

Chapter 3: Formatting Data, Formulas and Copying Formula

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1. Formatting Data, Formulas and Copying Formulas in Calc

The data in Calc can be formatting in several different ways. It can either be edited as part of a cell style so that it is automatically applied, or it can be applied manually to the cell. Formatting data can be done either by using specific buttons from the Formatting tool bar or by using Format menu.

(a) Format buttons

i. Currency

The default currency format for the cells in your spreadsheet is determined by the regional setting of your operating system. If you want, you can apply a custom currency symbol to a cell. For example, enter `#,##0.00 €` to display 4.50 € (Euros).

You can also specify the locale setting for the currency by entering the locale code for the country after the symbol. For example, `[$€-407]` represents Euros in Germany. To view the locale code for a country, select the country in the Language list on the Numbers tab of the Format Cells dialog.

ii. Percentage

To display numbers as percentages, (numbers that are multiplied by 100) add the percent sign (%) to the number format.

iii. Scientific Notation

Scientific notation lets you write very large numbers or very small fractions in a compact form. For example, in scientific notation, 650000 is written as 6.5×10^5 , and 0.000065 as 6.5×10^{-5} . In OpenOffice.org, these numbers are written as 6.5E+5 and 6.5E-5, respectively. To create a number format that displays numbers using scientific notation, enter a # or 0, and then one of the following codes E-, E+, e- or e+.

iv. Decimal Places

If a number contains more digits to the right of the decimal delimiter than there are placeholders in the format, the number is rounded accordingly. If a number contains more digits to the left of the decimal delimiter than there are placeholders in the format, the entire number is displayed.

Examples:

Number Format	Format Code
3456.78 as 3456.8	#####.#
9.9 as 9.900	#.000
13 as 13.0 and 1234.567 as 1234.57	#.0#
5.75 as 5 3/4 and 6.3 as 6 3/10	# ???/???
.5 as 0.5	0.##

v. Text

To include text in a number format that is applied to a cell containing numbers, place a double quotation mark (") in front of and behind the text, or a backslash (\) before a single character. For example, enter ## "meters" to display "3.5 meters". To include text in a number format that is applied to a cell that might contain text, enclose the text by double quotation marks (" "), and then add an at sign (@). For example, enter "Total for "@ to display "Total for December".

vi. Dates

To enter a date in a cell, use the Gregorian calendar format. For example, in an English locale, enter 1/2/2002 for Jan 2, 2002.

vii. Time Formats

To display hours, minutes and seconds use the following number format codes.

Format	Format Code
Hours as 0-23	h
Hours as 00-23	hh
Minutes as 0-59	m
Minutes as 00-59	mm
Seconds as 0-59	s
Seconds as 00-59	ss

(b) Formatting using Format Cells dialog box

To access the options to format a cell, select the appropriate cell or cells, right-click on it, and select **Format Cells**. All of the format options are discussed below.

i. Numbers

On the *Numbers* tab (Figure 1), the behavior of the data in the cell can be controlled:

- Any of the data types in the **Category** list can be applied to the data.
- The number of decimal places and leading zeros can be controlled.
- A custom format code can also be entered.

Using the language setting in this menu controls the local settings for the different formats such as the date order and the currency marker.

