was successfully removed.

false

The attribute was not removed.

#### Remarks

If your pages are displayed in IE7 mode, be careful when spelling attribute names. If two or more attributes have the same name—differing only in capitalization—and **iCaseSensitive** is set to 0, this method removes only the last attribute created with this name. All other attributes of the same name are ignored.

#### Example

The following examples demonstrate how to use the **getExpression** method to retrieve CSS properties.

This example uses the **getExpression** method to retrieve the width property of a span object.

```
<body>
<span id="trueBlueSpan"
      style="background-color:lightblue; width:100px">
  The width of this blue span is set inline at 100 pixels.
</span>
<span id="oldYellowSpan" style="background-color:lightyellow;
      width:200px">
  The width of this yellow span is set inline at 200 pixels.
```

```

</span>
<br>
<span id="AlGreenSpan" style="background-color:lightgreen;
width:expression(trueBlueSpan.style.pixelWidth +
oldYellowSpan.style.pixelWidth)">
Click the button below to see the expression used to set
the width of this span.
</span>
<br>
<button onclick=alert(AlGreenSpan.style.getExpression("width"));>
See Expression</button>
</body>

```

In the following example, the **setExpression** method is used to set the width property of a blue input type=text object equal to the sum of the values in two other input type=text objects. When the user clicks the input type=button element, the **getExpression** method is used to display the expression.

```

<html>
<head>
<script language="JScript">
var s;
function fnInit() {
Box3.style.setExpression("width", "eval(Box1.value) + eval(Box2.value)",
"jscript");
}
function getexp() {
s=Box3.style.getExpression("width");
alert("Expression for the width of the blue box is \n\n" + s +
"\n\nThe width property has a value of " + Box3.style.width);
}
</script>
</head>
<body onload=fnInit();>
<input type=text id="Box1" value=40>
<br><input type=text id="Box2" value=40>
<br><input type=text id="Box3" style="background-color:blue">
<br><input type=button id="Button2" value="Get expression" onclick="getexp()">
</body>
</html>

```

### 2.3.2.4 removeExpression

*Quirks Mode and IE7 Mode (All Versions)*

Removes the expression from the specified property.

#### Syntax

```
bSuccess = object.removeExpression(sPropertyName)
```

#### Parameters

**sPropertyName** of type DOMString

A required string that specifies the name of the property from which to remove an expression.

#### Return Value

Returns `true` to indicate that the expression was successfully removed; `false` if not.

## Remarks

After the expression is removed from the specified property, the value of the property equals the last computed value of the expression. To remove expressions set by the **setExpression** method, use **removeExpression**.

### 2.3.2.5 setAttribute

Sets the value of the specified attribute.

#### Syntax

```
object.setAttribute(sAttrName, vValue [, iCaseSensitive])
```

#### Parameters

**sAttrName** of type `DOMString`

A required string that specifies the name of the attribute.

**vValue** of type `DOMString`

The value to assign to the attribute.

**iCaseSensitive** of type `Integer`

An optional integer that specifies whether to use a case-sensitive search to locate the attribute. Can be one of the following values:

1

The case of `sAttrName` is respected.

0

Match `sAttrName` regardless of case.

#### Return Value

No return value.

#### Remarks

- If the specified attribute is not already present, the **setAttribute** method adds the attribute to the object and sets the value.
- If your pages are displayed in IE7 mode, be careful when spelling attribute names. If you set `iCaseSensitive` to 1 and the `sAttrName` parameter does not have the same uppercase and lowercase letters as the attribute, a new attribute is created for the object. If two or more attributes have the same name, differing only in case, and `iCaseSensitive` is set to 0, this method assigns values only to the first attribute created with this name. All other attributes of the same name are ignored.

### 2.3.2.6 setExpression

*Quirks Mode and IE7 Mode (All Versions)*

Sets an expression for the specified object.

## Syntax

```
object.setExpression(sPropertyName, sExpression [, sLanguage])
```

## Parameters

**sPropertyName** of type `DOMString`

A required string that specifies the name of the property to which `sExpression` is added.

