Manual

PlanMaker

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Welcome!

Welcome to PlanMaker, the powerful and easy-to-use spreadsheet application.

We have made every effort in the development of PlanMaker to ensure its functions provide the maximum benefits while minimizing user time and effort.

Note: In **SoftMaker *FreeOffice*** (the free version of **SoftMaker Office**), some features have been disabled. Features that are *not* available in the free version are tagged with a red box like this one.

Some of PlanMaker's features:

- More than **330 built-in arithmetic functions**.
- Integrated **charting module** that lets you present numbers vividly in charts.
- Makes creating attractive worksheets easy through **numerous formatting options**. Long, boring columns of numbers can be turned into attractive tables with the **AutoFormat** command. With **cell styles** and **character styles**, you apply frequently needed formatting with a key press.
- The full range of PlanMaker functions is available through a **well-designed, ergonomic user interface** that includes user-configurable toolbars and keyboard mappings, as well as context menus for commonly used commands (accessible with the right mouse button).
- ...and much more!

PlanMaker is in continuing development, and we welcome comments and suggestions from our users. If, in the course of your work, you encounter a need for a feature that isn't present, or you have other suggestions, write to us – we want PlanMaker to measure up to the users' wishes!

Technical support

If you have any questions, our technical support team will be glad to assist you. You can reach us as follows:

Website: www.softmaker.com

Our website provides program updates, free downloads, and much more. Visit us at: www.softmaker.com

Support forums: www.softmaker.com/forum

Feel free to communicate with our technical support team, as well as other users, by visiting our support forums at: www.softmaker.com/forum

E-mail

Please send your support related e-mails to: **support@softmaker.com**

Fax or snail mail

You can send us questions by mail or fax at the following address:

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About this manual

PlanMaker has been developed with an understanding that there is a broad range of user experience. While it has many functions and customization options for the advanced user, it is designed to be an extremely useful tool for the novice as well.

The chapters of this manual are organized as follows:

- Chapter "**Installation and program startup**" (page 25): Describes how to install and start PlanMaker.
- Chapter "**Screen elements**" (page 27): Describes the individual components of PlanMaker's application window.
- Chapter "**PlanMaker basics**" (page 33): Acquaints you with PlanMaker's basic functions and explains basic spreadsheet terminology.
- Chapter "**The PlanMaker Tour**" (page 41): Introduces you to the operation of PlanMaker with some practical examples.
- Chapters "**Editing worksheets**" (page 51) and following are the reference part of the manual. These chapters are organized by subject, like a reference book, and describe all the functions of the program in detail.

System requirements

This section lists the hardware and software requirements needed to run this software:

Windows version

- Windows XP (with Service Pack 2) or higher
- 64 MB RAM (Vista, Windows 7, and Windows 8: 512 MB)

Linux version

- Any glibc-based x86-Linux with glibc 2.2.5 or higher
- X Window system with a window manager of your choice

Installation and program startup

This chapter covers information on installing and starting PlanMaker.

It is divided into the following sections:

- **Installing under Windows**
- **Installing under Linux**

Please go directly to the section that covers your operating system.

Installing under Windows

Download

If you obtained PlanMaker by *download* from our website, you will find installation instructions included in the e-mail that you received after purchasing the software.

CD-ROM

If you obtained PlanMaker on *CD-ROM*, please launch the installation program provided in the root folder of the CD.

Then, follow the installation program's instructions to install the software.

Starting

To start the installed programs, use the Start menu at the lower left corner of the screen. For example, to start PlanMaker, click successively on **Start** > **Programs** > **SoftMaker Office** > **PlanMaker**.

Note: When you start PlanMaker for the first time, you will be asked to enter your name and address. This information is *not* for the purpose of registering the program, but allows you to insert your name, mailing address, etc., in documents through the USERFIELD function. You can always change this information later (see section "Preferences, General property sheet", page 349).

Installing under Linux

You will find information about installing PlanMaker in the e-mail that you received after purchasing the software.

Starting

In most Linux distributions, the installer automatically creates shortcut icons for all SoftMaker Office applications in the menu or on the desktop. To start any of the applications, (double) click on the corresponding icon.

Alternatively, the following shell scripts are available for launching the programs:

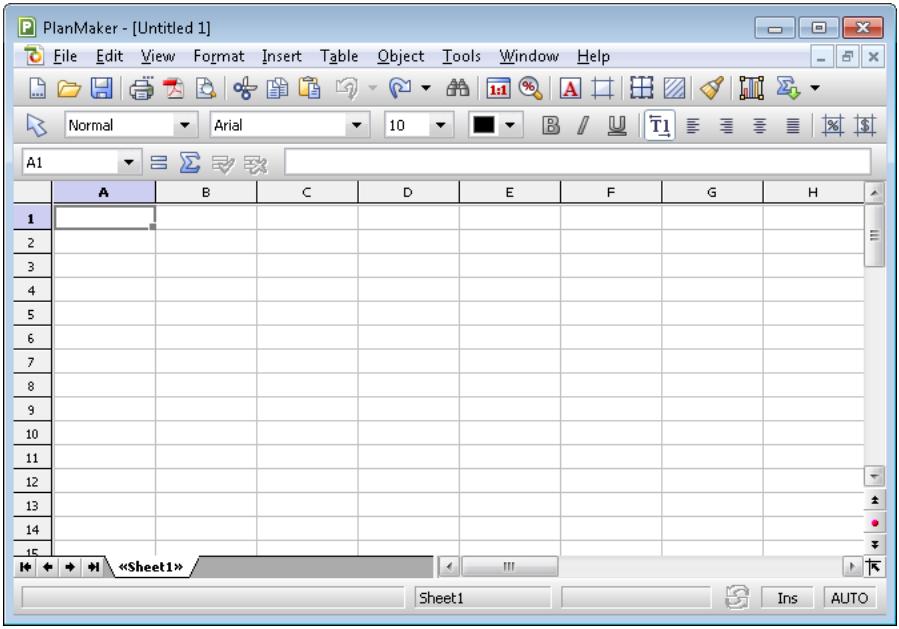
- **textmaker12** launches TextMaker
- **planmaker12** launches PlanMaker
- **presentations12** launches SoftMaker Presentations

To start an application, execute the corresponding script (e.g. in a shell).

Note: When you start PlanMaker for the first time, you will be asked to enter your name and address. This information is *not* for the purpose of registering the program, but allows you to insert your name, mailing address, etc., in documents through the USERFIELD function. You can always change this information later (see section "Preferences, General property sheet", page 349).

Screen elements

On the following pages, the individual components of PlanMaker's user interface are described in detail.

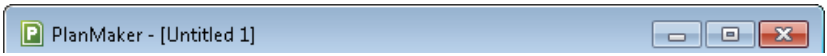


PlanMaker's application window (Windows version)

Note: Most of the illustrations in this manual were prepared with the **Windows** version of PlanMaker. On other operating systems, some of the controls have a slightly different appearance, but their modes of operation are identical.

Title bar

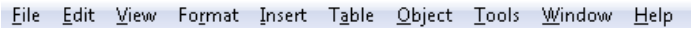
At the top of the application window, you will find the *title bar*.



The title bar indicates the name of the application. Once a document is opened, its name will be displayed after the program name.

Menu bar

The *menu bar* is found directly under the title bar.



It contains all of PlanMaker's commands in the form of clearly arranged menus. Click on a menu item to open a menu and invoke a command.

Standard toolbar

The *Standard toolbar* is shown underneath the menu bar. It contains icons for the most commonly used commands.

Toolbars, such as the Standard toolbar, allow fast access to a program's functions. Each icon represents a specific command. If you click on it, the corresponding command is invoked.

> ***Tip:*** If you point the mouse cursor at an icon (without clicking) and hold it there, a text box called a "tooltip" is shown. The tooltip describes the icon's function.

There are additional toolbars in PlanMaker that you can turn on and off as you choose. To do this, either invoke the menu command **View > Toolbars** or click with the *right* mouse button on one of the displayed toolbars. A menu appears, from which you can select toolbars that you would like displayed.

Customizing toolbars: You can change the default toolbars at will and create your own toolbars. For more information, see the section "Customizing toolbars", page 376.

Formatting toolbar

The *Formatting toolbar*, which appears beneath the Standard toolbar, allows you to format text by choosing the desired font and style, such as bold, italics, underline, etc.

To choose, for example, a different font, click on the little arrow to the right of the font name to open a list, and then select a font.

Other icons in the Formatting toolbar are switches that you can turn on and off by clicking, for example, the **B** for bold.

Edit toolbar

Below the Standard and the Formatting toolbar is the *Edit toolbar*.

The Edit toolbar contains the following control elements:

Cell address

The address of the currently active cell is displayed at the very left.

Symbols and input field for editing cell contents

To the right of the cell address are four icons and an input field.

Click into the input field to edit the content of the current cell. Or, to edit the cell directly, simply click in the cell and begin typing. For detailed information on entering and editing cells, see section “Entering data in cells”, page 54.

The Edit toolbar icons have the following functions:

Icon	Function
	Invokes the **Insert** > **Function** command
	Inserts the SUM function
	Accepts the user input in the input field (identical to pressing the Enter key ↵)
	Cancels the user input in the input field (identical to pressing Esc)

For more information on entering formulas, see section “Entering formulas”, page 399.

Document window

The *document window*, used for editing documents, occupies the largest part of the screen.

Every document that you create or open is displayed in its own document window. This feature provides you with the capability to edit several documents at the same time and move data back and forth between them.

A document window consists of the following components:

Title bar

As long as a document window has not been maximized, it contains its own *title bar*, in which the name of the document within the window is displayed.

Document

The document itself takes up most of the display's real estate. This is the work area where you enter data, carry out calculations, etc.

Detailed information on editing the document and entering data can be found throughout this manual; in particular, in the chapter "Editing worksheets", page 51.

Sidebar

The pane displayed to the right of the document is called *sidebar*.

The sidebar can be switched on and off anytime by choosing the **View > Sidebar** command. A submenu opens where you can change the position of the sidebar, or hide the sidebar.

FreeOffice: In **SoftMaker *FreeOffice***, the sidebar is activated automatically each time the program is started, in order to display some interesting information on **SoftMaker Office**.

Worksheet register

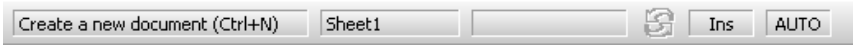
Below the document is the *worksheet register*.

A PlanMaker document can consist of multiple worksheets, which are layered like a stack of paper sheets, one on top of another. With the *worksheet register*, you can switch between the individual worksheets in a document (by clicking on its tab), create new sheets, and manage the existing ones. For details, see the section “Working with multiple worksheets”, page 76).

In the illustration above, the document consists of three worksheets, with “Sheet1” as the active worksheet.

Status bar

The *Status bar* is found at the bottom of the program window.



Hint: When you move the mouse pointer over a toolbar icon or menu command, a short explanation of its function is displayed in the status bar.

Apart from that, the following information is displayed in the status bar (from left to right):

Example	Explanation
	On the very left, information is displayed about the toolbar icon or menu entry that the mouse is currently pointing at.
Sheet1	The name of the current worksheet is displayed here.
Sum=6	If a single cell is selected, its content is shown here. If several cells are selected, the sum of the cell contents is indicated. (You can change the type of calculation displayed here with the **Calculation in status bar** option in the **Tools** > **Options** dialog).
	This icon lights up if the worksheet contains circular references. This usually indicates an erroneously written formula – for example, a formula in cell A1 that refers to cell A1 itself. If you click this icon, PlanMaker selects the cell with the circular reference. If you click again, it jumps to the next such cell (if more of them exist).
Ins	Shows whether Insert Mode (Ins) or Overstrike Mode (Ovr) is active.

Ins: Insert mode is active – newly entered text will be inserted into existing text.

Ovr: Overwrite mode is active – newly entered text will be written over existing text.

The default setting is Insert Mode. You switch between these modes by pressing the [Ins] key.

AUTO

Indicates the current input mode:

AUTO: Normal input mode – numbers are automatically recognized as numbers, and formulas as formulas. This is the standard setting.

TEXT: Text input mode – everything you enter is interpreted as *text*, including formulas and numbers.

To switch between these two modes, either click on the text "AUTO" in the status bar or press the key combination [Ctrl] [Shift⇧] [F4].

Note: If you switch to TEXT input mode, a single quotation mark (') is automatically prepended to all numbers and formulas that you enter, converting them into text – which can *not* be used for calculations anymore. (In order to turn text into numbers or formulas again, switch back to AUTO mode and simply remove the leading quotation mark.)

PlanMaker basics

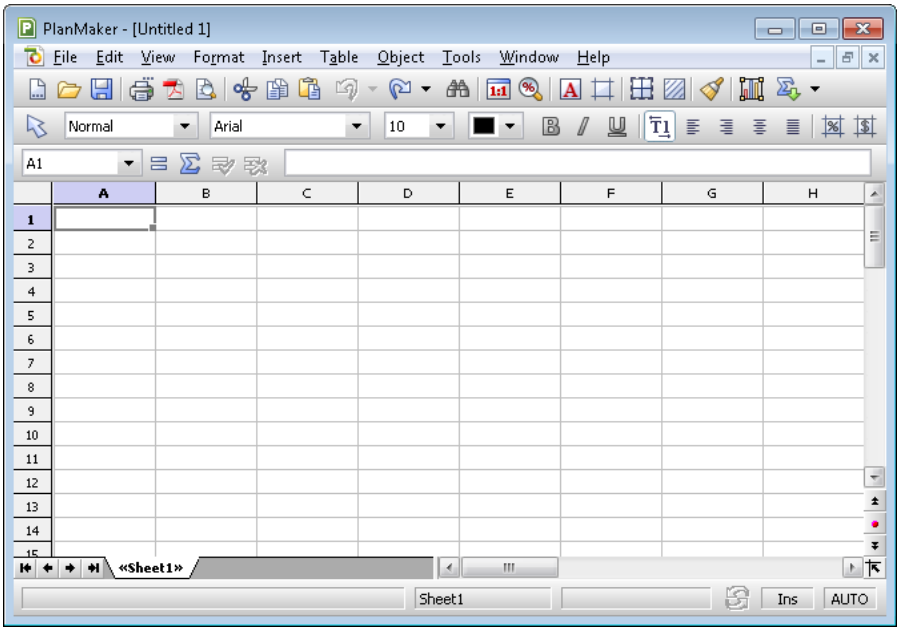
This chapter gives you a brief description of basic PlanMaker spreadsheet functions and terminology. Users who have little or no experience in the use of spreadsheets should read this chapter thoroughly.

Topics covered in this chapter:

- **The structure of a spreadsheet**
- **Moving around in a worksheet**
- **Entering data** and **Deleting data**
- **Undoing changes**
- **Starting a new document**
- **Opening a document, Printing a document** and **Saving a document**
- **Exiting PlanMaker**

The structure of a spreadsheet

First, let's have a look at how spreadsheets are organized.



Spreadsheets are divided into lines and columns. Each spreadsheet consists of 65536 rows and 256 columns. These are labeled as follows:

- The rows are numbered from 1 to 65536.
- The columns are labeled with alphabetic characters: A to Z, then AA to AZ, BA to BZ, etc.

The matrix of rows and columns results in a cell grid.

Every cell has exact coordinates: B5, for example, describes the cell in the fifth line of column B (the second column). A3 would be the cell in the third row of column A (the first column), etc.

These coordinates are referred to as the *address* of a cell.

The cell address is very important because calculations often refer to other cells: If, for example, you want to put twice the value of cell A1 in cell A2, you would enter in cell A2: =A1*2.

Twice the value of A1 is now displayed in A2. If you change the value in A1, the resulting calculation of cell A2 is automatically updated.

Moving around in a worksheet

If you enter data in PlanMaker, it is always inserted into the active cell. A thin gray frame, known as the *cell frame*, indicates the active cell.

You can move the cell frame to another cell as follows:

Mouse: Click on the desired cell.

Keyboard: Use the arrow keys of the keyboard to move the cell frame. A list of available keystroke commands can be found in section "Keyboard shortcuts for editing spreadsheets", page 677.

Entering data

In order to enter data into a cell, move to the desired cell using the arrow keys or the mouse, and begin typing.

To complete your input, press the Enter key [↵].

To undo an input error, press the [Esc] key. PlanMaker restores the previous cell content.

Alternatively, use the following buttons of the Edit toolbar:

- To accept the input, click the button (identical to pressing [↵]).
- To cancel the input, click the button (identical to pressing [Esc]).

To edit the content of an already populated cell, double-click it, or navigate to the cell and press the [F2] key.

For detailed information on this topic, see section "Entering data in cells", page 54.

Deleting data

There are several ways to delete data from a document:

■ **Deleting only parts of the cell content**

In order to delete only a part of the contents of a cell, double-click it. Alternatively, move to the cell and press the [F2] key to edit it.

■ **Deleting the entire cell content**

In order to delete the entire cell content, move to the cell and press the [Del] key, or choose **Edit > Delete**.

■ **Deleting the contents of multiple cells**

Select the cells and press the [Del] key, or choose **Edit > Delete**.

For detailed information on this topic, see section "Deleting cells and cell contents", page 60.

Undoing changes

The **Edit > Undo** command reverses changes made to a document, one by one, in reverse order. The Undo command can be used repeatedly, as desired.

Reversing the undo command

There is also an opposite to the **Undo** command, the command **Edit > Redo**. It restores the action last undone and can also be used repeatedly.

For detailed information on this topic, see section "Undoing changes", page 57.

Starting a new document

To begin a new document, invoke the menu command **File** > **New** or press the key combination [Ctrl] [N].

In the resulting dialog box, select a document template for the new document. To create a document without any additional formatting, select the standard document template, NORMAL.PMV. Press Enter [↵] or click **OK** to create the new document.

New window: If the **New window** checkbox in this dialog is turned on, the new document will appear in a new document window. Otherwise, the document

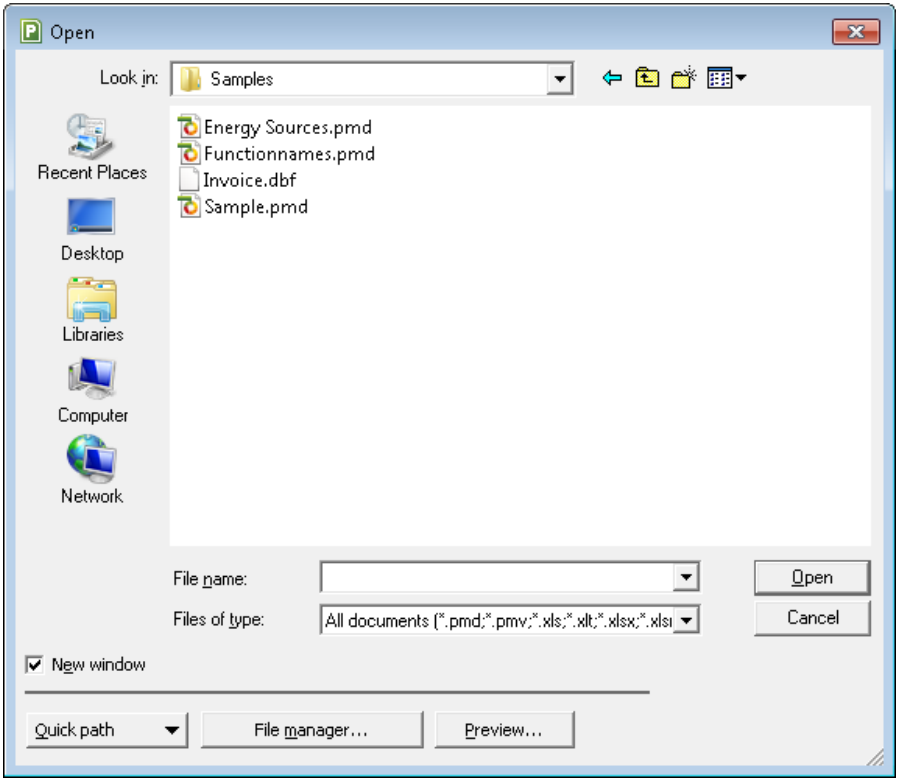
already in the active window will be closed and the new document will be opened in its stead.

For detailed information on using document templates, see section “Document templates”, page 162.

Opening a document

To open an existing document, use the **File** > **Open** command, or press the keyboard shortcut for this command: Ctrl O.

A dialog box appears that can look, for example, as follows:



The most recently accessed folder will display with all existing documents listed (based on the listed file types). To choose the file to be opened, type its name in manually or simply select a file from the list. Then click the **Open** button.

New window: In order to open the document in a new window, check the **New window** checkbox. Otherwise, the current document will be closed and the new file will be opened in the same window.

Opening other file formats

In addition to opening files created in PlanMaker's default file format, you can also open files created within other software, such as Microsoft Excel. To open a file from another application, choose the format of the file you want to open from the **Files of type** list. This will display all matches to that software's file extensions in the dialog.

For information about the supported file formats, see chapter "Working with other file formats", page 327.

Using Quick Paths

With the **Quick Path** button, you can create *quick paths* in order to quickly move to a specified folder when opening or saving files. This allows you to create a list of your most frequently used folders, permitting much faster navigation. You will find more information about this in section "Quick paths", page 291.

Using the File Manager

The **File Manager** button opens the integrated file manager. This shows a list of your documents, and allows you to open, print, view, or delete them, as well as perform searches. See section "The file manager", page 294.

Previewing a document

If you select a document in the **Open** dialog and are not certain if it is the document you want to open, click **Preview**. A window opens, and the file is displayed in that window.

Using the list of recently opened files

Tip: At the bottom of the **File** menu you will find a list of recently opened files. Simply click on one of these files to open it again.

Printing a document

To print the active document, choose the **File > Print** command or use the keyboard shortcut for this command: Ctrl P.

A dialog box appears, in which you can specify which parts of the document will be printed.

For more information on outputting documents (printing, e-mailing, etc.), see the chapter “Outputting documents”, page 309.

Saving a document

To save a document, choose **File > Save**, or use the Ctrl S keystroke. If the document has not been saved before, PlanMaker will request a document name before saving.

Saving under a different name or in a different place

To save a document under a new name or location on your computer, use the command **File > Save as**. This saves your document too, but you can first give it another name or select another folder in which to save it.

Saving in a different file format

With **File > Save as** you can also save a document in another file format. To do so, simply choose the desired format from the **Save as type** list before clicking the **Save** button. See also chapter “Working with other file formats”, page 327.

Saving all open documents

If you have several document windows open at the same time, you can use the command **File > Save all** to save all documents open in all the windows. PlanMaker checks which of the documents have been altered since the last save and saves only those that have been changed.

Exiting PlanMaker

To exit PlanMaker, use the **File > Exit** command.

If any of the open documents have been altered since they were last saved, PlanMaker automatically asks whether you would like to save them first.

The PlanMaker Tour

Welcome to the *PlanMaker Tour!*

On the next few pages, we will introduce you to some of PlanMaker's most important functions using some practical examples. Users unfamiliar with spreadsheets should read this chapter thoroughly.

More advanced users are encouraged to browse through this section as needed.

> ***Note:*** Most of the illustrations in this manual were prepared with the **Windows** version of PlanMaker. On other operating systems, some of the controls have a slightly different appearance, but their modes of operation are identical.

Five minutes of theory ...

If, for example, you plan a computer purchase, you need to compare various systems, based on their hardware components: you will need a PC, a monitor, and a printer. One vendor may offer a competitively priced computer; another one might offer an inexpensive monitor, etc. Which is the best option?

To determine this, you have to add up the prices. So, you grab your pocket calculator, type in the numbers one by one, jot down the result – and become frustrated: With every new offer, the game begins anew, even though the method of calculation never changes, only the values do.

Such calculations can be carried out much easier with the help of a spreadsheet application.

The first technique you will learn when using PlanMaker, is to make use of "variables." Variables help you to generate abstract formulas, without the use of actual number (or dollar) values. For instance:

computer + monitor + printer = total price

Abstracted:

a + b + c = d

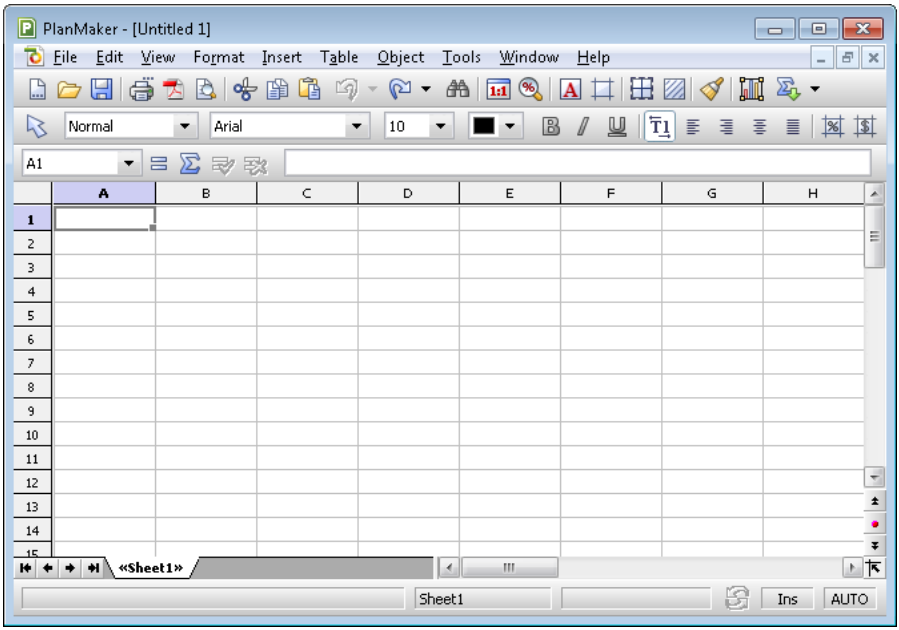
Without spreadsheets, such a formula has only practical benefit if you use a programmable calculator – you can enter the formula once, and then execute it many

times. The calculator asks for the values one by one, and then shows the total value. This is not much of an improvement over repeated individual calculations...

First steps with PlanMaker

With these preliminary thoughts in mind, let's look at how such problems can be solved with PlanMaker.

When you start PlanMaker, the following screen will appear (Windows version):



Most of the application window is taken up by your new worksheet. On the top, it is bordered by a row of alphabetic characters, on the left by a column of numbers.

Let's have a closer look at the worksheet.

The basic structure of a worksheet

As you already know from chapter "PlanMaker basics", a worksheet is divided into *rows* and *columns*. This is also visible through the gray lines that are displayed in the worksheet.

A dark gray frame that we call the *cell frame* surrounds the cell in the upper left corner. The cell frame indicates which cell is currently active. When entering data, it is always placed in the active cell.

Press the [↓] and [→] keys to move the cell frame from one cell to another. Take a look at the Edit toolbar above the worksheet: at the very left, PlanMaker displays the *address* of the currently active cell. The address always consists of one or two alphabetic characters and a number:

A1 means column 1, row 1.

A5 means column 1, row 5.

D5 means column 4, row 5, etc.

The fact that every cell has a unique address is the key to all functions of a spreadsheet. Remember the variables a, b, c we talked about before? In PlanMaker, the *cells* are used as variables. Therefore, you can enter calculations in a cell that refer to other cells in your worksheet – and, for example, calculate the sum of several cells in another cell.

Entering values and formulas

Enough theory for now! Let's create our first calculation.

First we type in the price for the personal computer; under that, the price for the monitor; and under that, the price for the printer. Suppose the prices are $799, $425, and $199, respectively.

Use the arrow keys to go to cell B2, and enter the value 799. The value appears both in the chosen cell and in the Edit toolbar above the table.

> ***Note:*** Do not make the mistake of typing the letter "O" or "o" instead of the numerical digit "0". Computers make a clear distinction between letters and numbers. PlanMaker would accept the input but interpret it as text. When attempting to calculate with it, PlanMaker will generate an error message.

Press the Enter key [↵] now to finish your input. The cell frame moves down one row to cell B3. Type the value 425 here, and in the row below that type the value 199.

Hint: If you entered a wrong value and have already pressed ↵, you can still correct your mistake. Move the cell frame to the cell with the error, and enter the correct value. As soon as you press ↵, the old content is overwritten by the new input. You can also edit the content of already filled-out cells by pressing the F2 key.

Entering formulas

Let's enter our first formula.

In order to calculate the total cost of our computer equipment, we have to add up the unit prices. This is simple to do:

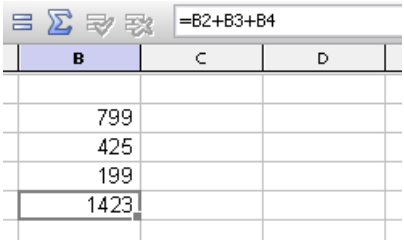
Go to cell B5 and type an = (equal sign). The equal sign shows PlanMaker that you would like to begin entering a formula.

Now enter the formula. For this purpose, you use the cell addresses as "variables". Type in:

```
=B2+B3+B4
```

Note: Cell addresses are not case-sensitive, i.e., you can enter them in either upper or lower case.

When you press ↵, you will see the result of your first formula:



Let's see what happens if you change the numbers in the cells. Replace 425 by 300, or some other value. As soon as you press ↵, the result of the calculation is updated immediately.

Regardless of what cells B2, B3 and B4 contain, PlanMaker will always sum them up. If you get a quote for a computer system in which only the price for only one component has changed, you only need to update that one value, and the new total price will be displayed in cell B5.

The SUM function

The example above is one method of adding up several numbers. But while this method is adequate for a few numbers, it is clearly too cumbersome for adding 50 numbers - that would be one long formula! However, there are better ways to achieve this: the *arithmetic functions* of PlanMaker.

Let's find out more about them! First, make cell B5 the current cell; it contains the formula you entered previously.

Next, delete the old formula by pressing the [Del] key, or by simply overwriting the existing cell content. Now enter the following formula:

```
=SUM(B2:B4)
```

After you press [↵], you can see the result in the cell.

PlanMaker has over 330 built-in arithmetic functions, and one of them is SUM. The SUM function calculates the sum of the values that your formula references. The expression in parentheses after the function name tells PlanMaker where to start and stop totaling.

You have directed PlanMaker to start adding in cell B2 and stop in cell B4. Between cell B2 and cell B4 sits one cell, B3, and it is included in the summing as well. You could easily have specified a larger range, such as B2:B123.

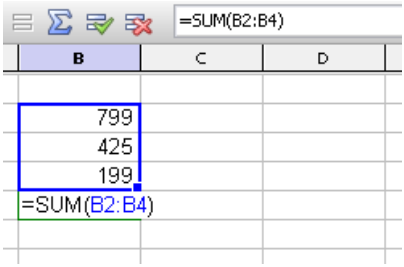
The notation *StartingCell:EndingCell* can also be used when both row and column changes. If, for example, you enter B2 as the starting cell and C4 as the ending cell, these two coordinates form the corners of a rectangle. The formula =SUM(B2:C4) would sum all numbers contained within this rectangle.

Working with the sum icon

Actually, there is an even easier way to insert the SUM function:

Delete the contents of cell B5 again.

Now click the sum icon in PlanMaker's Edit toolbar. Move the mouse pointer to cell B2, and select cells B2, B3, and B4 by pressing and holding the left mouse button while you move the mouse pointer down to cell B4.



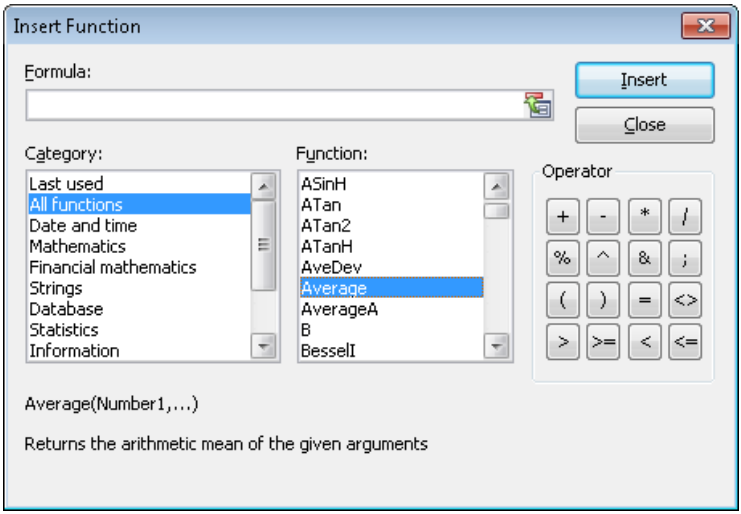
If you look at the Edit toolbar while you do this, the input area will display your new formula. PlanMaker builds the formula on the fly, while you are dragging the mouse pointer down. As soon as your formula is complete, release the mouse button and accept the formula in the Edit toolbar by pressing ↵.

As you have seen, there are several ways to enter formulas in PlanMaker. All these methods have their advantages and disadvantages. As you become better acquainted with PlanMaker, you will automatically pick the best method for each specific situation.

Working with the Insert > Function dialog

You now know the basics of working with a spreadsheet.

To get an impression of the large number of functions PlanMaker supports, choose the **Insert** > **Function** command. A dialog box will appear that displays all the functions PlanMaker supports.



Let's try another function. Suppose we want to calculate the average value of our three numbers in the table.

Close the dialog box to return to the worksheet, and delete the contents of cell B5 again.

Choose the **Insert** > **Function** command. Select the category **All functions** in the left list. Now scroll through the list on the right, down to the "Average" function. Double-click the **Average** function.

PlanMaker now places the Average function into the input field of the dialog box:

```
Average()
```

In order to complete the formula, enter the cell range B2:B4 between the parentheses.

Alternatively, you can select the cell range right in the worksheet: left-click on cell B2, then drag down the mouse to cell B4 (as you did in a previous example). If the dialog box covers the cells you want to select, simply drag the dialog box out of the way.

The completed formula should look like this:

```
=Average(B2:B4)
```

If you click the **Insert** button now, this formula is placed into cell B5 and calculated immediately.

You have now learned about two of the more than *330* arithmetic functions of PlanMaker. A comprehensive list of all functions can be found in section "Functions from A to Z", page 413.

Going three-dimensional

PlanMaker documents are not limited to single worksheets. If required, you can stack several worksheets on top of each other – just like a stack of papers. PlanMaker documents are therefore also called *workbooks*. Each workbook can contain up to 256 *worksheets*.

The main advantage of this is that calculations in one worksheet can also refer to cells in other worksheets of a workbook, in essence, letting you create "three-dimensional" calculations.

As an example, if you maintain the financial records of three branches of a company on three worksheets, you can create a fourth worksheet that sums the financial results of the three branches, giving you an integrated view of the company finances.

To add a new worksheet to a workbook, use the **Table** > **Worksheet** > **Insert** command. To switch between the individual sheets, use the worksheet tabs on the worksheet register.

Simply click on the desired worksheet tab to switch the currently active worksheet.

For detailed information on this topic, see section “Working with multiple worksheets”, page 76.

Changing the layout of worksheets

Let’s return to our first sample worksheet and improve the visual layout. PlanMaker has many formatting functions that let you fine-tune how the worksheets look.

