# Overview

Templates within Engage: Rotator are useful for redefining the layout of the module without developer interaction. Anyone with knowledge of CSS and the contents of this document can restyle the module in many ways.

# Creating New Templates

The easiest way to create a new template is to find an existing template and modify it to meet your needs. Templates are stored in the *Templates* folder in the module’s folder under your website’s main *DesktopModules* folder (i.e. */DesktopModules/EngageRotator/Templates*). Each folder under the *Templates* folder can contain a template.

## Template Manifest

Template details are defined in an XML manifest file, named *Manifest.xml*. The format of that file is defined in EngageManifest.xsd.

In the manifest you can define a template’s name\*, description\*, template file\*, thumbnail file, stylesheet file, resource file, script files, and settings (items with a \* are required).

The name, description, and thumbnail will be used only when selecting a template. These are intended to give users of the template a good idea of its intentions and requirements.

The stylesheet file is a CSS stylesheet that will be referenced on the page whenever the template is being displayed. It is strongly suggested that the styles in this stylesheet be restricted so that they only affect the template’s contents (that is, instead of styling *.Normal* or *ul*, style *.my-template .Normal* and *.my-template ul*, where *.my-template* is a class which surrounds the template’s contents).

The resource file is a .resx file where localized resources can be stored. These files can be edited through the DotNetNuke language editor in order to provide custom text per language and/or per portal. You can access resources in your template using the *%$* or *–ResourceKey* syntax, described below.

The script files are JavaScript files included in the template which should be referenced on the page.

### Settings

The settings section defines a list of name/value pairs, where the name is a setting name in the module, and the value is the value of that setting. The specific settings and their possible values differ for each module. Please note that the setting names are case-sensitive.

The available settings for Engage: Rotator are as follows:

| Setting Name | Setting Purpose | Possible Values |
| --- | --- | --- |
| *RotatorDelay* | The number of seconds each slide is shown before the next slide appears | (Whole number) |
| *AutoStop* | Whether to automatically stop the rotation after a specific number of slides are displayed | True, False |
| *AutoStopCount* | The number of slides after which to stop the rotation, only applies if *AutoStop* is set to *True* | (Whole number) |
| *AnimationPauseOnMouseOver* | Pause the rotation of slides when the user's mouse is over the slide area | True, False |
| *UseAnimations* | Whether to use an animated transition when the slide changes | True, False |
| *AnimationDuration* | The number of seconds the transition animation will last. | (Decimal number) |
| *AnimationEffect* | One or more effects to use when transitioning slides | A comma-delimited list of one or more of the following (case-sensitive) values:  *blindX, blindY, blindZ, cover, curtainX, curtainY, fade, growX, growY, scrollUp, scrollDown, scrollLeft, scrollRight, shuffle, slideX, slideY, toss, turnUp, turnDown, turnLeft, turnRight, uncover, wipe, zoom, fadeZoom* |
| *ContentHeight* | Forces the area for the rotating slides to be a specific height, measured in pixels | (Whole number) |
| *ContentWidth* | Forces the area for the rotating slides to be a specific width, measured in pixels | (Whole number) |
| *ContainerResize* | Whether to automatically resize the container to fit the largest slide | True, False |
| *ForceSlidesToFitContainer* | Whether the slides should be stretched to fit exactly within the container | True, False |
| *Continuous* | Whether to make rotation occur continuously, i.e. the next transition should start as soon as the current transition ends | True, False |
| *Loop* | Whether to continue the rotation indefinitely, or to just display each slide once | True, False |
| *RandomOrder* | Whether the display slides in a random order | True, False |
| *SimultaneousTransitions* | Whether the current slide's "out" transitions should happen at the same time as the next slide's "in" transition | True, False |
| *InitialDelay* | The number of seconds of additional time that the first slide should be displayed | (Decimal number, positive or negative) |
| *ManuallyTriggeredTransitionSpeed* | The number of seconds that “triggered” transitions (those caused by a pager or previous/next button) should take, or 0 if they should take the same amount of time as automatic transitions | (Decimal number) |