**sExpression** of type `DOMString`

A required string that specifies any valid script (JScript, JavaScript, or VBScript) statement without quotations or semicolons. This string can include references to other properties on the current page. Array references are not allowed on object properties included in this script.

**sLanguage** of type `DOMString`

An optional string that specifies one of the following values:

JScript

Default. Language is JScript.

VBScript

Language is VBScript.

JavaScript

Language is JavaScript.

## Return Value

No return value.

## Remarks

The following **expression()** syntax can be used to set an expression on a CSS attribute in HTML.

```
<ELEMENT STYLE="sAttributeName:expression(sExpression)">
```

The data type of the evaluated expression in the **sLanguage** parameter must match one of the possible values allowed for the **sExpression** parameter. If the property or attribute specified by the first parameter requires a string, the data type of the second parameter must be a string. Otherwise, the second parameter is evaluated prior to invoking **setExpression**, causing the expression to be set to the result of the evaluation.

Authors can use the **uniqueID** property of an object in an expression to refer back to the object. Using **uniqueID** is an alternative to specifying an id for expressions that use an object reference.

### 2.3.2.7 toString

*Quirks Mode, IE7 Mode, and IE8 Mode (All Versions) only*

Returns the type of an object as a string.

## Syntax

```
sObject = object.style.toString()
```

## Parameters

None.

## Return Value

Returns the type of the object type as the string [object].

## 2.4 Extensions to the CSSStyleRule Interface

This section lists extensions to the **CSSStyleRule** interface defined in [\[DOM Level 2 - Style\]](#).

### 2.4.1 Attributes

The **CSSStyleRule** interface has been extended with the [readOnly](#) attribute.

#### 2.4.1.1 readOnly

**readOnly** of type `Boolean`, **read-only**

Retrieves whether the rule or style sheet is defined on the page or is imported. If `true`, the style sheet is linked to the page or is imported through the **@import** rule. If `false`, the style sheet is defined in the page. This property has no default value.

Style sheets obtained through a link object or the **@import** rule cannot be modified if the **designMode** property is enabled.

## 2.5 Extensions to the CSSStyleSheet Interface

This section lists extensions to the **CSSStyleSheet** interface defined in [\[DOM Level 2 - Style\]](#).

The **CSSStyleSheet** interface is extended by [Attributes](#), [Methods](#), and [Collections](#).

### 2.5.1 Attributes

The **CSSStyleSheet** interface has been extended with the following attributes:

- [isAlternate](#)
- [isPrefAlternate](#)
- [owningElement](#)
- [id](#)
- [readOnly](#)

#### 2.5.1.1 isAlternate

**isAlternate** of type `Boolean`, **read-only**

Retrieves a value that indicates whether the **IHTMLStyleSheet3** object is an alternative style sheet. If `true`, the style sheet is an alternate style sheet.

A style sheet is alternate if one or both of the following is true:

- **link** element's **rel** attribute contains both "alternate" and "stylesheet"
- **link** element's **rel** attribute contains "stylesheet" and **title** is specified and not empty

Internet Explorer 8 allows users to select alternate style sheets, or disable styles entirely. (Use the **View** menu and point to **Style** submenu.) However, to appear as a named selection, an alternate style sheet must declare a **title** attribute.

This attribute is not available in Internet Explorer 7.

### 2.5.1.2 isPrefAlternate

**isPrefAlternate** of type `Boolean`, **read-only**

Retrieves a value that indicates whether the **IHTMLStyleSheet3** object is the preferred style sheet. If `true`, the object is a preferred alternative style sheet. If more than one style sheet exist then this object is the preferred one.

An author may specify the default style sheet by setting the following:

- **link** element's **rel** attribute contains "stylesheet", but not "alternate"
- **link** element's **title** attribute is specified and not empty

Internet Explorer 8 uses the preferred style sheet when the page is loaded, and marks it as default on the **Style** submenu.

This attribute is not available in Internet Explorer 7.

This property has no default value.

### 2.5.1.3 owningElement

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

Retrieves the **HTMLStyleElement** or **HTMLLinkElement** associated with the **CSSStyleSheet** object.

### 2.5.1.4 id

**id** of type `DOMString`, **read/write**

Sets or retrieves the string identifying the object.

