### numFmts (Number Formats)

This element defines the number [formats](formats.docx) in this [workbook](workbook.docx), consisting of a sequence of [numFmt](numFmt.docx) records, where each [numFmt](numFmt.docx) record defines a particular number [format](format.docx), indicating how to [format](format.docx) and render the numeric value of a cell.

[Example:

This [cell](cell.docx) is formatting as US currency:



The XML expressing this [format](format.docx) shows that the formatId is "166" and the decoded formatCode is $#,##0.00

<numFmts count="1">  
 <[numFmt](numFmt.docx) numFmtId="166" formatCode="&quot;$&quot;#,##0.00"/>  
</numFmts>

end example]

Number Format Codes

Up to four sections of [format](format.docx) codes can be specified. The [format](format.docx) codes, separated by semicolons, define the [formats](formats.docx) for positive numbers, negative numbers, zero values, and text, in that order. If only two sections are specified, the first is used for positive numbers and zeros, and the second is used for negative numbers. If only one section is specified, it is used for all numbers. To skip a section, the ending semicolon for that section must be written.

Custom number format with four sections

The first section, "Format for positive numbers", is the [format](format.docx) code that applies to the [cell](cell.docx) when the [cell](cell.docx) value contains a positive number.

The second section, "Format for negative numbers", is the [format](format.docx) code that applies to the [cell](cell.docx) when the [cell](cell.docx) value contains a negative number.

The third section, "Format for zeros", is the [format](format.docx) code that applies to the [cell](cell.docx) when the [cell](cell.docx) value is zero.

The fourth, and last, section, "Format for text", is the [format](format.docx) code that applies to the [cell](cell.docx) when the [cell](cell.docx) value is text.

The & (ampersand) text operator is used to join, or concatenate, two values.

The following [table](table.docx) describes the different symbols that are available for use in custom number formats.

|  |  |
| --- | --- |
| Format symbol | Description and result |
| 0 | Digit placeholder. For example, if the value 8.9 is to be displayed as 8.90, use the [format](format.docx) #.00 |
| # | Digit placeholder. This symbol follows the same rules as the 0 symbol. However, the application shall not display extra zeros when the number typed has fewer digits on either side of the decimal than there are # symbols in the format. For example, if the custom [format](format.docx) is #.##, and 8.9 is in the [cell](cell.docx), the number 8.9 is displayed. |
| ? | Digit placeholder. This symbol follows the same rules as the 0 symbol. However, the application shall put a space for insignificant zeros on either side of the decimal point so that decimal points are aligned in the column. For example, the custom [format](format.docx) 0.0? aligns the decimal points for the numbers 8.9 and 88.99 in a column. |
| . (period) | Decimal point. |
| % | Percentage. If the [cell](cell.docx) contains a number between 0 and 1, and the custom [format](format.docx) 0% is used, the application shall multiply the number by 100 and adds the percentage symbol in the cell. |
| , (comma) | Thousands separator. The application shall separate thousands by commas if the [format](format.docx) contains a comma that is enclosed by number signs (#) or by zeros. A comma that follows a placeholder scales the number by one thousand. For example, if the [format](format.docx) is #.0,, and the [cell](cell.docx) value is 12,200,000 then the number 12.2 is displayed. |
| E- E+ e- e+ | Scientific format. The application shall display a number to the right of the "E" symbol that corresponds to the number of places that the decimal point was moved. For example, if the [format](format.docx) is 0.00E+00, and the value 12,200,000 is in the [cell](cell.docx), the number 1.22E+07 is displayed. If the number [format](format.docx) is #0.0E+0, then the number 12.2E+6 is displayed. |
| $-+/():space | Displays the symbol. If it is desired to display a character that differs from one of these symbols, precede the character with a backslash (\). Alternatively, enclose the character in quotation marks. For example, if the number [format](format.docx) is (000), and the value 12 is in the [cell](cell.docx), the number (012) is displayed. |
| \ | Display the next character in the format. The application shall not display the backslash. For example, if the number [format](format.docx) is 0\!, and the value 3 is in the [cell](cell.docx), the value 3! is displayed. |
| \* | Repeat the next character in the [format](format.docx) enough times to [fill](fill.docx) the column to its current width. There shall not be more than one asterisk in one section of the format. If more than one asterisk appears in one section of the [format](format.docx), all but the last asterisk shall be ignored. For example, if the number [format](format.docx) is 0\*x, and the value 3 is in the [cell](cell.docx), the value 3xxxxxx is displayed. The number of x characters that are displayed in the [cell](cell.docx) varies based on the width of the column. |
| \_ (underline) | Skip the width of the next character. This is useful for lining up negative and positive values in different cells of the same column. For example, the number [format](format.docx) \_(0.0\_);(0.0) aligns the numbers 2.3 and -4.5 in the column even though the negative number is enclosed by parentheses. |
| "[text](text.docx)" | Display whatever text is inside the quotation marks. For example, the [format](format.docx) 0.00 "dollars" displays 1.23 dollars when the value 1.23 is in the cell. |
| @ | Text placeholder. If text is typed in the [cell](cell.docx), the text from the [cell](cell.docx) is placed in the [format](format.docx) where the at symbol (@) appears. For example, if the number [format](format.docx) is "Bob "@" Smith" (including quotation marks), and the value "John" is in the [cell](cell.docx), the value Bob John Smith is displayed. |