### Template

A template consists of HTML and custom tags to allow for complete control over the display of the module. A description of the available tags is below. One requirement for templates in Engage: Rotator is that the CSS class *rotate-wrap* is on an element that surrounds the elements to rotate. Each child element of the *.rotate-wrap* element will become a slide in the rotation. In practice, this typically takes on the following structure:   
*<div class=”rotate-wrap”><Engage:List><div><!-- Content to rotate goes here --></div></Engage:List></div>*

# Installing Templates

If you feel the need to alter the structure of the module’s output, you can create a template of your own design to accomplish that task. You may also find a template created by someone else that you would like to use.

In order to use any templates that do not come with the module, you will need to install them onto your site. Templates are stored in the *Templates* folder in the module’s folder under your website’s main *DesktopModules* folder (i.e. */DesktopModules/EngageRotator/Templates*). Any new templates that you add into this folder will be immediately available from the module’s template settings page.

Therefore, if you have a template that you would like to use on your site, you will need to transfer it (as a folder with a valid manifest, template file, and any other related files) to your site, placing it in the folder */DesktopModules/EngageRotator/Templates*. Once there, it will immediately be available from the module’s template settings page, so long as the manifest is valid.

# Engage Entities and Attributes

Engage has developed an HTML-like tag system for designers to include entities specific to the module content within their templates. All Engage tags will start with *Engage:* to differentiate them from HTML. Any tags starting with *Engage:* that are not defined below will not be displayed on the page.

The templating system provides a special syntax to allow access to the properties of specific slides, and to text resources in a .resx resource file associated with the template. To access properties, you can surround the property name with *%#* and *%*, or append *–PropertyName* to the attribute name, i.e. *Text="%#Title%"* or *Text-PropertyName="Title"* will set the *Text* value of a tag to the *Title* of a slide. Note that slide properties can only be accessed from within an *Engage:List* tag.

You can also provide a format, separating it from the property name by a colon (:) in the terse syntax, or by providing an attribute with *–Format* appended to the attribute name, e.g. *Text="%#StartDate:hh:mm%"* or *Text-PropertyName="StartDate"* *Text-Format="hh:mm"* will format the start date to display hours and minutes. The default format for date/time values is *G*. The default format for numeric values depends on the exact type of value (integer, decimal, etc.). The default format for text values depends on the contents of the value (i.e. the Content is displayed as entered, since it is an HTML value, and the Title is displayed HTML encoded, and URLs are displayed as entered, for compatibility with the Engage:Link tag). For more information on formatting, see the appendices at the end of this document.

Engage: Rotator allows access to the following properties for slides:

* *Title* – the slide’s title
* *Content* – the main content for the slide
* *Start Date* – the date and time on which the slide began to be displayed
* *End Date* – the date and time on which the slide will expire and no longer be displayed
* *Link URL* – the URL associated with the slide
* *Image URL* – the URL to the slide’s main image
* *Pager Image URL* – the URL to the slide’s pager image
* *Sort Order* – the slide’s sort order value
* *Slide ID* – the slide’s internal ID number (useful for uniquely referencing elements of individual slides)

To access text resources, you can surround the resource key with *%$* and *%*, or append *–ResourceKey* to the attribute name, i.e. *Text="%$Header.Text%"* or *Text-ResourceKey="Header.Text"* will set the *Text* value of a tag to the value of the resource with the key *Header.Text* in the template’s resource file. If the key provided does not contain a period (.), then *.Text* will be appended to the key.

## Tag Definitions

### Tag: Engage:Literal

Purpose: Displays literal text.

Attributes/Values:

* Text
  + Text to display

Example: <Engage:Literal Text=*"*%#Title%*"*/>

### Tag: Engage:Label

Purpose: Displays literal text within a *span* HTML element.