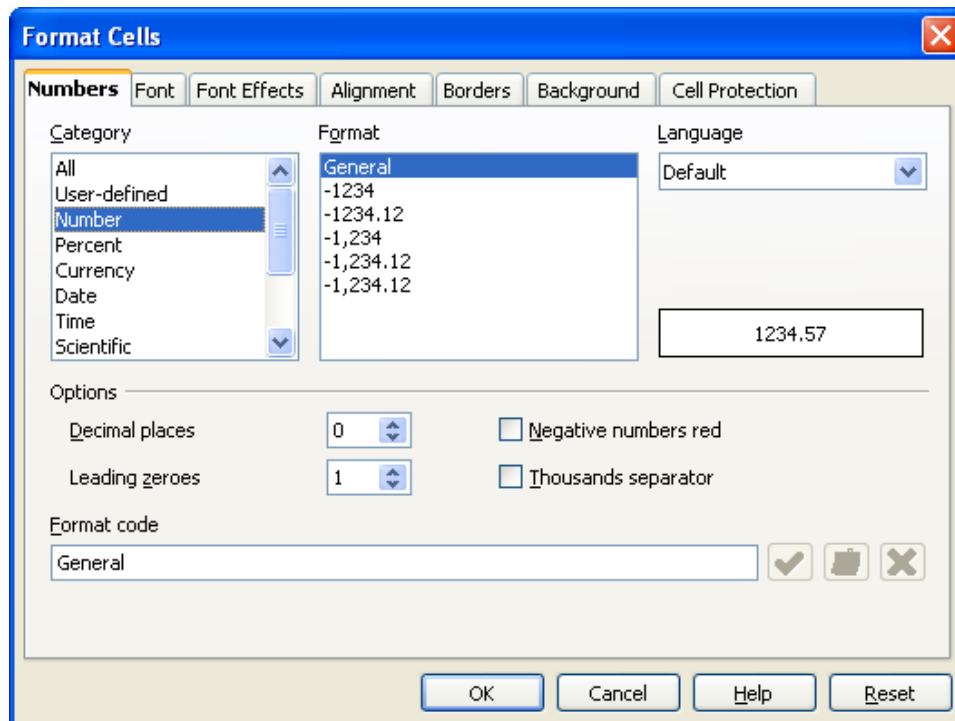


Figure 1: *Format Cells* > *Numbers*

ii. Font

The font for the cell can be chosen on the *Font* tab (Figure 2). The display on the bottom shows a preview of the cell.

Here you can also set the language of the cell. The language setting is useful, because it allows different languages to exist in the same document and be spell checked correctly.

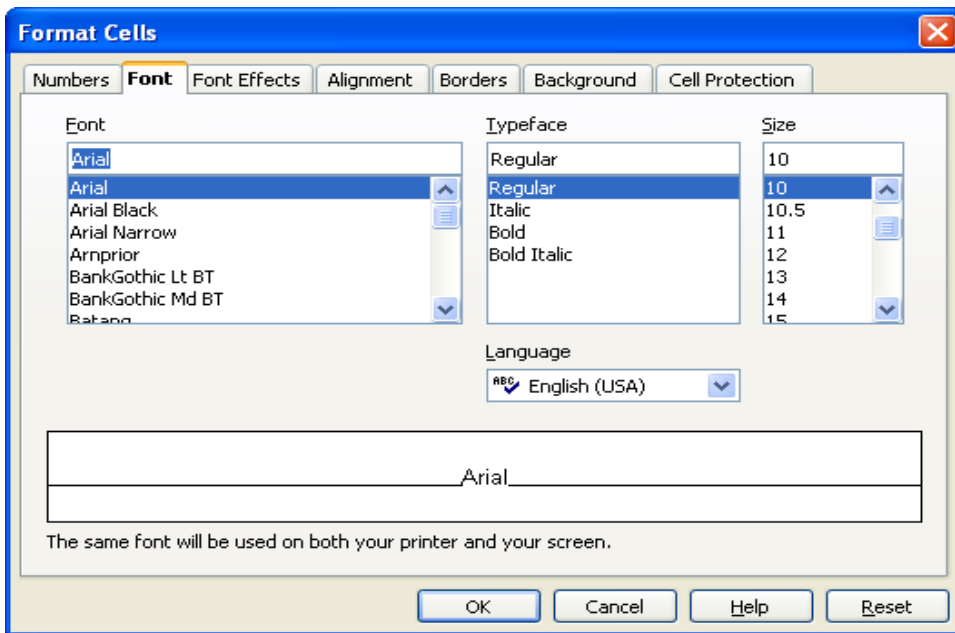


Figure 2: Format Cells > Font

iii. Font effects

The *Font Effects* tab (Figure 3) offers more font options.