Adding a headline

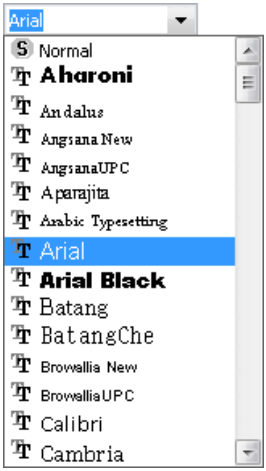
What is missing from our worksheet is a headline. Let’s enter one and increase the font size to make it stand out.

Click on cell B1 to make it the active cell. Then, for example, type the following text:

`My first worksheet`↵

Changing character formatting

Move the cell frame back to cell B1 again. Open the font list in the Formatting toolbar by clicking the small triangle to the right of the font name.



PlanMaker now displays a list of all fonts installed on your computer. Select the Tahoma font (or any other font you like). Then open the list with the font sizes (at the right of the font list). Select a font size of 24 point.

The remaining elements of the Formatting toolbar allow you to change the color of text, and to apply various formatting attributes: **B** turns on bold printing, ***I*** switches to italics, **U** underlines the text, etc.

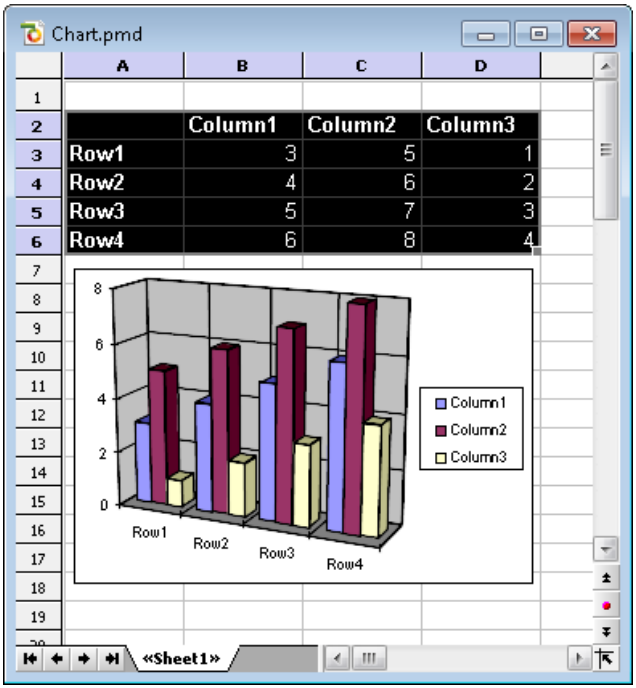
There are many more possibilities to improve the visual display of worksheets. For detailed information, see chapter “Formatting worksheets”, page 123.

Charts

Before we end this tour, let’s have a quick look at *charts*.

In spreadsheets consisting of nothing but long columns of numbers, it is often hard to interpret their meaning. PlanMaker provides easy ways to turn raw numbers into charts that get the point across.

To insert a chart in a worksheet, select the values you want to base your chart on and choose **Object > New Chart Frame**. A dialog box will open where you specify the type (pie chart, column chart, etc.) and the graphical options (colors, headline, legend, etc.) of the chart. When done, use the mouse to draw a rectangle on your screen. This rectangle determines the position and size of the chart.



For more information on charts, see chapter “Charts”, page 231.

Outlook

The introductory part of the manual ends here. You now know everything about the basic functions of PlanMaker. Next comes the reference section of the manual, which contains detailed instructions on working with PlanMaker’s functions. Jump to any chapter you want or just read on.

Enjoy!

Editing worksheets

This chapter begins the *reference section* of the manual. This part of the manual contains detailed descriptions of all features of PlanMaker, and is arranged by topic.

In this first chapter you will find out how to enter data and how to edit worksheets. The following topics are covered in this chapter:

- **Entering data in cells**

  In the first section of this chapter, you will learn everything you need to know about entering text, numbers, dates, calculations, etc. in cells.

- **Undoing changes**

  If you make an error, you can reverse it with the help of the **Edit > Undo** command. The **Edit > Redo** command is the counterpart to this, and reverses the Undo command.

- **Repeating commands**

  FreeOffice: This feature is not included in **SoftMaker *FreeOffice***.

  The **Edit > Repeat** command repeats the last command that you have used with exactly the same settings.

- **Selecting cells**

  This section describes how to select cells using mouse or keyboard.

- **Deleting cells and cell contents**

  You can use the command **Edit > Delete** to delete just the contents of cells, or **Table > Delete cells** to remove cells completely.

- **Inserting new cells**

  The **Table > Insert cells** command inserts new cells in your worksheet and pushes the existing cells down.

- **Moving and copying cells**

  Cells can be moved or copied by selecting them and either using the commands in the **Edit** menu or dragging them using the mouse. Formulas that reference cells are automatically updated when you move or copy cells.

Pasting cells selectively

The **Edit > Paste special** command lets you insert the content of the clipboard. You can specify exactly what to be pasted; for example, just the values or just the formatting.

Filling cells automatically

The **Edit > Fill** command allows you to fill ranges of cells with identical values or a series of values.

Working with multiple worksheets

You can create multiple worksheets in a single document and stack them like a pile of paper. Formulas in one worksheet can reference cells in other worksheets, enabling you to do "three-dimensional" calculations.

Naming cell ranges

With the **Table > Names** command, you can assign a name to a range of cells and use this name in formulas; for example, =SUM(Sales) instead of =SUM(A1:A5).

Sorting cells

The **Table > Sort** sorts ranges of cells according to one or more criteria.

Transposing cells

The **Table > Transpose** command exchanges the row and column orientation of a selected cell range.

Distributing text into multiple columns

FreeOffice: This feature is not included in **SoftMaker *FreeOffice***.

The **Table > Text to Columns** command allows you to distribute text entered in one table cell into multiple columns.

Filtering cells by their contents

The **Table > Filter** command filters ranges of cells so that only cells that meet certain criteria are displayed.

Analyzing tables

This section covers tools that can be helpful for analyzing tables and detecting errors, including a command for displaying formulas instead of results, syntax

highlighting, a watch window for cell contents, and several commands for auditing the formulas in a table.

Updating tables

The calculations in a table are kept up-to-date automatically. Whenever you change the content of a cell, PlanMaker recalculates the entire workbook. If required, you can turn this behavior off and use the **Tools > Recalculate** command to update the table manually.

Inserting comments

With the **Insert > Comment** command, you can attach comments to a cell. If you move the mouse over such a cell, the comment will be displayed.

Goal-seeking

With the **Tools > Goal Seek** command, you can "reverse" the order of a calculation (using an approximation method). The Goal Seeker is able to determine what value a certain portion of a calculation must meet to extract a pre-defined result from the calculation.

Scenarios

FreeOffice: This feature is not included in **SoftMaker *FreeOffice***.

The **Tools > Scenarios** command allows you to create and display "scenarios". *Scenarios* can be used to observe how the calculations in a worksheet change when the values in specific cells are altered. This enables you to perform all kinds of "what-if" analyses.

Consolidating data

FreeOffice: This feature is not included in **SoftMaker *FreeOffice***.

The **Table > Data Consolidation** command allows you to evaluate data from multiple cell ranges, for example, in order to calculate their total sums.

Freezing rows and columns

With the **View > Freeze** command, you can freeze the top rows and/or columns of a worksheet on the screen. This will cause them to stay in place when you scroll the worksheet – ideal for row or column headings.

Inserting special characters

The **Insert > Symbol** command can be used to enter special characters that are not readily available from the keyboard.

See the following pages for detailed information.

Entering data in cells

In order to enter data into a cell, navigate to the desired cell with the arrow keys or mouse, and begin typing.

Press the Enter key [↵] to complete the input.

If you made an error during input, press the [Esc] key instead of [↵]. PlanMaker discards what you just typed and restores the original cell content.

Alternatively, use the following buttons of the Edit toolbar:

- To accept the input, click the button (identical to pressing [↵]).
- To cancel the input, click the button (identical to pressing [Esc]).

To modify the contents of a cell, navigate to the cell and press the function key [F2], or simply double-click on the cell.

Notes on entering numbers

- Always enter numbers using the decimal separator specified in the regional settings of your computer (either decimal point or decimal comma).
- Numbers can also be entered in scientific (exponential) notation. 2E03, for example, corresponds to 2 * 10^3, which equals 2000. 2E-03 corresponds to 2 * 10^-3, which equals 0.002.
- Numbers can also be entered as fractions; for example, 2 1/2 corresponds to 2.5.
- Numbers can also be entered as percentages; for example, 70% corresponds to 0.7.

Note: You can change the format of numbers using the **Format > Cell** command. See section “Number format”, page 127.

Notes on entering dates

- Dates can be entered in various formats; for example, 09/25/12 or 9/25/2012 etc.
- You can enter dates between January 1st, 1900 and December 31st, 2500.
- If you enter the year with only the last two digits, it is interpreted as follows:

  00 to 29 -> 2000 to 2029

  30 to 99 -> 1930 to 1999

  Examples:

  1/1/29 is treated as 1/1/**20**29.

  1/1/30 is treated as 1/1/**19**30.
- Times can also be entered in various formats; for example, 09:30:00 PM, 21:30, etc.
- You can combine a date and a time in a single cell by typing the date, a space, and the time. For example, when you type in 9/25/12 6:00, PlanMaker knows that you mean the 25th of September 2012 at 6:00 am.

Note: Spreadsheets store dates and times internally as *numbers* (so that calculations can be carried out with them). The number 0 represents 1/1/1900, the number 1 stands for 1/2/1900, etc. The time is stored in the fractional part of the number.

However, you don't have to worry about this. Simply enter dates and times in your preferred way. PlanMaker automatically converts your input into a number but will display it formatted in date/time format.

To learn more about changing the format of dates and times, see section "Number format", page 127.

Notes on entering logical values (Boolean values)

- To enter a logical value in a cell, type in either TRUE or FALSE.

Notes on entering formulas

- Formulas must always begin with an equal sign; e.g., =2+5.

- The **Insert > Function** command lets you easily compose formulas by picking PlanMaker's arithmetic functions from a list. Of course you can also input formulas manually.

- Detailed information on creating formulas is available in the chapter "Formulas and functions", page 397.

- For descriptions of all arithmetic functions, see section "Functions from A to Z", page 413.

Notes on entering text

- To input text in a cell, simply type it in.

- In some rare cases, you may want to "force" PlanMaker to consider a *number* as text. This can be achieved by putting a single quotation mark in front of the number. For example, when you enter '42 (including the single quotation mark), PlanMaker will treat this as text, not as a number.

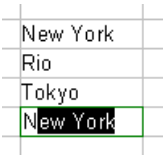
- ***Hint:*** When you have entered several text entries in a column (one on top of each other), you can open a selection list of these entries by pressing the key combination Alt ⇧ ↓ in a cell directly above or below the entries.

  A list of all text entries directly above and below this cell will open. You can now select one of these entries and press the Enter key ↵ to paste it into the cell. This can save you a lot of time when you have to enter a large number of identical text entries.

  Note: This feature works only with *text* entries – not with numbers, dates, or formulas.

- ***Another hint:*** In addition, when you fill out a cell, PlanMaker automatically makes suggestions from the text entries directly above or below the cell.

  Example: You have entered the values "New York", "Rio" and "Tokyo" into a column. If you type the letter "N" in the cell directly below these entries, the program automatically suggests "New York". If you type the letter "T", "Tokyo" is suggested, etc.



To accept the suggestion, press the Enter key [↵]. To reject it, simply continue typing or press the [Del] key.

Note: In case you do not want PlanMaker to make suggestions while you are typing, you can always turn this feature off. Choose **Tools > Options**, switch to the **Edit** tab and deactivate the **Autocomplete Cells** option.

Undoing changes

With the command **Edit > Undo** you can cancel recently completed modifications to a document. For example, if you format text in another font, you need only invoke **Edit** > **Undo** and the new formatting will be removed.

This works not only with formatting, but also with practically all kinds of changes – so you can also, for example, undo the entry or deletion of text.

The **Undo** command can be applied repeatedly as needed. For example, invoke it five times to cancel the last five changes.

By the way, you can also invoke this frequently needed command with the key combination [Ctrl] [Z].

Redoing undone actions

There is also an opposite to the **Undo** command, the command **Edit** > **Redo**. It restores the effect of your most recently canceled action. So you can undo the cancellation of a change.

This command can also be invoked repeatedly. For example, if you invoke the **Undo** command five times, the last five changes are canceled. If you then invoke the command **Redo** five times, you get back the original text.

There is also a keyboard shortcut for this command: the key combination [Ctrl] [Y].

Repeating commands

FreeOffice: This feature is not included in **SoftMaker *FreeOffice***.

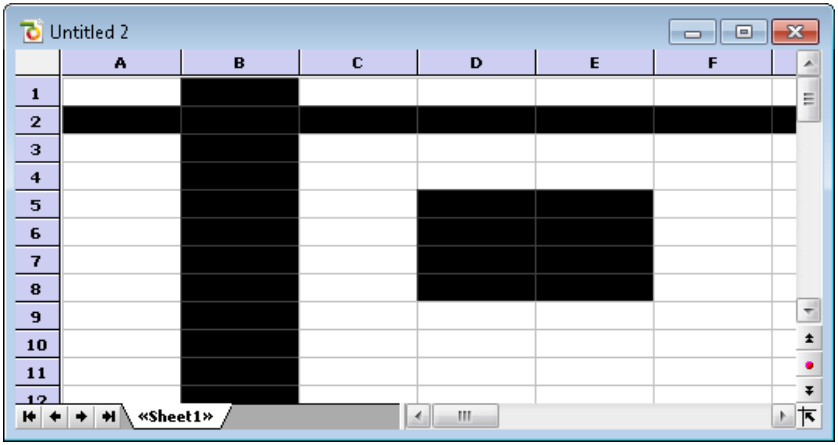
The **Edit** > **Repeat** command (keyboard shortcut: Ctrl Shift⇧ Y) repeats the last command that you have used with exactly the same settings.

This is very useful especially when formatting a document. For example, when you have just changed the font of a cell using the **Format** > **Character** command, you can navigate to other cells and choose **Edit** > **Repeat**. This will apply the font change to the other cells as well – as if you had invoked the **Format** > **Character** command once again, with the same settings.

There are many other commands that can be repeated as well.

Selecting cells

Some PlanMaker commands expect you to first select the cells on which you want to carry out these commands.



To select cells, use your mouse or the keyboard:

Using the mouse to select cells

With the mouse, cell ranges can be selected as follows:

- **Selecting arbitrary cell ranges**

  Cell ranges can be selected by left-clicking, then dragging the mouse over contiguous cells.

Selecting complete rows and columns

A complete column can be selected by clicking on its column header. *Column headers* are buttons above the table, labeled A, B, C, and so on.

There is also a *row header* for each row. It is located at the left of the table and is labeled 1, 2, 3, etc. If you click on a row header, the complete row is selected.

If you left-click and drag the mouse over several column or row headers, you can conveniently select multiple columns or rows at the same time.

Selecting the entire worksheet

The command button in the top left of the worksheet window (above the "1" and left of the "A") will select the entire worksheet, as will the **Edit > Select All** command.

Selecting a single cell

Sometimes, it is necessary to select a single cell. There are two ways to do this: Either click on the cell, and drag the mouse to a neighboring cell and back again, while keeping the left mouse button pressed. Or just click on the cell and keep the mouse button down for a second. In either case, the cell will be selected.

Selecting non-contiguous cell ranges

You can also select non-contiguous (not connected) ranges of cells. For this purpose, hold down the Ctrl key and use the mouse to select a range of cells as described above.

Canceling a selection

To cancel any selection, just click on an arbitrary cell.

Using the keyboard to select cells

With the keyboard, ranges of cells can be selected as follows:

Selecting arbitrary ranges

To select multiple connected cells, hold down the Shift key ⇧ and select the cells by navigating with the arrow keys.

For example, if you navigate to cell B5, hold down the Shift key, and press ↓ five times, then cells B5 to B10 are selected. You can find a list of all key com-

binations suitable for navigating in a table in section “Keyboard shortcuts for editing spreadsheets”, page 677.

- **Selecting an individual cell**

  To select an individual cell, navigate to that cell, hold down the Shift key, use the arrow keys to select a neighboring cell, and then go back (for example, press ⇧ → and ⇧ ←).

- **Selecting non-contiguous cell ranges**

  Non-contiguous cell ranges can only be selected with the mouse (see above).

- **Canceling a selection**

  Press any navigation key (without holding Shift or Ctrl down) to cancel an existing selection.

Deleting cells and cell contents

There are two methods for deleting data in a worksheet:

- **Deleting the contents of cells**

  If you use the **Edit > Delete** command, only the contents of the selected cells are removed.

- **Deleting whole cells**

  If you use the **Table > Delete cells** command, the selected cells will be removed *completely* and the other cells move up to take their space.

In addition, PlanMaker offers two commands especially for deleting *empty rows* and *duplicate rows*:

- **Deleting empty rows**

  FreeOffice: This feature is not included in **SoftMaker *FreeOffice***.

  To delete all *empty* rows in a certain range of rows, select the rows of interest and invoke the command **Table > Remove > Empty Rows**.

- **Deleting duplicate rows**

  FreeOffice: This feature is not included in **SoftMaker *FreeOffice***.

To delete all *duplicate* rows in a certain range of rows, select the rows of interest and invoke the command **Table > Remove > Duplicate Rows**.

See the following pages for detailed information.

Deleting the contents of cells

The **Edit > Delete** command deletes the contents of the currently selected cells.

Tipp: There's a keyboard shortcut for this command: the [Del] key.

Only the *contents* of the cells are removed, not the cells themselves.

Selective deletion of cell contents

If you use the **Edit > Delete Special** command instead of **Edit > Delete,** you can determine exactly what will be deleted.

PlanMaker will show a sub-menu with the following options:

- **All**

  Delete everything – i.e. cell contents as well as formatting, comments, conditional formatting and input validation.

- **Formatting**

  Remove only the formatting (number format, character format, background shading, borders, etc.).

- **Contents**

  Delete only the contents (values, text, formulas), with keeping the formatting.

- **Comments**

  Remove only comments that have been added to the selected cells, leaving both content and formatting intact (see section "Inserting comments", page 103).

- **Conditional Formatting**

  Remove only the conditional formatting (see section "Conditional formatting", page 164).

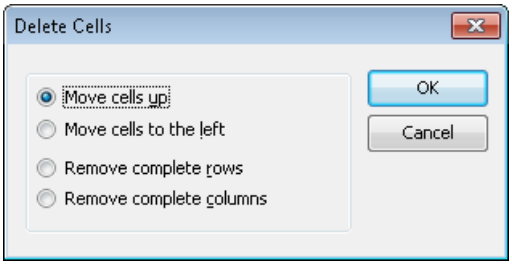
- **Input Validation**

  Remove only the input validation (see section “Input validation”, page 166).

Deleting whole cells

The **Table** > **Delete cells** command not only deletes the content of the selected cells but also removes them from the worksheet *completely.*

A dialog box will appear in which you can determine how the other cells will move after the deletion.



Options available:

- **Move cells up**

  The selected cells are removed, and the cells below move up.

- **Move cells to the left**

  The selected cells are removed, and the cells to the right of them move to the left.

- **Remove complete rows**

  The entire row(s) including the selected cells are removed, and the rows below move up.

- **Remove complete columns**

  The entire column(s) including the selected cells are removed, and the columns right of them move to the left.

Deleting empty rows

FreeOffice: This feature is not included in **SoftMaker *FreeOffice***.

To delete all *empty* rows in a certain range of rows, select the rows of interest and invoke the command **Table > Remove > Empty Rows**.

PlanMaker will remove all rows that are completely empty (i.e. none of its cells filled with a value) within the selected area.

Note

Normally, you use this command with a range of entire rows selected. If required, you can also select a cell range that does not consist of entire rows. In this case, PlanMaker will ask you if you want to delete the entire row if an empty row is found:

- If your answer is **Yes**, the entire row will be deleted for all rows that are empty.
- If your answer is **No**, only cells inside the selection will be deleted. The cells left and right of the selection are not affected.

Deleting duplicate rows

FreeOffice: This feature is not included in **SoftMaker *FreeOffice***.

To delete all *duplicate* rows in a certain range of rows, select the rows of interest and invoke the command **Table > Remove > Duplicate Rows**.

When searching for duplicate rows, PlanMaker checks *every* cell of a row. Only rows where the contents of *all* cells are identical to another row will be deleted.

Note

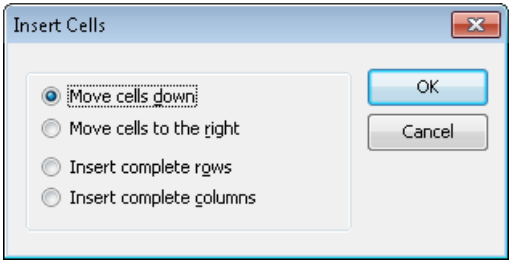
Normally, you use this command with a range of entire rows selected. If required, you can also select a cell range that does not consist of entire rows. In this case, PlanMaker will ask you if you want to delete the entire row if a duplicate row is found:

- If your answer is **Yes**, the entire row will be deleted for all rows that are duplicates.

- If your answer is **No**, only cells inside the selection will be deleted. The cells left and right of the selection are not affected.

Inserting new cells

The **Table** > **Insert Cells** command inserts new cells, rows or columns in a worksheet.



A dialog window appears where you can choose in which way the cells should be inserted. Options available:

- **Move cells down**

  PlanMaker will insert as many cells as were selected before executing this command. If nothing was selected before, just one cell will be inserted.

  The cells below the insertion are moved down.

- **Move cells to the right**

  Same as above, but the cells to the right of the insertion are moved to the right.

- **Insert complete rows**

  PlanMaker will insert as many *complete rows* as were selected before executing this command. If nothing was selected before, just one row will be inserted.

  The rows below the insertion are moved down.

- **Insert complete columns**

  PlanMaker will insert as many *complete columns* as were selected before executing this command. If nothing was selected before, just one column will be inserted.

  The columns to the right of the insertion are moved to the right.

Moving and copying cells

All operating systems supported by PlanMaker have a built-in *clipboard*.

Using the clipboard allows the user to select worksheet content, and put it on the clipboard, either by *copying* it from the worksheet or by *cutting* it from the worksheet. Once in the clipboard, it can be pasted elsewhere in the worksheet. In this way, cells (and also objects) can be deleted, duplicated or moved.

You will find all the necessary commands in the **Edit** menu:

Command	Explanation
Cut	The **Edit** > **Cut** command removes the selection and places it on the clipboard. The keyboard shortcut for this command is Ctrl X.
Copy	The **Edit** > **Copy** command copies the selection to the clipboard. Keyboard shortcut: Ctrl C.
Paste	The **Edit** > **Paste** command inserts the contents of the clipboard to the active cell. You can paste the content of the clipboard repeatedly. Keyboard shortcut: Ctrl V.

These commands can also be used with objects (pictures, charts, etc.)

Pasting into a selected cell range

If you select a range of cells before pasting with **Edit** > **Paste,** the pasted cells are fit into the selection:

- If the selected cell range is *smaller* than the cell range to be pasted, all pasted cells which do not fit are *ignored*.
- If the selection is *larger* than the cell range to be pasted, the cells are *repeated* until the selected area is completely filled.

Moving and copying using the mouse ("Drag and Drop")

To move/copy cells using the mouse: Select the cells, drag them to a different place, and drop them there. This technique, called *"Drag and Drop",* provides a particularly quick method for moving and copying.

Proceed as follows:

1. Select the cells that you want to drag to another location.

2. Point at the selection with your mouse.
3. Press and hold the left mouse button.
4. Drag the mouse, with the left mouse button still held down, to the desired location.
5. When you release the mouse button, the cells will be *moved* to the target location.

   If you hold the Ctrl key down while releasing the mouse button, the cells will instead be *copied* to the new location.

   If you hold the Alt key down while releasing the mouse button, a dialog appears where you can choose if you want the cells to be copied or moved. When you choose "Copy", you can also specify if just the cell contents should be copied or also their formattings.

Moving and copying formulas containing relative coordinates

If you copy cells that contain formulas, the cell addresses in the formulas are automatically updated to the new location.

For example:

Suppose you have a formula in cell A7 that adds up the values from the four cells above:

=SUM(A3:A6)

If you copy this formula to cell B7, PlanMaker will automatically update the formula so that it will work again with the four cells above the new position. Cell B7 will therefore contain the following formula:

=SUM(B3:B6)

If you do not want this to happen, use *absolute* cell addressing instead of the usual *relative* cell addressing (see section "Relative vs. absolute cell references", page 401).

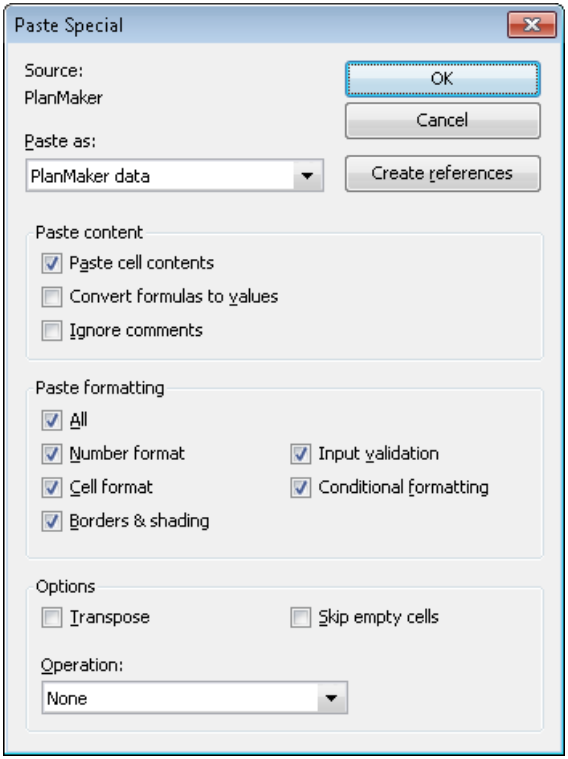
Pasting cells selectively

When you place information in the clipboard using **Edit > Cut** or **Edit > Copy**, this information is saved there in several formats. For example, if you cut or copy text, the text is saved both in formatted form and in unformatted form.

Normally, you don't need to be concerned about this, because PlanMaker automatically selects the most appropriate format when it inserts the content of the clipboard in response to an **Edit > Paste** command. However, if you need to, you can select the format in which the content is to be inserted yourself. You use the **Edit > Paste Special** command to do this.

When you invoke this command, a dialog box appears and presents you with a list of all the formats in which the information currently residing in the clipboard is saved. When you select a format from the **Paste as** list and then confirm with **OK**, the content of the clipboard is inserted in the selected format.

If you have copied *cells* to the clipboard, the dialog offers some additional options, as follows:



Options available:

Paste content

These options allow you to control how the *content* of the cells in the clipboard should be inserted when they are pasted.

Options available:

- **Paste cell contents**

  If this option is checked, the content of the copied cells is pasted. If it is not checked, just their formatting is pasted.

- **Convert formulas to values**

  If this option is checked, PlanMaker will paste the *results* of formulas in the copied cells – rather than the formulas themselves. For example, if the clipboard contains a cell with the calculation "=A1*2", PlanMaker will calculate its current value and paste the result as a fixed number.

- **Ignore comments**

  If this option is checked, comments attached to the cells in the clipboard will not be pasted.

Paste formatting

These options allow you to control if the *formatting* of the copied cells should be retained when they are pasted.

Options available:

- **All**

  The cells in the clipboard retain their entire formatting when they are pasted. (Choosing this option activates all the other options listed below.)

- **Number format**

  The cells retain their number format when they are pasted.

- **Cell format**

  The cells retain their cell format when they are pasted.

- **Borders and shading**

  The cells retain their borders and shading when they are pasted.

- **Input validation**

  The cells retain their input validation settings when they are pasted.

- **Conditional formatting**

  The cells retain their conditional formatting settings when they are pasted.

Options

This section contains the following additional options:

- **Transpose**

  If this option is checked, the row and column order of the cells will be exchanged when they are pasted. Rows become columns, and columns become rows.

- **Skip empty cells**

  If this option is checked, empty cells amongst the cells in the clipboard will be skipped when they are pasted. Accordingly, if you paste an empty cell over an existing cell, the existing cell will keep its current content and formatting.

- **Operation**

  This option can be useful when you paste cells over existing cells. It allows you to combine the existing values with the values to be pasted by performing basic arithmetic operations.

  Options available:

  None: Do not combine the existing values with the values in the clipboard. Just overwrite the existing values. This is the default setting.

  Add to destination: Add the values in the clipboard to the existing values.

  Subtract from destination: Subtract the values in the clipboard from the existing values.

  Multiply with destination: Multiply the existing values by the values in the clipboard.

Divide the destination: Divide the existing values by the values in the clipboard.

Example: Copy a cell that contains the value 2 to the clipboard. Go to a cell that contains the value 8 and invoke the **Insert > Paste special** command. If you choose the option **Add to destination**, the cell will contain the value 10 now (8+2=10).

"Create references" button

This button ignores any settings made in this dialog, since it has a special function, as follows:

When you have copied cells to the clipboard, invoke **Edit > Paste Special** and click on this button, cell *references* to these cells are inserted rather than their content.

For example, when you copy the cell B15 to the clipboard, using this button will insert the cell reference =B15.

Hint: This even works when cells have been copied to the clipboard from within a different document. In this case, PlanMaker will insert an *external* cell reference (see section "External cell references", page 402 for details).

Filling cells automatically

You can use PlanMaker's **Fill** function to quickly copy the content of a cell to other cells or create an increasing or decreasing number series across cells.

There are two ways to use this function:

Filling with the mouse

To fill cells automatically using the mouse:

1. Enter the initial value in a cell.
2. Click on that cell (to make it the currently selected cell).
3. With the mouse, point at the small rectangle in the bottom-right corner of the cell frame (it is marked in the following illustration):

4. Drag this rectangle, while holding the mouse button down, to cover the desired range of cells. Release the mouse button when the target position has been reached.

All cells in the selection you created have now been automatically filled.

What the cells are filled with depends on the content of the initial cell:

- If the initial cell contains **text**, PlanMaker fills all cells with this text.
- If the initial cell contains a **number** (e.g., 42), PlanMaker fills successive cells with incrementing values (in this case, 43, 44, 45, etc.).

  If you do not want PlanMaker to fill the cells with a series of numbers but, instead, duplicate the value 42 in all cells, press and hold the [Ctrl] key while you are dragging with the mouse.

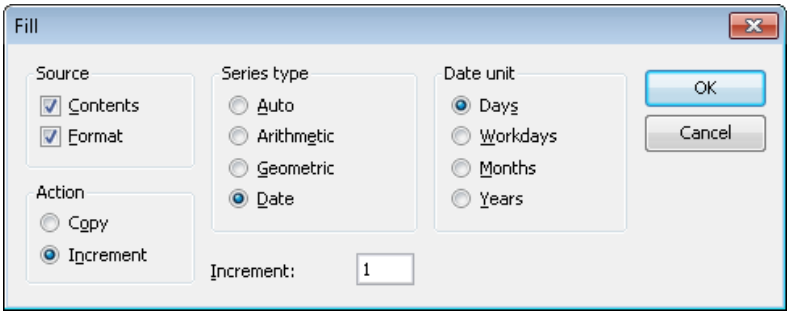
To control the fill function precisely, press and hold the [Alt] key while dragging. A dialog box (described below) will appear, providing full control over how the cells are filled.

Filling with the keyboard

To fill cells automatically using the keyboard:

1. Enter the initial value in a cell.
2. Select this cell and all cells you want to be filled.
3. Choose **Edit > Fill**.
4. Select a fill direction from the sub-menu (left, right, up or down).
5. In the resulting dialog box, you can precisely define the way the cells will be filled (see below).

When you're done, click **OK** to confirm.



Options available:

Source

Activate the **Contents** option if you want the cells to be filled with values.

Activate the **Format** option if you want the cells to be filled with formatting.

By default, both options are checked.

Action

This option is equivalent to pressing the Ctrl key during filling with the mouse. It lets you determine whether to copy values or to increment them from cell to cell:

If the initial cell contains the number 42 and you select **Copy**, all cells will be filled with the value 42. If you choose **Increment**, successive cells will be filled with a series of numbers (in this case, 43, 44, 45, etc.).

The numerical increment is determined by setting the remaining options in this dialog:

Series type

Lets you specify how the series is incremented:

- **Auto**

  Arithmetic series with automatic increment. Here, every value will be increased by an increment that is determined by PlanMaker automatically.

  If two cells contain the values 10 and 20, the new cells will be filled with 30, 40, 50, etc. (also see tips and tricks in the next section).

- **Arithmetic**

  Arithmetic series. Here, every value will be increased by the value entered in the **Increment** input box.

  For example, if the initial cell contains the value 1 and you choose an increment of 2, the cells will be filled with 3, 5, 7, 9, 11, etc.

- **Geometric**

  Geometrical series. Here, every value will be *multiplied* by the value entered in the **Increment** input box.

  For example, if the initial cell contains the value 1 and you choose an increment of 2, the new cells will be filled with 2, 4, 8, 16, 32, etc.

- **Date**

  Date series. Here, every value will be increased by the value in the chosen date unit (see below). This can only be used if the initial cell contains a date.

  For example, if the initial cell contains the date 1/1/2012, the increment is 1, and the **Date unit** is “Months”, the cells will be filled with 2/1/2012, 3/1/2012, 4/1/2012, etc.

Increment

Lets you specify the amount by which every value will increase from cell to cell.

Positive or negative increment values can be used.

This option is not available if the **Series type** is set to “Auto”.

Date unit

This option is only available if the **Series type** is set to “Date”.

Lets you determine the unit of the increment:

- **Days**

  Increment by days

- **Workdays**

  Increment by days, excluding Saturdays and Sundays.

For example, if the initial value is Friday, with the increment set to 1, the next value will be the following Monday.

- **Months**

  Increment by months

- **Years**

  Increment by years

Tips and tricks for automatic filling

As described on the last pages, PlanMaker provides many options for filling cells automatically. This section offers some tips and tricks to help you effectively use this very useful feature.

> ***Hint:*** The quickest way to fill a range of cells is to drag the small rectangle in the bottom-right corner of a cell with the mouse in the appropriate direction. PlanMaker then sets the series type to "Auto", which means that it will automatically figure which values to use to fill the cells.

Filling with text

To fill cells with text, simply enter the desired text in the first cell. Then, drag the small rectangle in the bottom-right corner of the cell over the cells you want to fill.

Filling with numbers

If you use the mouse to fill cells with numbers, PlanMaker will automatically determine the increment.

For example, if you drag the small rectangle from a cell with the value 42, the other cells will be filled with the values 43, 44, 45, etc.

If the initial cell value is 10, and the next cell value is 20, and you select *both* cells and drag the small rectangle down, PlanMaker automatically recognizes how to continue this series and fills the other cells with 30, 40, 50, etc.