Attributes/Values:

* Text
  + Text to display
* CssClass
  + The CSS class to apply to the element.
* ToolTip
  + The text displayed when the user’s mouse hovers over the label

Example: <Engage:Label Text=*"*%#Title%*"* CssClass=*"slide-title"*/>

### Tag: Engage:Image

Purpose: Displays an image.

Attributes/Values:

* ImageUrl
  + The URL to the image. If this is not provided, then the image is not rendered on the page.
* AlternateText
  + Text to be displayed when the image cannot be loaded. Also displays as a tooltip in Internet Explorer is a ToolTip is not specified.
* CssClass
  + The CSS class to apply to the image.
* DescriptionUrl
  + Sets the description URL attribute of the image, specifying a URL whose contents is a long description of the image’s contents
* ToolTip
  + The text to display when the user’s mouse hovers over the image.

Example: *<Engage:Image ImageUrl="%#ImageUrl%" AlternateText="%#Title%"/>*

### Tag: Engage:Link

Purpose: Displays a link.

Attribute/Value:

* NavigateUrl
  + The URL to which the user is directed after clicking this link
* Text
  + Text to display. If this tag has nested (i.e. children) tags, those are displayed instead of this property.
* CssClass
  + The CSS class to apply to the hyperlink.
* Target
  + The target window or frame in which to display the linked content

Examples: *<Engage:Link Text="%$View Details%" NavigateUrl="%#LinkUrl%* *"/>   
<Engage:Link><Engage:Literal Text="%#Title%"/></Engage:Link>*

### Tag: Engage:List

Purpose: Repeats its contents for each slide in the module.

Example: <Engage:List><Engage:Literal Text=*"*%#Title%*"*/></Engage:List>

### Tag: Engage:RotateBack

Purpose: Transitions to the previous slide when clicked. The tag itself is replaced by a *div* tag.

Attribute/Value:

* Text
  + Text to display. . If this tag has nested (i.e. children) tags, those are displayed instead of this property.
* CssClass
  + The CSS class to apply to this tag.

Examples: *<Engage:RotateBack CssClass="rotate-back-button" />   
<Engage:RotateBack><Engage:Image ImageUrl="%#PagerImageUrl%"/></Engage:RotateBack>*

### Tag: Engage:RotateNext

Purpose: Transitions to the next slide when clicked. The tag itself is replaced by a *div* tag.

Attribute/Value:

* Text
  + Text to display. . If this tag has nested (i.e. children) tags, those are displayed instead of this property.
* CssClass
  + The CSS class to apply to this tag.

Examples: *<Engage:RotateNext CssClass="rotate-next-button" />   
<Engage:RotateNext><Engage:Image ImageUrl="%#PagerImageUrl%"/></Engage:RotateNext>*

### Tag: Engage:RotatePause

Purpose: Pauses the rotator when clicked. The tag itself is replaced by a *div* tag.

Attribute/Value:

* Text
  + Text to display. . If this tag has nested (i.e. children) tags, those are displayed instead of this property.
* CssClass
  + The CSS class to apply to this tag. In addition to this CSS class, the element has the class *rotator-pause*, and also has *rotator-pause-on* when the rotator is paused.

Examples: *<Engage:RotatePause CssClass="rotate-back-button" />   
<Engage:RotatePause><Engage:Image ImageUrl="%#PagerImageUrl%"/></Engage:RotatePause>*

### Tag: Engage:RotatePlay

Purpose: Resumes rotation of a paused rotator when clicked. The tag itself is replaced by a *div* tag.

Attribute/Value:

* Text
  + Text to display. . If this tag has nested (i.e. children) tags, those are displayed instead of this property.
* CssClass
  + The CSS class to apply to this tag. In addition to this CSS class, the element has the class *rotator-play*, and also has *rotator-play-on* when the rotator is not paused.