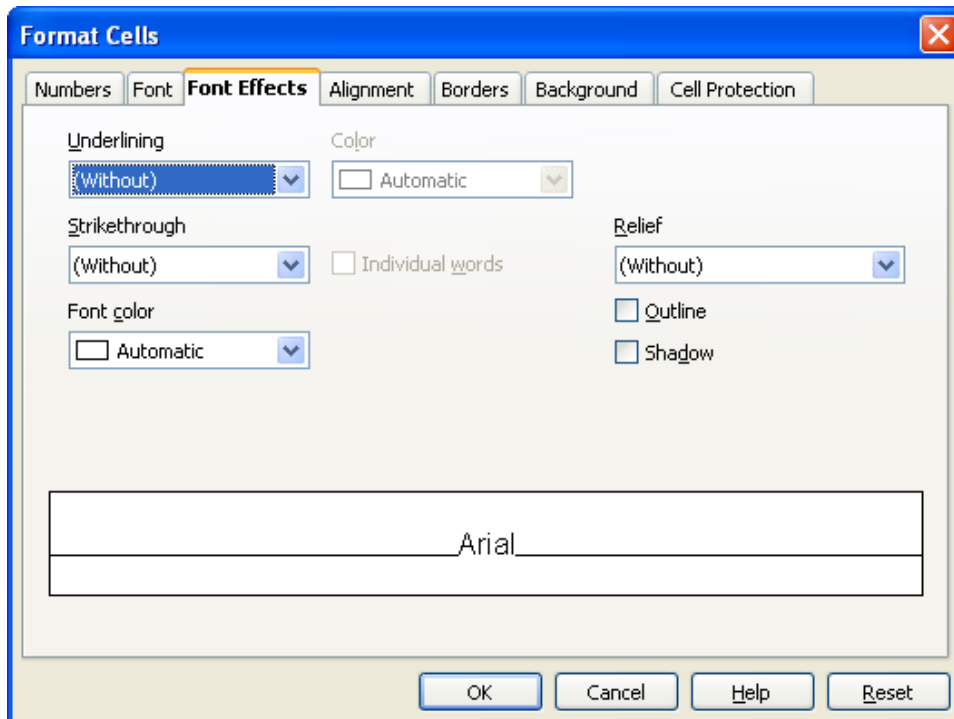


Figure 3: Format Cells > Font Effects

The underlining options are summarized in Figure 4.

<u>Single</u>	<u>Dotted</u>	<u>Long Dash</u>	<u>Dot Dot Dash</u>
<u>Double</u>	<u>Dotted Bold</u>	<u>Long Dash Bold</u>	<u>Dot Dot Dash Bold</u>
<u>Bold</u>	<u>Dash</u>	<u>Dot Dash</u>	<u>Wave</u>
<u>Double Wave</u>	<u>Dash Bold</u>	<u>Dot Dash Bold</u>	<u>Wave Bold</u>

Figure 4: Calc underline options

The strikethrough options are summarized in Figure 5.

Single	Bold	With X
Single	Bold	With X
Double	With /	
Double	With /	

Figure 5: Calc strikethrough options

The relief options are embossed (raised text), engraved (sunken text), outline, and shadow, as shown in Figure 6.

	Embossed	Engraved	Outline	Shadow	
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Figure 6: Calc relief options

iv. Alignment and orientation

On the *Alignment* tab (Figure 7), you can set the horizontal and vertical alignment and rotate the text.