Filling with formulas

If you use the mouse to fill cells with formulas, PlanMaker automatically attempts to update the formulas in the new cells with incremented cell addresses.

For example, the formula =A1*2 in the initial cell will be updated to =A2*2, =A3*2, etc., in the other cells.

Filling with dates

Filling with dates is identical to filling with numbers:

Enter the starting date in the initial cell and drag the small rectangle over the desired cells. PlanMaker will add one day in every new cell.

If desired, use the **Edit > Fill** command to define whether to increment by days, months, or years.

Filling with structures

As you have already learned, it is possible to select *multiple* initial cells before starting the filling operation.

If the initial cells contain both text *and* numbers, PlanMaker will attempt to find a pattern in these values. For example, if you enter the values 1, 2, text, PlanMaker will continue the series with 3, 4, text; 5, 6, text; 7, 8, text; etc.

If the initial cells contain just text, PlanMaker will simply repeat the text. For example, the series Red, Green, Blue will be repeated as Red, Green, Blue, Red, Green, Blue, etc.

Create your own lists for automatic filling

The **Tools > Edit Lists** command allows you to create your own lists for the **Fill** command.

For example, if you create a list with the content “Red”, “Green”, and “Blue”, and later start a fill operation from a cell that contains the text “Red”, PlanMaker will continue the series and fill with Green, Blue, Red, Green, Blue, etc.

For additional information on creating such lists, see section “Customizing AutoFill lists”, page 389.

Working with multiple worksheets

PlanMaker documents are not limited to single worksheets. As needed, you can stack several worksheets on top of each other – just like a stack of papers. PlanMaker documents are therefore also called work*books*. Each workbook can contain up to 256 work*sheets*.

The main advantage of this is that calculations in one worksheet can also refer to cells in other worksheets of a workbook, in essence, letting you create "three-dimensional" calculations (see section "Calculating in three dimensions", page 79).

In this section, you will learn everything you need to know about working with multiple worksheets in a document. The following topics are covered:

- **Creating new worksheets**

  To create a new worksheet, use the **Table > Worksheet > Insert** command.

- **Working with the worksheet register**

  The *worksheet register* displayed at the bottom of the document window allows you to switch between your worksheets with a single mouse click. You can also use it to create, move and manage worksheets.

- **Managing worksheets**

  To manage the worksheets in a document, use the context menu of the worksheet register or the sub-menu of the **Table > Worksheet** command. Both contain commands for renaming, copying, moving sheets, etc.

- **Calculating in three dimensions**

  In the last section, you will learn how to create calculations that refer to cells in other worksheets.

See the following pages for detailed information on these topics.

Creating new worksheets

To create a new worksheet, use the **Table > Worksheet** command. Select **Insert** from the sub-menu and provide a name for the new worksheet.

Click **OK** and the new worksheet is created.

Working with the worksheet register

The *worksheet register* at the bottom of the document window displays tabs for each worksheet in the document.

The active worksheet is highlighted.

With the worksheet register, the following actions can be performed:

- **Switching between worksheets**

  To switch to a different worksheet, click on its tab in the worksheet register.

  Note: If there are more worksheet tabs than can be displayed at the same time, you can scroll through the list with the arrows displayed left of the register.

- **Changing the order of worksheets**

  The worksheet register can also be used to move worksheets, allowing you to change their order. Simply click the desired worksheet tab and drag it to the desired location within the other worksheet tabs.

- **Editing multiple worksheets at the same time**

  You can select multiple worksheets in the worksheet register and edit them *simultaneously*. To select multiple worksheets, press and hold the Ctrl key while you click on their tabs in the register.

  When multiple worksheets are selected, changes made to one of the worksheets affect all of the other selected worksheets in exactly the same way.

  Examples:

  When you change the formatting of cells, your changes are also applied to the same cells on the other selected worksheets.

  When you edit or delete the content of a cell, the same cell on the other selected worksheets will be changed the same way.

  Changes made with commands **Table** > **Row** and **Table** > **Column** also affect all selected worksheets.

- **Managing worksheets**

  When you click on one of the tabs in the worksheet register with the *right* mouse button, a context menu will appear, showing commands for creating and managing worksheets. See the next section for details.

- **Creating a new worksheet**

  The tab labeled with an asterisk (*) at the very right serves as a “shortcut” for creating new worksheets: When you click on it, a new worksheet is generated instantaneously.

Managing worksheets

To manage worksheets, choose the **Table** > **Worksheet** command. A sub-menu will appear.

> ***Tip:*** This menu can also be invoked by clicking on the desired tab in the worksheet register with the *right* mouse button.

The menu contains the following commands:

- The **Insert** command creates a new worksheet.
- The **Copy** command creates a copy of a worksheet. A sub-menu will appear where you can choose the position of the copy (within the other worksheets).

  If you want to place the copy in a different (currently opened) document or in a new document, choose the **To another document** option.
- The **Move** command moves a worksheet to a different location. Like with the **Copy** command, a dialog where you can choose the position will appear.
- The **Delete** command removes a worksheet along with its contents.
- The **Rename** command lets you change the name of a worksheet.
- The **Show** command makes hidden worksheets (see **Hide** command) visible again.

  A sub-menu will appear, listing all hidden worksheets. Click on the desired worksheet to make it reappear. The **Show all** command makes all hidden worksheets visible at once.
- The **Hide** command hides a worksheet.

  Hidden worksheets are invisible. They cannot be displayed or edited, and they do not even appear in the worksheet register. However, they are still used as a source for calculations.
- The commands **Select All Sheets** and **Deselect Sheets** (available in the context menu only) select or unselect all worksheet tabs in the worksheet register.

- The **Page Setup** command in the context menu is identical to the **File > Page Setup** command in the main menu. It allows you to change page layout options like paper format, page margins, etc. for a worksheet. See section “Page setup”, page 172.

- The **Copy Page Setup** command in the context menu enables you to transfer the entire page setup (i.e. all settings made with the **File > Page Setup** command) from one worksheet to another. It opens a sub-menu with the following entries:

  To All Sheets: Copies the page setup from the current worksheet to all other sheets.

  From...: Copies the page setup from any other worksheet to the current worksheet.

- The **Properties** command in the context menu is identical to the **Table > Properties** command in the main menu. It allows you to alter common properties of a worksheet. See section “Worksheet properties”, page 373.

Hint: As described in the section “Working with the worksheet register”, you can select multiple worksheets in the worksheet register before you invoke one of these commands. The command will then be applied to all selected sheets at once.

Note: If *workbook protection* is activated for the current document, users cannot make any changes to the worksheet register, and the **Table > Worksheet** command is disabled. For additional information, see section “Workbook protection”, page 322.

Calculating in three dimensions

In a multi-worksheet document, you can create calculations in one worksheet that refer to cells in other worksheets, allowing you to perform “three-dimensional” calculations.

To enter such calculations, prepend the name of the desired worksheet to the cell address, and separate it with an exclamation point. For example, “Sheet1!B2” refers to cell B2 on worksheet “Sheet1”.

An example

Assume you want to create a profit/loss statement. For this purpose, you have created three worksheets named “Sales”, “Costs”, and “Profit”.

Now you want the value in cell D2 of the “Costs” worksheet to be deducted from the value in cell A8 of the “Sales” worksheet and to appear in cell C9 of the “Profit” worksheet.

To do this, switch to the “Profit” worksheet, navigate to the cell C9 and enter the following formula:

=Sales!A8 - Costs!D2

After hitting the Enter key ↵, cell C9 on the worksheet “Profit” will contain the result of your calculation.

Naming cell ranges

Use the **Table > Names** command to assign *names* to cell ranges.

For example, if your worksheet has four columns with the sales figures for spring, summer, fall and winter, name these ranges accordingly. After that, a calculation like the following is possible:

=SUM(Spring)

When you choose the **Table > Names** command, a sub-menu opens. It contains all commands needed to work with named cell ranges.

> ***Note:*** The **Table > Names** command will not be available if at least one worksheet in your workbook has *worksheet protection* turned on (see also section “Sheet protection”, page 319).

Detailed information on working with named ranges is provided on the next pages. The following topics are covered:

- **Assigning names to cell ranges**
- **Deleting and renaming names**
- **Defining names automatically from the selection**
- **Creating a list of all named ranges**
- **Putting named ranges to use**
- **Applying names in existing formulas**

Assigning names to cell ranges

To assign a name to a range of cells:

1. Select the cell range that you want to name.
2. Choose **Table** > **Names** > **Edit**.
3. Input a name for the cell range in the **Name** edit control.
4. Click the **Add** button.

You have now assigned the specified name to the selected cell range.

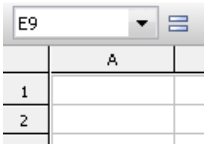
From now on, this name can be used in formulas instead of the original cell addresses. If you assign the name "January" to the cell range from A2 to A10, the formula =SUM(January) is equivalent to =SUM(A2:A10).

> ***Note:*** Names may only consist of alphanumeric characters, underscores and periods. The first character must be a letter or an underscore.
>
> Names that look like a cell address must not be used. For example, the name "A2" is not valid because PlanMaker wouldn't be able to distinguish it from the cell address A2.

Hint: A faster method

There is a faster method for assigning names to cell addresses:

In the top left corner of the worksheet window is an editable drop-down list that normally displays the current cell address.



Use this drop-down list to quickly set up a new named range:

1. Select the cell range that you want to name.
2. Click inside this drop-down list.
3. Enter the new name for the selected cell range.
4. Press the Enter key ↵.

You have now assigned the specified name to the selected cell range.

Deleting and renaming names

To delete or rename the name of a named cell range:

1. Choose **Table > Names > Edit**.
2. In the list of names, select the desired name.
3. To delete the name, click the **Delete** button. To rename it, click the **Rename** button.

The name has now been deleted/renamed.

> ***Note:*** When you delete a name, all formulas that use this name will now return a #NAME? error value instead of a result. For example, if a cell range was named "January", all references to this named range, such as =SUM(January), will display a #NAME? error value.

Defining names automatically from the selection

If you select cells that contain values as well as row or column headings, you can let PlanMaker generate named ranges automatically from these cells. PlanMaker then picks up the names from the headings.

To define names automatically:

1. Select the desired cell range. It must contain both the values and the headings that will be used to create the named ranges.
2. Choose **Table > Names > Import**.
3. In the displayed dialog box, you can select which row and/or column contains the headings that will be used for naming the ranges (see example below).

When you're done, click **OK** to confirm.

The names will now be created from the selected headings.

An example

To generate names automatically from the following table:

	January	February	March
London	100	450	333
Paris	345	543	564
Madrid	123	543	555

Select all values *and* all headings. Invoke the **Table > Names > Import** command. Select which row and/or column headings to use:

- If you select **Top row**, PlanMaker assigns the names “January”, “February”, and “March” to the cells below them.
- If you select **Left Column**, PlanMaker names the cells to the right of “London”, “Paris”, and “Madrid” with the corresponding name.
- If both options are selected, PlanMaker will create all six names.

Creating a list of all named ranges

PlanMaker can insert a list into the worksheet of all named ranges. This is useful if you want an overview of all named ranges in the workbook and the corresponding cell addresses.

To insert a list of all named ranges defined:

1. Select the cell where the list is to be inserted.
2. Choose **Table > Names > Insert List**.

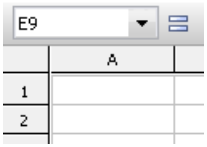
A list of all named ranges will now be inserted in the table.

Putting named ranges to use

After creating named ranges with the **Table > Names** command, the following very useful functions become available:

Quickly selecting a named range

In the top-left corner of the worksheet window, you can see a drop-down list that displays the address of the currently selected cell.



When you open this drop-down list, it will display a list of all named ranges. Clicking on one of these names will select the corresponding cell range.

Using names in formulas

In formulas, range names can be used instead of the cell addresses they represent. This saves time and makes formulas more coherent.

For example:

You have entered sales figures for January in cells A2 to A10. You have also assigned the name “January” to this range of cells.

To sum up the sales, you simply type:

=SUM(January)

This method is also considerably more understandable than the default naming convention of =SUM(A2:A10).

> ***Hint:*** The dialog box for the **Insert > Function** command has a **Category** list. One of the categories is “Named ranges”. Click on this category and you can quickly pick named ranges and insert them in formulas.

Applying names in existing formulas

The **Apply** command in the sub-menu of the **Table > Names** command is a useful helper for applying named ranges: It scans all formulas within the selected cells and replaces every cell reference that has a name assigned to it by the corresponding name.

You use this command as follows:

1. Select the range of cells whose formulas you want to update. If you do not select anything, the entire table will be affected.
2. Choose **Table > Names > Apply**.

3. In the **Names** list, select all names you want to apply to the selected cells. Alternatively, click **Select all** to select all names.

When you're done, click **OK** to confirm.

PlanMaker now updates all cell references within the selection. Any cell reference that has a name assigned to it will be replaced by the corresponding name.

An example:

The name "January" is assigned to cells A2 to A10. One of the cells in the worksheet contains the formula =SUM(A2:A10). Using the **Table > Names > Apply** command, this formula will be automatically updated to read as =SUM(January).

The "Also apply to relative references" option

In the dialog discussed above, you will find an option named **Also apply to relative references**. This option should remain checked in most cases.

Some background information:

In PlanMaker, names always refer to cell ranges with *absolute* addressing (like $A$1:$A$10). But in most calculations, users will be using relative addressing (like A1:A10).

If this option is checked, PlanMaker will convert relative cell references as well.

If it is not checked, PlanMaker will *only* convert absolute cell references.

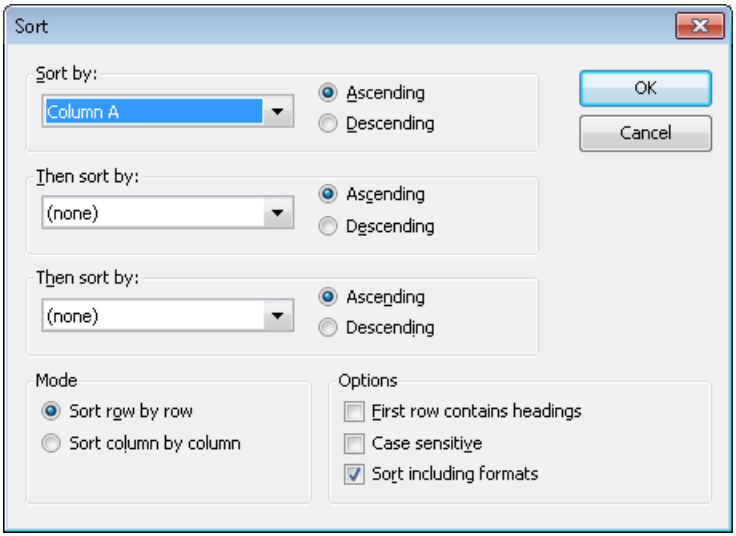
For example:

Assume the range from A1 to A10 (more precisely: $A$1:$A$10) was named "January". If you apply the **Apply** function to the formula =SUM($A$1:$A$10), this formula will always be converted to =SUM(January). But if you apply it to the formula =SUM(A1:A10), the formula will be converted only if the option **Also apply to relative references** is turned on.

For more information on absolute and relative cell addresses, see section "Relative vs. absolute cell references", page 401.

Sorting cells

To sort cells in worksheets, select the desired cells and choose **Table > Sort**.



A dialog box with the following options will appear:

- **Sort by, Then sort by, Then sort by**

  Here, select the desired columns to determine the sorting sequence.

  If you select more than one column, the selection is first sorted by the column selected in **Sort by** and then within this sequence by the column chosen in **Then sort by**. For example, if the first column contains family names and the second column has the first names, you can sort first by the family name and then, in groups of identical family names, by the first name.

- **Ascending/Descending**

  With this option, you can determine the sorting direction. **Ascending** goes from A to Z and **Descending** goes from Z to A.

- **Sort row by row/Sort column by column**

  This option determines whether PlanMaker sorts by row or by column.

- **First row contains headings**

  If the first row or column of the selected cells contains a heading, enable this option. PlanMaker omits it from the sorting.

  Example: You have selected a list of postal addresses that you want to sort by row. The first line of your selection contains headings such as “Name”,

"Street", "City", etc. The actual addresses are in the rows below. If you turn on this option, the first row is not sorted along with the addresses, but stays on top.

- **Case sensitive**

  If you turn on this option, terms with the first letter in lowercase will be placed above terms beginning with uppercase letters.

- **Sort including formats**

  If this option is checked, cells moved by the sorting operation retain the assigned formatting.

Transposing cells

The **Table** > **Transpose** command exchanges the row and column order of the selected cells. Rows become columns, and columns become rows.

Select the desired cells before you use this command.

Important! Please note that transposing does *not* adapt any formulas or range names to the changes made to cell addresses by transposing, neither inside nor outside the transposed range!

Distributing text into multiple columns

FreeOffice: This feature is not included in **SoftMaker *FreeOffice***.

The **Table** > **Text to Columns** command allows you to distribute text entered in one table cell into multiple columns. For example, if a cell contains a sentence, this command will move each single word into its own column.

You apply this command as follows:

1. Navigate to the cell containing the text to be distributed.

   (If you want to distribute the text in multiple cells at once, select those cells.)

2. Invoke the **Table** > **Text to Columns** menu command.

3. A dialog box with several options is displayed (see below).

   Normally, PlanMaker determines appropriate settings for this dialog automatically, so you don't have to care about it.

4. Click **OK** to confirm.

The text in the cell is distributed into multiple cells in the adjacent columns.

Options

> ***Hint:*** The best settings for this dialog are determined from the given cell content automatically. Normally, no manual changes are required.

The dialog window for this command has the following options:

- **Target range**

  If desired, you can enter a different target range here. If you do so, the distributed text will not be placed at its original position, but at the specified target position.

  It is sufficient to enter just the address of the cell in the top left corner of the target position.

- **Separator**

  If required, you can specify which character PlanMaker should consider as a text separator here. For example, if the cell contains the sentence "This is a test", PlanMaker automatically chooses blanks as separators, which will move each word of the sentence into one column.

- **Text marker**

  If the text in the cell contains text marker characters, use this option to specify which character has been used (e.g. quotation marks).

  (Background info: The text export feature of some programs surrounds each data field with such a character, in order to make it easy to determine where a data field begins and ends.)

Filtering cells by their contents

You can select a range of cells and *filter* this data based on a filtering condition. PlanMaker will hide all rows that do not match the condition.

There are three commands for filtering data available in the sub-menu of the **Table > Filter** command:

- If you select the **Special filter** command, the resulting dialog box lets you formulate one or more filter conditions. After clicking **OK**, the filter activates and hides all rows that do not match the chosen filter conditions.
- The **Show All** command makes all hidden rows visible again, rendering the Special Filter inactive.
- The **AutoFilter** command does not offer as many options as the Special Filter, but can be used more quickly: Select this command, and a special drop-down menu will appear above every column in the selected cell range. These drop-down lists let you easily choose between different pre-created filter conditions.

Detailed information on these three commands is provided on the following pages.

Special filter

Use the **Table > Filter > Special Filter** command to filter data in a range of cells according to one or more selected conditions. PlanMaker will hide all rows that do not match the filter conditions.

Proceed as follows:

1. Select the desired range of cells.
2. Select the **Table > Filter** menu command. Choose the **Special Filter** command from the resulting sub-menu.
3. A dialog box is displayed in which you can define one or more filter conditions (see below).

When you're done, click **OK** to confirm.

All rows that do match the filter conditions will now be hidden.

Setting up filter conditions

To select one or more filter conditions in the dialog box of the **Special Filter** menu command:

In the **1st condition** group box, select the column to apply to the filter condition. In the middle drop-down list, select the arithmetic operator. On the right, enter the value to compare against.

Some examples:

- The condition "Column D equals Los Angeles" only shows entries where column D contains the text "Los Angeles".
- The condition "Column E greater than 100000" only shows entries where column E contains a value greater than 100000.

If one condition is not sufficient for formulating your filters, you can set up to three filter conditions in the **Special Filters** dialog by filling out the group boxes **2nd condition** and **3rd condition** as well.

Using "wildcard characters": In conditions, the characters * and ? can be used as "wildcards": * represents *any* number of arbitrary characters, and ? represents a *single* arbitrary character. For example, "M*er" would call out "Mister", "Miller", "Mary's mother", etc., whereas "?ouse" would call out "mouse", "house", "rouse", etc.

Choosing options

The dialog box for the **Special Filter** command offers the following options:

- **Range contains headings**

  If the first row and/or column of the selected cell range contains headings, turn on this option. PlanMaker will ignore this line or column while filtering. Additionally, it will display these headers in the **Special Filter** dialog instead of just "Column A", "Column B", etc.

- **Case sensitive**

  If this option is checked, PlanMaker will distinguish between uppercase and lowercase letters in conditions. For a condition such as "COLUMN A equals Smith", the condition will match only if the cell contains the text "Smith". "SMITH" and "smith" will not be included in the filtering results.

- **Mode**

  Determines whether rows or columns will be filtered.

  Selecting **Filter row by row**, all *rows* will be filtered out that do not satisfy the filter condition.

  Selecting **Filter column by column**, all *columns* will be filtered out that do not satisfy the filter condition.

- **Results**

  Determines whether the filter will be applied to the actual data or a copy of it:

  Selecting **Filter at current position**, the original data will be filtered. Rows/columns that do not satisfy the filter condition will be hidden.

  If you choose **Copy to position** instead, PlanMaker creates a copy of the original cells at the indicated cell address. This copy contains only the filtered data.

  In the latter case, enter the cell address of the destination cell in the input field. You can either specify a single cell address (which will be the starting point of the output range) or a cell range where the copy of the data shall be placed. Caution: If the copy of the data is larger than the cell range entered, cells will be cut off.

Making filtered cells visible again

To make all cells hidden by a filter visible again, use the **Table > Filter > Show All** command.

AutoFilter

A simplified alternative to the Special Filter command is the AutoFilter feature, available via the **Table > Filter > AutoFilter** command.

To apply an AutoFilter:

1. Select the desired range of cells. ***Important:*** The first row of the range should contain headings for the data below.
2. Select the **Table > Filter** menu command. In the resulting sub-menu, select the **AutoFilter** command.

The AutoFilter function is now enabled. Note the downward arrows in the first row of every column of the selected range.

Clicking on one of these arrows will open a drop-down menu listing the contents of the current column. If you choose one of the list entries, PlanMaker activates the selected filtering. For example, if the content “Smith” is selected from the list, only rows that have the text “Smith” in the current column will stay visible; the rest of the rows will be hidden. Effectively a filter condition “Name equals Smith” has been created using the AutoFilter function.

Additionally, the drop-down menu contains entries for the following conditions:

- **All:** Display all lines (do not filter anymore).
- **Custom:** Open a dialog where the user can define more specific filter conditions (similar to the **Special Filter** command).
- **Top 10:** Display only the rows with the 10 highest or lowest values.
- **Only empty:** Display only rows where this column is empty.
- **Non-empty:** Display only rows where this column is not empty.

Making filtered cells visible again

To deactivate the AutoFilter function, choose **Table** > **Filter** > **AutoFilter** once again.

> ***Note:*** When you deactivate the AutoFilter function, all rows hidden by the filter will *still* remain invisible. To make them reappear, use the **Table** > **Filter** > **Show All** command.

Analyzing tables

PlanMaker provides several tools that can be very useful for analyzing tables and detecting errors, including the following:

- **Displaying formulas instead of results**

  If the **View** > **Show Formulas** command is activated, cells containing a calculation will display the formula rather than the result.

- **Syntax highlighting**

  If the **View > Syntax Highlighting** command is activated, cells will be colorized according to their content.

- **Watch window for cell contents**

  FreeOffice: This feature is not included in **SoftMaker *FreeOffice***.

  The **View > Watch Window** command displays a *watch window* for cell contents. It allows you to observe the current values in the specified cells.

- **Formula auditing**

  FreeOffice: This feature is not included in **SoftMaker *FreeOffice***.

  The **Tools > Formula Auditing** command provides tools for displaying the relationships between cells graphically. For example, if the current cell contains a formula that refers to other cells, you can let PlanMaker display arrows pointing to these cells.

  Apart from that, you can use this command to find errors in your table easily or to mark all invalid data with red circles.

For detailed information, see the following pages.

Displaying formulas instead of results

If the **View > Show Formulas** command is activated, cells containing a calculation will display the formula rather than the result.

Invoke again to deactivate.

Syntax highlighting

If *Syntax highlighting* is activated, cells will be colorized according to their content. For example, cells containing an error are displayed in red; cells containing a formula are displayed in green, etc.

This is useful for visualizing which cells contain formulas, fixed values, etc., and where errors occur.

Activating and deactivating syntax highlighting

Choose **View** > **Syntax Highlighting** to activate.

Choose again to deactivate.

What the foreground color indicates

When syntax highlighting is activated, cell contents are displayed in the following foreground colors:

Cell content	Foreground color
Error value	Red
Formula	Green
Fixed positive number	Dark blue
Fixed negative number	Light blue
Fixed logical value	Brown
Fixed text string	Black

What the background color indicates

Cells containing an error are displayed in red foreground color and shaded in one of the following background colors:

Background color	Error type
White	**Formula returns an error value.** The calculation in this cell returns an error value (caused, for example, by a division by zero). **Hint:** If you click the cell, an error message is displayed in the status bar. Correct the formula accordingly. For more information on error values, see section “Error values”, page 407.
Cyan	**Syntax error in formula.** The calculation in this cell has a syntax error (caused, for example, by a missing parenthesis or missing arguments).

Hint: If you click the cell, an error message is displayed in the status bar. Correct the formula accordingly. *If you don't correct the formula, it will be replaced by the text string #NULL! when the document is saved!*

Light gray

Function not exportable. The calculation in this cell uses an arithmetic function that cannot be saved in the currently chosen file format.

Hint: Replace the function by a function that is compatible with the chosen file format. For more information, see the corresponding function description in this manual.

Magenta

Function possibly imported erroneously. The calculation in this cell uses a PlanMaker 97 arithmetic function whose syntax or function might be incompatible with recent versions of PlanMaker. This error only occurs when importing documents created with PlanMaker 97 (an older version of PlanMaker).

Hint: See corresponding function description in this manual.

Yellow

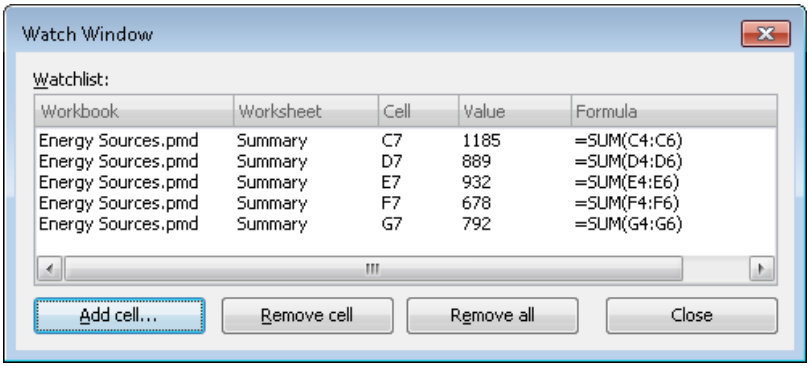
Function unknown. The calculation in this cell uses an arithmetic function unknown to PlanMaker. This error might occur when importing documents created with other applications (e.g. Microsoft Excel).

Hint: Replace the function with a corresponding PlanMaker function. For a list of all PlanMaker functions, see section "Functions from A to Z", page 413, or this manual's index.

Watch window for cell contents

FreeOffice: This feature is not included in **SoftMaker *FreeOffice***.

PlanMaker has an option to display a *watch window* for cell contents. It allows you to observe the current values in the specified cells.



Activating and deactivating the watch window

Choose **View > Watch Window** to activate the watch window.

Choose again to deactivate.

Adding cells to the watch window

To keep track of the value in a cell, add it to the watch window as follows:

1. In the watch window, click on the **Add cell** button.
2. Enter the address of the desired cell and confirm with **OK**.

   Hint: You can also enter an entire cell range here. For example, if you enter A1:A3, the cells A1, A2, and A3 will be added.

The content of the specified cells is now displayed in the watch window. Whenever the table is recalculated, the watch window will be updated as well.

Removing cells from the watch window

To remove a cell from the watch window, select it in the watch window and click on the **Remove cell** button.

To remove all cells at once, use the **Remove all** button.

Formula auditing

FreeOffice: This feature is not included in **SoftMaker *FreeOffice***.

The **Tools > Formula Auditing** command provides tools for displaying the relationships between cells graphically. For example, if the current cell contains a formula that refers to other cells, you can let PlanMaker display arrows pointing to these cells.

Apart from that, you can use this command to find errors in your table easily or to mark all invalid data with red circles.

When you invoke this menu command, a submenu with several commands opens. Broken down by subjects, the following functions are available in this menu:

- **Displaying the relationships between cells**

  Amongst others, the **Tools > Formula Auditing** command provides commands that display the relationships between cells graphically. For example, PlanMaker can display arrows to all cells that the calculation in the current cell refers to. Thus, if a cell contains the formula =A1*A2, arrows to the cells A1 and A2 will appear.

- **Selecting the cells related to a cell**

  There are also commands that allow you to select all cells the calculation in the current cell refers to. Or, vice versa, all cells that depend on the current cell.

- **Detecting errors in calculations**

  Furthermore, you can jump to the previous or next cell that contains an error value, and display arrows to the sources of the error.

- **Detecting invalid data in cells**

  Finally, you can find cells whose content violates the input validation settings for the cell.

For detailed information on these topics, see the following pages.

Tip: Using the Formula Auditing toolbar

The easiest way to access the functions provided by this command is to use the *Formula Auditing toolbar*.

You can enable or disable this toolbar anytime by choosing the command **Tools > Formula Auditing > Show Formula Audition Toolbar**.

The icons in this toolbar represent the following functions (from left to right):

- Trace predecessors
- Remove traces to predecessors
- Trace successors
- Remove traces to successors
- Remove all traces
- Trace to error

- Mark invalid data
- Remove invalid data marks

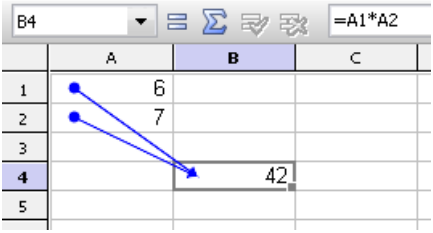
- Go to previous error
- Go to next error
- Go to previous invalid cell
- Go to next invalid cell

Detailed information about the individual function of each icon is given on the following pages.

Displaying the relationships between cells

FreeOffice: This feature is not included in **SoftMaker *FreeOffice***.

Amongst others, the **Tools > Formula Auditing** command provides commands that can be used to display the relationships between cells graphically.



To do this, navigate to the cell of interest and invoke one the following commands from the submenu of this command:

- **Trace predecessors**

  This command displays an arrow to each cell that the calculation in the current cell refers to.

  Example: If the current cell contains the formula =A1*A2, this command will display arrows pointing to the cells A1 and A2.

- **Remove traces to predecessors**

  Removes the arrows added with the above command for the current cell.

- **Trace successors**

  Displays an arrow to each cell that refers to the current cell.

  Example: If a cell contains the formula =B5*2, this command will display an arrow pointing to this cell when you invoke it in cell B5.

- **Remove traces to successors**

  Removes the arrows added with the above command for the current cell.

- **Remove all traces**

  Removes all arrows added with the commands **Trace predecessors** or **Trace successors** for the entire workbook.

Notes and tips

- If desired, you can invoke the commands **Trace predecessors** or **Trace successors** multiple times in a cell. Another level of relationships will be displayed every time you do that.
- The tracer arrows displayed by the above commands are *clickable*. When you click such an arrow, PlanMaker jumps to the cell at the other end of the arrow.
- If the current cell is referring to a cell located on a *different worksheet*, just a small arrow will be displayed in the top left corner of the cell. Again, you can click this arrow to jump to the related cell.
- All tracer arrows pointing to a cell will be removed when you edit, move, or delete the cell.
- Tracer arrows also appear in the printout.
- However, the arrows are not stored in the document. Thus, when you save a document, close it, and open it again, all arrows are removed.

Selecting the cells related to a cell

FreeOffice: This feature is not included in **SoftMaker *FreeOffice***.

The **Tools > Formula Auditing** command also provides commands that can be used to select the cells related to the current cell.

To do this, navigate to the cell of interest and invoke one the following commands from the submenu of this command:

- **Select predecessors**

  This command selects all cells that the calculation in the current cell refers to.

  Example: If the current cell contains the formula =A1*A2, this command will select the cells A1 and A2.

- **Select successors**

  Selects all cells that refer to the current cell.

  Example: If any cell contains e.g. the formula =B5*2, this cell will be selected when you invoke the command in cell B5.

Detecting errors in calculations

FreeOffice: This feature is not included in **SoftMaker *FreeOffice***.

The **Tools > Formula Auditing** command also provides commands that can be used to find and analyze cells that return an error value.

Note: A cell returns an *error value* when the calculation it performs gives an illegal result. For example, if a cell tries to perform a division by zero, the error value #DIV/0 will be displayed in the cell. (For more information on error values, see the section “Error values”, page 407.)

To find and analyze such errors, use the following commands in the submenu of the **Tools > Formula Auditing** command:

- **Trace to error**

  If the current cell contains an error value, this command will display arrows to the cells that cause the error (if applicable).

Example: If a cell returns a #DIV/0 error value and you invoke the above command in this cell, arrows to the cells that perform the division by zero will appear.

- **Go to previous error**

  Jumps to the previous cell that contains an error value.

- **Go to next error**

  Jumps to the next cell that contains an error value.

Detecting invalid data in cells

FreeOffice: This feature is not included in **SoftMaker *FreeOffice***.

The **Tools > Formula Auditing** command also provides commands that can be used to find cells that contain invalid data.

Note: A cell contains invalid data if the **Format > Input Validation** command has been used to specify which values should be allowed in the cell, and the current cell content violates any of these rules.

To find such errors, use the following commands in the submenu of the **Tools > Formula Auditing** command:

- **Mark invalid data**

  This command paints a red circle around each cell (on the current worksheet) that contains an invalid value.

- **Remove invalid data marks**

  Removes all circles added with the above command (from the current worksheet).

- **Go to previous invalid cell**

  Jumps to the previous cell that contains an invalid value.

- **Go to next invalid cell**

  Jumps to the next cell that contains an invalid value.

Notes

- The marks for invalid data also appear in the printout.
- However, the marks are not stored in the document. Thus, when you save a document, close it, and open it again, all circles are removed.

Updating tables

The calculations in a document are kept up-to-date *automatically*. Whenever you change the content of a cell, PlanMaker recalculates the entire workbook.

So usually you don't have to care about this.

Deactivating automatic updating

As needed, you can turn the automatic updating of calculations off. This can be useful when, for example, you want to edit a complex workbook on a slow device.