Examples: *<Engage:RotatePlay CssClass="rotate-back-button" />   
<Engage:RotatePlay><Engage:Image ImageUrl="%#PagerImageUrl%"/></Engage:RotatePlay>*

### Tag: Engage:Pager

Purpose: Creates a *div* tag with an *a* tag (hyperlink) for each slide in the rotator. When clicked, the links transition the rotator to that slide. The text of the link is the index of the slide in the rotator, starting with 1.

Attribute/Value:

* CssClass
  + The CSS class to apply to this tag.
* Event
  + The name of the event upon which to cause the transition. Any JavaScript event can be used. If no event name is provided, *click* is used. Common events include:
    - *click* – when the link is clicked
    - *blur* – when the link loses the keyboard focus
    - *focus* – when the link receives the keyboard focus
    - *dblclick* – when the link is double clicked
    - *mouseover* – when the mouse enters the link
    - *mouseout* – when the mouse leaves the link

Example: *<Engage:Pager CssClass="rotator-auto-pager" />*

### Tag: Engage:PagerItem

Purpose: Creates a *div* tag which transitions to a specific slide in the rotator, when clicked. Note that this tag can only be used within an Engage:List tag.

Attribute/Value:

* CssClass
  + The CSS class to apply to this tag. In addition to this CSS class, the element has the class *pager-item-#*, where *#* is the index of the slide in the rotator, starting with 0 (i.e. the first slide has the class *pager-item-0*).

Example: *<Engage:PagerItem CssClass="pager-item">  
<Engage:Image ImageUrl="%#PagerImageUrl%"/></Engage:PagerItem>*

### Tag: Engage:CurrentIndex

Purpose: Creates a *span* tag which displays the index (starting with 1) of the currently displayed slide.

Attribute/Value:

* CssClass
  + The CSS class to apply to this tag. In addition to this CSS class, the element has the class *current-slide-index*.

Example: *<Engage:CurrentIndex />*

### Tag: Engage:TotalCount

Purpose: Creates a *span* tag, the content of which is the total number of slides in the rotator.

Attribute/Value:

* CssClass
  + The CSS class to apply to this tag. In addition to this CSS class, the element has the class *total-slide-count*.

Example: *<Engage:TotalCount />*

## Appendix A: Text Format Values

Text values are formatted to appear in HTML, by default. If you need a different format, you can use one of the below format value.

|  |  |  |
| --- | --- | --- |
| Format Specifier | Description | Example |
| Raw | Plain Text – Default for HTML properties such as *Content* and URL properties such as *Link URL* | Ben & Jerry’s Ice Cream |
| CSS | CSS/Slug attribute value – replaces spaces and other non-alphanumeric characters with dashes (-) and removes diacritics from letters | Ben-Jerry-s-Ice-Cream |
| HTML | HTML encoded – Default for plain text properties, such as *Title* | Ben &amp; Jerry’s Ice Cream |

## Appendix B: Date/Time Format Values

When formatting date/time values, there are a number of built-in format options from which to choose. If you require more flexibility, you can also create a custom date/time Format.

### Standard Date/Time Formats[[1]](#footnote-1)

|  |  |  |
| --- | --- | --- |
| Format Specifier | Name | American English Example |
| d | Short date pattern | 7/31/2008 |
| D | Long date pattern | Thursday, July 31, 2008 |
| f | Full date/time pattern (short time) | Thursday, July 31, 2008 12:00 AM |
| F | Full date/time pattern (long time) | Thursday, July 31, 2008 12:00:00 AM |
| g | General date/time pattern (short time) | 7/31/2008 12:00 AM |
| G | General date/time pattern (long time) | 7/31/2008 12:00:00 AM |
| M or m | Month day pattern | July 31 |
| o | Round-trip date/time pattern | 2008-07-31T00:00:00.0000000 |
| R or r | RFC1123 pattern | Thu, 31 Jul 2008 00:00:00 GMT |
| s | Sortable date/time pattern; conforms to ISO 8601 | 2008-07-31T00:00:00 |
| t | Short time pattern | 12:00 AM |
| T | Long time pattern | 12:00:00 AM |
| u | Universal sortable date/time pattern | 2008-07-31 00:00:00Z |
| U | Universal sortable date/time pattern | Thursday, July 31, 2008 5:00:00 AM |
| Y or y | Year month pattern | July, 2008 |
| Any other single character | Unknown format value (uses the General date/time pattern (long time)) | 7/31/2008 12:00:00 AM |