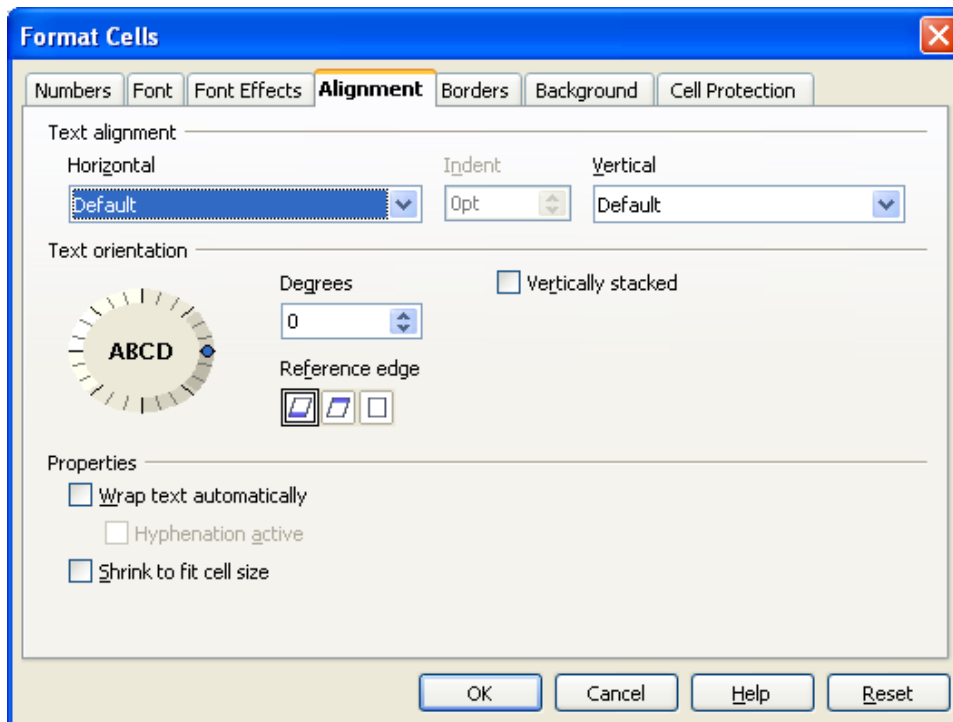


Figure 7: *Format Cells > Alignment*

(c) Copying Formatting With the Format Paintbrush

You can use the Format Paintbrush tool to copy formatting from a text selection or object and apply the formatting to another text selection or object.

1. Select the text or object whose formatting you want to copy.
2. On the **Standard Bar**, click the **Format Paintbrush** icon. The cursor changes to a paint bucket.
3. Select or click the text or object that you want to apply the formatting to.

(d) Formula

Besides text and number, formula is another type of data entry in the spreadsheet. Unlike text and number, formula is an entry that performs a calculation.

i. What is a Formula

Formulas are equations that perform calculations on values in your worksheet. A formula starts with an equal sign (=). For example, the following formula multiplies 2 by 3 and then adds 5 to the result.

=5+2*3. A formula can also contain any or all of the following:

Functions : A pre-written formula that takes a value or values, performs an operation, and returns a value or values. Use functions to simplify and shorten formulas on a worksheet, especially those that perform lengthy or complex calculations.

Operators : A sign or symbol that specifies the type of calculation to perform within an expression. There are mathematical, comparison, logical, and reference operators.

Constants : A value that is not calculated and, therefore, does not change. For example, the number 210, and the text "Quarterly Earnings" are constants. An expression, or a value resulting from an expression, is not a constant.

ii. Entering Formula

a) Using operators and constant

Example formula	What it does
=128+345	Adds 128 and 345
=5^2	Squares 5

1. Click the cell in which you want to enter the formula.
2. Type = (an equal sign).
3. Enter the formula.
4. Press ENTER.

b) Using functions

Example formula	What it does
=SUM(A:A)	Adds all numbers in column A
=AVERAGE(A1:B4)	Averages all numbers in the range

1. Click the cell in which you want to enter the formula.
2. To start the formula with the function, click **Insert Function** on the formula bar
3. Select the function you want to use.
4. Enter the arguments. To enter cell references as an argument, click **Collapse Dialog** , select the cells on the worksheet, and then press **Expand Dialog** .
5. When you complete the formula, press ENTER.