For this purpose, change the setting of the **Recalculation** option in the document properties accordingly. See section "Document properties, Calculate property sheet" (page 370) for details.

When automatic updating is disabled, the calculations in the table have to be updated manually. You can use the following key strokes or menu commands for this:

- To update the calculations on *all* worksheets, hit the F9 key or choose the command **Tools > Recalculate** from the menu.
- To update the calculations only on the *current* worksheet, hit the Shift⇧ F9 key combination.

> ***Note:*** The latter can return outdated results in case the current worksheet contains calculations that refer to cells on other worksheets.

Updating external cell references

Please note that *external* cell references are *not* updated every time a workbook is updated.

(External cell references are cell references that refer to cells located in a different workbook – for example ='C:\My Folder\[My Workbook.pmd]Sheet1'!A1.)

By default, such cell references are updated automatically only when you open the document that contains them. Apart from that, you can update them manually anytime.

For detailed information on working with external references, see the section “External cell references”, beginning on page 402.

Inserting comments

Using the **Insert > Comment** menu command, you can attach a *comment* to the current cell, for example, “Don’t forget to update this value!”.

Adding comments to cells

To add a comment, select the cell to which you want the comment to be attached and choose **Insert > Comment**. A yellow box will appear allowing you to type in the applicable comment. When done typing, click outside the yellow box or press the Esc key.

Comments are stored in the document and will be saved with the worksheet data.

Viewing comments

Cells with an attached comment have a yellow triangle in their top-right corner. When you point with the mouse to such a cell, the comment will be displayed. To make it disappear, move the mouse outside the cell.

Editing comments

To modify a comment, go to the cell that contains the comment, choose **Insert > Comment**, and apply your changes.

> ***Hint:*** Alternatively, double-click the yellow triangle in the cell or press the keyboard shortcut ⇧ F2 to edit a comment.

Deleting comments

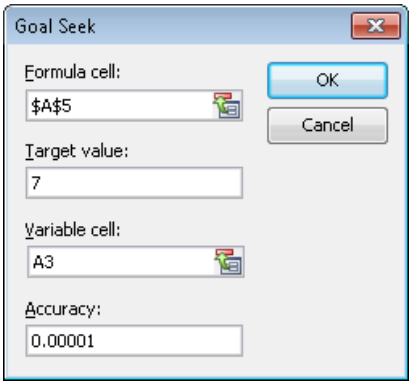
To remove a comment from a cell, go to the cell use the **Edit** > **Delete Special** menu command. Choosing the **Comments** option from the sub-menu will remove the comments from the selected cells.

Goal-seeking

The **Tools** > **Goal Seek** menu command can help you determine what value a certain portion of a calculation must meet to extract a pre-defined result from the calculation.

Note: This is done by mathematical approximation, and as with all approximation methods, the result cannot be guaranteed completely accurate.

Before executing this command, navigate to the cell that contains the calculation.



Upon executing the **Tools** > **Goal Seek** command, a dialog box will open with the following options:

- In **Formula cell**, enter the address of the cell that contains the formula. (Generally this is pre-filled by PlanMaker.)
- In **Target value**, enter the desired result of the calculation.
- In **Variable cell**, enter the cell address of the cell in which PlanMaker will test different values until the formula cell returns the desired result.

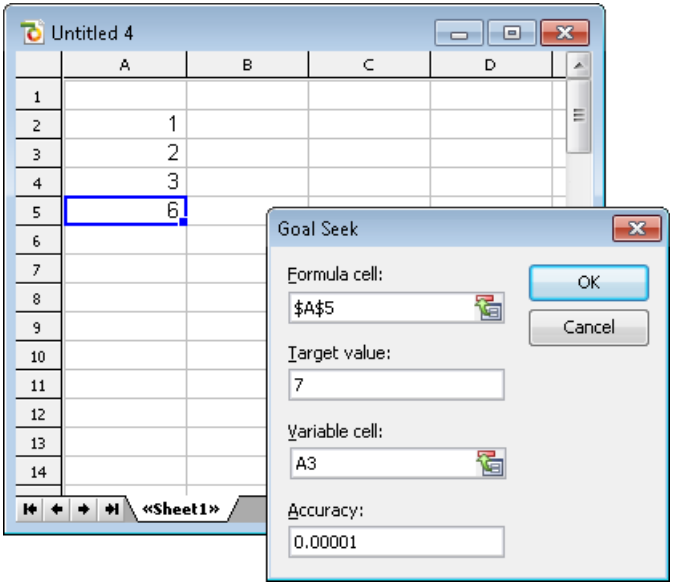
- In **Accuracy**, you can specify how close the result must match the desired target value. PlanMaker will attempt to approximate values until the difference to the target value is smaller than **Accuracy**.

If PlanMaker is unable to find a sufficiently close result after some seconds, it will determine that the value cannot be calculated through approximation and will abort the search.

An example

In the worksheet shown below, the SUM function has been used in cell A5 to add the numbers 1, 2, and 3 in the cells A2, A3, and A4. The result in cell A5 is 6. The intent is to determine to which value cell A3 must be changed so that the result of the addition is 7.

For this purpose, move the cell frame to the cell with the calculation whose result is to be modified; in this case, cell A5 with the SUM formula. Then, choose **Tools** > **Goal Seek**.



Notice in the screenshot how to fill in the values in the dialog box. When you click **OK**, PlanMaker starts the approximation process and displays the result 3 in a dialog box.

This means that the content of cell A3 must be changed from 2 to 3 so that the calculation has the result 7. If you click the **Use** button, the found result will be copied into cell A3.

Scenarios

FreeOffice: This feature is not included in **SoftMaker *FreeOffice***.

The **Tools > Scenarios** command allows you to create and display "scenarios".

Scenarios can be used to observe how the calculations in a worksheet change when the values in specific cells are altered. This enables you to perform all kinds of "what-if" analyses.

Example: What effect on the total costs of a loan will it have when the duration is varied between 24, 36, and 96 months?

In this section you will learn everything you need to know about scenarios. The following topics are covered:

- **Creating scenarios**
- **Viewing scenarios**
- **Managing scenarios**
- **Merging scenarios**
- **Creating a scenario summary**

Read the following pages for detailed information.

Creating scenarios

FreeOffice: This feature is not included in **SoftMaker *FreeOffice***.

To create scenarios, first create a worksheet with the calculations that you want to analyze.

Then, proceed as follows:

1. Invoke the command **Tools > Scenarios**.

2. Click the **Add** button.

3. Under **Scenario name**, enter a name that describes the purpose of the scenario.

4. Under **Changing cells**, enter the address of the cell whose content is to be altered in the scenario.

   You can also specify multiple cells by separating their addresses with colons – for example: A2;A4;A10. Cell ranges (like B5:B10) are allowed as well.

5. Click the **Next** button to continue.

6. Another dialog appears. There, enter the value that is to be inserted into the "changing cell" in this scenario.

   If multiple changing cells are defined in the scenario, the dialog displays a list of these cells. Click on each list entry and enter the desired value for it.

7. Click the **OK** button to confirm.

8. Repeat the steps 2. through 7. for all further scenarios that you want to add.

9. When done, close the dialog with the **Close** button.

The scenarios have now been created. To learn how to display them, please read the next section.

Options

In the dialog for adding scenarios, the following additional options are available:

- **Comment**

  Allows you to enter a comment for the scenario.

- **Prevent changes**

  When this option is enabled, the scenario can no longer be modified or deleted when you activate worksheet protection.

- **Hide**

  When this option is enabled, the scenario is no longer displayed in the list of scenarios when you activate worksheet protection.

Note: For general information on working with worksheet protection, see section "Sheet protection" (page 319).

Viewing scenarios

FreeOffice: This feature is not included in **SoftMaker *FreeOffice***.

When you have created scenarios, as described in the previous section, you can view them as follows:

1. Invoke the command **Tools > Scenarios**.
2. Select the desired scenario in the list.
3. Click on the **Show** button.

   Hint: Alternatively, simply double-click the scenario to display.

The chosen scenario will now be displayed.

By switching between the different scenarios that you have created, you can watch how the changes to the cells specified in the scenario affect the calculations referring to those cells.

Note: When you display a scenario, the values in the given "changing cells" are physically replaced by the values specified in the scenario. The old cell contents will be lost.

Managing scenarios

FreeOffice: This feature is not included in **SoftMaker *FreeOffice***.

The **Tools > Scenarios** command can also be used to manage the scenarios defined in the current worksheet.

For that purpose, the following buttons are available in the dialog for this command:

- **Add**

  Adds a new scenario.

  For details, see section "Creating scenarios" (page 106).

- **Delete**

  Deletes the scenario selected in the list.

- **Edit**

  Opens a dialog where you can edit the selected scenario. When you click on **Next**, another dialog appears where you can edit the values for the changing cells.

- **Merge**

  Merges scenarios that have been defined on other worksheets (or workbooks) into the current worksheet.

  For details, see the section “Merging scenarios” (page 109).

- **Summary**

  Creates a scenario summary for all scenarios, where you can directly compare the values in the changing cells as well as any “result cells” you define.

  For details, see the section “Creating a scenario summary” (page 110).

Merging scenarios

FreeOffice: This feature is not included in **SoftMaker *FreeOffice***.

The **Tools** > **Scenarios** command can also be used to merge scenarios that have been defined on other worksheets (or workbooks) into the current worksheet.

Note: When using this function, make sure that all workbooks whose scenarios are to be merged have exactly the same layout and use the same changing cells in their scenarios.

To merge scenarios, proceed as follows:

1. Open the workbooks that contain the scenarios to be merged.
2. Switch to the workbook and worksheet into which you want to merge the scenarios.
3. Invoke the command **Tools** > **Scenarios**.
4. Click the **Merge** button.
5. Select the workbook and worksheet that contains the scenario(s) to be merged.
6. Click **OK** to confirm.

7. Repeat the steps 4. through 6. for all further scenarios that you want to merge.

The selected scenarios are now available in the current worksheet.

Creating a scenario summary

FreeOffice: This feature is not included in **SoftMaker *FreeOffice***.

The **Tools** > **Scenarios** command can also be used to create a *scenario summary* for all scenarios defined in the current worksheet.

A scenario summary is a table listing all scenarios well arranged side by side. For each scenario, the "changing cells" are displayed alongside with any "result cells" that you specify (containing the calculations to be observed).

Scenario summaries allow you to compare the changing values and the results of scenarios at a glance.

To create a scenario summary, proceed as follows.

1. Create the desired scenarios (as described in the section "Creating scenarios").
2. Invoke the command **Tools** > **Scenarios**.
3. Click the **Summary** button.
4. Enter the address of the desired "result cell". That is the cell that contains the calculation that you want to observe in your scenarios.

   You can also specify multiple cells by separating their addresses with colons – for example: A2;A4;A10. Cell ranges (like B5:B10) are allowed as well.
5. Click **OK** to confirm.

PlanMaker will now create a new worksheet and generate the scenario summary on it.

Note: Scenario summaries are *not* updated automatically when cell contents or scenario settings are changed. To update a scenario summary manually, delete the worksheet containing the summary and create the summary once again.

Consolidating data

FreeOffice: This feature is not included in **SoftMaker *FreeOffice***.

The **Table > Data Consolidation** command allows you to evaluate data from multiple cell ranges, for example, in order to calculate their total sums.

To do so, first you specify one or more "source ranges" for the consolidation. This can be any cell ranges containing the data to evaluate. They can be located in just one worksheets altogether, or be spread over multiple worksheets or even multiple files. For the evaluation, several statistical functions are available to choose from: sum, minimum, average, etc.

The results of the consolidation are inserted – as *fixed* values – into the "target range" (which can be any cell range). Note: The results will *not* be updated when you modify the values in any of the source ranges. This command's main purpose is to evaluate the *current* state of data, not regarding any changes made to them later (useful e.g. for monthly reports).

In this section, you will learn everything you need to know about working with consolidations. The following topics are covered:

- **Consolidating data by position**

  In the simplest case, data is consolidated by its *position*, as follows:

  You have entered the data into e.g. three source ranges. They should be identical in size and structure. In all three of them, each piece of data should have the same (relative) position.

  When you let PlanMaker consolidate these cell ranges, it begins with calculating the sum of the first cell (top left) in the first range, second range, and third range. Then, the same is done with all other cells in each of the cell ranges.

- **Consolidating data by labels**

  Alternatively, this command can consolidate data by its *labels*, as follows:

  You have entered the data into one or more source ranges. All of them have one thing in common: a *label* has been added to each value, for example in the cell left of the value.

  When you start a consolidation with such source ranges and activate the option **Labels in left column**, PlanMaker calculates the sum of all values that have the *same* label on their left.

It doesn't matter in which order and how often each label appears within the source ranges. The size of the source ranges is irrelevant as well. PlanMaker solely uses the *labels* to determine which values to sum up.

- **Modifying and updating consolidations**

  Whenever you perform a consolidation with the **Table > Data Consolidation** command, PlanMaker remembers each setting that you made in the corresponding dialog (separately for each worksheet).

  This allows you to invoke this command again anytime, change some settings if required, and run the consolidation again.

For detailed information on these topics, see the pages that follow.

Consolidating data by position

FreeOffice: This feature is not included in **SoftMaker *FreeOffice***.

As mentioned in the introduction of the section "Consolidating data" (page 111), the **Table > Data Consolidation** command allows you to *consolidate* data from one or more cell ranges, for example, in order to calculate their total sums.

In the simplest case, data is consolidated by its *position*, as follows:

You have entered the data into e.g. three "source ranges". They should be identical in size and structure. In all three of them, each piece of data should have the same (relative) position.

When you let PlanMaker consolidate these cell ranges, it begins with calculating the sum of the first cell (top left) in the first range, second range, and third range. Then, the same is done with all other cells in each of the cell ranges.

Performing a consolidation by position

To consolidate data by position, proceed as follows:

1. Enter the data to evaluate into one or more cell ranges of exactly the same size and structure. (The order of the individual pieces of data must be identical in each range.)

   The cell ranges can be located in just one worksheets altogether, or be spread over multiple worksheets or even multiple files.

2. Invoke the **Table > Data Consolidation** command.

3. Click into the edit field below **Source ranges**. There, enter the address of the first cell range containing the data to evaluate. (See also notes below.)

   Hint: Alternatively, with the dialog still open, simply click into the table and select the cell range with your mouse.

4. Click on the **Add** button.

5. To add additional source ranges, repeat the steps **3.** through **4.**

6. At **Target range**, enter the address of the cell range where you want the results of the consolidation to be inserted.

   Hint: It is sufficient to specify just the address of the cell in the top left corner of the target range. PlanMaker will then determine its size automatically.

   Hint: You can simply click on the desired cell in the table to transfer its address into the dialog.

7. At **Function**, choose the arithmetic function to be used for the consolidation.

8. The options **Labels in ...** must be turned *off* for this kind of consolidation. (For more information, see section "Consolidating data by labels", page 114.)

9. Click on **Apply** to start the consolidation.

The data from the source ranges is now consolidated using the chosen arithmetic function. The result is inserted in the target range.

> ***Note:*** The result of a consolidation is inserted into the table as *fixed* numbers. These numbers will *not* be updated when you modify the values in any of the source ranges.
>
> Accordingly, this command's main purpose is to evaluate the *current* state of data, not regarding any changes made to them later (useful e.g. for monthly reports). See also section "Modifying and updating consolidations", page 116.

Notes on specifying the source ranges

In the **Table > Data Consolidation** dialog, the **Source ranges** control can be used to add a source range in the following ways:

- **Source range from the current worksheet**

  To add a cell range that is located in the current worksheet to the source ranges, simply enter its address or name.

  Example: D2:G5

  Hint: Alternatively, with the dialog still open, you can click into the table and select the cell range with your mouse.

- **Source range from a different worksheet**

  To add a cell range that is located in a different worksheet, enter its address preceded with the other worksheet's name and an exclamation mark.

  Example: Table3!D2:G5

  Hint: You can also select the cell range directly in the table with your mouse. Make sure that you have clicked on the desired worksheet in the worksheet register first.

- **Source range from a different document**

  To add a cell range that is located in a different document, enter its address the same way that external references are entered (see section "External cell references", page 402).

  Example: 'C:\My Folder\[My Workbook.pmd]Table3'!D2:G5

  Hint: You don't have to enter the first part of the address (folder and file name) by hand. When you click on the **Browse** button in the dialog, a file dialog appears, allowing you to choose the desired file.

Don't forget to click on the **Add** button every time you have completed entering the address of a source range.

Consolidating data by labels

FreeOffice: This feature is not included in **SoftMaker *FreeOffice***.

As mentioned in the introduction of the section "Consolidating data" (page 111), the **Table > Data Consolidation** command allows you to *consolidate* data from one or more cell ranges, for example, in order to calculate their total sums.

Apart from consolidating data by position (see previous section), data can also be consolidated by its *labels*, as follows:

You have entered the data into one or more “source ranges”. All of them have one thing in common: a *label* has been added to each value, for example into the cell left of the value.

When you start a consolidation with such source ranges and activate the option **Labels in left column**, PlanMaker calculates the sum of all values that have the *same* label on their left.

It doesn’t matter in which order and how often each label appears within the source ranges. The size of the source ranges is irrelevant as well. PlanMaker solely uses the *labels* to determine which values to sum up.

Performing a consolidation by labels

To consolidate data by its labels, proceed as follows:

1. Enter the data into one or more cell ranges. Size and structure of these cell ranges don’t matter. However, each of the values to be consolidated should have a label – either in the column left of them, or in the row on top of them.

   The cell ranges can be located in just one worksheets altogether, or be spread over multiple worksheets or even multiple files.

2. Invoke the **Table > Data Consolidation** command.

3. Click into the edit field below **Source ranges**. There, enter the address of the first cell range containing the data to evaluate. (See also notes at the end of the previous section.)

   Hint: Alternatively, with the dialog still open, simply click into the table and select the cell range with your mouse.

   > ***Important:*** Each source range must contain both the values itself *and* their labels. The labels must be placed in the leftmost column or in the top row.

4. Click on the **Add** button.

5. To add additional source ranges, repeat the steps **3.** through **4.**

6. At **Target range**, enter the address of the cell range where you want the results of the consolidation to be inserted.

   Hint: It is sufficient to specify just the address of the cell in the top left corner of the target range. PlanMaker will then determine its size automatically.

Hint: You can simply click on the desired cell in the table to transfer its address into the dialog.

7. At **Function**, choose the arithmetic function to be used for the consolidation.

8. Under **Options**, specify the position of the labels in the source ranges:

   Labels in left column: The labels are stored in the leftmost column of each source range. (In that case, the corresponding values must be stored directly at the right of the labels.)

   Labels in top row: The labels are stored in the top row of each source range. (In that case, the corresponding values must be stored directly below the labels.)

   You can also check both options, in case you want to evaluate source ranges that have labels in their leftmost column *and* in their top row.

   When you activate the **Sort labels** option, the results of the consolidation in the target range will be sorted according to the labels.

9. Click on **Apply** to start the consolidation.

The data from the source ranges is now consolidated using the chosen arithmetic function. The result is inserted in the target range.

> ***Note:*** The result of a consolidation is inserted into the table as *fixed* numbers. These numbers will *not* be updated when you modify the values in any of the source ranges.
>
> Accordingly, this command's main purpose is to evaluate the *current* state of data, not regarding any changes made to them later (useful e.g. for monthly reports). See also section "Modifying and updating consolidations", page 116.

Modifying and updating consolidations

> ***FreeOffice:*** This feature is not included in **SoftMaker *FreeOffice***.

Whenever you perform a consolidation with the **Table > Data Consolidation** command, PlanMaker remembers each setting that you made in the corresponding dialog (separately for each worksheet).

This allows you to invoke this command again anytime, change some settings if required, and run the consolidation again.

Hint: The settings are even stored in the document, so that PlanMaker remembers them the next time you open the document.

(There's one little limitation: In Excel files, the options **Target range** and **Sort labels** are not stored, since Excel doesn't support this.)

Modifying the settings of a consolidation and executing it again

To change the settings of a consolidation and then insert its updated results again, proceed as follows:

1. Invoke the **Table > Data Consolidation** command.
2. Modify the settings of the consolidation at will. You can even add new source ranges or remove existing ones.
3. Click on **Apply** to confirm your changes and update the results.

The consolidation in the current worksheet is now performed again, and its updated results are inserted into the target range. Existing data will be overwritten.

Updating the results of a consolidation

If you just want to update the results of a consolidation (without changing any settings), proceed as follows:

1. Invoke the **Table > Data Consolidation** command.
2. Click on **Apply** to confirm your changes and update the results.

The consolidation in the current worksheet is now performed again, with the same settings as before.

Freezing rows and columns

Use the **View > Freeze** command to "freeze" the first rows and/or columns of a worksheet on screen. As a result, the frozen rows or columns do not move when you scroll through the worksheet, but permanently stay in place.

This is particularly useful if you have put headings into rows or columns of a worksheet, and want these headers to stay visible all the time.

Activating freezing

To freeze rows or columns:

1. Determine which rows and/or columns to freeze:

   Freezing rows: To freeze the first rows of a worksheet, select the row *directly below* the rows you want to freeze.

   Freezing columns: To freeze the first columns of a worksheet, select the column *to the right* of these columns.

   Freezing rows and columns: To freeze both rows and columns, navigate to the cell *to the right and below* the area to be frozen.

2. Select the **View** > **Freeze** menu command.

The rows and/or columns are now frozen and remain in their original location when you scroll through the worksheet.

> ***Hint:*** You can also use the icon in the bottom-right corner of the document window to freeze rows or columns. Simply click this icon and then drag it to the desired location.

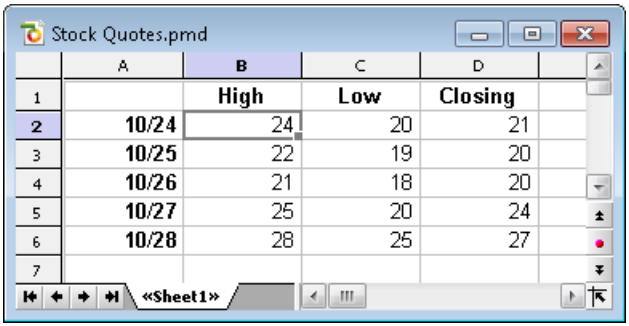
Deactivating freezing

To deactivate freezing, select the **View** > **Freeze** command once again. This removes the checkmark at the **View** > **Freeze** menu command, and the rows/columns are no longer frozen.

> ***Hint:*** A single mouse click the icon in the bottom-right corner of the document window will also turn off freezing.

An example

Assume you have the following worksheet:



Note that both the columns and the rows are labeled. To freeze the labels:

- The column labels (High, Low, etc.) are in the first row of the table.

  To freeze them, select the second row by clicking its row header (the button left of the row, labeled with “2”). Then select the **View > Freeze** command.

- The row labels (10/24, 10/25, etc.) are in the first column of the worksheet.

  To freeze them, select the second column (column B) by clicking on its column header (the button above the column, labeled with “B”). Then select the **View > Freeze** command.

- To freeze *both* rows and columns, click cell B2 and select the **View > Freeze** command.

To deactivate the freezing function, select the **View > Freeze** command again.

Inserting special characters

Some characters, such as the copyright sign, the degree sign, and the accented characters used in some languages, cannot be entered into text directly with the keyboard. Instead, PlanMaker’s built-in character table provides a convenient means for inserting symbols and other special characters.

You insert special characters as follows:

1. Invoke the command **Insert > Symbol**.

2. A dialog box appears, giving you access to every character that is available in the selected font. If you need a character from a different font, select it from the **Font** list at the top of the dialog.

3. A font's characters are organized into sets. If the character you want to use is not in the set immediately in view when you can jump to the set in which it is likely to be found by selecting it from the **Set** list. For example, you can select **Cyrillic** to view the font's Cyrillic characters (provided the font contains such characters).

   Note: Many fonts contain only a few of the character sets that are available. However, the fonts that are supplied with your operating system usually constitute a huge reservoir of characters. These include, for example, the Arial, Tahoma and Times New Roman fonts supplied with Windows.

4. Select the desired character by clicking on it. Then press the Enter key [↵] or click on the **Insert** button to insert the character into the text. Alternatively, you can double click on a character to select and immediately insert it.

5. You can repeat the above described procedure to insert additional characters, as required. When you are finished, exit the dialog with the **Close** button.

Tip for Windows users: Most Windows versions come with two symbol fonts (*Symbol* and *Wingdings)* that include numerous useful symbols (phone symbols, bullets, etc.) and special characters.

Using keyboard shortcuts

If you need to insert a special character frequently, you can always give it a keyboard shortcut. The advantage of doing that is that you can then apply the character very quickly, using a single key press.

To assign a keyboard shortcut to a special character, proceed as follows:

1. Invoke the command **Insert** > **Symbol**.

2. Select the character that you want to assign a keyboard shortcut to.

3. Click on the **Change** button next to the **Shortcut key** option.

4. Another dialog opens. There, press the desired keyboard shortcut in the **Please press accelerator** input box.

   We recommend using key combinations that include the keys [Ctrl] *and* [Shift⇧], since these are normally not assigned.

   Hint: If you make a typing mistake, you can always press the backspace key [←] to remove the keyboard shortcut you entered.

5. ***Don't forget:*** Click on **Add** to assign this shortcut to the character.

6. Confirm with **OK** and exit the main dialog box with **Close**.

From now on, you can insert this special character into text by pressing the selected key combination.

> ***Note:*** The keyboard shortcut remembers only the selected character; the selected font is *not* remembered.

For more information on changing the keyboard layout, see the section "Customizing keyboard shortcuts" (starting on page 384). Hint: The keyboard shortcuts for special character can be edited by opening the dialog for editing the keyboard mapping and choosing the entry **Characters** in the left list.

Formatting worksheets

You can apply a variety of fonts, colors, shades, borders, and other format options to improve the appearance and readability of worksheets.

This chapter covers the format options available in PlanMaker, as follows:

- **Cell size**

  To change the size of cells, either use the commands in the sub-menu **Table > Row** (or **Table > Column**), or simply drag the row header (or column header) using the mouse.

- **Number format**

  PlanMaker can display numbers in many different number formats: as plain numbers, rounded to 2 decimal places, as a percentage, with a currency symbol, as a date or time, in a user-defined format, etc. Use the **Format > Cell** command to select the appropriate number format.

- **Borders and lines**

  The **Format > Borders** command lets you add borders and lines to cells.

- **Shading**

  The **Format > Shading** command lets you apply a variety of colors, shades, and patterns to the background of cells.

- **Alignment**

  The **Format > Cell** command lets you change the cell format, including the alignment (left-aligned, centered, right-aligned, etc.) of the cell contents.

- **Protection**

  Format > Cell can also be used to protect cells against changes (see also section “Sheet protection”, page 319).

- **Character format**

  The **Format > Character** command lets you modify the character format of cells (font, font size, font style, font color, etc.).

Paragraph format (text frames only)

The **Format > Paragraph** command is available only in *text frames*. It lets you modify the paragraph format (spacing, indents, etc.) of the included text.

Character styles

You can create character styles that store your favorite character formats. Character styles can be applied to cells at the push of a button.

Cell styles

Additionally, you can create cell styles that store your favorite character formats (font etc.) *and* cell formats (number format, borders, shading, alignment, and protection settings).

Document templates

PlanMaker even lets you create your own document templates. Document templates can include your own character styles, your own cell styles, and any kind of content.

AutoFormat

The **Format > AutoFormat** command allows you to format a range of cells by applying pre-defined format schemes.

Conditional formatting

The **Format > Conditional formatting** command allows you to apply conditional formattings to cells (for example, “Paint this cell in red, if it contains a value greater than 1000”).

Input validation

When you apply input validation to cells, only the specified types of values (e.g. only numbers) within the specified limits (e.g. only values between 10 and 20) will be considered valid in these cells.

Transfer formatting

Using the **Format > Transfer formatting** command, you can transfer the formatting of one cell to other cells.

Page setup

The page setup command allows the user to set print options. It includes settings such as paper size and orientation, margins, headers and footers, and other options. Use **File > Page Setup** to change these settings.

See the following pages for detailed information.

Cell size

On the next pages you will learn how to change the size of cells.

> ***Note:*** If a cell displays hashes (e.g., ########) instead of the cell content, the column is too narrow to display the cell content. If this happens, simply widen the corresponding column.

Changing cell sizes using the mouse

Across the top of the table are buttons labeled A, B, C, etc. To the left of the table are buttons labeled 1, 2, 3, etc.

These so-called *column headers* and *row headers* allow you to change the column width or row height using the mouse:

- To change the *width* of a column, move the mouse pointer to the right border of the corresponding column header. The mouse pointer will change to a double arrow. Press and hold the left mouse button and move the mouse to change the column width.
- To change the *height* of a row, use the row headers in the same manner.

Changing cell sizes using menu commands

Another way to change the size of rows/columns is by using the menu commands **Table > Column** and **Table > Row**.

If you choose one of these menu commands, a sub-menu with the following commands will appear:

Width (or Height)

Lets you enter a numerical value for the column width (or row height, respectively).

Optimum Width (or Optimum Height)

The **Table** > **Column** > **Optimum Width** command sets the width of a column automatically, corresponding to the space required by the cell contents.

The command can be used in different ways:

- When you select an *entire column* and invoke this command, the width of the column will be adapted to the cell that needs the most space.

  Hint: The same can be achieved much faster: by simply double-clicking on the column header.

- When you select *some cells* within a column and invoke this command, only these cells will be used for the calculation of the optimum width.
- When you select *nothing* and invoke this command, the column width will be adapted to the content of the current cell.

The height of rows can be changed the same way, using the command **Table** > **Row** > **Optimum Height**.

Hiding rows or columns

You can *hide* rows/columns, so they become invisible.

Note: If *sheet protection* is activated for a worksheet, users will not be able to unhide hidden row/columns in the worksheet. See also section "Sheet protection", page 319.

To hide rows/columns:

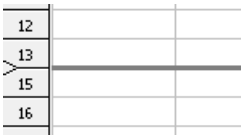
Using the row header to hide rows

The quickest way to hide rows is using *row headers*. (Row headers are the buttons labeled with the row number, located left of the worksheet.)

For example, to hide row 14:

1. With the mouse, point to the lower border of the row header labeled "14".
2. Press and hold the mouse button, and drag the border upwards until the row disappears.

Row 14 is now hidden. Instead of a row header, a small triangle is displayed:



To make row 14 visible again, click this triangle.

Using the Table > Row command to hide rows

Alternatively, rows can be hidden with the **Table** > **Row** command:

1. Select the row(s) you want to hide.
2. Choose **Table** > **Row** > **Hide**.

The selected rows will be hidden.

To make them reappear:

1. Select any cell range that includes the hidden rows.
2. Choose **Table** > **Row** > **Show**.

Hiding columns

Hiding and unhiding columns works just the same way, except that you use the *column* headers or the commands **Table** > ***Column*** > **Hide** and **Table** > ***Column*** > **Show**, accordingly.

Number format

To change the *number format* of cells, choose **Format** > **Cell** (keyboard shortcut: Ctrl 1), and switch to the **Number Format** property sheet.

The *number format* determines how numbers are represented in these cells. For example, if you enter 12.3456 in a cell and then apply one of the **Currency** number formats to it, it will be displayed with the chosen currency symbol and rounded to two decimal places (for example, as $12.35).

Note: When you apply a number format that has a fixed number of decimal places, the number will only be *displayed* as a rounded value, but still keeps *all* of its decimal places. To actually round numbers, use arithmetic functions like the ROUND function.

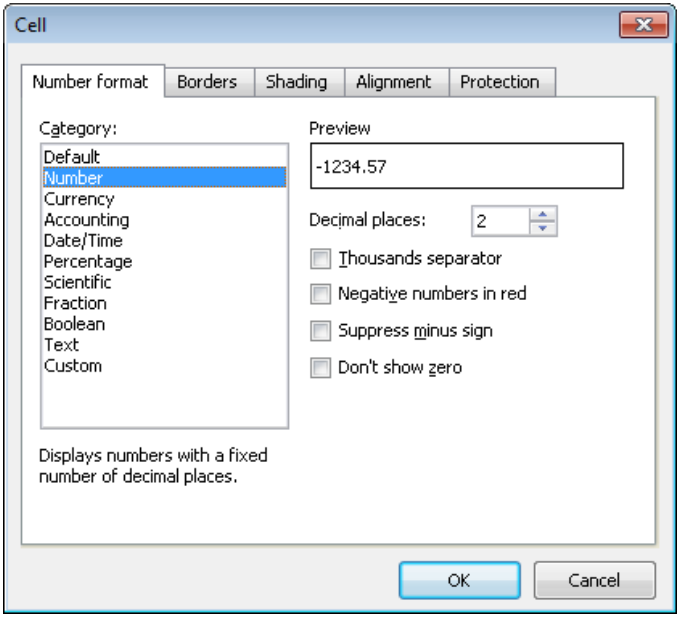
To change the number format of cells:

1. Select the cells whose number format you want to change.

   To format just a *single* cell, navigate to it (without selecting).

2. Choose **Format** > **Cell**.

3. Switch to the **Number format** property sheet.



4. Select the desired number format.

5. Click **OK** to confirm.

Options available in the dialog box:

- **Category**

  Here you can select the desired number format. See section “List of all number formats available” below.

- **Format**

  Some number formats have several subtypes to choose from. Select the desired subtype in this list.

- **Decimal places**

  Some formats allow you to specify the number of decimal places to be displayed.

  Note: Numbers will only be *displayed* rounded, but they actually keep *all* of their decimal places.

- **Thousands separator**

  Some formats allow you to specify if numbers should be displayed with thousands separators (e.g., 5,000,000) or without (e.g., 5000000).

- **Negative numbers in red**

  Some formats allow you to specify if negative numbers should be displayed in red color.

- **Suppress minus sign**

  Some formats allow you to specify if the minus sign of negative numbers should be suppressed.

- **Don't show zero**

  Some formats allow you to specify if the content of cells containing the number zero should be suppressed.

When you confirm with **OK**, the numbers in the selected cells will be displayed in the chosen formatting.

List of all number formats available

As described in the previous section, you can use the **Format > Cell** command to choose the *number format* of a cell, allowing you to specify exactly how numbers entered in this cell should look like.

The following number formats are available:

Default

Displays the number just the way it was entered.

More precisely: The number is displayed right-aligned. Apart from that, no further reformatting takes places. Right of the decimal point, all decimal places that have been entered are shown (with a maximum of five decimal places).

Example: 42

Number

Same as the **Default** number format, except that you can specify several formatting options (see previous section). For example, you can set the number of decimal places to be displayed.

Example: 42.00

> **Note:** When you apply a number format that has a fixed number of decimal places, the number will only be *displayed* as a rounded value, but still keeps *all* of its decimal places. To actually round numbers, use arithmetic functions like the ROUND function.

Currency

Displays the number with a currency symbol.

To specify the desired currency symbol, select it in the **Currency** list box.

Example: $42.00

> ***Hint:*** This number format can also be applied by clicking the icon in PlanMaker's Formatting toolbar.