### Custom Date/Time Formats[[2]](#footnote-2)

|  |  |
| --- | --- |
| Format Specifier | Description |
| d | Represents the day of the month as a number from 1 through 31. A single-digit day is formatted without a leading zero. |
| dd | Represents the day of the month as a number from 01 through 31. A single-digit day is formatted with a leading zero. |
| ddd | Represents the abbreviated name of the day of the week. |
| dddd | Represents the full name of the day of the week. |
| f | Represents the most significant digit of the seconds fraction. |
| ff | Represents the two most significant digits of the seconds fraction. |
| fff | Represents the three most significant digits of the seconds fraction. |
| ffff | Represents the four most significant digits of the seconds fraction. |
| fffff | Represents the five most significant digits of the seconds fraction. |
| ffffff | Represents the six most significant digits of the seconds fraction. |
| fffffff | Represents the seven most significant digits of the seconds fraction. |
| F | Represents the most significant digit of the seconds fraction. Nothing is displayed if the digit is zero. |
| FF | Represents the two most significant digits of the seconds fraction. However, trailing zeros, or two zero digits, are not displayed. |
| FFF | Represents the three most significant digits of the seconds fraction. However, trailing zeros, or three zero digits, are not displayed. |
| FFFF | Represents the four most significant digits of the seconds fraction. However, trailing zeros, or four zero digits, are not displayed. |
| FFFFF | Represents the five most significant digits of the seconds fraction. However, trailing zeros, or five zero digits, are not displayed. |
| FFFFFF | Represents the six most significant digits of the seconds fraction. However, trailing zeros, or six zero digits, are not displayed. |
| FFFFFFF | Represents the seven most significant digits of the seconds fraction. However, trailing zeros, or seven zero digits, are not displayed. |
| g or gg | Represents the period or era (A.D. for example). |
| h | Represents the hour as a number from 1 through 12, that is, the hour as represented by a 12-hour clock that counts the whole hours since midnight or noon. Consequently, a particular hour after midnight is indistinguishable from the same hour after noon. The hour is not rounded, and a single-digit hour is formatted without a leading zero. For example, given a time of 5:43, this format specifier displays "5". |
| hh | Represents the hour as a number from 01 through 12, that is, the hour as represented by a 12-hour clock that counts the whole hours since midnight or noon. Consequently, a particular hour after midnight is indistinguishable from the same hour after noon. The hour is not rounded, and a single-digit hour is formatted with a leading zero. For example, given a time of 5:43, this format specifier displays "05". |
| H | Represents the hour as a number from 0 through 23, that is, the hour as represented by a zero-based 24-hour clock that counts the hours since midnight. A single-digit hour is formatted without a leading zero. |
| HH | Represents the hour as a number from 00 through 23, that is, the hour as represented by a zero-based 24-hour clock that counts the hours since midnight. A single-digit hour is formatted with a leading zero. |
| M | Represents the minute as a number from 0 through 59. The minute represents whole minutes passed since the last hour. A single-digit minute is formatted without a leading zero. |
| Mm | Represents the minute as a number from 00 through 59. The minute represents whole minutes passed since the last hour. A single-digit minute is formatted with a leading zero. |
| M | Represents the month as a number from 1 through 12. A single-digit month is formatted without a leading zero. |
| MM | Represents the month as a number from 01 through 12. A single-digit month is formatted with a leading zero. |
| MMM | Represents the abbreviated name of the month. |
| MMMM | Represents the full name of the month. |
| s | Represents the seconds as a number from 0 through 59. The second represents whole seconds passed since the last minute. A single-digit second is formatted without a leading zero. |
| ss | Represents the seconds as a number from 00 through 59. The second represents whole seconds passed since the last minute. A single-digit second is formatted with a leading zero. |
| t | Represents the first character of the A.M./P.M. designator. The A.M. designator is used if the hour in the time being formatted is less than 12; otherwise, the P.M. designator is used. |
| tt | Represents the A.M./P.M. designator. The A.M. designator is used if the hour in the time being formatted is less than 12; otherwise, the P.M. designator is used. |
| y | Represents the year as a two-digit number. |
| yy | Represents the year as a two-digit number. |
| yyy | Represents the year as a three-digit number. |
| yyyy | Represents the year as a four-digit number. |
| yyyyy | Represents the year as a five-digit number. If the year has fewer than five digits, the number is padded with leading zeroes to achieve five digits. If there are additional "y" specifiers, the number is padded with as many leading zeroes as necessary to achieve the number of "y" specifiers. |
| : | The time separator that is used to differentiate hours, minutes, and seconds. |
| / | The date separator that is used to differentiate years, months, and days. |
| " | Quoted string (quotation mark). Displays the literal value of any string between two quotation marks ("). Precede each quotation mark with an escape character (\). |
| ' | Quoted string (apostrophe). Displays the literal value of any string between two apostrophe (') characters. |
| %c | Represents the result associated with a custom format specifier "c", when the custom format value consists solely of that custom format specifier. That is, to  use the "d", "f", "F", "h", "m", "s", "t", "y", "z", "H", or "M" custom format specifier by itself, specify "%d", "%f", "%F", "%h", "%m", "%s", "%t", "%y", "%z", "%H", or "%M". |
| \c | The escape character. Displays the character "c" as a literal when that character is preceded by the escape character (\). To insert the backslash character itself in the result string, use two escape characters ("\\"). |
| Any other character | Any other character is copied to the result string, and does not affect formatting. |