iii. Moving formula

1. Select the cell that contains the formula that you want to move.
2. Right click, click **Cut**.
You can also move formulas by dragging the border of the selected cell to the upper-left cell of the paste area. Any existing data is replaced.
3. Do one of the following:
To paste the formula and any formatting, right click, click **Paste**.
To paste the formula only, right click, click **Paste**, click **Paste Special**, and then click **Formulas**.

iv. Copying formula

1. Select the cell that contains the formula that you want to copy.
2. Right click, click **Copy**.
3. Do one of the following:
To paste the formula and any formatting, right click, click **Paste**.
To paste the formula only, right click, click **Paste**, click **Paste Special**, and then click **Formulas**.

Calc error codes

Cell error	Code	Explanation of the error
###	N/A	The column is too narrow to display the complete formatted contents of the cell. This is not really an error value, so there is no corresponding numerical error code. The solutions to this problem are to increase the width of the column. or select Format > Cells > Alignment and click either <i>Wrap text automatically</i> or <i>Shrink to fit cell size</i> to make the text match the current column width.
#VALUE	519	The formula within the cell returns a value that does not correspond to the definition of the formula or functions used. This error could also mean that the cell referenced by the formula contains text instead of a number.
#REF!	524	The formula within the cell uses a reference that does not exist. Either a column or row description name could not be resolved, or the column, row, or sheet that contains a referenced cell is missing.
#NAME?	525	An identifier could not be evaluated: no valid reference, no valid domain name, no column/row label, no macro, incorrect decimal divider, add-in not found. For example, entering in a cell =sum(bob*5) where there is no cell named “bob” or containing the text “bob” generates this error.

Calc provides feedback for errors of miscalculation, incorrect use of functions, invalid cell references and values, and other user initiated mistakes. The feedback may be displayed within the cell that contains the error (Figure 8) or on the *Status Bar* (Figure 9) or in both depending on the type of error.

As an example, Figure 8 shows the error code returned when a column is too narrow to display the entire formatted date. The date displayed within the *Input Line*, 04/05/1998, would fit within the cell without a problem, but the format used by the cell produces the date value “Sunday, April 05, 1998”.

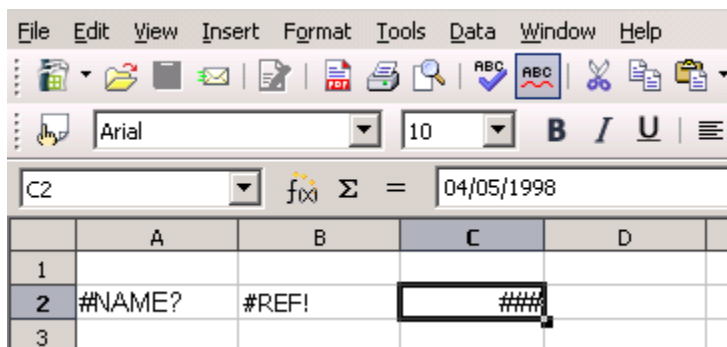


Figure 8 - Error codes displayed within cells

When the cell displaying the **#REF** error code in Figure 8 is selected, the *Status Bar* displays the error message as shown in Figure 9. This message is more descriptive than the message displayed in the cell, but it still may not provide enough information to correctly diagnose the problem.

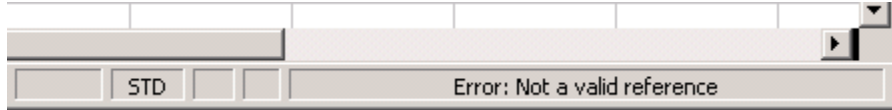


Figure 9 - An error message as displayed in Calc's status bar.

v. Displaying formulas in the worksheet

To access this command, open a spreadsheet document, choose Tools - Options - OpenOffice.org Calc - View