The **id** should be unique throughout the scope of the current document. If a document contains more than one object with the same identifier, the objects are exposed as a collection that can be referenced only in ordinal position.

### 2.5.1.5 readOnly

**readOnly** of type `Boolean`, **read-only**

Retrieves whether the rule or style sheet is defined on the page or is imported. If `true`, the style sheet is linked to the page or is imported through the **@import** rule. If `false`, the style sheet is defined in the page. This property has no default value.

Style sheets obtained through a link object or the **@import** rule cannot be modified if the **designMode** property is enabled.

## 2.5.2 Methods

The **CSSStyleSheet** interface has been extended with the following methods:

- [addImport](#)
- [addPageRule](#)
- [addRule](#)
- [removeImport](#)
- [removeRule](#)

### 2.5.2.1 addImport

`addImport()`

Used to add **@import** rule to the related **CSSStyleSheet** object.

#### Parameters

**sURL** of type `DOMString`

String that represents the location of the source file for the imported style sheet.

**iIndex** of type `long`

Optional. Ordinal index that specifies the requested position of the object in the collection. If this value is not supplied, or if the value is larger than the number of items in the collection, the **@import** rule is added to the end of the collection.

#### Return Value

`Long` Returns the zero-based index position of the new imported style sheet.

#### No Errors

### 2.5.2.2 addPageRule

`addPageRule()`

Used to add **@page** rule to the related **CSSStyleSheet** object. See **StyleSheetPage** in section 2.4. This method is not implemented in either Internet Explorer 7 or Internet Explorer 8.

#### Parameters

**sSelector** of type `DOMString`

String that specifies the selector (name) for the new **@page** object.

**sStyle** of type `DOMString`

String that specifies the CSS rule assignments for this **@page** object.

**iIndex** of type `long`

Optional. Ordinal index that specifies the requested position of the object in the collection. If this value is not supplied, or if the value is larger than the number of items in the collection, the **@page** rule is added to the end of the collection.

### Return Value

-1 Reserved. Always returns -1.

### No Error

## 2.5.2.3 addRule

addRule()

Used to create a new rule in a style sheet. Up to 4095 rules can be added to a single style sheet with this method. If you apply rules to a disabled style sheet, they do not apply until the style sheet is enabled.

### Parameters

**sSelector** of type `DOMString`

String that specifies the selector for the new rule. Only single selectors are valid; grouped selectors cause "Invalid Argument" error.

**sDeclaration** of type `DOMString`

String that specifies one or more semi-colon separated declarations.

**iIndex** of type `long`

Optional. Ordinal index that specifies the requested position of the object in the collection. If this value is not supplied, or if the value is larger than the number of items in the collection, or if value is -1, the rule is added to the end of the collection.

### Return Value

-1 Reserved. Always returns -1.

### JScript Error

`E_INVALIDARG (0x80040057)` Raised for grouped selectors, or more than 4095 style rules.

### Example

The following example demonstrates how to add a rule to the style sheet.

```
<style type="text/css">
  p {
    color:red;
  }
</style>
<script type="text/javascript">
window.onload = function() {
  var s = document.styleSheets[0];
  var idx = s.addRule('#test:hover','color:green');
}
</script>
</head>

<body>
<p id="test">This text should turn green on hover.</p>
```



</body>

#### 2.5.2.4 removeImport

`removeImport()`

Used to delete an imported style sheet from the imports collection. See section [2.5.3.1](#).

##### Parameters

**iIndex** of type `long`

The ordinal index of the imported style sheet to remove.

##### No Return Value

##### JScript Error

E\_INVALIDARG (0x80040057) The specified index was too large or less than 0.

#### 2.5.2.5 removeRule

`removeRule()`

Used to remove existing rules from the style sheet.

##### Parameters

**iIndex** of type `long`

The ordinal index of the rule to remove.

##### No Return Value

##### JScript Error

E\_INVALIDARG (0x80040057) The specified index was too large or less than 0.