## Appendix C: Numeric Format Values

When formatting numeric values, there are a number of built-in format options from which to choose. If you require more flexibility, you can also create a custom numeric format. The standard format specifiers can have a number appended to specify the precision (i.e. c0 could produce $10, while c3 could produce $10.120)

### Standard Numeric Formats[[3]](#footnote-3)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Format Specifier | Name | American English Examples   |  |  |  | | --- | --- | --- | | Specifier | Value | Result | |
| C or c | Currency | |  |  |  | | --- | --- | --- | | C | 123.456 | $123.46 | | C3 | 123.456 | $123.456 | | C | 1 | $1.00 | |
| D or d | Decimal | |  |  |  | | --- | --- | --- | | D | 123 | 123 | | D4 | 123 | 0123 | | D | -123 | -123 | |
| E or e | Scientific (exponential) | |  |  |  | | --- | --- | --- | | E | 1 | 1.000000E+000 | | e1 | 1 | 1.0e+000 | | e2 | -123.4 | -1.23e+002 | |
| F or f | Fixed-point | |  |  |  | | --- | --- | --- | | F | 1 | 1.00 | | F1 | 1 | 1.0 | | F1 | -1.56 | -1.6 | |
| G or g | General | |  |  |  | | --- | --- | --- | | G | -123.456 | -123.456 | | G5 | 123.456 | 123.46 | | G | .000012 | 1.2E-05 | | G | .0012 | 0.0012 | | G2 | 1234 | 1.2E+03 | |
| N or n | Number | |  |  |  | | --- | --- | --- | | N | -123.456 | -123.46 | | N | 1.23456 | 1.23 | | N | 12345.6 | 12,345.60 | | N1 | 123 | 123.0 | | N1 | 123.456 | 123.5 | |
| P or p | Percent | |  |  |  | | --- | --- | --- | | P | .123456 | 12.35% | | P1 | .123456 | 12.3% | | P | -12.3456 | -1,234.56% | | P0 | 1 | 100% | |
| R or r | Round-trip | |  |  |  | | --- | --- | --- | | R0 | 1.01 | 1.01 | | R | 1.623e-21 | 1.623E-21 | |
| X or x | Hexadecimal | |  |  |  | | --- | --- | --- | | X | 12 | C | | X3 | 17 | 011 | | x | -1 | ffffffff | |
| Any other single character | Unknown format value | *Displays an error message* |