Accounting

Same as **Currency** (see above), except that numbers are displayed in accounting format (with minus signs and currency symbols aligned).

Example: -$ 42.00

Date/Time

Displays the number as date and/or time.

Depending on your system regional settings, various different date and time formats to choose from are offered in the **Format** list box.

Percentage

Displays the number as a percentage.

Apart from adding a percent sign (%) to the number, the number will also be displayed multiplied by 100. For example, 0.5 will be displayed as 50%.

Example: 42%

> ***Hint:*** This number format can also be applied by clicking the icon in PlanMaker's Formatting toolbar.

Scientific

Displays the number in scientific notation.

Example: 5E+03 (equals $5 * 10^{3}$, which is 5000)

4.2E-01 (equals $4.2 * 10^{-1}$, which is 0.42)

Fraction

Displays the number as a fraction.

There are several different formats available.

> ***Note:*** The number will be rounded, if necessary. For example, if you choose the format **As Halves**, and enter the number 2.4, it will be displayed as 2 1/2.

Example: 2 1/2

5 9/10

Boolean

Displays the number as a Boolean value (logical value).

If the number is zero, FALSE will be displayed. If it is *any* other value, TRUE will be displayed.

Example: TRUE

FALSE

Text

This number format presents a special case: It forces PlanMaker to treat a number as *text*, not as a number.

The number will be left-aligned and displayed exactly the way it was entered. As opposed to any other number format, numbers will *not* be reformatted on input by any means. Leading zeros will not be removed; dates will not be reformatted automatically, etc.

This can be useful, for example, when entering numbers with leading zeros (e.g. serial numbers). Normally, when you enter a number like "00043682" into a cell, PlanMaker will automatically remove the three leading zeros. If you apply the **Text** number format to the cell, the leading zeros will persist.

Warning: For compatibility reasons, this number format has been implemented exactly the same way as in Microsoft Excel. Therefore, it will lead to the same unexpected results in calculations:

When you apply this format e.g. to the cells A1 and A2, the result of the calculation A1+A2 will be the sum of these two cells. However, the calculation SUM (A1:A2) will return zero. The reason is that, for most arithmetic functions, text always has the "value" zero!

Custom

Displays the number in a user-defined format.

For details, see the next section.

Working with user-defined number formats

Whenever required, you can also define and apply *your own* number formats with the **Format > Cell** command.

Defining and applying a new number format

To create a new user-defined number format, proceed as follows:

1. Select the table cells that you want to apply the new number format to.
2. Invoke the **Format > Cell** command, and switch to the **Number Format** tab.
3. In the **Category** list, choose **Custom**.
4. Click into the edit control below **Format**.
5. Enter a text string that specifies the desired number format. For a list of available format codes, see the next section.
6. Click on **OK**.

The number format is created (and also applied to the currently selected cells).

Hint: If you want to create a new number format that is similar to one of the built-in number formats, the following tip can save you a lot of work: After opening the dialog, first click on the desired built-in number format in the **Categories** list. This will transfer the corresponding format codes into the edit control for the format codes (step 5.). All you have to do is make your desired changes, and you're done.

Applying a user-defined number format

Once created, a user-defined number format can be applied to as many other cells as you like. Proceed as follows:

1. Select the desired table cells.
2. Invoke the **Format > Cell** command, and switch to the **Number Format** tab.
3. In the **Category** list, choose **Custom**.
4. In the **Format** list, all user-defined number formats for the current document are displayed. Choose the desired format.
5. Click on **OK**.

The number format will now be applied to the selected cells.

Deleting a user-defined number format

If there's a number format that you don't want to keep anymore, you can delete it anytime. Proceed as follows:

1. Invoke the **Format > Cell** command, and switch to the **Number Format** tab.
2. In the **Category** list, choose **Custom**.
3. In the **Format** list, choose the format to be deleted.
4. Click on the **Delete** button.
5. Close the dialog (preferably using the **Cancel** button, since clicking **OK** would apply the currently selected format to the current cell).

Note: The **Delete** button is available only for user-defined number formats. You cannot delete any of the built-in number formats.

Structure of a user-defined format

To create a new number format, proceed as described in the previous section. A dialog box will appear, allowing you to enter a text string to specify the structure of the new number format.

This text string can consist of the following characters (called *format codes*):

Format codes for numbers and text

The following format codes can be applied to any kinds of numbers and text:

Character	Result
#	Display a digit of the number or nothing (if no digit exists).
	Example: #.## applied to the number 1.2 returns 1.2.
0	Display a digit of the number or zero (if no digit exists).
	Example: #.00 applied to the number 1.2 returns 1.20.
?	Display a digit of the number or a blank (if no digit exists).

Example: #.?? applied to the number 1.2 returns 1.2 (with a blank behind the 2).

Note: If *any* of the above codes are placed to the *left* of the decimal point, *all* digits left of the decimal point will be displayed. Example: #.## applied to the number 123.456 will not return 3.456, but 123.456.

. (period) — Display a decimal point at this position (or a decimal comma, depending on your system's regional settings).

, (comma) — Display the number with thousands separators.

Note: The above two codes can be used at arbitrary position. Example: ,# applied to the number 5000000 returns 5,000,000.

% — Display a percent sign at this position and multiply the number by 100.

Example: #% applied to the number 0.5 returns 50%.

+ — Display the number's sign at this position (even if it is positive).

Example: +#.# applied to the number 1.2 returns +1.2.

- — Display the number's sign at this position (only if it is negative).

Example 1: -#.# applied to the number 1.2 returns 1.2.

Example 2: -#.# applied to the number -1.2 returns -1.2.

Note: If you do not use a + or - format code, signs are displayed regardless (in front of the number and only if it is negative).

E+ or **e+** — Display the number in *scientific notation*.

Example: #E+00 applied to the number 5000 returns 5E+03.

Note: *Engineering notation* (using only exponents that can be divided by 3) is also available. For example, #00E+00 applied to the number 50000 does not return 5E+04 but 50E+03.

E- or **e-** — Same as E+, except that the exponent's sign is only displayed if it is negative.

Example 1: #E-00 applied to the number 5000 returns 5E03.

Example 2: #E-00 applied to the number 0.005 returns 5E-03.

\ — Do not interpret the following character, just display it.

Example: To output a # character, use the format code \# (since the # would otherwise be interpreted as a format code).

"Text"	Do not interpret the text between the quotation marks, just display it. Example: "MyText" returns MyText.

Format codes for dates/times

For dates/times, *only* the following format codes are valid:

> ***Note:*** The format codes listed below are **case-sensitive!**

Character	Result
D	Day (1-31)
DD	Day, 2 digits (01-31)
DDD	Name of day, abbreviated (Su-Mo)
DDDD	Name of day (Sunday-Monday)
M	Month (1-12)
MM	Month, 2 digits (01-12)
MMM	Name of month, abbreviated (Jan-Dec)
MMMM	Name of month (January-December)
MMMMM	Name of month, first letter only (J for January to D for December)
YY	Year, 2 digits (e.g., 12)
YYYY	Year, 4 digits (e.g., 2012)
Q	Quarter (1-4)
QQ	The word “quarter” in the language set in the system’s regional settings
h	Hour (0-23)
hh	Hour, 2 digits (00-23)
m	Minute (0-59)
mm	Minute, 2 digits (00-59)
s	Second (0-59)
ss	Second, 2 digits (00-59)

0	Tenths of a second (e.g., hh:mm:ss,0)
00	Hundredths of a second (e.g., hh:mm:ss,00)
000	Thousandths of a second (e.g., hh:mm:ss,000)
AM/PM	Display times in 12-hour format (with *AM* or *PM*). Has to be placed at the *end* of the format codes!
am/pm	Same as AM/PM, but with *am* or *pm*.
a/p	Same as AM/PM, but with *a* or *p*.
[h]	Number of hours in "endless" time format*
[m]	Number of minutes in "endless" time format*
[mm]	Same as [m], but with 2 digits.*
[s]	Number of seconds in "endless" time format*
[ss]	Same as [s], but with 2 digits.*

* The "endless" time format distinguishes itself from other time formats by its feature of not setting the time back to 0:00 after 24 hours. This is useful for calculations with times. For example, when you add 20:00 and 5:00, the result would normally be 1:00. But if you format this calculation as [h]:mm, the result will be 25:00.

The "endless" time format also supports negative time values. For example, 7:00 - 10:00 does not result in 21:00, but in -3:00.

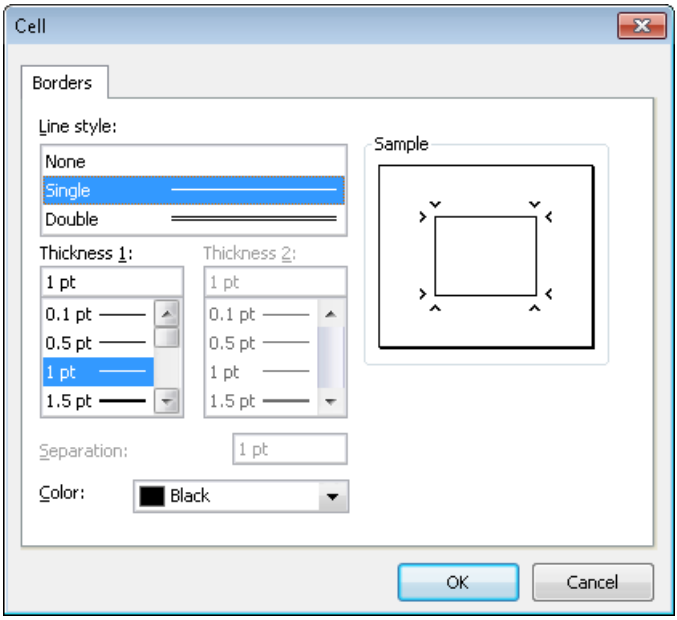
Additionally, you can use the "endless" time format to convert times to minutes or seconds. For example, when you format 02:00:00 as [mm]:ss, 120:00 will be displayed. If you format it as [s], 7200 (the number of seconds) will be displayed.

Borders and lines

To add border lines to cells, choose **Format > Cell** and switch to the **Borders** property sheet.

Alternatively, use the **Format > Borders** command, which is doing exactly the same.

You can add border lines at the left, right, top or bottom of cells, and you can create borders that completely surround cells.



To add borders to cells, you do the following:

1. Select the desired cells.
2. Invoke the command **Format > Borders**.
3. Select a **Line Style** (single or double lines).

   If desired, change the color and width of the lines.

   With double lines, you can change the width of the inner line with **Thickness 1**, and the width of the outer line with **Thickness 2**. The **Separation** option allows you to change the distance between the lines.
4. Click **OK** to confirm.

This is the way complete borders are added to cells. Read on to learn how to add individual border lines, and how to edit existing borders.

Adding individual border lines

As was noted in the introduction, cells can have individual left, right, top or bottom border lines as well as surrounding borders.

To add individual border lines a cell, simply select the lines you want to be applied in the dialog's **Sample** field *before* you set the line style. By default, all lines in the Sample field are selected when you open the dialog. To deselect a line, click on it in the Sample field. When you click it once more, it gets selected again.

> ***Hint:*** You can deselect *all* lines at once by clicking into the rectangle between the lines in the Sample field. If you click there once more, all lines get selected again.

After you have selected the lines of interest, choose the desired line style, thickness, etc. Your change will be applied only to the lines that are currently selected in the Sample field.

Changing or removing existing border lines

To change the thickness, style or color of an existing border line, invoke the **Format > Borders** dialog again. First, select in the **Sample** field the line or lines you want to modify (as described above). Then, make the desired changes.

To remove lines, choose the option **None** from the **Line style** list.

Tip: Using the Formatting toolbar

Alternatively, you can use the icon at the very right of the Formatting toolbar to apply border lines.

Proceed as follows:

1. Select the desired cells.
2. Click the *arrow* right of the icon (*not* the icon itself). A menu with several predefined border styles will open. Click on the desired style.

The border lines are now applied.

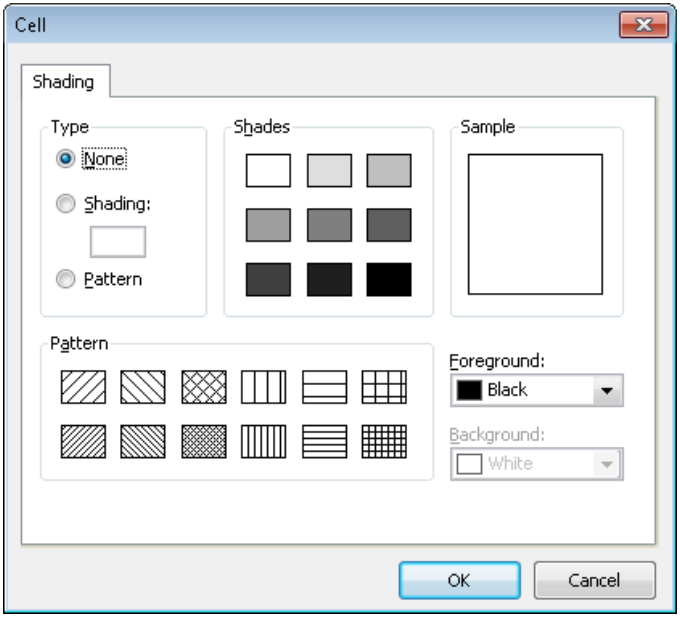
> ***Tip:*** If you want to apply the same border style to other cell ranges thereafter, simply select them and click the icon itself (not the arrow). PlanMaker will apply the last chosen border style once more.

Shading

To apply a shade or fill pattern to cells, choose **Format > Cell** and switch to the **Shading** property sheet.

Alternatively, use the **Format > Shading** command, which does exactly the same.

To change a single cell, navigate to it without selecting. To change multiple cells, select them before executing this command.



Applying a shade

To apply a color shade, click one of the pre-defined shades in the **Shades** list, or enter a custom shade value from 0 (no shade) to 100 (solid color).

To change the color of the shade, select the desired color in the **Foreground** drop-down list. (For information on adding new colors to color lists, see section “Document properties, Colors property sheet”, page 363).

Applying a fill pattern

To apply a fill pattern, click one of the pre-defined patterns in the **Pattern** list.

To change the colors of the pattern, select the desired colors in the **Foreground** and **Background** drop-down list. (For information on adding new colors to

color lists, see section “Document properties, Colors property sheet”, page 363).

- **Removing shades or pattern**

  To remove any shade or pattern applied, select **None** in the **Type** list.

Tip: Using the Formatting toolbar

Alternatively, you can use the icon at the very right of the Formatting toolbar to apply color shades.

Proceed as follows:

1. Select the desired cells.
2. Click the *arrow* right of the icon (*not* the icon itself). A menu with pre-defined colors will open. Click on the desired color.

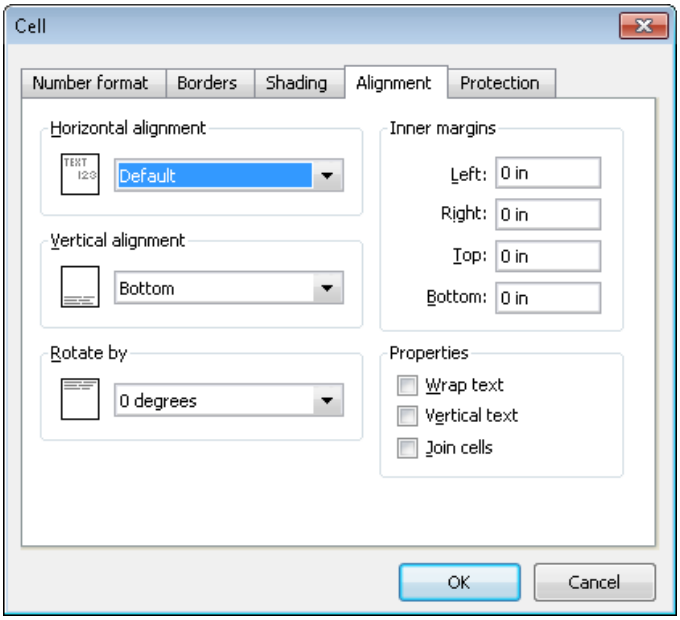
The shade is now applied.

> ***Tip:*** If you want to apply the same shading color to other cell ranges thereafter, simply select them and click the icon itself (not the arrow). PlanMaker will apply the last chosen color once more.

Alignment

To change the alignment of cells, choose **Format** > **Cell** and switch to the **Alignment** property sheet.

To change a single cell, navigate to it without selecting. To change multiple cells, select them before executing this command.



Options available:

Horizontal alignment

Determines the horizontal alignment of the cell content within the cell boundaries:

Default: Text left-aligned, numbers right-aligned, and logical values and error values centered

Left: Left-aligned

Right: Right-aligned

Centered: Centered

Justified: Fully justified (evenly distributed between left and right cell border). This affects only cells that contain multiple lines of content and have the **Wrap text** option (see below) activated.

Center across columns: Content of *one* cell centered across *multiple* columns. Select the cell with the content and an arbitrary number of cells right of it beforehand (these cells have to be empty!).

Vertical alignment

Determines the vertical alignment of the cell content within the cell boundaries:

Bottom: Aligned to the bottom

Centered: Aligned to the center

Top: Aligned to the top

Justified: Vertically justified (evenly distributed between top and bottom cell border). Only affects cells that contain multiple lines of content and have the **Wrap text** option (see below) activated.

Rotate by...

Rotates the cell content by the specified angle.

Text direction

For text in *Arabic* script, you can change the text direction of the cell to right-to-left here.

Tipp: If you choose the default setting **Context sensitive**, PlanMaker determines the correct writing direction automatically.

See also chapter “Working with Arabic text” (page 335).

Inner margins

Lets you modify the inner margins of cells.

Wrap text

If this option is checked, the cell content will automatically be wrapped to multiple lines, if it does not fit into a single line.

Hint: To wrap parts of the cell content to the next line manually, press Ctrl ↵.

By default, this option is switched off, so that text that does not fit is continued right of the cell.

Vertical text

If this option is checked, the cell content will be displayed vertically (top to bottom instead of left to right).

Join cells

Lets you join a cell with neighboring cells. Joined cells are treated as if they were a single cell. To join cells, select them and activate this option.

Note: When cells are joined, except for the upper left corner cell of the selected range, cell content is automatically deleted.

To disconnect joined cells, select them and turn this option off.

Protection

The **Protection** property sheet in the **Format > Cell** dialog can be used to prevent cells from being changed, to hide the cell content or formula, or to disable printing.

For more information, see section “Sheet protection”, page 319.

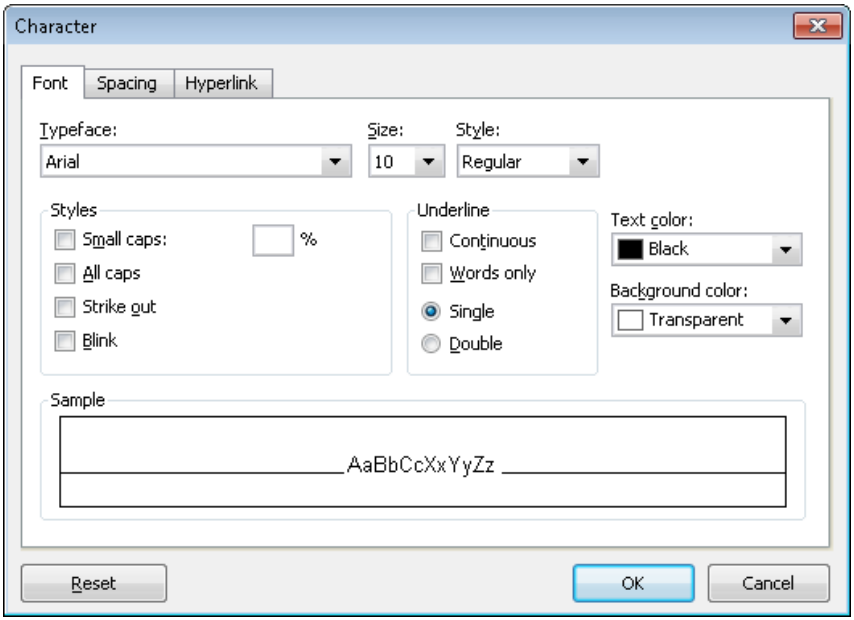
Character format

Use **Format > Character** (keyboard shortcut: Ctrl 2) to change the character format of text. The *character format* includes settings like font, font size, font style (bold, italic, etc.), font color, etc.

Before invoking this command, you can *select* the text that you want to change, as follows:

- To change the character format of a single table cell, simply navigate to it – without selecting.
- To change multiple cells, select them before executing this command.
- If you press F2 and select just parts of the cell content, only the selected characters will be changed.

The **Format > Character** dialog box provides several property sheets. You can switch between them by clicking on one of the property sheet tabs along the top of the dialog.



The individual property sheets contain the following format options:

- **Font** property sheet

  Typeface and font size, text style (bold, italic, etc.), text color

- **Spacing** property sheet

  Superscript and subscript, letter spacing and character pitch, kerning

- **Hyperlink** property sheet

  For inserting and editing hyperlinks (e.g., to web pages). You will find information about this topic in section “Working with links”, page 305.

See the following pages for detailed information.

Typeface and font size

To change the typeface and/or font size of text, do the following:

1. Select the cells or the text segment to be modified.
2. Invoke the command **Format > Character**.
3. Switch to the **Font** property sheet.

Now you can set the desired typeface and font size:

- To change the *typeface*, open the **Typeface** dropdown list box by clicking on the small arrow to its right and select the desired typeface.
- The most useful *font sizes* are presented in the **Size** dropdown list box. You can select one of these sizes or enter a different size manually. Type sizes can be given with a precision of a tenth of a point – thus a size such as 12.7 is allowed.

Using the Formatting toolbar

You can also change the typeface and font size with the Formatting toolbar.

This is done by selecting the text you want to format, opening the dropdown list box containing typefaces, or the one containing type sizes, and selecting the desired format from the list with a mouse click.

Text styles

Text styles are formattings like bold, italic, underline, etc.

To apply font styles:

1. Select the cells or the text segment to be modified.
2. Invoke the command **Format > Character**.
3. Switch to the **Font** property sheet.
4. Check a text style, or any combination of text styles, from the dialog.

Using the Formatting toolbar

The most commonly used text styles can also be applied using the Formatting toolbar.

Click on the icon for the text style you want to apply or remove: The **B** stands for bold, the *I* for italic, and the U for single underline.

> ***Tip:*** There are also keyboard shortcuts for the application of these text styles: Ctrl B for bold, Ctrl I for italic, and Ctrl U for underline.

Text color

You can specify the color for both text itself and for its background.

To do this:

1. Select the cells or the text segment to be modified.
2. Invoke the command **Format > Character**.
3. Switch to the **Font** property sheet.

You can now select the desired color for the text from the **Text color** list box.

> ***Tip:*** The text color can also be changed using the color list in the Formatting toolbar. Click on this list, which is situated to the right of the size list, and select the desired color.

You can also specify the background color of text using the **Background color** list box. By default, text has a **transparent** background. If you select a color for the background, the text will appear against this color – similar to being marked with a highlighter.

> ***Note:*** Changing the background color of cell contents does *not* shade the complete cell but only the content. To shade *whole* cells, use the **Format > Shading** command.

If none of the existing colors suits you, you can always compose your own colors. To do this, click on "Define color...", the last item in the color list (see section "Document properties, Colors property sheet", page 363.

Superscript and subscript

To activate superscript (e.g., r^2) or subscript (e.g., H_20) for characters:

1. Select the cells or the text segment to be modified.

   If you press F2 and select just parts of the cell content, only the selected characters are changed.

2. Invoke the command **Format > Character**.

3. Switch to the **Spacing** property sheet.

4. Check the **Superscript** or the **Subscript** checkbox.

If you wish, you can specify the amount of offset above or below the baseline by entering a percentage in the **Position** edit box. In addition, you can specify the size reduction to be applied to the superscripted or subscripted text by entering a percentage in the **Size** edit box. For example, if you want a subscript to be the same size as adjoining normal text, you can specify 100 percent.

> ***Tip:*** Keyboard shortcuts are available for super- and subscripts as follows: Ctrl Shift⇧ Num+ (the plus key located on the numeric pad) for superscript, Ctrl Shift⇧ Num- for subscript and Ctrl Shift⇧ Num* to remove a super- or subscript.

Letter spacing and character pitch

To change the spacing or the pitch of text:

1. Select the cells or the text segment to be modified.

2. Invoke the command **Format > Character**.

3. Switch to the **Spacing** property sheet.

4. Enter the desired values at **Spacing between characters** or **Character pitch**.

Spacing is the horizontal distance between characters. If you make the value smaller than 100%, the characters appear closer together than normal, and if you make the value larger than 100%, the characters appear farther apart.

If you change the **character pitch**, the width of the characters themselves, rather than the spacing between them, is affected.

> ***Note:*** For some printers, changing the pitch of characters formatted in one of the printer's *internal* fonts is ignored in the printout.

Kerning

Certain pairs of letters look better when the spacing between these letters is reduced or increased a bit. Such adjustments, called *Kerning*, can be made automatically by PlanMaker.

A picture illustrates best what kerning is about:

Top: without kerning, bottom: with kerning

The upper half of the picture (without kerning) shows that the letters "V" and "A" are too far apart when no kerning is applied. In the lower half (with kerning), this has been corrected.

To activate kerning, select the cells (or the text segment) of interest, choose the **Format > Character** command, switch to the **Spacing** property sheet and activate the option **Use kerning**.

PlanMaker now automatically adjusts the spacing between all letters where this would improve the text appearance.

> ***Note:*** Not all typefaces provide *kerning information* in their font data, which is required to determine which letter pairs to adjust and how. Almost all font collections published by **SoftMaker** include extensive kerning information.

Removing character formatting

In case you need to remove character formatting, PlanMaker lets you do this easily.

Proceed as follows:

1. Select the cells or the text segment to be modified.
2. Invoke the command **Format > Standard** or press the corresponding keyboard shortcut: Ctrl Space.

PlanMaker now removes any character formatting that you have applied using either the **Format > Character** command or the Formatting toolbar.

Paragraph format (text frames only)

Use the **Format > Paragraph** command to change the paragraph format of text placed in a *text frame*.

> ***Note:*** This command is available *only* in text frames. To learn more about text frames, see section "Text frames", page 209.

The paragraph format includes the following settings:

- **Paragraph indents**
- **Line spacing**
- **Paragraph alignment**
- **Hyphenation settings**
- **Spacing above/below a paragraph**

For detailed information, see the pages that follow.

Paragraph indents (text frames only)

> ***Note:*** Paragraph indents can be applied only to text placed in a *text frame*. To indent *cell contents*, modify the cell's inner margins using the **Format > Cell** dialog (**Alignment** property sheet).

To indent text in a text frame, choose **Format > Paragraph**. There are independent settings for **Left**, **Right**, and **First**. The first line indent can be either positive or negative, and is used as an offset from the left indent of the paragraph.

Line spacing (text frames only)

> ***Note:*** Line spacing can be applied only to text placed in a *text frame*.

Line spacing is the distance between lines of a paragraph.

To change the line spacing of text in a text frame:

1. In the text frame, place the text cursor in the paragraph of interest (or select multiple paragraphs to be modified).
2. Invoke the **Format > Paragraph** command.

   You will find the options for line spacing in the **Line spacing** group box:
3. First, select the method you want to use to specify the line spacing (see below) from the dropdown list box.
4. Then enter the spacing in the edit box to its right.

When you confirm with **OK**, the line spacing will be changed according to your settings.

Methods of specifying the line spacing

You can specify the line spacing in different ways. The **Line spacing** dropdown list allows you to choose from the following methods:

- **Single**

  Automatic single line spacing.

  Determines the optimum line spacing *automatically*:

  If you increase the font size in the paragraph, the line spacing will be increased accordingly.

  If you decrease the font size, the line spacing is reduced accordingly.

- **Multiple**

  Multiple of automatic single line spacing.

  Just like the **Single** option, this option determines the optimum line spacing automatically. However, whenever required, you can increase or decrease the line spacing easily: Simply enter the desired number of lines into the edit box right of this option.

  Some examples:

  When you enter “1.5” in the **Lines** edit box, the automatically determined spacing is multiplied by 1.5 (giving you automatic one and a half line spacing).

When you enter “2”, the automatically determined spacing is multiplied by 2 (giving you automatic double line spacing).

Entering “1” corresponds to choosing the option **Single** (giving you automatic single line spacing).

- **Exactly**

  Fixed line spacing.

  If you choose this option, you can enter the *exact* line spacing manually in points. Here, the line spacing will *not* be adapted to the font size.

- **At least**

  Automatic line spacing with a given minimum.

  Just like the **Single** option, this option also provides automatic single line spacing – but prevents any reduction below the specified minimum value.

  So, if you enter e.g. 12 points as a minimum value, normally automatic single line spacing is applied. However, if the automatic line spacing becomes smaller than 12 points (for example, because you used a very small font size), a fixed line spacing of 12 points is applied instead.

By default, the line spacing is set to **Single**.

Paragraph alignment (text frames only)

Note: Paragraph alignment can be applied only to text placed in a *text frame*. To change the alignment of *cell contents*, use the **Format > Cell** command (**Alignment** property sheet).

To change the alignment of text in a text frame, choose **Format > Paragraph** and select an alignment in the **Alignment** drop-down list.

Available alignment types:

- Left
- Right
- Centered
- Justified (evenly distributed between left and right margin)

Changing the text direction (for Arabic text)

For text in *Arabic* script, there's an additional option named **Text direction** where you can set the writing direction of the paragraph to right-to-left. See also chapter "Working with Arabic text" (page 335).

Hyphenation (text frames only)

> ***Note:*** Hyphenation settings can be modified only for text placed in a *text frame*. To activate hyphenation for *cell contents* (that consist of multiple lines), check the **Hyphenation** option in the **File > Properties** dialog, **Options** property sheet.

PlanMaker will automatically hyphenate any text entered in a *text frame*. All you have to do is to set the correct language in PlanMaker's preferences (see section "Setting up the language", page 281).

Setting the hyphenation frequency

If desired, you can specify how often the hyphenator should break words, or you can turn the hyphenator off. You can do this separately for each paragraph as follows:

First select the paragraphs of interest, then invoke **Format > Paragraph** and select the desired setting in the **Hyphenation** dropdown list.

The following options are available:

Option	Result
None	No hyphenation is performed.
Always	Hyphenation is attempted in successive lines without limit. This is the default setting.
Every 2 lines	Hyphenation is attempted only in every second line.
Every 3 lines	Hyphenation is attempted only in every third line.

Thus, with **None** you turn hyphenation off completely for the selected paragraph. With **Always**, on the other hand, you allow hyphenation to be performed whenever possible on any line of the paragraph.

In some cases, it is not always a good idea to hyphenate at every point possible, and this is where the other two options come in handy. For example, text that is in

narrow columns could lead to a broken word at the end of almost every line and, consequently, to a reduction of the document's legibility. Therefore, instead, you may want to use the **Every 2 Lines** or **Every 3 Lines** option to direct PlanMaker to attempt hyphenation only in every second or third line.

Spacing above/below a paragraph (text frames only)

> ***Note:*** Paragraph spacing can be modified only for text placed in a *text frame*. To change the spacing between *cells*, simply change their row height.

In text frames, you can add extra spacing above and/or below paragraphs.

For this purpose, select the desired paragraphs in the text frame, choose **Format > Paragraph**, and enter the desired values for the following options:

Option	Function
Before	Here you can set the amount of spacing to be added between the end of the previous paragraph and the beginning of the current paragraph.
After	Here you can set the amount of spacing that PlanMaker should reserve between the end of the current paragraph and the beginning of the next paragraph.

Note: These values do not affect the amount of space *between* lines within a paragraph (see section "Line spacing" above).

Character styles

Use **Format > Character Style** to select from a list of defined character styles, or to create and modify character styles.

Character styles are a collection of character attributes (font, size, type style, etc.) that you can name, save, and later apply to cells. For example, you can create one character style for cells containing values (using 10 point Times New Roman), and another style for headings (using 14-point Arial bold).

When you choose a character style, all the attributes stored in that style are applied to the selected cells at once.

Annotation: PlanMaker also supports *cell styles* (see section "Cell styles", page 158). The difference between these two features is that character styles store the character format only, whereas cell styles store *both* cell format (number format, alignment, etc.) *and* character format.

Note: Character styles can be applied to single characters within a cell; cell styles can only be applied to entire cells.

See the next pages for detailed information.

Creating character styles

To create a new character style:

1. Invoke **Format** > **Character Style**.
2. Click on the **New** button.
3. Enter a name for the new character style and click **OK**.
4. A dialog box similar to the **Format** > **Character** dialog (see section "Character format", page 144) pops up. Here, you can specify the desired character format for this style.
5. Click **OK**.
6. Click **Close**.

The new character style is now defined and ready to use. To learn how to apply character styles, see the next section.

Assigning a keyboard shortcut to a character style

If you use a character style frequently, it might be useful to assign a keyboard shortcut to it, allowing you to apply it with a single keystroke.

For this purpose, choose **Format** > **Character Style**, select a style, click **Edit**, and switch to the **Style** property sheet. Place the cursor in the **Shortcut key** input box and press the desired key combination.

Note: If you enter a key combination that is already in use, its current assignment will be displayed below the **Shortcut key** box. To prevent overwriting the keyboard shortcut for another style or menu command, press the Backspace key [←] and assign a different key combination.

Applying keyboard shortcuts utilizing Ctrl *and* ⇧ is suggested, as these shortcuts are usually available.

Applying character styles

To apply a character style:

1. Select the desired cells. (Or, press F2 and select partial cell content, if applying to selected characters.)
2. Choose **Format > Character Style**.
3. Click one of the character styles listed.
4. Click the **Apply** button.

The character format of the selected cells/characters will change to the character format defined in the character style.

> ***Tip:*** Character styles can also be applied by selecting them from the font list in the Formatting toolbar.
>
> ***Even faster:*** If you have assigned a keyboard shortcut to a character style, the style can be applied by pressing the corresponding key combination.

To remove a style, apply the "Normal" character style. Keep in mind that text to which a character style has been applied can always be given additional formatting with **Format > Character**.

Modifying character styles

> ***Note:*** When you change the formats stored in a character style, *all* cells using this style are changed accordingly.

To modify a character style:

1. Choose **Format > Character Style**.
2. Select the style you want to modify.
3. Click **Edit**.
4. A dialog box similar to the **Format > Character** dialog (see section "Character format", page 144) pops up. Modify the character format as desired.

5. Click **OK**.

6. Click **Close**.

Resetting character styles: To reset a character style to default values, click the **Reset** button in the dialog box described above.

Deleting or renaming character styles

To delete a character style, choose **Format > Character Style**, select a style, and click the **Delete** button. To rename it, click the **Rename** button.

The character style Normal

Every document you create contains a character style named “Normal”. This is the *default* character style.

As long as you do not apply other character styles, every cell in a document uses the “Normal” character style. Additionally, every character style you create is based on this style.