Text and spacing

Display both text and numbers

To display both text and numbers in a [cell](cell.docx), enclose the text characters in double quotation marks (" ") or precede a single character with a backslash (\). Single quotation marks shall not be used to denote text. Characters inside double quotes, or immediately following backslash shall never be interpreted as part of the [format](format.docx) code lexicon; instead they shall always be treated as literal strings. Remember to include the characters in the appropriate section of the [format](format.docx) codes. For example, type the [format](format.docx) $0.00" Surplus";$-0.00" Shortage" to display a positive amount as "$125.74 Surplus" and a negative amount as "$-125.74 Shortage."

The following characters are displayed without the use of quotation marks.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| $ | Dollar sign |  |  |  | - | Minus sign |
| + | Plus sign |  |  |  | / | Slash mark |
| ( | Left parenthesis |  |  |  | ) | Right parenthesis |
| : | Colon |  |  |  | ! | Exclamation point |
| ^ | Circumflex accent (caret) |  |  |  | & | Ampersand |
| ' | Apostrophe |  |  |  | ~ | Tilde |
| { | Left curly bracket |  |  |  | } | Right curly bracket |
| < | Less-than sign |  |  |  | > | Greater-than sign |
| = | Equal sign |  |  |  |  | Space character |

Include a section for text entry

If included, a text section must be the last section in the number format. Include an "at" sign (@) in the section, precisely where the cell’s text value should be displayed. If the @ character is omitted from the text section, text typed in the [cell](cell.docx) will not be displayed. To always display specific text characters with the typed text, enclose the additional text in double quotation marks (" "). For example, if “June” is typed into the [cell](cell.docx), and the text [format](format.docx) is "gross receipts for "@ , then the [cell](cell.docx) will display “gross receipts for June”.

If the [format](format.docx) does not include a text section, text entered in a [cell](cell.docx) is not affected by the [format](format.docx) code.

Add spaces

To create a space that is the width of a character in a number [format](format.docx), include an underscore, followed by the character. For example, when an underscore is followed with a right parenthesis, such as \_), positive numbers line up correctly with negative numbers that are enclosed in parentheses because positive numbers are displayed with a blank space after them exactly the width of the right parenthesis character.

Repeat characters

To repeat the next character in the [format](format.docx) to [fill](fill.docx) the column width, include an asterisk (\*) in the number format. For example, type 0\*- to include enough dashes after a number to [fill](fill.docx) the [cell](cell.docx), or type \*0 before any [format](format.docx) to include leading zeros.

Decimal places, spaces, [colors](colors.docx), and conditions

Include decimal places and significant digits

To [format](format.docx) fractions or numbers with decimal points, include the following digit placeholders in a section. If a number has more digits to the right of the decimal point than there are placeholders in the [format](format.docx), the number rounds to as many decimal places as there are placeholders. If there are more digits to the left of the decimal point than there are placeholders, the extra digits are displayed. If the [format](format.docx) contains only number signs (#) to the left of the decimal point, numbers less than 1 begin with a decimal point.

# (number sign) displays only significant digits and does not display insignificant zeros.

0 (zero) displays insignificant zeros if a number has fewer digits than there are zeros in the format.