### Custom Numeric Formats[[4]](#footnote-4)

|  |  |
| --- | --- |
| Format Specifier | Description |
| 0 | If the value being formatted has a digit in the position where the '0' appears in the format string, then that digit is copied to the result string; otherwise, a '0' appears in the result string. |
| # | If the value being formatted has a digit in the position where the '#' appears in the format string, then that digit is copied to the result string. Otherwise, nothing is stored in that position in the result string. |
| . | The first '.' character in the format string determines the location of the decimal separator in the formatted value; any additional '.' characters are ignored. |
| , | If one or more ',' characters is specified between two digit placeholders (0 or #) that format the integral digits of a number, a group separator character is inserted between each number group in the integral part of the output.  If one or more ',' characters is specified immediately to the left of the explicit or implicit decimal point, the number to be formatted is divided by 1000 each time a number scaling specifier occurs. For example, if the string "0,," is used to format the number 100 million, the output is "100". |
| % | The presence of a '%' character in a format string causes a number to be multiplied by 100 before it is formatted. The appropriate symbol is inserted in the number itself at the location where the '%' appears in the format string. |
| ‰ | The presence of a '‰' character in a format string causes a number to be multiplied by 1000 before it is formatted. The appropriate symbol is inserted in the number itself at the location where the '‰' appears in the format string. |
| E0  E+0  E-0  e0  e+0  e-0 | If any of the strings "E", "E+", "E-", "e", "e+", or "e-" are present in the format string and are followed immediately by at least one '0' character, then the number is formatted using scientific notation with an 'E' or 'e' inserted between the number and the exponent. The number of '0' characters following the scientific notation indicator determines the minimum number of digits to output for the exponent. The "E+" and "e+" formats indicate that a sign character (plus or minus) should always precede the exponent. The "E", "E-", "e", or "e-" formats indicate that a sign character should only precede negative exponents. |
| ; | The ';' character is used to separate sections for positive, negative, and zero numbers in the format string. If there are two sections in the custom format string, the leftmost section defines the formatting of positive and zero numbers, while the rightmost section defines the formatting of negative numbers. If there are three sections, the leftmost section defines the formatting of positive numbers, the middle section defines the formatting of negative numbers, and the rightmost section defines the formatting of zero numbers. |
| " | Quoted string (quotation mark). Displays the literal value of any string between two quotation marks ("). Precede each quotation mark with an escape character (\). |
| ' | Quoted string (apostrophe). Displays the literal value of any string between two apostrophe (') characters. |
| \% | The escape character. Displays the character "%" as a literal when that character is preceded by the escape character (\). To insert the backslash character itself in the result string, use two escape characters ("\\"). |
| Any other character | Any other character is copied to the result string, and does not affect formatting. |

1. From http://msdn.microsoft.com/en-us/library/az4se3k1.aspx [↑](#footnote-ref-1)
2. From http://msdn.microsoft.com/en-us/library/8kb3ddd4.aspx [↑](#footnote-ref-2)
3. From http://msdn.microsoft.com/en-us/library/dwhawy9k.aspx [↑](#footnote-ref-3)
4. From http://msdn.microsoft.com/en-us/library/0c899ak8.aspx [↑](#footnote-ref-4)