In other words: The “Normal” character style defines the *default* character format in a document. For example, if you change the font in this style, *all* cells (except the ones manually formatted with a different font) will be formatted in that font.

Creating linked character styles

If you create new character styles as described at the beginning of this chapter, they will always be based on the character style “Normal”. If you later change, for example, the font of the “Normal” style, the font of all derived styles changes as well – unless you explicitly chose a different font there.

> ***Note:*** By default, all character styles are based on the character style “Normal”. You can however base them on any other character style by selecting the base style in **Based on**.

To create a style and base it on another style, proceed as follows:

1. Choose **Format > Character Style**.

2. Click **New**.

3. Enter a name for the new character style.
4. On the **Style** property sheet, choose the character style on which the new style should be based using the **Based on** option.
5. You can now apply the desired formatting to the character style.

Scaled font size

If you base a style on another, you can optionally define a *relative* font size. You can, for example, set the font size of style X to be always 80% of the font size of style Y.

To do this, proceed as follows:

1. Choose **Format > Character Style**.
2. Select one of the styles and click on **Edit**.
3. Switch to the property sheet **Style**.
4. Enable the option **Scale**.
5. Enter the desired scaling factor as a percent value – for example, 80.
6. Confirm with **OK**.

The font size of such a style will now always be 80% of the font size of the style it is based on.

Cell styles

Use **Format > Cell Style** to select from a list of defined cell styles, or to create and modify cell styles.

Cell styles are a combination of cell attributes (number format, alignment, borders, shades, etc. as well as character format) that you can name, save, and later apply to cells. If you frequently format cells in a certain font and a specific currency number format, simply store these formats in a cell style, and apply it to as many cells as desired.

When you choose a cell style, all the attributes stored in that style are applied to the selected cells at once.

Annotation: PlanMaker also supports *character styles* (see section "Character styles", page 154). The difference between these two features is that character styles store the character format only, whereas cell styles store *both* cell format *and* character format.

Note: Character styles can be applied to single characters within a cell; cell styles can only be applied to entire cells.

See the next pages for detailed information.

Creating cell styles

To create a new cell style:

1. Choose **Format > Cell Style**.
2. Click the **New** button.
3. Enter a name for the new cell style and click **OK**.
4. The cell style has now been created. To modify:

   Click the **Character** button to change the character format. A dialog box similar to the **Format > Character** dialog pops up (see section "Character format", page 144). Make the desired modifications and click **OK**.

   Click the **Cell** button to change the cell format. A dialog box similar to the **Format > Cell** dialog pops up (see section "Number format", page 127). Make the desired modifications and click **OK**.
5. Click **Close**.

The new cell style is now defined and ready to use. To learn how to apply cell styles, see the next section.

Assigning a keyboard shortcut to a cell style

If you use a cell style frequently, it might be useful to assign a keyboard shortcut to it, allowing you to apply it with a single keystroke.

To assign a keyboard shortcut to a style, open the **Format > Cell Style** dialog and select the style of interest. Then, click into the **Shortcut** input box and press the desired key combination.

> ***Note:*** If you enter a key combination that is already in use, its current assignment will be displayed below the **Shortcut key** box. To prevent overwriting the keyboard shortcut for another style or menu command, press the Backspace key [←] and assign a different key combination.

Applying keyboard shortcuts utilizing [Ctrl] *and* [⇧] is suggested, as these shortcuts are usually available.

Applying cell styles

To apply a cell style:

1. Select the desired cells.
2. Choose **Format** > **Cell Style**.
3. Click one of the styles listed.
4. Click the **Apply** button.

The cell format and character format of the selected cells/characters will be changed to the format defined in the cell style.

> ***Hint:*** Cell styles can also be applied by selecting them from the drop-down list displayed at the left of the Formatting toolbar.
>
> ***And:*** If you have assigned a keyboard shortcut to a character style, the style can be applied by pressing the corresponding key combination.

Modifying cell styles

> ***Note:*** When you change the formattings stored in a cell style, *all* cells using the style are changed accordingly.

To modify a cell style:

1. Choose **Format** > **Cell Style**.
2. Select the style to be modified.
3. Click **Edit**.

4. To modify the cell format, click the **Cell** button. To modify the character format, click the **Character** button.

5. Click **Close**.

Deleting or renaming cell styles

To delete a cell style, choose **Format** > **Cell Style**, select a style, and click the **Delete** button. To rename it, click the **Rename** button.

The cell style Normal

Every document you create contains a cell style named "Normal". This is the *default* cell style.

As long as you do not apply other cell styles, every cell in a document uses the "Normal" cell style. Additionally, every cell style you create is based on this style.

In other words: The "Normal" cell style defines the *default* cell format in a document. For example, if you change the number format in this style, *all* cells (except the ones manually formatted with a different number format) will be formatted in that number format.

Creating linked cell styles

If you create new cell styles as described at the beginning of this chapter, they will always be based on the cell style "Normal". If you later change, for example, the number format of the "Normal" style, the number format of all derived styles changes as well – unless you explicitly chose a different number format there.

> ***Note:*** By default, all cell styles are based on the cell style "Normal". You can however base them on any other cell style by selecting the base style in **Based on**.

To create a style and base it on another style, proceed as follows:

1. Choose **Format** > **Cell style**.

2. Click **New**.

3. Enter a name for the new cell style.

4. Under **Based on**, choose the cell style on which the new style should be based.
5. You can now apply the desired formatting to the cell style.

Document templates

Character styles and cell styles (see previous sections) are stored in the document they were created in. To reuse styles in other documents, store them in a *document template*.

When you use the **File > New** command to create a new document, PlanMaker requires that you choose the document template the new file will be based on. Choosing a document template that contains user-defined character and cell styles will make these styles available in the new document.

Note: Document templates can not only contain your favorite character and cell styles, but also text, values, calculations, etc. This enables you to create a set of templates for invoices, annual reports, balance sheets, or other frequently used documents.

Creating document templates

To create a new document template:

1. Start a new document or open the document to base the document template on.
2. Create the desired character and cell styles (and text, values, calculations, etc.) to be stored within the template.
3. Choose **File > Save as**.
4. In the **Save as Type** list, select **PlanMaker template**.
5. PlanMaker automatically switches to the document template folder.
6. Enter a filename for the template.
7. Click **OK** to confirm.

The new template will now be stored.

Using document templates

To use a user-created document template, start a new document. PlanMaker will display a dialog to let you select the document template:

1. Choose **File > New**.
2. Click one of the document templates listed.
3. Click **OK** to confirm.

PlanMaker will create a new document based on the selected template. It will contain all character and cell styles stored in the document template, as well as all the text, values, calculations, etc., stored in the template.

Modifying document templates

To modify a document template, proceed as you would modify a normal document: Open it, make your changes, and save it:

1. Choose **File > Open**.
2. In the **Files of type** list, select **PlanMaker template**.
3. Select the template to modify. Click **OK**.
4. Modify the content and/or the styles of the template as desired.
5. Choose **File > Save** to save the template.

The document template Normal.pmv

The document template named NORMAL.PMV is the *default template* for new documents. When using the **File > New** command, this template is selected by default. Please keep this in mind when modifying this template.

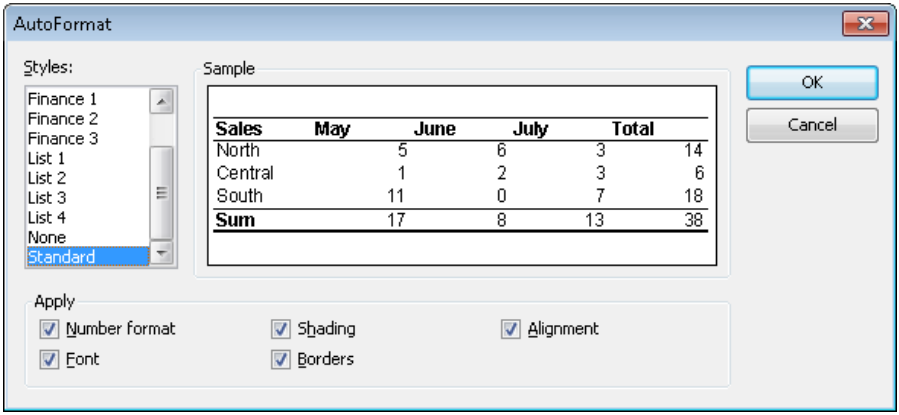
By default, NORMAL.PMV is completely empty. All it contains is the standard character style “Normal” and standard cell style “Normal”. Therefore, this template is an ideal basis for creating new documents or document templates from the scratch.

Hint: To use a different document template as your default template, choose **File > New**, select a template, and click the **Set default** button. From now on, this tem-

plate will be selected by default when creating a new document using the **File** > **New** command.

AutoFormat

The **Format** > **AutoFormat** command lets you apply a predefined scheme of formattings to an entire cell range.



For this purpose, select the desired cell range and choose **Format** > **AutoFormat**. A dialog displaying a list of predefined *AutoFormats* pops up. Select the desired format and click **OK**. The cell range will be reformatted accordingly.

Note: The options in the **Apply** group box of the dialog let you choose which formatting options to apply. For example, if you deselect all options except **Borders**, only the border lines will be applied; all other formatting options will remain unchanged.

Conditional formatting

To apply a *conditional* format to cells, use the **Format** > **Conditional Formatting** command.

Conditional formats are displayed only if the cell matches the specified *condition*.

For example, to display the cell content in red, if it is greater than 1000:

1. Click the desired cell (or select a range of cells).
2. Choose **Format > Conditional Formatting**.
3. Enter the condition in the **1st condition** group box. In this case, select **Cell value** in the left list, select **Greater than** in the list to the right of it, and type in 1000.

   If desired, you can define additional conditional formats in the group boxes **2nd condition** and **3rd condition**.
4. Click the **Format** button and choose the formats to be applied if the condition is matched. In this case, set the **Text color** to red and click **OK**.
5. Click **OK** to confirm.

This will lead to the following result:

- If the cell content is smaller than or equal to 1000, the cell will be displayed in its *original* format.
- If the cell content is greater than 1000, the cell will be displayed in the *conditional* format, i.e., in red color.

If desired, you can delete conditions by clicking on the **Delete** button.

Defining complex conditions

Conditions for conditional formats are not limited to comparing the cell content with a fixed value. If desired, you can define more complex conditions:

- **Using formulas instead of fixed values**

  The input box in the above dialog not only accepts fixed values, but formulas as well.

  For example, instead of a condition like “Cell value greater 1000”, you can also define a condition such as “Cell value greater SIN($A$1)”. In this case, the conditional format will be applied if the current cell content is greater than the sine of the value in cell A1.

- **Using arbitrary formulas**

  If you select the option **Formula** instead of **Cell value**, *any* kind of formula can be used. Please note that only formulas returning a logical value (TRUE or FALSE) are suitable.

  For example:

If you enter the formula “SUM($A$1:$C$3) > 42”, the conditional format will be applied if the sum of the cells A1:C3 is greater than 42.

If you enter the formula “ISEVEN(ROW())”, the conditional format will be applied if the current cell is located in a row with an even row number.

- **Using absolute and relative cell addresses in formulas**

  Please note that formulas used for conditional format can contain *absolute* cell addresses as well as *relative* cell addresses:

  Absolute cell addresses like $A$1 always refer to cell A1 – no matter which cells were selected before you called the **Conditional Formatting** command.

  Relative cell addresses like A1 refer to the upper left corner of the selected cell range:

  If you have not selected a cell range, A1 refers to the current cell.

  If you have selected a cell range, A1 refers to the cell in the upper left corner of that range, A2 refers to the cell below, etc.

Input validation

When you apply *input validation* to a cell, you can do the following:

- Ensure that only certain types of values (for example, numbers) within certain bounds (for example, between 10 and 20) are considered valid in this cell.
- Display an informational text whenever the user goes to this cell (for example, “Please enter only numbers between 10 and 20.”).
- Display an error, warning, or alert message window when the user tries to input values that do not pass validation.

This is useful when you are creating tables that will be filled out by other people and you want to prevent invalid values from being entered.

For instance, if you would like to limit the input of a certain cell to numeric values between 10 and 20, you would proceed as follows:

1. Navigate to the desired cell. Alternatively, you can select multiple cells to change their settings altogether.
2. Invoke the **Format > Input Validation** command.

3. On the **Settings** property sheet, you can specify which types of values are permitted as well as their bounds.

   For our example, you would choose the following:

   Allow: “Decimal Numbers”

   With Values: “between”

   Minimum: 10

   Maximum: 20

4. On the **Input message** property sheet, you can enter informational text that is displayed whenever the user goes to the cell.

   For our example, enter here, “Please enter only numbers between 10 and 20.” Of course, you can also leave the input message blank.

5. On the **Error message** property sheet, you can enter text that is displayed in a message box when the user attempts to input invalid data into the cell.

   The icons in the **Type** area allow you to choose the type of error window that is shown. (See explanation below.)

   > ***Important:*** The type of the error window also determines whether the user is actually allowed to enter invalid values. PlanMaker strictly rejects invalid data *only* when the type **Error message** (first icon) is selected!

   Furthermore, you can enter the actual text of the message. If nothing is entered, a standard message is given.

   For our example, set the type to **Error message** by clicking the first icon and enter the desired message (e.g., the title “Invalid entry” and the text “Only numbers between 10 and 20 are allowed here.”)

6. Click **OK** to confirm.

Now, only values between 10 and 20 will be permitted in the selected cells. Should the user input something else, an error message is displayed.

> ***Note:*** Notice that input validation is only active when the user enters values by *typing* them in. Should the user paste invalid values into the cell through a copy and paste operation (for example, with **Edit > Paste**), input validation will not intervene!

If you would like to turn input validation off, select the desired cells and choose **Edit > Delete Special > Input Validation** from the menu. Alternatively, you could also invoke **Format > Input Validation** and select "All values" under **Allow.**

The dialog box of the **Format > Input Validation** command contains the following options:

Settings property sheet

- **Allow:**

  With these options you can specify which types of values are allowed:

Option	Explanation
All values	Allow all types of values (effectively deactivate the input validation)
Integer Numbers	Allow only integer numbers
Decimal Numbers	Allow only decimal numbers
List entries	Allow only values from a predefined list of permissible values. When you use this option, enter a comma-separated list of the allowed values in the **Source** field – for example, dog,cat,mouse or 1,2,3,4,5,6. Alternatively, you can enter an equal sign followed by a range of cells which contains a list of permissible values. For example, if the cells C1 through C3 hold the values "dog", "cat" and "mouse" and you enter =C1:C3 in **Source**, only those three values will be allowed. Additional settings are displayed when the **Options** button is clicked.
Date	Allow only date values
Time	Allow only time values
Text length	Allow only entries whose length falls within the bounds specified here.
User defined	Allow only entries which satisfy the formula given in the **Formula** field. (For more information on this, see the end of this section.)

- **With Values**

  Here you can further narrow the bounds for allowable values. For instance, if you choose the **Between** option, you can specify minimum and maximum values, which the input value must lie between.

- **Minimum, Maximum etc.**

  Here you can specify the bounds of the entries. If you enter 10 as the **Minimum** and 20 as the **Maximum**, only values within 10 and 20 are accepted.

  You may also use calculations here. If you enter C1 as the **Minimum**, the contents of the cell must be greater than or equal to the cell contents of cell C1. Should you enter SUM(D2:D8), the contents of the cell must be greater than or equal to the sum of cells D2 through D8.

- **Use dropdown**

  Only available when **List entries** is selected under **Allow**. When this option is selected, an arrow appears on the right edge of the cell when the user goes to it. When clicked, a dropdown list appears, which contains all available values for that cell, and from which the user can choose.

- **Ignore empty cells**

  If this option is checked, input validation is ignored for empty cells. If the user deletes the contents of a cell, the cell does not run any input validation until the user enters another value.

Input message property sheet

On this property sheet, you can enter informational text that pertains to the cell being filled out – for example, “Please enter only numbers between 10 and 20.” This information is displayed when the user goes to the cell.

This property sheet has the following options:

- **Show input message when cell is selected**

  Determines whether the input message should be shown or not.

- **Title**

  Here you can specify the title of the message.

- **Message**

  Here you can enter the text of the message.

Error message property sheet

On this property sheet, you can specify the error, warning, or information message, which appears when the user input does not pass validation.

You are presented with the following options:

- **Show error message after invalid data is entered**

  Determines whether the message should be shown or not.

  Note: Normally, you should leave this option checked, since input validation is of little use if the user isn't immediately notified of an invalid entry.

- **Type**

  Here you can specify the type of the message. Simply click the desired symbol.

  > ***Important:*** The type of the error window also determines whether the user is actually allowed to enter invalid values. PlanMaker strictly rejects invalid data *only* when the type **Error message** (first icon) is selected!

  Types available:

  Error Message (first icon): PlanMaker displays an error message. The user is *forced* to enter a valid value; invalid values will not be accepted.

  Warning Message (second icon): PlanMaker displays a warning message. The user can *decide* whether they proceed with the invalid entry anyway.

  Information Message (third icon): PlanMaker only displays an information message. The user must only *acknowledge* this message and the invalid data is entered (as long as the user does not click **Cancel**).

- **Title**

  Here you can specify a title for the message.

  If you enter nothing here, a standard text is used as the title.

- **Message**

  Here you can enter the text of the message.

  If you enter nothing here, a standard text is used as the message.

> ***Tip:*** If you would like to have the specified minimum and maximum values displayed in the message, simply use the placeholders %min and %max. Example: "Error – Only values between %min and %max are allowed here."

Examples

Some examples of use:

- **Allow only values within the specified range**

  On the **Settings** property sheet choose first the desired type of value. If only dates are to be allowed, set the option **Allow** to "Date". If only numbers are to be allowed, set the option to "Decimal numbers", etc.

  After that, you can set the bounds using the **with values** options. For instance, if only values greater than one should be allowed, choose the "greater than" option and enter 1 as the **Minimum**.

- **Allow only values with a certain length**

  If you would like to prevent the user from entering values with lengths greater than 40, choose the following options:

  Allow: "Text length"

  With values: "smaller or equal"

  Maximum: 40.

  Note: Characters such as numerals, periods, commas, symbols, etc. count here just as much as characters such as letters.

- **Using your own formula for input validation**

  Advanced users can also choose "User defined" under **Allow**, and then give a formula for use in the input validation.

  To do this, use a formula that returns a *logical* value (i.e., TRUE or FALSE). If the result of the formula is TRUE, the input is treated as valid; if not, it is treated as invalid.

  An Example: If you use the formula SUM($A$1:$C$3) > 42, the inputted data is only treated as valid if the sum of A1:C3 is greater than 42.

  Note: Notice that not only *absolute* cell references, as above, can be used, but also *relative* cell references:

Absolute cell references, like $A$1, always refer to the cell A1.

Relative cell references, like A1, on the other hand, refer to the cell in the upper left corner of the selected cells. If you use input validation on only one cell, A1 refers to this cell. If, beforehand, you had marked a range of cells, A1 refers to the cell in the upper left corner, A2 to the cell underneath, etc.

Transfer formatting

To transfer the character format and cell format from one cell to other cells, use the **Format > Transfer Formatting** command as follows:

1. Click the cell whose format you want to transfer to other cells.
2. Invoke the command **Format > Transfer Formatting**.

   The mouse pointer will change to a little brush:
3. Drag the mouse pointer over the desired cells while pressing and holding the left mouse button.
4. If you want to apply the format to additional cells, repeat step 3 as often as required.
5. When finished, invoke **Format > Transfer Formatting** again or simply press the Esc key.

The character format (font, font style, etc.) and cell format (number format, alignment, etc.) will be applied to the selected cells.

Transferring the format of entire cell ranges

To transfer the format of an entire cell range, select the desired cells and proceed as described above.

Page setup

The *page setup* dialog allows you to set print options for the worksheet. This includes settings for paper size and orientation, margins, headers and footers, etc.

Covered in this section:

- **Page format**

  Use **File > Page Setup** to change paper size, orientation, and margins.

- **Additional page setup options**

  The **Options** property sheet in the **File > Page Setup** dialog provides extended page setup options for controlling page numbers, print order, etc.

- **Headers and footers**

  The **Headers and footers** property sheet in the **File > Page Setup** dialog lets you add headers and footers to your worksheet. Headers are printed above the worksheet; footers are printed below.

- **Page breaks**

  PlanMaker automatically inserts page breaks as needed. If desired, you can insert "hard" page breaks to override them, using the **Insert > Page break** command.

See the following pages for detailed information.

Page format

Choose **File > Page Setup** and switch to the **Page format** property sheet to modify the page format (paper size, orientation, margins) of the current worksheet.

> ***Note:*** You can set up a different page format for each worksheet in a document. For example, within one document, the page orientation can be set to portrait in one worksheet, and landscape in another.

Options available:

Orientation

Click **Portrait** for a top-to-bottom page orientation (long edge vertical); click **Landscape** for a side-to-side page orientation (long edge horizontal).

Paper size

Lets you select a paper size. Letter size (8.5 by 11 inches) is the default. To use a custom paper size, enter the appropriate values in the **Width** and **Height** boxes.

Margins

Lets you enter values for the page margins.

Distance to edge

Lets you modify the distance between headers/footers and the top/bottom edge of the page.

> ***Note:*** Headers/footers are printed *inside* the top/bottom margins. If they do not appear on the printout, check if a) the **Distance to edge** is too large, or b) the top/bottom margin is too small.

Paper bins

Available under Windows only: If your printer has multiple paper trays, you can select here which one(s) the printer should use.

Additional page setup options

Choose **File** > **Page Setup** and switch to the **Options** property sheet to modify extended page setup options for the current worksheet.

Options available:

Page number

Allows you to modify the starting number for page numbers:

Auto: Pages are numbered starting with 1.

Value: Pages are numbered starting with the specified value.

Hint: To add page numbers to a worksheet, insert a **Page Number** field into the header or footer (see next section).

Print range

Lets you specify the cell range in the current worksheet to be printed.

By default, this option is set to **[All]**, indicating that the entire worksheet will be printed. If you enter a cell range (for example, A1:D20) or the name of a named cell range, only this range will be printed.

Print ranges can be defined individually for each worksheet of a file.

Important: When you save a document, this setting will be stored in the document *permanently*. If you open and print this document in the future, only the specified print range will be printed. To have the entire worksheet printed again, set this option back to **[All]**.

Hint: Alternatively, you can define a print range by selecting the desired cell range in the worksheet and invoking the **File > Print Range > Define Print Range** command. To remove the print range, use the **File > Print Range > Remove Print Range** command.

Print order

Lets you specify in which order worksheets larger than a page will be printed:

- **Left to right**

  Print from left to right, then from top to bottom.

- **Top to bottom**

  Print from top to bottom, then from left to right.

Repeated rows/Repeated columns

Lets you set up rows/columns to be repeated on each page.

Use the following notation: *FirstRow:LastRow* (or *FirstColumn:LastColumn*, respectively)

For example, if you have created a table containing a large list of data, with a heading placed in the first row, enter 1:1 in the **Repeated rows** box to have this row repeated on every page of the printout.

Print

Check any of these options to include the following table components in the printout:

- **Row and column headers** (*Row headers* are located left of the table, labeled 1, 2, 3, etc. *Column headers* are located above the table, labeled A, B, C, etc.)
- **Grid** (gridlines between the cells)
- **Comments** (comments applied to cells with the **Insert** > **Comment** command)

Additionally, you can use the **Colors** option to specify if the printout should be rendered in color:

- **Original colors:** The printout is rendered in its original colors.
- **Grayscale:** Colored text is rendered in black/white, colored objects (pictures, charts, etc.) are converted to shades of gray.
- **Outlines only:** Colored text is rendered in black/white, colored objects are reduced to their outline in black/white.

Centering options

If **Center horizontally** is checked, the worksheet's content will be horizontally centered on the page when printed.

If **Center vertically** is checked, the worksheet's content will be vertically centered on the page when printed.

Scaling options

The options in this section allow you to scale the printout up or down.

Choose the **Scaling option** if you want to enter the desired scaling factor in percent. Only values between 20 and 200 (percent) are valid. For example, if you set the scaling factor to 50%, the printout will be scaled down to half its original size. If you set it to 200%, the printout will be doubled in size.

If you choose the **Fit to pages** option on the other hand, you can specify how many pages the printout should have altogether. PlanMaker will then determine the suitable scaling factor automatically.

Headers and footers

If desired, you can add *headers* and/or *footers* to a worksheet.

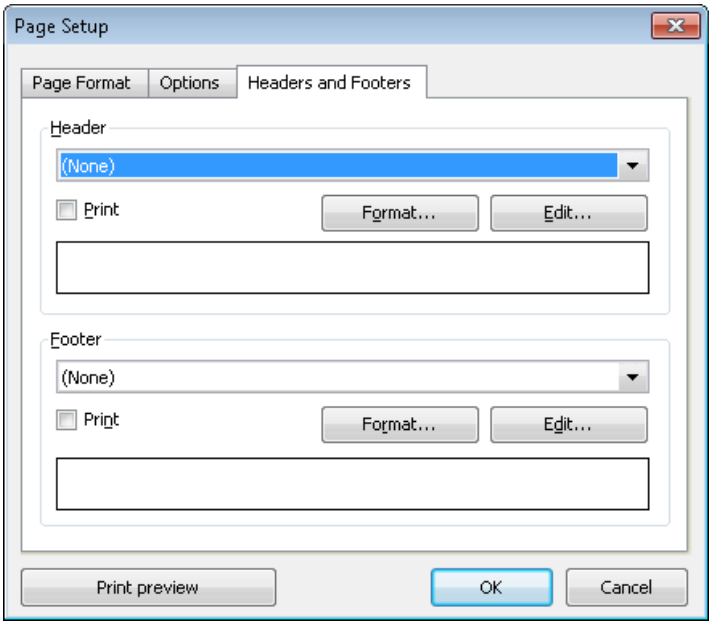
Headers/footers are repeated on the top/bottom of *each* printed page of a worksheet. They are useful for containing fields such as page number, file name, print date, etc.

> ***Note:*** Each worksheet of a document can have its own headers/footers.

To modify, for example, the header of the current worksheet:

1. Choose **File** > **Page Setup** and switch to the **Headers and Footers** property sheet.

   Or, use the **Insert** > **Header and Footer** command, which is doing exactly the same.



2. To apply one of the pre-defined headers, choose it from the drop-down list box in the upper half of the dialog.

   To modify the header individually, click the **Edit** button (see also section "Editing headers and footers" below).

   To change the format of the header, click the **Format** button (see also section "Formatting headers and footers" below).

3. Click **OK** to confirm.

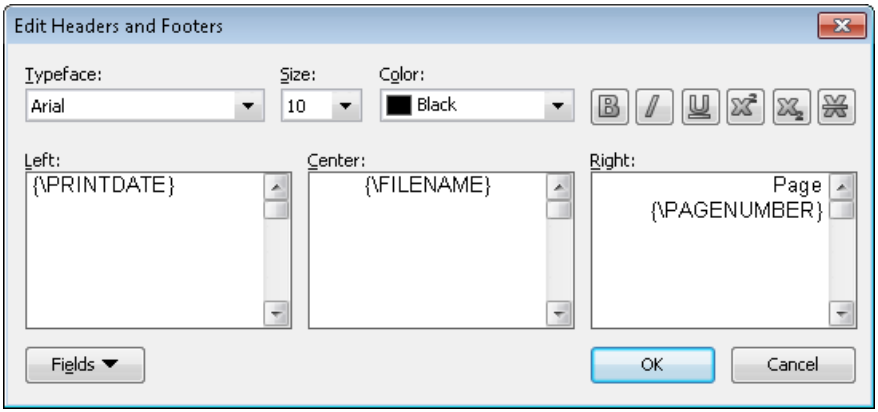
The header is changed accordingly.

Editing footers can be performed in the same manner as headers (using the controls in the lower half of the dialog).

> ***Note:*** Headers/footers are not displayed in the worksheet on the screen – they appear in the *printout* only. To preview how the headers/footers will appear when printed, use the **File > Print Preview** command.

Editing headers and footers

When you click on the **Edit** button in the dialog described above, you can modify the worksheet's headers and footers as desired.



Some notes:

- **Headers/footers can contain up to three sections**

  The edit controls for entering headers/footers are split into three parts. This is due to the fact that headers/footers can consist of up to three sections: a left sec-

tion (left-aligned), a middle section (centered), and a right section (right-aligned).

This allows you to display, for example, the date on the left, the filename in the middle, and the page number in the right section of the header/footer.

Of course, you can alternatively fill out only one of the three sections, in case you want to have e.g. only the filename displayed on the left.

Using fields for page numbers, file name, etc.

To insert fields into headers/footers, click the **Fields** button in the above dialog.

Fields are placeholders for information such as current date, document name, page number, etc. PlanMaker will automatically update them – i.e., when a document is printed, the Print Date field will reflect the current date.

Fields available:

Field name	Result
Document Name	File name of the document (e.g. “My Table.pmd”)
Document Name and Path	File name of the document (e.g. “C:\Tables\My Table.pmd”)
Worksheet Name	Name of the current worksheet
Page Number	Page number
Number of Pages	Total number of pages
Print Date	Current date (date of printing)
Print Time	Current time (time of printing)
Date of Last Change	Date the document was last changed (and saved)
Creation Date	Date the document was created

To insert one of these fields, click the **Fields** button, then click a field.

Changing the character format

To change the character format (typeface, font size, etc.) of text in the header/footer, use the controls located at the top of the dialog.

Important: Please note that you have to *select* the text that you want to format beforehand.

Formatting headers and footers

Apart from changing the character format of headers/footers (see above) you can also apply border lines and shades or change the alignment and margins. For this purpose, click on the **Format** button in the *main* dialog of the **Insert > Header and Footer** command.

A dialog window containing the following property sheets will appear:

- **Shading property sheet**

  Lets you add a colored shade or a pattern to the headers/footers. The controls in this dialog are identical to those described in section "Shading" (page 140).

- **Borders property sheet**

  Lets you add a border or single border lines to the headers/footers. The controls in this dialog are identical to those described in section "Borders and lines" (page 137).

- **Alignment property sheet**

  Lets you modify the inner margins and the vertical alignment of the headers/footers.

Hint: To change the distance between headers/footers and the top/bottom edge of the page, invoke the **File > Page Setup** command and switch to the **Page Format** property sheet.

Disabling headers/footers temporarily

If you want to print a document without its headers or footers, invoke the **Insert > Header and Footer** command and deactivate the **Print** option in the dialog. The headers or footers will then no longer appear in printouts.

If you want the headers/footers to be printed again, simply reactivate the **Print** option.

Page breaks

Based on the selected paper size and margins, PlanMaker automatically inserts *page breaks* in a document. When printing, a new page will be started at each page break. If you take a closer look at a worksheet, you will notice that some of the

gridlines between cells are darker. These lines indicate where PlanMaker has inserted automatic page breaks.

To manually control where PlanMaker starts a new page, insert “hard” page breaks. Hard page breaks override PlanMaker’s automatic page breaks.

To insert a hard page break, choose the **Insert > Page Break** command. A submenu with the following commands will open:

- **Insert before Row** inserts a horizontal page break above the current row.
- **Delete before Row** deletes such a page break. Navigate to a cell located directly below the page break before selecting this command.
- **Insert before Column** inserts a vertical page break left of the current column.
- **Delete before Column** deletes such a page break. Navigate to a cell located directly to the right of the page break before selecting this command.

Search & replace

This chapter covers information on searching (and replacing) in tables:

- **Search and Replace**

  Use PlanMaker's search commands to search for a specific term – and, as needed, replace it with another value.

- **Jumping to specific cell addresses**

  Use the **Go to …** command to jump to a specific cell, cell range, or named cell range.

- **Jumping to specific contents of a table**

  Use the three buttons in the lower right corner of the document window to jump to a specific content of a table (for example, to the next cell with an error value or a comment)

See the following pages for detailed information.

Search

Use the **Edit > Search** command (keyboard shortcut: Ctrl F) to search for a specific term in a document.

Proceed as follows:

1. If you want to limit the search to a specific cell range, select the cell range first. If nothing is selected, the entire worksheet will be searched.
2. Invoke the **Edit > Search** command.
3. Under **Search for**, enter the search term.
4. As necessary, check the options for the search (see section "Search and replace options", page 185).
5. Click on the **Search** button to begin the search.

PlanMaker scans the document for the search term and highlights the first cell that contains it.

To continue, choose one of the following options:

A) Click the **Search again** button to find the next occurrence.

B) Click the **Close** button to end the search.

Replace

Use the **Edit > Replace** command (keyboard shortcut: Ctrl H) to find and replace values in a document.

Proceed as follows:

1. If you want to limit the search to a specific cell range, select the cell range first. If nothing is selected, the entire worksheet will be searched.
2. Invoke the **Edit > Replace** command.
3. Under **Search for**, enter the search term.
4. Under **Replace with**, enter the term that is to replace the search term.
5. As necessary, check the options for the search (see section “Search and replace options”, page 185).
6. Click on the **Search** button to start the search.

PlanMaker scans the document for the search term and highlights the first cell that contains it.

To continue, choose one of the following options:

A) Click the **Replace** button to replace the selected occurrence of the search term and continue the search.

B) Click the **Search again** button to jump to the next occurrence of the search term – without replacing the selected occurrence.

C) Click the **Replace All** button to replace *all* occurrences of the search term.

D) Click the **Close** button to end the search.

Search again & replace again

Choose **Edit > Search again** or **Edit > Replace again** or press the F3 key to repeat the last **Search** or **Replace** command.

PlanMaker searches for the next occurrence of the last search request.

Search and replace options

When you click on the **Enlarge** button in the **Edit > Search** or **Edit > Replace** dialog, the dialog expands to offer additional options.

When you click on **Reduce** the dialog contracts and the additional options are hidden. Thus you can specify the appearance of the dialog according to your preference for having the most options at your disposal or for having as much of the text as possible visible while you are searching.

The expanded search/replace dialog offers the following additional options:

"Search in" group box

Here, you can specify how to scan the document:

- **Search in**

  Use this dropdown list to choose which parts of the table to scan: **cells**, **comments**, or object **frames** (text frames and drawings containing text).

- **Formulas**

  Scan formulas as if they were just text strings.

  For example, when you search for "sum", all cells using the SUM function will be found.

- **Results**

  Scan the results of formulas.

  For example, when you search for "4", cells containing the calculation =2+2 will also be found.

  (Only available for the search command, not for the replace command.)

- **Values**

  Scan all fixed values (e.g., numbers and text strings typed in manually).

- **Whole document**

  If this option is checked, all worksheets in the document will be scanned.

  If it is not checked, only the current worksheet will be scanned (or, respectively, all worksheets that are currently selected in the worksheet register.)

- **Search by column**

  If this option is checked, the table will be scanned column by column.

  If it is not checked, the table is scanned row by row.

"Options" group box

Here, you can specify the following options:

- **Case-sensitive**

  By default, the search command is not case-sensitive. If you enter "Miller" in the **Search for** box, it will locate "MILLER", "miller", or any other upper/lower case combination of the term.