? (question mark) adds spaces for insignificant zeros on either side of the decimal point so that decimal points align when they are formatted with a fixed-width font, such as Courier New. ? can also be used for fractions that have varying numbers of digits.

|  |  |  |
| --- | --- | --- |
| To display | As | Use this code |
| 1234.59 | 1234.6 | ####.# |
| 8.9 | 8.900 | #.000 |
| .631 | 0.6 | 0.# |
| 12 1234.568 | 12.0 1234.57 | #.0# |
| 44.398 102.65 2.8 | 44.398 102.65     2.8 (with aligned decimals) | ???.??? |
| 5.25 5.3 | 5 1/4 5 3/10 (with aligned fractions) | # ???/??? |

Display a thousands separator

To display a comma as a thousands separator or to scale a number by a multiple of 1,000, include a comma in the number format.

|  |  |  |
| --- | --- | --- |
| To display | As | Use this code |
| 12000 | 12,000 | #,### |
| 12000 | 12 | #, |
| 12200000 | 12.2 | 0.0,, |

Specify [colors](colors.docx)

To set the text [color](color.docx) for a section of the [format](format.docx), type the name of one of the following eight [colors](colors.docx) in square brackets in the section. The [color](color.docx) code must be the first [item](item.docx) in the section.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| [Black] |  |  | [Blue] |  |  | [Cyan] |
| [Green] |  |  | [Magenta] |  |  | [Red] |
| [White] |  |  | [Yellow] |  |  |  |

Instead of using the name of the [color](color.docx), the [color](color.docx) index can be used, like this [Color3] for Red. Valid numeric indexes for [color](color.docx) range from 1 to 56, which [reference](reference.docx) by index to the legacy [color](color.docx) palette.

[Note: the default legacy [color](color.docx) palette values are listed in §. In the [format](format.docx) codes, [Color1] refers to the [color](color.docx) associated with indexed="8", or black (by default), [Color2] refers to the [color](color.docx) associated with indexed="9", or white (by default), and so on up to [Color56] referring to the [color](color.docx) associated with indexed="63". If the [color](color.docx) palette has been customized from default values, then the [colors](colors.docx) associated with these indexes will reflect those customizations.

Specify conditions

To set number [formats](formats.docx) that will be applied only if a number meets a specified condition, enclose the condition in square brackets. The condition consists of a comparison operator and a value. Comparison operators include: = Equal to; > Greater than; < Less than; >= Greater than or equal to, <= Less than or equal to, and <> Not equal to. For example, the following [format](format.docx) displays numbers that are less than or equal to 100 in a red font and numbers that are greater than 100 in a blue font.

[Red][<=100];[Blue][>100]

If the [cell](cell.docx) value does not meet any of the criteria, then pound signs ("#") are displayed across the width of the cell.

Currency, percentages, and scientific notation

Include currency symbols

To include currency symbols, place the currency symbol in the [location](location.docx) it should when displayed.

Display percentages

To display numbers as a percentage of 100 — for example, to display .08 as 8% or 2.8 as 280% — include the percent sign (%) in the number format.

Display scientific notations

To display numbers in scientific [format](format.docx), use exponent codes in a section — for example, E-, E+, e-, or e+.

If a [format](format.docx) contains a zero (0) or number sign (#) to the right of an exponent code, the application displays the number in scientific [format](format.docx) and inserts an "E" or "[e](e.docx)". The number of zeros or number signs to the right of a code determines the number of digits in the exponent. "E-" or "e-" places a minus sign by negative exponents. "E+" or "e+" places a minus sign by negative exponents and a plus sign by positive exponents.

Dates and times

Display days, months, and years

|  |  |  |
| --- | --- | --- |
| To display | As | Use this code |
| Months | 1–12 | [m](m.docx) |
| Months | 01–12 | mm |
| Months | Jan–Dec | mmm |
| Months | January–December | mmmm |
| Months | J–D | mmmmm |
| Days | 1–31 | [d](d.docx) |
| Days | 01–31 | dd |
| Days | Sun–Sat | ddd |
| Days | Sunday–Saturday | dddd |
| Years | 00–99 | yy |
| Years | 1900–9999 | yyyy |

See § for special handling of certain days in the year 1900.

Month versus minutes

If "[m](m.docx)" or "mm" code is used immediately after the "h" or "hh" code (for hours) or immediately before the "ss" code (for seconds), the application shall display minutes instead of the month.