### 2.5.3 Collections

The **CSSStyleSheet** interface has been extended with the following collections:

- [imports](#)
- [pages](#)
- [rules](#)

#### 2.5.3.1 imports

The **imports** property retrieves a **StyleSheetList** (`IHTMLStyleSheetsCollection`) collection of imported style sheets defined for the respective **CSSStyleSheet** (`IHTMLStyleSheet`) object. An imported style sheet is one that is linked to the document using the cascading style sheets (CSS) **@import** rule.

The collection contains the same number of style sheets objects that would be referenced by the list of **CSSImportRule** objects in a **CSSRuleList**. The **CSSImportRule** interface is not supported by Internet Explorer 7 or Internet Explorer 8.

### 2.5.3.2 pages

The **pages** property retrieves a **StyleSheetPageList** (IHTMLStyleSheetPagesCollection) collection of page objects for the respective **CSSStyleSheet** (IHTMLStyleSheet) object. A page object represents a cascading style sheets (CSS) **@page** rule.

The **StyleSheetPageList** interface is described in section [2.6](#).

### 2.5.3.3 rules

The **rules** property retrieves a **CSSRuleList** (IHTMLStyleSheetRulesCollection) collection of rules defined in the respective **CSSStyleSheet** (IHTMLStyleSheet) object.

This collection is always accessible, even if the style sheet is not enabled. Rules are added to the rules collection with the [addRule](#) method on the style sheet. A rule that is added to a [disabled](#) style sheet does not apply to the document unless the style sheet is enabled. Rules are deleted with the [removeRule](#) method.

## 2.6 StyleSheetPage Interface

The **StyleSheetPage** (IHTMLStyleSheetPage) is analogous to the **CSSPageRule** in [\[DOM Level 2 - Style\]](#).

The interface represents a particular [@page](#) rule in a style sheet.

### IDL Definition

```
// Introduced in Internet Explorer
interface StyleSheetPage {
    readonly attribute DOMString    pseudoClass;
    readonly attribute DOMString    selector;
}
```

### 2.6.1 Attributes

The **StyleSheetPage** interface has been extended with the following attributes:

- [pseudoClass](#)
- [selector](#)

#### 2.6.1.1 pseudoClass

**pseudoClass** of type `DOMString`, **readonly**

A textual representation of the pseudo class used in the **@page** rule.

#### Example

In the example below, `right` is the pseudo-class. The colon is not included.

```
@page :right {margin-left:15px;}
```

#### 2.6.1.2 selector

**selector** of type `DOMString`, **readonly**

A textual representation of the identifier used in a named **@page** rule.

### Example

In the example below, `rotated` is the selector.

```
@page rotated {size: landscape}
```

## 2.7 StyleSheetPageList Interface

The **StyleSheetPageList** (`IHTMLStyleSheetPagesCollection`) provides a collection of **@page** rules in a **StyleSheet** object.

### IDL Definition

```
// Introduced in Internet Explorer
interface StyleSheetPageList : StyleSheetList {
    readonly attribute unsigned long    length;
    StyleSheetPage    item(in unsigned long index);
};
```

### 2.7.1 Attributes

The **StyleSheetPageList** interface has been extended with the [length](#) attribute.

#### 2.7.1.1 length

**length** of type `unsigned long`, **readonly**

The number of **StyleSheetPage** objects in the collection. The range of valid indices ranges from 0 to `length-1` inclusive.

### 2.7.2 Methods

The **StyleSheetPageList** interface has been extended with the [item](#) method.

#### 2.7.2.1 item

`item`

Used to retrieve a **StyleSheetPage** object by ordinal index. If `index` is greater than or equal to the number of objects in the collection, `item` returns `null`.

#### Parameters

**index** of type `unsigned long`

Index into the collection.

#### Return Value

**StyleSheetPage** The CSS **@page** rule at the `index` position in the collection, or `null`.

#### No Errors

### **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 released service packs.

- Windows Internet Explorer 7
- Windows Internet Explorer 8
- Windows Internet Explorer 9
- Windows Internet Explorer 10
- Internet Explorer 11
- Internet Explorer 11 for Windows 10
- Microsoft Edge

Exceptions, if any, are noted below. If a service pack or Quick Fix Engineering (QFE) number appears with the product version, behavior changed in that service pack or QFE. The new behavior also applies to subsequent service packs of the product 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.

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