  If you check the **Case sensitive** option, only "Miller" will be found.

- **Whole cell match**

  By default, the search command finds all cells that *contain* the search text at any position. If you enter "win" in the **Search for** box, PlanMaker will also find cells containing "windows" or "sales, winter 1995".

  If you check the **Whole cell match** option, only cells that contain the term "win" – and nothing else – will be found.

"Special" button

The **Special** button allows you to use the following wildcard characters in your search terms:

- **Single arbitrary character** (^?)

  Represents a single arbitrary character. For example, when you search for "fo^?d", PlanMaker finds occurrences of "fold", "fond", "food", etc.

- **Multiple arbitrary characters** (^*)

  Represents any number of arbitrary characters. For example, when you search for “f*r”, PlanMaker finds occurrences of “fair”, “flyer”, “freighter”, etc.

- **Caret** (^^)

  Searches for the character “^” (caret).

To insert a wildcard character into the search term, click on the **Special** button and select the desired entry with a mouse click.

You can repeat and combine wildcards at will within the same search term. Of course, you can also use them together with normal text.

“Search all” button

You can click the **Search all** button to receive a list of *all* occurrences of the search term. When you click one of its entries, PlanMaker jumps to the corresponding occurrence in the document.

Note: This button is only available when the **Search in** option is set to **Cells**.

Jumping to specific cell addresses

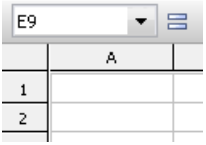
Use the **Edit > Go to** command to jump to a specific cell, cell range, or named cell range.

To do this, invoke the **Edit > Go to** command and type in the desired cell address. You can enter the address of a single cell (like D5), a cell range (like D2:D4), or the name of a named cell range (see **Table > Names** command).

Click **OK** to jump to the specified cell(s).

Hint:

The control displaying the current cell address at the very left of the Edit toolbar works exactly like the edit box in the **Edit > Go to** dialog.



To use this control to jump to a specific cell address, click inside this control, enter the cell address, and press the Enter key ↵. You can enter a single cell address, a cell range, or the name of a named range.

Hint: Clicking on the small arrow right of the control opens a drop-down list of all named ranges.

Jumping to specific contents of a table

The three buttons in the lower right corner of the document window enable you to jump to specific contents of a table (for example, to the next cell containing an error value or a comment).

You use these buttons as follows:

- Click on the button with the red dot to bring up a small menu. Then select the type of target you want to jump to from the menu (see below).
- Click on the button with the up arrow to jump to the target prior to the current position. For example, if "Error Value" was selected as the target type, clicking on this button will result in a jump to the previous cell with an error value.
- Click on the button with the down arrow to jump to the target following the current position – to the next cell with an error value, for example.

Target types available:

Target Type	Explanation
Formula	Jump to cells that contain a formula
Array Formula	Jump to cells that contain an array formula
Constant	Jump to cells that contain a fixed value

Error Value	Jump to cells that contain an error value (see section "Error values" on page 407)
Faulty Cell	Jump to cells that have been imported incorrectly – for example, cells using an Excel arithmetic function that PlanMaker doesn't support.
Comment	Jump to cells that contain a comment
Conditional Format	Jump to cells that use conditional formatting
Input Validation	Jump to cells that use input validation
Search all worksheets	If this option is checked, PlanMaker searches all worksheets instead of just the current one.

Objects (pictures, drawings, etc.)

The **Object** menu contains commands for inserting and manipulating objects such as charts, pictures, text frames, and drawings.

This chapter covers information on working with objects in PlanMaker:

- **Objects – basic procedures**

  Discusses basic procedures for working with objects (e.g., inserting, selecting, and modifying objects).

- **Objects – advanced procedures**

  Discusses advanced procedures (e.g., hiding and grouping objects).

Following these sections, the different object types are introduced in detail:

- **Charts** (see chapter "Charts", page 231)
- **Text frames** (page 209)
- **Pictures** (page 212)
- **OLE objects** (page 216)
- **Drawings** (page 223)

Objects – basic procedures

This section discusses basic procedures for working with objects:

- Inserting objects
- Selecting objects
- Object mode
- Changing position and size of objects
- Rotating and flipping objects
- Aligning and distributing objects
- Duplicating objects
- Changing the properties of objects

More advanced procedures will follow later on, in section "Objects – advanced procedures" (page 206).

Inserting objects

For example, to insert a picture into the current worksheet:

1. Choose **Object > New Picture Frame**.
2. With the mouse, drag a frame with the desired position and size in the document.

   Alternatively, click where you want the upper left corner of the picture to be placed. The picture will be inserted as its original size.
3. A dialog box pops up, letting you select the picture file to be inserted. Choose the desired picture file and click **OK**.

The picture is inserted.

The process for inserting other types of objects is similar. For more information on the different types of objects, see sections “Charts”, “Text frames”, etc. (starting at page 209).

Selecting objects

If you want to modify an object, you must select it first. For most types of objects this can be achieved by clicking the object with the mouse. A red selection frame will be displayed around the object, once it is selected.

> ***Hint:*** Text frames can *not* be selected by clicking them. To select a text frame, click the surrounding *border*. Alternatively, switch to *Object mode* (see next section). In Object mode, text frames can be selected by clicking them.

Note: When an object is selected, table cells cannot be edited. To edit cells, click on any cell.

Object mode

Working with objects is easier when working in *Object mode*.

By default, PlanMaker runs in *Edit mode*. In this mode, table cells can be edited, formatted, etc.

When you switch to *Object mode*, table cells are no longer editable. Rather, various useful functions for object editing become available. For instance, in Object mode, you can select all types of objects by clicking them.

> ***Important:*** While in Object mode, only commands related to inserting and modifying objects are available. Cells can no longer be modified and menu commands not related to objects are grayed out.

Toggling between Edit mode and Object mode

To toggle between Edit mode and Object mode, use one of the following procedures:

- Choose the **View > Object Mode** menu command to switch to Object mode. Choose again to return to Edit mode.
- Click the icon in the Formatting toolbar to switch to Object mode. Click again to return to Edit mode.
- Right-click on any cell to open the context menu. Choose the **Object mode** command to switch to Object mode. Choose the **Exit Object mode** command to return to Edit mode.
- For the fastest method: Point to any cell and double-click using the *right* mouse button to switch between Object and Edit mode.

The Object toolbar

When in Object mode, the Formatting toolbar is automatically replaced by the *Object toolbar*.

The Object toolbar

This toolbar provides icons for working with objects. From left to right:

- Toggle between Object and Edit mode
- Insert chart frame
- Insert text frame
- Insert picture frame
- Insert OLE object frame
- Insert OLE object frame with the SoftMaker Equation Editor*
- Insert line

- Scribble (freehand drawing)
- Insert curve
- Insert arrow
- Insert straight connector
- Insert elbow connector
- Insert curved connector
- Insert rectangle
- Insert rounded rectangle
- Insert ellipse
- Insert AutoShape
- Insert TextArt object

- Group selected objects

- Modify object properties
- Drop-down list of all objects in the document (see below)

* Not all versions of PlanMaker have this feature.

> ***Hint:*** Move the mouse pointer over any of these icons, and a short explanation of its function is displayed.

Object list: At the right of the Object toolbar, a drop-down list containing all objects existing in the current document is displayed. Open this list and click on the name of an object; the corresponding object will be selected.

Selecting objects in object mode

In Object mode, all types of objects can be selected with a single mouse click.

Note: This is especially useful for objects with a transparent filling (e.g. text frames). In Edit mode, such objects can only be selected by clicking on their *borders*. In Object mode, they can be selected by simply clicking *anywhere* inside the object.

To select *multiple* objects, draw a frame around these objects with the mouse – or press and hold the Shift key and click each object you want to select.

Jumping from object to object

In Object mode, you can jump from object to object by using the following keys:

Key	Result
Tab	Select next object

⇧ Tab	Select previous object

For example, use of the Tab key will select the next object.

Changing position and size of objects

To change the position or size of an object, proceed as follows:

Changing the position of objects

To change the position of an object, select it and either move it using the arrow keys on the keyboard or drag it to another position using the mouse.

> ***Note:*** By default, objects are anchored to the cell beneath their upper left corner. You can move objects at will, but when an object is dropped in its new position, it will again automatically be anchored to the cell beneath its upper left corner.

As a result, an object will move down if additional rows are inserted above it, and move up, if rows above are deleted.

If you do not want the object to behave like this, choose **Object** > **Properties**, switch to the **Format** property sheet and change the **Position** option. For example, if you choose **Independent of cell position and size**, the object will no longer move down when you insert new rows above. For more information on this option, see section “Object properties, Format property sheet”, page 197.

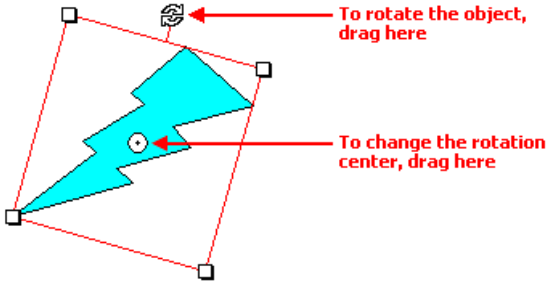
Changing the size of objects

To change the size of an object, select it and a) drag the red lines surrounding it, or b) drag the corner handles.

Rotating and flipping objects

> ***Note:*** Only *drawings* and *pictures* can be rotated and flipped.

When you select an object that can be rotated, a handle with double arrows will appear next to the selection frame surrounding it. To rotate the object, drag this handle with the mouse.



Alternatively, you can set the angle of rotation manually. For this purpose, select the object, invoke the **Object** > **Properties** command, switch to the **Format** property sheet and enter the desired angle under the **Rotation** option.

You can also rotate and flip objects by using the commands in the **Object** > **Rotate or Flip** menu.

Aligning and distributing objects

To align or distribute objects, select them and invoke the command **Object** > **Align or Distribute**.

A sub-menu appears, from which you can select the desired alignment or distribution:

- Align left
- Align center
- Align right
- Align top
- Align middle
- Align bottom

- Distribute horizontally
- Distribute vertically

The last two commands work only when at least *three* objects are selected. These commands are used to distribute the selected objects evenly within the area they occupy, so that the spacings between them are equal.

Duplicating objects

To obtain a copy of an object, you would normally copy it to the clipboard and paste it from there.

Alternatively, use the **Edit > Duplicate** command to create a copy of an object.

> ***Hint:*** You can also duplicate objects with your mouse: Press and hold the Ctrl key, and drag a new object out of the object that you want to duplicate.

Changing the properties of objects

An object's *properties* include its size, fill style, line style, etc. The **Object > Properties** command provides one place to access all properties for editing or viewing.

To modify the properties of an object, first select the object with a mouse click (text frames can be selected by clicking on the object's *border* only). Then invoke the **Object > Properties** command to bring up the associated dialog.

> ***Tip:*** For most types of objects, double clicking on the object (or its border) provides a quick alternative way to invoke this command.

The dialog contains several property sheets. You can switch among them by clicking on the index tabs.

On the next pages, you will find detailed information on each property sheet and the options it contains.

Object properties, Format property sheet

Use the **Format** property sheet to modify the size/positioning of objects, rotate objects, or flip objects.

Options available:

- **Size** and **Scaling** group boxes

  Used to alter the size of the object. Either enter the **Width** and **Height** of the object, or use the **Horz. scaling** and **Vert. scaling** boxes to enter the scaling factor as percentages.

If the **Keep aspect ratio** option is checked, modifying the object's height adjusts its width automatically, keeping the object proportional (and vice versa when modifying the object's width).

- **Position** group box

  Here you can choose to what extent the object's position and size is dependant on the cells it covers. Options available:

  Depends on cell position and size: The object behaves like its upper left corner was anchored to the cell beneath. For example, when you insert additional rows above this cell, the object moves down accordingly.

  Furthermore, the object's size depends on the height and width of the cells it covers. For example, if you increase the width of some of these cells, the object grows accordingly.

  Depends only on cell position: The object behaves like its upper left corner was anchored to the cell beneath as well, but it does not change its size, when you modify the size of the cells it covers.

  Independent of cell position and size: The object always keeps its original position and size, independent of the cells it covers.

- **Rotation** group box

  Available only for drawings and pictures.

  Here you can rotate the object. To do this, enter the angle about which the object is to be rotated (positive values correspond to clockwise rotation).

- **Flip** group box

  Available only for drawings and pictures.

  Here you can flip the object vertically or horizontally.

Object properties, Filling property sheet

Note: This property sheet is available only for certain types of objects. When applied to pictures, the filling will be visible only in pictures that contain *transparent* areas.

Use the **Filling** property sheet to modify the filling of objects as follows:

First, select the desired type of filling in the **Fill type** list. Based on the fill type selected, a series of options will be displayed. You can then change those settings for the chosen fill type, as desired.

The following fill types and settings are available:

- **No Filling**

  If you select the first fill type in the list, the object is not filled and thus remains transparent.

- **Color**

  Fills the object using a uniform color shade. To change the color, select it in the **Colors** list.

  If none of the existing colors suits you, you can always compose your own colors. To do this, click on the **More colors** button and proceed as described in the section “Document properties, Colors property sheet”, page 363.

  If desired, you can also change the **Transparency** of the fill. You can enter any value between 0% (no transparency) and 100% (full transparency). For example, if you set the **Transparency** value to 25, the filling will have 25% transparency.

- **Pattern**

  Fills the object using a pattern. To specify the pattern, select the type of pattern from the **Patterns** list. Then, select the desired colors for foreground and background.

  If desired, you can also change the **Transparency** of the fill. Values between 0% (no transparency) and 100% (full transparency) are permitted.

- **Picture**

  Fills the object using a picture file. To select the picture file to be used, click the **Open** button to bring up a file selection dialog. Tip: The most recently used picture files are presented in the **Images** list and can be selected with a single mouse click.

  Additional options:

  Rotate with object: If you activate this option, the image will be rotated as well whenever you rotate the object to be filled.

  Mirror: Allows you to mirror the picture horizontally or vertically.

Transparency: If desired, you can also change the transparency of the fill. Values between 0% (no transparency) and 100% (full transparency) are permitted.

Tile as texture: If this option is enabled, multiple copies of the picture are arranged like tiles to fill the object.

The options in the **Tile options** section then allow you to change the size and position of the tiles: **X scale** and **Y scale** change the size (in percent), while **X offset** and **Y offset** change the position. The **Alignment** option can be used to determine to which edge of the object the tiles should be aligned.

If the **Tile as texture** option is not enabled, only **Offsets** (relative to the edges of the object) can be set for the image.

Save: You can use this button to export the currently selected picture, that is, to save a copy of it on your hard disk.

Linear Gradient, Rectangular Gradient etc.

The lowermost five fill types in the list allow you to fill the object using a gradient. First, open the **Fill type** list and select the desired type of gradient. Then, select one of the subtypes in the **Variants** list.

In the **Options** section, the following additional settings can be made:

X offset and **Y offset** can be used to move the center of the gradient. **Angle** rotates the gradient.

> ***Hint:*** You can also modify these settings by moving or rotating the cross-hair displayed in the **Sample** field using the mouse.

If you check the **Double gradient** option, for example, a black-white gradient will become a black-white-black gradient.

In the **Colors** section, the colors can be adjusted as follows:

If you want to change the gradient colors, click one of the triangles below the bar representing the gradient. Then, select a color from the **Color** list.

Use the triangle on the left to change the start color and the triangle on the right to change the end color.

If desired, you can also change the **Transparency** of the selected color. Values between 0% (no transparency) and 100% (full transparency) are permitted.

Additional colors can be added to the gradient by double-clicking on the desired position in the bar and selecting a color. To remove a color, double-click the triangle representing that color.

Object properties, Lines property sheet

Note: This property sheet is available only for certain types of objects.

Use the **Lines** property sheet to modify the lines that encompass the object or its border lines.

When applied to drawings, these settings affect the lines used to paint the object itself. When applied to other types of objects, the border lines surrounding the object are affected.

Options available:

- **Line variants**

  Offers some pre-defined line styles to choose from.

  The entries in the list are merely samples. If required, you can specify the appearance of the lines more precisely with the options listed below.

- **Color**

  Lets you change the color of the lines.

- **Dashed**

  Lets you determine if solid or dashed lines will be used.

- **Thickness**

  Lets you change the width of the lines (in points).

- **Transparency**

  If desired, you can also change the **Transparency** of the lines. You can enter any value between 0% (no transparency) and 100% (full transparency). For example, if you set the **Transparency** value to 25, the lines will have 25% transparency.

- **Begin** and **End**

  Available only for lines, curves and connectors.

If you select one of the symbols displayed here, it will be painted at the starting point or end point of the line. For example, if you select an arrow symbol for the end point, the line will look like an arrow. **Width** and **Height** settings are used for changing the width and/or height of the symbol.

Object properties, Shadow property sheet

FreeOffice: In **SoftMaker *FreeOffice***, this property sheet is not included.

Note: This property sheet is available only for certain types of objects.

Use the **Shadow** property sheet to add a shadow to the object.

Options available:

- **Shadow variants**

  Offers a variety of pre-defined shadow styles to choose from.

  The entries in the list are merely samples. If required, you can specify the way the shadow will appear more precisely with the options listed below.

- **Scaling**

  Lets you change the size of the shadow (relative to the size of the object).

- **Offset**

  Lets you change the position of the shadow (relative to the object).

- **Perspective**

  Lets you change the **Skew angle** of the shadow.

  For certain types of perspective shadows, you can also change the distance of the **Horizon**. Note: If **Horizon** is a positive value, the shadow will be painted in front of the object, and if it is negative, the shadow will be painted behind the object.

- **Color**

  Lets you change the color of the shadow.

- **Blur**

  If you enter a value greater than zero here, a blur effect is added to the shadow. The larger the value, the softer the edges of the shadow are painted.

- **Transparency**

  Allows you to change the **Transparency** of the shadow. You can enter any value between 0% (no transparency) and 100% (full transparency). For example, if you set the **Transparency** value to 25, the shadow will have 25% transparency.

Object properties, 3D property sheet

FreeOffice: In **SoftMaker *FreeOffice***, this property sheet is not included.

Note: This property sheet is available only for text frames and drawings.

Use the **3D** property sheet to add a three dimensional effect to the object.

Options available:

- **3D effect variants**

  Offers a variety of pre-defined 3D effect settings to choose from.

  The entries in the list are merely samples. If required, you can specify the way the effect appears more precisely with the options listed below.

- **Options** group box

  Lets you modify the depth of the 3D object and the angles about which it is rotated on the horizontal and vertical axes.

- **3D surface** group box

  Side faces: By default, the color used for the side faces of the object is determined automatically. To use a different color, activate the **Side faces** option and select the desired color from the list.

  Affect front side: If this option is checked, the front side of the object will also be lightened or darkened according to the lighting of the 3D effect. To change the lighting, click the **More** button.

  Wire frame: If you check this option, the object is rendered as a wire frame model.

- **More** button

  Click the **More** button to change the lighting of the 3D effect. An additional dialog box will appear. To change the position of the light source, click the cor-

responding position in the **Lighting** field. The other two options let you change the **Intensity** of the light source and the type of **Surface** to be simulated.

Object properties, Effects property sheet

FreeOffice: In **SoftMaker *FreeOffice***, this property sheet is not included.

Note: This property sheet is available only for certain types of objects.

On the **Effects** property sheet, you can add various effects to the object.

The following effects and settings are available:

- **Reflection**

  When you check the **Use reflection effect** option, the object is rendered as if it was standing on a reflecting surface.

  Options:

  Visible part of object: Specifies how many percent of the object will be visible in the reflection.

  Starting transparency: The reflection is smoothly faded out towards its bottom. This value specifies how transparent the reflection will be at its top (in percent).

  Y offset: Moves the reflection upwards or downwards.

- **Soft edges**

  When you check the **Use soft edges effect** option, the borders of the object will be rendered with a blur effect.

  Options:

  Width: Specifies the width of the blur effect.

- **Glow**

  When you check the **Use glow effect** option, the borders of the object will be surrounded by a glow effect.

  Options:

  Width: Specifies the width of the glow effect.

  Color: Specifies the color of the glow effect.

Object properties, Properties property sheet

The **Properties** property sheet can be used to modify common object settings.

Options available:

- **Name**

  PlanMaker automatically assigns a unique name to every object in a document. Rectangles, for example, might be named Rectangle1, Rectangle2, Rectangle3, etc.

  If you wish, you can give the object a different name by entering it here.

- **Visible**

  This option is checked by default. If you deactivate it, the object will no longer be visible on the screen. See also section “Hiding objects”, page 206.

- **Printable**

  This option is checked by default. If you deactivate it, the object will no longer print. See also section “Hiding objects”, page 206.

- **Locked**

  This option is checked by default. If enabled, users will not be able to change the object’s position, size, or any other object property when *worksheet protection* is activated. See also section “Sheet protection”, page 319.

- **Text locked**

  Available only for objects that contain text (e.g. text frames).

  This option is checked by default. If enabled, users will not be able to change the text inside the object when *worksheet protection* is activated. See also section “Sheet protection”, page 319.

- **Link**

  Lets you apply a link to the object (e.g., a link to a website). For this purpose, click the **Select** button, select the type of link, and enter the target address. For more information on links, see section “Working with links”, page 305.

Additional property sheets

With some object types, the **Object > Properties** dialog displays additional property sheets containing more options. To learn more about these property sheets, see the sections referring to each particular object type.

Objects – advanced procedures

This section present some less commonly needed functions for working with objects. The following topics are covered:

- **Hiding objects**
- **Changing the order of objects**
- **Grouping objects**

Hiding objects

PlanMaker provides an option to *hide* objects. Hidden objects will not appear on screen and/or print.

To hide an object, select it, then choose **Object > Properties**, switch to the **Properties** property sheet, and use the following options:

- If you deactivate the **Visible** option, the object will not be displayed on screen.
- If you deactivate the **Printable** option, the object will not print.

Hint: If you have made an object invisible accidentally, choose **File > Properties**, switch to the **Options** property sheet, and activate the **Show hidden objects** option. This will make all invisible objects reappear, allowing you to select them and reactivate their **Visible** option (as described above).

Changing the order of objects

When two or more objects overlap, you can change the display order of these objects (which of the objects to display in the foreground, which in the background, etc.).

This can be accomplished as follows:

1. Select the desired object.
2. Open the **Object** > **Order** menu option to choose one of the following commands:

   Bring to Front: Brings the object in front of all other objects.

   Send to Back: Sends the object behind all other objects.

   Bring Forward One Level: Brings the object forward by one level.

   Send Backward One Level: Sends the object back by one level.

Grouping objects

When you g*roup* objects, they will behave like a single object, allowing you to modify them altogether.

For example, when you select an object that is part of a group of objects, the whole group will be selected. When you move this object, the whole group will move.

To group objects:

1. Select the objects you want to group.

   Hint: To select multiple objects, either click on individual objects while holding down the Shift key ⇧, or switch to Object mode and drag a frame around multiple objects.

2. Click the icon in the Object toolbar or choose **Object** > **Group**.

Ungrouping grouped objects

To ungroup objects that have been grouped:

1. Select the group by clicking on one of the grouped objects.
2. Choose **Object** > **Ungroup**.

This closes the common section about working with objects. In the next sections, all available types of objects will be described in detail:

- **Charts** (see chapter “Charts”, page 231)
- **Text frames** (page 209)
- **Pictures** (page 212)
- **OLE objects** (page 216)
- **Drawings** (page 223)

Charts

In spreadsheets consisting of nothing but long columns of numbers, it is often hard to interpret their meaning. PlanMaker provides easy ways to turn raw numbers into charts that get the point across.

Charts are discussed in a separate chapter, so if you want to learn more about charts, see chapter “Charts”, starting at page 231.

Text frames

Use *text frames* to insert text boxes into a document. Within text frames, you can enter, edit, and format text as desired.

In this section, you will find detailed information on working with text frames. The following topics are covered:

- **Inserting text frames**
- **Changing the properties of text frames**

See the next pages for details.

Inserting text frames

To insert a text frame:

1. Choose **Object** > **New Text Frame** or click the icon in the Object toolbar (available only in Object mode).
2. With the mouse, drag a frame with the desired position and size in the document.

   Alternatively, click where you want the upper left corner of the text frame to be placed. A frame with a default size will then be inserted.

The text frame will now be created.

To edit text in a text frame, click inside the text frame. To edit table cells again, click on any cell.

> ***Note:*** If the text frame is too small to hold the entered text, PlanMaker will display a red bar at its bottom. To fix this, enlarge the text frame, reduce the amount of text, or choose a smaller font size.

Changing the properties of text frames

To modify the properties of a text frame, first select the frame by clicking on the border that surrounds it. Then invoke the **Object > Properties** command to bring up the associated dialog.

> ***Hint:*** This command can also be invoked by double-clicking on the border of the text frame.

The following settings can be made in this dialog:

Format, Filling, Lines, etc. property sheets

> ***FreeOffice:*** In **SoftMaker *FreeOffice***, the property sheets **Shadow**, **3D**, and **Effects** are not available.

The property sheets listed below are present for almost all object types. They allow you to modify the following settings:

- **Format:** For changing the size and positioning of the object. See section “Object properties, Format property sheet”, page 197.
- **Filling:** For changing the filling of the object. See section “Object properties, Filling property sheet”, page 198.
- **Lines:** For adding border lines. See section “Object properties, Lines property sheet”, page 201.
- **Shadow:** For adding a shadow. See section “Object properties, Shadow property sheet”, page 202.
- **3D:** For adding a 3D effect. See section “Object properties, 3D property sheet”, page 203.
- **Effects:** For adding various types of effects. See section “Object properties, Effects property sheet”, page 204.

- **Properties:** For modifying common object settings. See section “Object properties, Properties property sheet”, page 205.

For text frames, there are additional property sheets with further options:

Inner text property sheet

Use this property sheet to change settings affecting the text in the text frame.

Options available:

- **Inner margins** group box

  Lets you modify the margins between text frame and inner text. If you check the **Automatic** option, PlanMaker will calculate suitable settings automatically.

- **Overlapping objects** group box

  These settings determine what happens when the text frame overlaps another object.

  With the default setting **Ignore object**, PlanMaker does nothing. Thus, in the region of overlap, the contents of both frames are rendered on top of one another.

  If, on the other hand, you check the **Wrap text** option, PlanMaker automatically reformats the text in this frame so that it flows around the area of overlap.

- **Rotate by...** group box

  Lets you rotate the inner text in 90 degrees increments.

- **Vertical alignment** group box

  Lets you change the vertical alignment of the inner text as follows:

Option	Result
Top	Align inner text at the top of the frame
Centered	Vertically center text between top and bottom of the frame
Bottom	Align inner text at the bottom of the frame
Justified	Vertically justify text (so that it is evenly distributed between top and bottom of the frame)

AutoShapes property sheet

A text frame is actually an *AutoShape* that has been filled with text. *AutoShapes* are drawings with a pre-defined shape (for example, rectangles, ellipses, arrows, banners, callouts, etc.).

By default, the AutoShape used for text frames is a simple rectangle. To use a different shape, select it on the **AutoShapes** property sheet.

To learn more about AutoShapes, see section “Drawings”, page 223.

Pictures

In this section, you will find detailed information on working with pictures. The following topics are covered:

- **Inserting pictures**
- **Scanning pictures**
- **Changing the properties of picture frames**

See the next pages for details.

Inserting pictures

To insert a picture into the current worksheet:

1. Choose **Object** > **New Picture Frame** or click the icon in the Object toolbar (available only in Object mode).
2. With the mouse, drag a frame with the desired position and size in the document.

   Alternatively, click where you want the upper left corner of the picture to be placed. The picture will be inserted as its original size.
3. A dialog box pops up, letting you select the picture file to be inserted. Choose the desired picture file and click **OK**.

The picture will now be inserted.

Options

Options available in the **Object** > **New Picture Frame** dialog:

- **Save within document**

  Check this option if you want the picture file to be saved within the document. If you do not check this option, just a link is preserved to it, and you will need to make sure the picture file is available the next time you open the document. ***Note:*** Saving pictures with the document can significantly increase the size of the document.

- **Copy to document's folder**

  If this option is checked, PlanMaker will create a copy of the picture file (in the folder where the document is stored) and use this copy instead of the original file.

  This option is not available if the document has not yet been saved.

Scanning pictures

Note: This feature is available in the **Windows** version of PlanMaker only.

If you have a TWAIN-compatible scanner connected to your computer, pictures can be scanned directly into PlanMaker.

To scan a picture:

1. Power up the scanner and insert the image to scan.
2. Choose **File** > **Acquire**.

PlanMaker will now start the image acquisition. When it is finished, the scanned image will appear as a new picture frame in your document.

Selecting another source

If multiple TWAIN-compatible devices are connected to your computer, **File** > **Select Source** lets you select from which of these you want to acquire images when using the **File** > **Acquire** command

Changing the properties of picture frames

To modify the properties of a picture frame, first select it with a mouse click. Then invoke the **Object > Properties** command to bring up the associated dialog.

> ***Hint:*** This command can also be invoked by double-clicking on the picture.

The following settings can be made in this dialog:

Format, Filling, Lines, etc. property sheets

> ***FreeOffice:*** In **SoftMaker *FreeOffice***, the property sheets **Shadow** and **Effects** are not available.

The property sheets listed below are present for almost all object types. They allow you to modify the following settings:

- **Format:** For changing the size and positioning of the object. See section "Object properties, Format property sheet", page 197.
- **Filling:** For changing the filling of the object. Only visible in pictures that have transparent areas. See section "Object properties, Filling property sheet", page 198.
- **Lines:** For adding border lines. See section "Object properties, Lines property sheet", page 201.
- **Shadow:** For adding a shadow. See section "Object properties, Shadow property sheet", page 202.
- **Effects:** For adding various types of effects. See section "Object properties, Effects property sheet", page 204.
- **Properties:** For modifying common object settings. See section "Object properties, Properties property sheet", page 205.

For pictures, there is an additional property sheet with further options:

Picture property sheet

On the **Picture** property sheet, you can change settings that are specific to pictures.

Options available:

- **Variants**

  In this list, a number of pre-defined variations of the picture are presented – for example different color modes (grayscaled, black & white, etc.) as well as colorized variants of the image.

  To choose one of these variants, simply click on it, and the options in the dialog will be adjusted accordingly.

- **Settings** group box

  Here you can change brightness, contrast, saturation and gamma (color balance, with an effect on brightness).

- **More** button

  This button opens a dialog with the following additional options:

  When you activate the **Mix with color** option and choose a color below, the picture will be colorized accordingly.

  The options in the **Cropping** group box can be used to crop the picture. This is useful when you need only a segment of the picture. For example, if you want to cut off the upper forth of the picture, enter “25” (percent) at **Top**.

- **Transparency** group box

  Lets you modify the transparency settings of the image. Options available:

  Detect automatically: Reads the transparency settings stored in the picture file and displays the image accordingly. Note: Only files in GIF or PNG format can contain transparency settings.

  No transparency: Ignores the transparency settings stored in the picture file. Even pictures containing transparent areas will not be displayed transparently.

  Color: Lets you choose the color to be displayed transparently. For example, if you select white, all white areas of the picture will become transparent.

- **File** button

  To use a different picture file, click this button and choose a new file.

- **Export** button

  Available only for pictures that are saved in the document.

  You can use this button to export the picture, that is, to save a copy of it on your hard disk.

If you check the **Create link to file** option in the Export dialog, PlanMaker first copies the picture from the document to a file and then removes the picture from the document, replacing it with a reference to the new file. Thus, the picture is no longer saved in the document.

OLE objects

Note: The use of OLE objects is possible only with the **Windows** version of PlanMaker.

With PlanMaker for Windows, you can embed objects created with other applications (drawings, pictures, etc.) in your document.

An example: From PlanMaker, you can use **Object > New OLE Object Frame** to start Windows' *Paint* program and then draw something. When you exit Paint, the drawing appears in the PlanMaker document. It is now embedded in the document.

Advantage: To edit the drawing in the PlanMaker document all you have to do is double click on it – Paint is then restarted automatically. When you have finished editing and closed Paint, your changes are imported by PlanMaker.

For this to work, the application invoked from PlanMaker must support *OLE*. OLE stands for "Object Linking and Embedding". The object that is imported from the other application into PlanMaker is called an *OLE object*.

In this section, you will learn everything you need to know about OLE objects. It covers the following topics:

- **Inserting OLE objects**
- **Editing OLE objects**
- **Editing links to OLE objects**
- **Changing the properties of OLE objects**
- **Using the SoftMaker Equation Editor**

See the next pages for details.

Inserting OLE objects

> ***Note:*** The use of OLE objects is possible only with the **Windows** version of PlanMaker.

The **Object > New OLE Object Frame** command allows you to embed an OLE object into the document.

The command opens a dialog box containing a list of all applications that are able to create OLE objects. The entries displayed in the list depend on the OLE-capable programs installed on your system.

Selecting "Paintbrush Picture", for example, will open Windows' *Paint* program (called *Paintbrush* in older versions of Windows). There you can create a picture. Simply exit Paint, and the picture will be embedded into your document. It is displayed in the spreadsheet, and you can edit the picture whenever you wish. To do so, simply double click on the picture.

Step by step, the procedure for embedding an OLE object is as follows:

1. Choose **Object > New OLE Object Frame**.
2. With the mouse, drag a frame with the desired position and size in the document.

   Alternatively, click where you want the upper left corner of the object to be placed. The object will be inserted at its original size.
3. A dialog box appears. From the **Object Type** list displayed in this window, select the type of OLE object that PlanMaker should embed.
4. When you confirm with **OK**, PlanMaker starts the application that is appropriate to the type of object selected.
5. Create the object in the application.
6. Exit the application.
7. At this point, it is possible that the application will ask you if you want to insert the object into the PlanMaker document. Confirm with "Yes".

The OLE object created in the other application is now embedded in the PlanMaker document.

Acquiring an OLE object from a file

If you don't want to create a new OLE object, but want to embed as an OLE object a document that already exists in the form of a file created previously in another application, you still invoke **Object > New OLE Object Frame** command, but in this case, instead of choosing the option **Create New** in the dialog, you select the **Create from File** option.

With this selection, the look of the dialog changes: Instead of the **Object Type** list, a **File** entry field is displayed. Here, enter the full file name of the document file, or click on the **Browse** button to bring up a dialog box that will enable you to search your hard disk for the file.

When you have specified a file and confirmed with **OK**, the file is inserted as an OLE object.

When the OLE object is being inserted, Windows checks the file name extension to see if it is associated with a program that can be started. If the file name extension is not registered, the embedded file is merely represented by a symbol. On the other hand, if Windows can relate the file name extension to an OLE-capable program, the content of the embedded file is displayed.

Creating a link to the original file

The dialog box described above provides an additional option that allows you to specify whether the object to be inserted from the file should be *embedded* in or *linked* to the document. If you leave the **Link** option unchecked, PlanMaker inserts a copy of the file into the document as an OLE object and saves this copy in the document – thus, the object is *embedded* in the usual way.