Display hours, minutes, and seconds

|  |  |  |
| --- | --- | --- |
| To display | As | Use this code |
| Hours | 0–23 | h |
| Hours | 00–23 | hh |
| Minutes | 0–59 | [m](m.docx) |
| Minutes | 00–59 | mm |
| Seconds | 0–59 | [s](s.docx) |
| Seconds | 00–59 | ss |
| Time | 4 AM | h AM/PM |
| Time | 4:36 PM | h:mm AM/PM |
| Time | 4:36:03 P | h:mm:ss A/P |
| Time | 4:36:03.75 | h:mm:ss.00 |
| Elapsed time (hours and minutes) | 1:02 | [h]:mm |
| Elapsed time (minutes and seconds) | 62:16 | [mm]:ss |
| Elapsed time (seconds and hundredths) | 3735.80 | [ss].00 |

Minutes versus month

The "[m](m.docx)" or "mm" code must appear immediately after the "h" or "hh" code or immediately before the "ss" code; otherwise, these will display as the month instead of minutes.

AM and PM

If the [format](format.docx) contains AM or PM, the hour is based on the 12-hour clock, where "AM" or "A" indicates times from midnight until noon and "PM" or "P" indicates times from noon until midnight. Otherwise, the hour is based on the 24-hour clock.

Invalid date and time values

Cells formatted with a date or time [format](format.docx) and which contain invalid date or time values shall show the pound sign ("#") across the width of the cell.

International Considerations

|  |  |
| --- | --- |
| Format Code | Description |
| [r](r.docx) | JPN/CHT Only.  When loading in JPN locale, code becomes "ee".  When loading in CHT locale, code becomes "[e](e.docx)". |
| rr | JPN/CHT Only.  When loading in JPN locale, code becomes "gggee".  When loading in CHT locale, code becomes "[e](e.docx)". |
| g | When loading in JPN locale: Single Roman character emperor reign  When loading in CHT (Taiwan only) locale: treat same as "gg". |
| gg | When loading in JPN locale: Single Kanji character emperor reign  When loading in CHT locale: Last era short name (since 1911) |
| ggg | When loading in JPN locale: Tow Kanji character emperor reign  When loading in CHT locale: Last era long name (since 1911) |
| [e](e.docx) | When loading in JPN locale: Era year  When laoding in CHT (Tawian only) locale: Era year since 1912. If preceeded by “g”, “gg”, or “ggg” then year of 1912, and year before 1912 are special, otherwise years less than 1912 are gregorian.  OTHER locales: becomes "yy" |
| ee | When loading in JPN locale: Era year w/ leading zero  When loading in CHT (Tawian only) locale: Era year since 1911  OTHER locales: becomes "yy" |
| b2 | Hijri calander |
| b1 | Gregorian calendar |
| [$USD-409] | Specifies currency and locale/date system/number system information.  [Syntax](Syntax.docx) is [$<Currency String>-<language info>]. Currency string is a string to use as a currency symbol. Language info is a 32-bit value entered in hexidecimal format.  Language info [format](format.docx) (byte 3 is most significant byte):  Bytes 0,1: 16-bit Language ID (LID).  Byte 2: Calendar type. High bit indicates that input is parsed using specified calendar.  Byte 3: Number system type. High bit indicates that input is parsed using specified number system.  Special language info values:  0xf800: System long date [format](format.docx)  0xf400: System time [format](format.docx) |

|  |
| --- |
| Parent Elements |
| [styleSheet](styleSheet.docx) (§) |

|  |  |
| --- | --- |
| Child Elements | Subclause |
| [numFmt](numFmt.docx) (Number Format) | § |

|  |  |
| --- | --- |
| Attributes | Description |
| count (Number Format Count) | Count of number [format](format.docx) elements.  The possible values for this attribute are defined by the XML [Schema](Schema.docx) unsignedInt datatype. |

The following XML [Schema](Schema.docx) fragment defines the contents of this element:

<complexType [name](name.docx)="CT\_NumFmts">

<sequence>

<element name="[numFmt](numFmt.docx)" type="CT\_NumFmt" minOccurs="0" maxOccurs="unbounded"/>

</sequence>

<attribute [name](name.docx)="count" type="xsd:unsignedInt" use="optional"/>

</complexType>