On the other hand, if you check the **Link** option, PlanMaker inserts the OLE object in the form of a link to the original file. In this case, if you should ever modify the original file with another application and then reopen the PlanMaker document that contains the link to this file, the OLE object will appear modified accordingly – thus, the OLE object remains *linked* to the original file.

Editing OLE objects

Tip: To edit an OLE object, simply double click on it. The object will be opened immediately in its native application, where it can be edited.

Alternatively, you can use the menu to edit an OLE object. Proceed as follows:

1. Click on the OLE object to select it.
2. Open the **Edit** menu. At the bottom of the menu, you will find an item that refers to the object by name (for example, **Bitmap object**). Selecting this menu item opens a sub-menu containing all the OLE commands that are available for this object. There is an **Edit** command for editing the object. Invoke this command.
3. The application associated with the OLE object now starts. Make the desired changes there.

To return to PlanMaker, simply exit the object's source application.

When exiting some applications, you will be asked if you want to update the object in the PlanMaker document. Answer "Yes" – otherwise your changes will be discarded.

Editing links to OLE objects

If you acquire an OLE object from a file with the **Link** option checked, you can edit the resulting link to the source file with the **Edit > Link** command.

When you invoke this command, a dialog box appears and displays a list of all the existing links in the current document. When you select a link from the list, the name and type of the source file to which the link refers are displayed in the lower part of the dialog box.

The dialog's buttons allow you to perform the following functions:

Button	Function
Update now	Updates the OLE object. Use this button if the source file has been modified by another program and the changes are not visible in the PlanMaker document.
Open source	Starts the application associated with the OLE object, allowing you to edit the object in the application. Tip: Double clicking on the object has the same effect.
Change source	Lets you select a different file as the source of the OLE object.
Cancel link	Cuts the link to the source file. As a result, the object is embedded permanently in the PlanMaker document. Changes to the source file no longer have any effect on the document. However, the object can still be edited by double clicking on it.

Changing the properties of OLE objects

To modify the properties of an OLE object frame, first select it with a mouse click. Then invoke the **Object > Properties** command to bring up the associated dialog.

The following settings can be made in this dialog:

Format, Filling, Lines, etc. property sheets

> ***FreeOffice:*** In **SoftMaker *FreeOffice***, the property sheets **Shadow** and **Effects** are not available.

The property sheets listed below are present for almost all object types. They allow you to modify the following settings:

- **Format:** For changing the size and positioning of the object. See section "Object properties, Format property sheet", page 197.
- **Filling:** For changing the filling of the object. Not supported by all OLE applications. See section "Object properties, Filling property sheet", page 198.
- **Lines:** For adding border lines. See section "Object properties, Lines property sheet", page 201.
- **Shadow:** For adding a shadow. See section "Object properties, Shadow property sheet", page 202.
- **Effects:** For adding various types of effects. See section "Object properties, Effects property sheet", page 204.
- **Properties:** For modifying common object settings. See section "Object properties, Properties property sheet", page 205.

For OLE objects, there is an additional property sheet with further options:

Picture property sheet

On the **Picture** property sheet, you can change settings that affect the graphical representation of the OLE object.

> ***Note:*** Depending on the application associated with the OLE object, some of the options may be not supported.

Options available:

- **Variants**

  In this list, a number of pre-defined variations of the object are presented – for example different color modes (grayscaled, black & white, etc.) as well as colorized variants of the object.

  To choose one of these variants, simply click on it, and the options in the dialog will be adjusted accordingly.

- **Settings** group box

  Here you can change brightness, contrast, saturation and gamma (color balance, with an effect on brightness).

- **More** button

  This button opens a dialog with the following additional options:

  When you activate the **Mix with color** option and choose a color below, the object will be colorized accordingly.

  The options in the **Cropping** group box can be used to crop the object. This is useful when you need only a segment of the object. For example, if you want to cut off the upper forth of the object, enter "25" (percent) at **Top**.

- **Export** button

  You can use this button to export a copy of the graphical representation of the object, that is, to save an image of the object on your hard disk.

Using the SoftMaker Equation Editor

FreeOffice: This feature is not included in **SoftMaker *FreeOffice***.

Note: The SoftMaker Equation Editor is available only for **Windows** and is not included in all versions of PlanMaker.

The *SoftMaker Equation Editor* allows you to display mathematical formulas in graphical form.

PlanMaker communicates with the Equation Editor via *OLE*, as described in the previous sections. Thus, to add a graphical representation of a formula to your document, you insert an OLE object, and choose the Equation Editor as the source application.

To do this, proceed as follows:

1. Invoke the **Object > New OLE Object Frame** command.
2. Click on the position where you want to place the object.
3. Select the **SoftMaker Equation Editor** entry from the **Object Type** list.
4. Confirm with **OK** to start the Equation Editor.
5. Create the desired formula.
6. When you have finished building the formula, simply exit the Equation Editor.

The formula is immediately embedded in the PlanMaker document as an OLE object.

You can edit objects created with the Equation Editor by double clicking on them. Following a double click, the Equation Editor is restarted and the formula object is opened in it. After you make the desired changes, simply close the Equation Editor again.

Moreover, you can change the properties of an Equation Editor object by selecting the object with a (single!) mouse click and then invoking the **Object > Properties** command.

Information from the creators of the Equation Editor

The SoftMaker Equation Editor is a special version of the *MathType* program from Design Science. If you make frequent use of formulas in your documents, you might find that MathType itself is even better suited to your needs than the SoftMaker Equation Editor. While just as easy to use as the Equation Editor, MathType has a number of additional functions that can help you be more productive and create more complex formulas.

MathType is available in English, German, French and Japanese. You can obtain information about the purchase of MathType from your software distributor or directly from Design Science.

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Drawings

PlanMaker provides tools to create drawings in your documents. The following types of drawings are available:

- Lines
- Scribbles (freehand curves)
- Curves
- Arrows
- Connectors (to connect objects, e.g., in flowcharts)
- Rectangles and ellipses
- AutoShapes (pre-defined shapes)
- TextArt objects

In this section, you will find detailed information on working with drawings. The following topics are covered:

- **Inserting drawings**
- **Adding text to AutoShapes**
- **Changing the properties of drawings**

See the next pages for details.

Inserting drawings

To insert a drawing, choose the appropriate drawing tool and create the drawing.

For example, to insert a rectangle:

1. Choose **Object > New Drawing** and select one of the drawing tools displayed in the sub-menu – in this case, choose **Rectangle**.

   Alternatively, click one of the drawing tools displayed in the Object toolbar (available in Object mode only):

2. With the mouse, drag a frame with the desired position and size in the document.

The rectangle will now be inserted.

The following types of drawings are available:

Lines

Use the **Line** tool to draw straight lines.

For this purpose, press and hold the left mouse button and draw the line.

Hint: If you hold down Shift key ⇧ while you draw, the line will be restricted to angles of 45 degrees.

Scribbles

Use the **Scribble** tool to draw freehand curves.

For this purpose, move the mouse to the starting point, press and hold the left mouse button, and start drawing as if using a pencil. To draw a straight line, release the mouse button and click on the desired position.

If you end your drawing at its starting point, it will automatically become a *closed* curve. To obtain an *open* curve, double-click the desired end position.

Curves

Use the **Curve** tool to draw Bezier curves.

For this purpose, first, click the starting point, then click as many other positions as desired. The curve will automatically follow your clicks.

If you end your drawing at its starting point, it will automatically become a *closed* curve. To obtain an *open* curve, double-click the desired end position.

Arrows

The **Arrow** tool allows you to draw arrows.

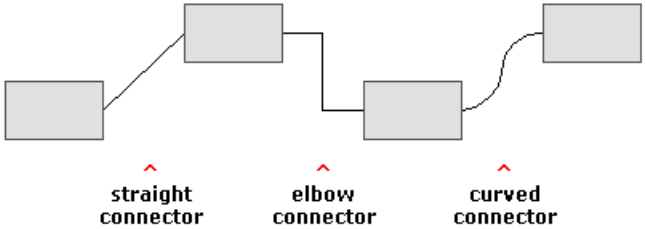
To use this tool, simply press down the mouse button and draw a line in the document.

Tip: When you hold down the Shift key Shift⇧ while drawing, the direction of the line is variable only in increments of 45 degrees.

Annotation: Arrows are simply lines (see above) with the **End** option in the object properties (**Lines** property sheet) set to an arrowhead.

Connectors

Use one of the **Connectors** tools to draw straight connectors, elbow connectors, or curved connectors.



For this purpose, select one of these tools and move the mouse from one object to the next, with the left mouse button held down.

Hint: When you select a connector tool and point to an object, blue handles will appear, indicating where connectors can be attached.

Rectangles, rounded rectangles, and ellipses

Use one of the tools to draw rectangles, rounded rectangles, or ellipses.

For this purpose, select one of these tools and draw a frame with the desired position and size.

Hint: To draw squares/circles, keep the Shift key ⇧ held down while you draw.

AutoShapes

Use the **AutoShape** tool to draw AutoShapes. *AutoShapes* are drawings with a pre-defined shape (e.g., rectangles, ellipses, arrows, banners, callouts, etc.).

When you select this tool, a dialog box is displayed. Choose the desired AutoShape, click **OK**, and draw a frame with the desired position and size.

Note: Some AutoShapes have special features, indicated by yellow triangles that are displayed when the AutoShape is selected. Drag one of these triangles to change the shape. For example, stars have triangles that let you change the size of their tines.

Hint: You can even add text to AutoShapes. It will be displayed inside the shape – just like in a text frame. To learn more about this feature, see section "Adding text to AutoShapes", page 226.

TextArt objects

Use the **TextArt** tool to insert TextArt objects. *TextArt objects* are used to create text effects.

When you select this tool, a dialog box is displayed. Enter the desired text and click **Variants** to choose one of the pre-defined text effects. Then, click **OK**, and draw a frame with the desired position and size.

Adding text to AutoShapes

You can add text to an AutoShape if you wish. The text is then displayed inside the AutoShape – exactly as it would be in a text frame.

To add text to an AutoShape, complete the following steps:

1. Select the desired AutoShape.
2. Right-click it to open the context menu.
3. Choose the **Add Text** command.

You can now type text inside the AutoShape.

> ***Hint:*** There's a faster way to add text to an AutoShape: First select the AutoShape with a mouse click, then simply start typing.

If you want to change the formatting of the text, use the commands **Format > Character** and **Format > Paragraph** as usual.

To finish editing the text, click outside the AutoShape. To continue editing the text later, click inside the AutoShape or choose the **Edit Text** command from the context menu.

> ***Note:*** If the AutoShape object is too small to hold the entered text, PlanMaker will display a red bar at its bottom. To fix this, enlarge the object, reduce the amount of text, or choose a smaller font size.

Hint: *Text frames* are basically AutoShapes (rectangles, in this case) with text added. To learn more about text frames, see chapter “Text frames”, page 209).

Changing the properties of drawings

To modify the properties of a drawing, first select it with a mouse click. Then invoke the **Object** > **Properties** command to bring up the associated dialog.

Hint: This command can also be invoked by double-clicking on the drawing.

The following settings can be made in this dialog:

Format, Filling, Lines, etc. property sheets

FreeOffice: In **SoftMaker** ***FreeOffice***, the property sheets **Shadow**, **3D**, and **Effects** are not available.

The property sheets listed below are present for almost all object types. They allow you to modify the following settings:

- **Format:** For changing the size and positioning of the object. See section “Object properties, Format property sheet”, page 197.
- **Filling:** For changing the filling of the object. See section “Object properties, Filling property sheet”, page 198.
- **Lines:** For modifying the lines used to draw the object. See section “Object properties, Lines property sheet”, page 201.
- **Shadow:** For adding a shadow. See section “Object properties, Shadow property sheet”, page 202.
- **3D:** For adding a 3D effect. See section “Object properties, 3D property sheet”, page 203.
- **Effects:** For adding various types of effects. See section “Object properties, Effects property sheet”, page 204.
- **Properties:** For modifying common object settings. See section “Object properties, Properties property sheet”, page 205.

For certain types of drawings additional property sheets will appear on the dialog, giving you access to more options (as described on the following pages).

AutoShapes property sheet (available only for AutoShapes)

Note: This property sheet appears only for AutoShapes.

The **AutoShapes** property sheet allows you to change the shape of an AutoShape. For example, you can turn a rectangle into a speech balloon or any other shape you like.

To change the shape, simply click on the desired AutoShape in the list.

Inner text property sheet (available only for AutoShapes with text added)

Note: This property sheet appears only for text frames and AutoShapes containing text (see the section "Adding text to AutoShapes", page 226).

Use the **Inner Text** property sheet to change settings affecting the text inside the AutoShape.

Options available:

- **Inner margins** group box

  Lets you modify the margins between AutoShape and inner text. If you check the **Automatic** option, PlanMaker will calculate suitable settings automatically.

- **Overlapping objects** group box

  These settings determine what happens when the object overlaps another object.

  With the default setting **Ignore object** PlanMaker does nothing. Thus, in the region of overlap, the contents of both objects are rendered on top of one another.

  If, on the other hand, you check the **Wrap text** option, PlanMaker automatically reformats the text in this object so that it flows around the area of overlap.

- **Rotate by ...** group box

  Lets you rotate the inner text in 90 degrees increments.

- **Vertical alignment** group box

  Lets you change the vertical alignment of the inner text as follows:

Option	Result
Top	Align inner text at the top of the object
Centered	Vertically center text between top and bottom of the object
Bottom	Align inner text at the bottom of the object
Justified	Vertically justify text (so that it is evenly distributed between top and bottom of the object)

Text property sheet (available only for TextArt objects)

Note: This property sheet appears only for TextArt objects.

Use the **Text** property sheet to select the desired TextArt effect and to edit or format the text to be displayed.

Options available:

- **Text**

  Here you can edit the text to be displayed.

- **Variants**

  Here you can choose which TextArt effect to apply.

- **Font** group box

  Here you can change the font and apply the text styles **Bold** and **Italic**.

  If you check the **Same height** option, all letters (including lower case letters) will be stretched to a uniform height.

- **Spacing** group box

  The **Character** option affects the spacing between characters. Values below 100% produce spacings that are closer together than normal, values above 100% produce spacings that are wider apart.

  The **Line** option affects the spacing between lines. This setting is effective only for text that consists of multiple lines.

- **Alignment** group box

  Here you can change the alignment of the text. This setting is effective only for text that consists of multiple lines.

- **Placement** group box

  If you check the **Vertical text** option, the letters will be rotated by 90 degrees.

Deformation property sheet (available only for TextArt objects)

Note: This property sheet appears only for TextArt objects.

Use the **Deformation** property sheet to change the type of shaping effect to be applied to the characters. To do this, click the desired type of deformation.

Charts

In spreadsheets containing nothing but long columns of numbers, it is often hard to interpret their meaning. PlanMaker offers easy ways to turn raw numbers into charts that get the point across.

This chapter covers information on working with charts in PlanMaker:

- **Inserting charts**

  The first section describes how to insert a chart: Select the cells containing the data to be displayed, choose **Object > New Chart Frame**, select a chart type, and draw a frame with the desired position and size.

- **Editing charts**

  This section contains information on editing charts, for example, changing chart type, arrangement of the data series, working with chart elements (data series, axes, legends, etc.), editing chart properties, and so on.

- **Updating charts**

  By default, charts are automatically updated when you change the content of any of the cells they are based on. If desired, this feature can be turned off, requiring that charts be updated manually.

- **Moving charts to another worksheet**

  FreeOffice: This feature is not included in **SoftMaker *FreeOffice***.

  The command **Object > Chart > Change Chart Location** allows you to move a chart to a different worksheet – or even create a dedicated *chart worksheet* for it. A chart worksheet contains no table cells but solely the chart in its full size.

- **Saving charts as images**

  FreeOffice: This feature is not included in **SoftMaker *FreeOffice***.

  The command **Object > Chart > Save as Image** allows you to save an image of a chart in a picture file.

Inserting charts

To insert a chart into the current worksheet:

1. Select the cells containing the values to be displayed in a chart.

   Hint: If the selection contains row and/or column headings, these headings can be used to automatically label the axes and the legend.

2. Choose **Object > New Chart Frame** or click the icon in the Object toolbar (available only in Object mode).

3. In the resulting dialog box, click the desired **Chart type** and **Subtype** to specify how the chart will look. (For more information about chart types, see section "Changing the chart type", page 233.)

4. With the mouse, drag a frame with the desired position and size in the document.

   Alternatively, click where you want the upper left corner of the chart frame to be placed. A frame with a default size will then be inserted.

5. Click **OK** to confirm.

The chart will now be inserted.

Editing charts

On the next pages you will learn how to edit charts. The following topics are covered:

- **Changing the chart type** (page 233)
- **Changing the arrangement of data series** (page 238)
- **Working with chart elements** (page 239)
- **Changing common chart properties** (page 257)

Note: Basic procedures for editing objects are discussed in the chapter "Objects (pictures, drawings, etc.)" (beginning on page 191).

Tip: Using the Chart toolbar

When you select a chart, a toolbar named *Chart toolbar* will automatically appear.

The Chart toolbar

This toolbar provides icons helpful for working with charts. From left to right:

- Change chart type
- Change chart subtype
- Drop-down list of all chart elements (open it and click an element to select it for editing)
- Edit properties of the current chart element
- Edit common chart properties
- Data series are in columns
- Data series are in rows
- Add trend line
- Legend on/off
- Vertical gridlines on/off
- Horizontal gridlines on/off

Hint: Move the mouse pointer over any of these icons, and a short explanation of its function is displayed.

For detailed information on each icon, read the following pages.

Changing the chart type

The *chart type* determines how data will be displayed in charts; for example, as columns, as bars, as lines, etc.

To change the type of a chart:

1. Select the chart by clicking it.
2. Choose **Object** > **Properties**.
3. Switch to the **Chart Type** property sheet.
4. Choose the desired chart type and chart subtype.

Hint: Alternatively, use the first two icons in the Chart toolbar to change the type of a chart: The first icon represents the chart type; the second icon represents the subtype (if available).

Chart types available:

Column chart

Column charts display values as columns. The higher the value, the taller the corresponding column. Column charts are often used to compare values.

Bar chart

Bar charts are horizontally oriented versions of Column charts. The data is displayed as horizontal bars instead of vertical columns.

Line chart

Line charts display values as points and/or connecting lines.

Area chart

Area charts are identical to Line charts, except that the area below the lines is filled with color.

XY Scatter chart

XY Scatter charts display values as points and/or lines. Unlike Line charts, the data area must contain both the x and the y coordinate of the data points.

Bubble chart

Bubble charts display values as filled circles ("bubbles"). Bubble charts are usually based on data series containing three values: x coordinate, y coordinate, and bubble size.

Radar chart

Radar charts display values along spokes that radiate from the center point.

Surface chart

Surface charts display values as a three-dimensional shape. Areas plotted in the same color indicate similar values.

The values to be displayed should have the following structure:

	y_1	y_2	y_3	...
x_1	z_{11}	z_{12}	z_{13}	...
x_2	z_{21}	z_{22}	z_{23}	...
x_3	z_{31}	z_{32}	z_{33}	...
...	...	...	...	...

(Z values determine the height.)

Pie chart

Pie charts display values as pie slices. Pie charts are often used to conceptualize how values contribute to a whole.

Hint: You can highlight values by selecting them with the mouse and dragging them out of the pie.

Doughnut chart

Doughnut charts display values as ring segments. They are similar to Pie charts, except that they are able to display multiple data series (= rings).

Cylinder, Cone, and Pyramid chart

Cylinder, **Cone**, and **Pyramid charts** are identical to Column and Bar charts, except that they display values as cylinders, cones, or pyramids.

Stock chart

Stock charts (a.k.a. **high-low charts**) are often used for illustrating the development of stock prices. They are able to display e.g. the highest, the lowest, and the closing price at the same time.

The following subtypes are available:

- **Stock chart (High, Low, Close)**

  Displays the following values:

  Highest price, lowest price, closing price

  Requires 3 data series in the quoted order.

  An example for the structure of the data (with the date added in column A):

Stock3.pmd

	A	B	C	D
1		High	Low	Closing
2	10/24	24.94	20.55	21.04
3	10/25	22.76	19.73	20.44
4	10/26	21.09	18.18	20.71
5	10/27	25.83	20.46	24.59
6	10/28	28.04	25.09	27.76
7				

«Sheet1» *

- **Stock chart (Open, High, Low, Close)**

  Displays the following values:

Opening price, highest price, lowest price, closing price

Requires 4 data series in the quoted order.

- **Stock chart (Volume, High, Low, Close)**

  Displays the following values:

  Volume traded, highest price, lowest price, closing price

  Requires 4 data series in the quoted order.

  The *volume traded* is displayed as an additional column (which has its own value axis).

- **Stock chart (Volume, Open, High, Low, Close)**

  Displays the following values:

  Volume traded, opening price, highest price, lowest price, closing price

  Requires 5 data series in the quoted order.

  The *volume traded* is displayed as an additional column (which has its own value axis).

Box plot chart

Box plots (or **box and whisker plots**) can be used for data analysis in statistics. Detailed explanations on the application of box plots would go beyond the scope of this manual. You can find elaborate information on this in the Internet search engine of your choice.

There are two subtypes: **Horizontal** and **Vertical**.

Depending on the number of data series passed to the chart, a different type of box plot will be rendered, as follows:

(Note: The values below are just examples; you can display *any* types of values in a box plot.)

- **3 point box plot**

  Displays, for example, the following values:

  Lower quartile (lower border of the box)
  Median (position of the bar inside the box)

Upper quartile (upper border of the box)

Requires exactly **3** data series in the quoted order.

- **5 point box plot**

  Displays, for example, the following values:

  Lower whisker (line below the box)
  Lower quartile (lower border of the box)
  Median (position of the bar inside the box)
  Upper quartile (upper border of the box)
  Upper whisker (line above the box)

  Requires exactly **5** data series in the quoted order.

- **7 point box plot**

  Displays, for example, the following values:

  Minimum (as a single marker)
  Lower whisker (line below the box)
  Lower quartile (lower border of the box)
  Median (position of the bar inside the box)
  Upper quartile (upper border of the box)
  Upper whisker (line above the box)
  Maximum (as a single marker)

  Requires exactly **7** data series in the quoted order.

Changing the arrangement of data series

The two icons in the Chart toolbar determine how the selected data will be arranged in the chart: *by columns* or *by rows*.

- **By columns**

  By default, the first icon is selected, meaning that the data is evaluated column by column: The values in the first *column* will be the first data series, the values in the second *column* will be the second data series, etc.

- **By rows**

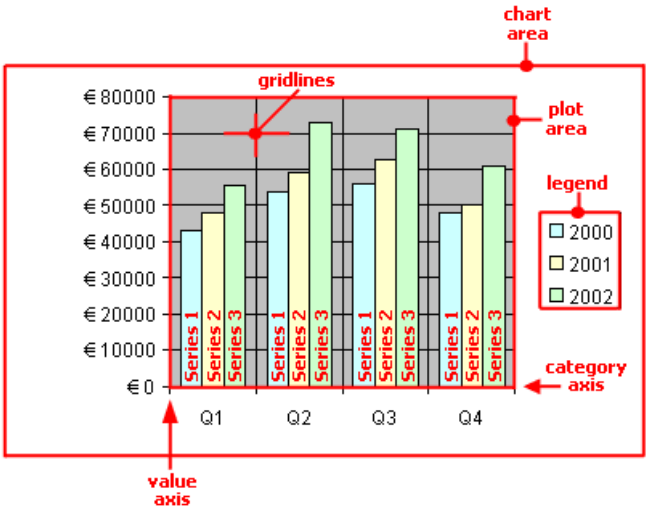
  If you click the second icon, the data will be evaluated row by row: The values in the first *row* will be the first data series, the values in the second *row* will be the second data series, etc.

Alternatively, this setting can be switched by choosing **Object** > **Chart** > **Data in Columns** or **Data in Rows**, respectively.

Working with chart elements

Each chart consists of various elements (data series, axes, legend, etc.), referred to as *chart elements*.

The picture below illustrates all chart elements:



Series 1, Series 2, etc. represent the chart's *data series*.

Three-dimensional charts types contain some additional chart elements (walls, floor, etc.), which will also be discussed on the following pages.

Each of these chart elements can be selected and modified.

Selecting chart elements

To select a chart element, first click on the chart itself to select it (if it isn't already selected). Then, click on the desired chart element.

Note: To select a *single* value within a data series, first click on the data series to select the entire series, and then click on the desired value.

Hint: Alternatively, open the chart elements drop-down list in the middle of the Chart toolbar and select the desired element.

Changing position and size of chart elements

Some chart elements can be moved or resized. To move an element, select it and drag it to the desired position. To change its size, drag one of the corner handles.

Modifying chart elements properties

Like all objects, charts have properties that can be modified (see section "Changing common chart properties", page 257). As well as changing *common* chart properties, you can also change the properties of *single* chart elements.

For example, to change the properties of the legend displayed in a chart, right-click the legend to open its context menu. Then, do *not* choose the **Chart: Properties** command; rather select the **Legend: Properties** command. This command will open a dialog containing legend-specific properties.

Hint: Clicking the icon in the Chart toolbar or double-clicking a chart element will also access the element's properties dialog.

A different dialog appears for each type of chart element. The following sections provide detailed information on each individual chart element, including their properties, as follows.

- Chart area (page 241)
- Plot area (page 242)
- Walls (three-dimensional charts only) (page 242)
- Floor (three-dimensional charts only) (page 243)
- Corners (three-dimensional charts only) (page 244)
- Data series and data points (page 244)
- Trend lines (page 248)
- Category axis (x axis) (page 250)

- Value axis (y axis) (page 252)
- Series axis (z axis) (page 253)
- Gridlines (page 255)
- Legend (page 256)

Chart area

The *chart area* is the complete area covered by the chart frame.

Modifying properties: To change the properties of the chart area, select it, right-click it, and choose the **Chart area: Properties** command from the context menu.

> ***Hint:*** Alternatively, select the chart area and either click the icon in the Chart toolbar, or double-click the chart area.

Options available:

Format property sheet

Use this property sheet to modify the following settings:

- **Border** group box

  Lets you add border lines in the selected line style to the chart.

  If the **Shadow** option is checked, a drop shadow effect will be added to the border. The **Adjust** button can be used to customize the appearance of the shadow.

- **Filling** group box

  Lets you change the filling of the chart area.

  To use complex fill types (gradients, bitmaps, etc.), select the **Effects** option and click the **Customize** button. For more information on fill types, see section "Object properties, Filling property sheet", page 198.

Font property sheet

Use this property sheet to change the default character format (font, font size, font styles, etc.) of the chart.

Important: Changing the font settings for the chart area will also change the font settings for *all* other chart elements.

Plot area

The *plot area* of a chart is the area where data series, axes, and gridlines are painted.

Modifying properties: To change the properties of the plot area, select it, right-click it, and choose the **Plot area: Properties** command from the context menu.

Hint: Alternatively, select the plot area and either click the icon in the Chart toolbar, or double-click the plot area to access its properties dialog.

Options available:

Format property sheet

Use this property sheet to modify the following settings:

- **Border** group box

  Lets you add border lines in the selected line style to the plot area.

- **Filling** group box

  Lets you change the filling of the plot area.

  To use complex fill types (gradients, bitmaps, etc.), select the **Effects** option and click the **Customize** button. For more information on fill types, see section "Object properties, Filling property sheet", page 198.

Walls (three-dimensional charts only)

Walls exist in three-dimensional charts only.

Modifying properties: To change the properties of the walls, select one of the walls, right-click it, and choose the **Walls: Properties** command from the context menu.

Hint: Alternatively, select a wall and either click the icon in the Chart toolbar, or double-click a wall to access its properties dialog.

Options available:

Format property sheet

Use this property sheet to modify the following settings:

- **Border** group box

  Lets you modify the line style used to draw the walls.

- **Filling** group box

  Lets you change the filling of the walls.

  To use complex fill types (gradients, bitmaps, etc.), select the **Effects** option and click the **Customize** button. For more information on fill types, see section "Object properties, Filling property sheet", page 198.

3D View property sheet

Use this property sheet to modify the 3D settings for the entire chart. For more information, see section "Chart properties, 3D View property sheet", page 261.

Floor (three-dimensional charts only)

Floors exist in three-dimensional charts only.

Modifying properties: To change the properties of the floor, select it, right-click it, and choose the **Floor: Properties** command from the context menu.

> ***Hint:*** Alternatively, select the floor and either click the icon in the Chart toolbar, or double-click the floor to access its properties dialog.

Options available:

Format property sheet

Use this property sheet to modify the following settings:

- **Border** group box

  Lets you modify the line style used to draw the floor.

- **Filling** group box

  Lets you change the filling of the floor.

  To use complex fill types (gradients, bitmaps, etc.), select the **Effects** option and click the **Customize** button. For more information on fill types, see section “Object properties, Filling property sheet”, page 198.

3D View property sheet

Use this property sheet to modify the 3D settings for the entire chart. For more information, see section “Chart properties, 3D View property sheet”, page 261.

Corners (three-dimensional charts only)

Corners exist in three-dimensional charts only.

Modifying properties: To change the properties of the corners, select one of them, right-click it, and choose the **Corners: Properties** command from the context menu.

> ***Hint:*** Alternatively, select a corner and either click the icon in the Chart toolbar, or double-click a corner to access its properties dialog.

Options available:

3D View property sheet

Use this property sheet to modify the 3D settings for the entire chart. For more information, see section “Chart properties, 3D View property sheet”, page 261.

Data series and data points

Data series are the most important chart elements. They represent the selected data. For example, in a column chart, the height of each column stands for the height of the corresponding value.

A **data series** is the graphical representation of one *row* (or *column*) of the cells the chart is based on. Every data series consists of multiple **data points**, i.e., the graphical representation of one *cell*.

Modifying properties: To change the properties of data series or single data points:

- When you click on any of the data points of a data series, the *entire* data series will be selected. To edit its properties, right-click it to display its context menu and choose the **Series: Properties** command.
- When you click the *same* data point once again, only this *single* data point will be selected. To edit its properties, right-click it and choose the **Point: Properties** command.

Options available (for both data series and data points):

Format property sheet

Use this property sheet to modify the following settings:

- **Border** group box (or **Line** group box)

  Lets you modify the line style used to draw the graph.

- **Filling** group box

  Lets you change the filling used to draw the graph.

  To use complex fill types (gradients, bitmaps, etc.), select the **Effects** option and click the **Customize** button. For more information on fill types, see section "Object properties, Filling property sheet", page 198.

- **Marker** group box (available only for certain chart types)

  Some chart types (e.g. certain types of line charts) draw *markers* for each data point. Here, you can modify the appearance of such markers. For this purpose, choose the **Custom** option and select the desired style, size, color, etc.

3D Format property sheet

FreeOffice: This property sheet is not available in **SoftMaker *FreeOffice***.

Note: The options on this property sheet are available only for certain chart types.

Use this property sheet to add a light effect or bevels to the data points to be displayed.

- **Material**

  Lets you specify what type of material will be simulated to display the data points.

- **Light**

  Lets you specify what type of light to simulate.

- **Angle**

  Lets you change the angle of the light source.

  Hint: The above effects usually look better when you additionally add bevels to the data points (see the next option).

- **Bevel** group box

  Lets you add a bevel effect to graphical representation of the data points. For example, in a bar chart, you can use these options to round the edges of the bars. The larger the value, the rounder the edges will be displayed.

Data labels property sheet

Use this property sheet to add *labels* to the selected data points. This is useful, for example, if you want to have the exact values displayed for each data point.

- **Display** group box

  Lets you specify what type of label will be displayed. By default, **Don't show** is selected (meaning that *no* label will be displayed). If, for example, you choose **Show value**, the value in the cell represented by the data point will be displayed.

- **Display legend key in label**

  If this option is checked, the legend key is displayed in each label. The *legend key* is a small square shaded in the color used to paint the data point.

- **Placement** group box

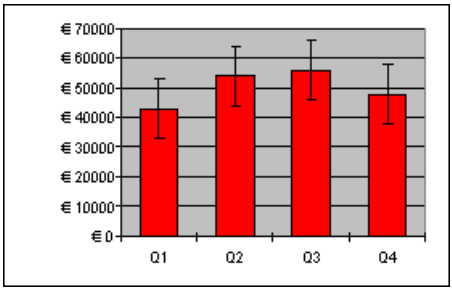
  Lets you modify the placement of the labels (relative to the corresponding data points).

Note: Labels can be modified like any other kind of chart element. For example, to change their properties, select one of them, right-click it, and choose the **Data label: Properties** command from the context menu.

Error bar Y property sheet

> ***Note:*** This property sheet is available only for certain chart types (including column, bar, and line charts).

Use this property sheet to add *error bars* to the data points of the selected data series. Error bars display the possible/tolerable error of the values in the form of lines ending with short dashes at their ends.



A chart using both "Plus" and "Minus" error bars

To add error bars, select the desired type of error bar in the **Display** group box: **Plus only** displays a positive error bar, **Minus only** displays a negative error bar, **Plus and minus** displays both error bars.

The **Show as** group box lets you modify the appearance of the error bars: with or without end dashes.

The **Value** group box lets you determine the length of error bars: If you choose **Fixed**, the error bars will have a fixed length; if you choose **Percent**, the length will be determined by the specified percentage of each value, and so on.

Error bar X property sheet

> ***Note:*** This property sheet is available only for certain chart types (including column, bar, and line charts).

This property sheet is identical to the **Error bar Y** property sheet (see above), except that it displays error bars for the x values instead of the y values.

Helper Lines property sheet

> ***Note:*** This property sheet is available only for certain chart types (including two-dimensional column, bar, and line charts).

Use this property sheet to add "helper lines" representing statistical information to the selected data series. For example, if you choose the **Average** option, a dashed line indicating the average of the selected data series will be displayed in the chart.

Options available: **Average**, **Minimum/Maximum**, **Standard deviation**, and **Linear approximation** (displays a trend line calculated using linear regression).

Hint: Alternatively, you can add a large variety of other types of trend lines using the **Object > Chart > Add Trendline** command. See section "Trend lines" below.

Options property sheet

This property sheet contains several additional options for the selected chart type.

Trend lines

> ***Note:*** Trend lines are available only for certain chart types (including two-dimensional column, bar, and line charts).

If desired, you can add *trend lines* to the data series of a chart.

Trend lines can be used to graphically display the *trend* of a data series (i.e., to what extent the data series rises/falls on average). Trend lines can also be extended beyond the given data points, so that they display a forecast for future values.

A statistical technique called *regression analysis* is used to calculate trend lines.

Adding trend lines: To add a trend line to a data series, select the data series, right-click it, and choose the **Add Trendline** command from the context menu.

> ***Hint:*** Alternatively, select the data series and either click the icon in the Chart toolbar or choose the **Object > Chart > Add Trendline** command.

Removing trend lines: To remove a trend line, select it and press the Del key.

Modifying properties: To change the properties of a trend line, select it, right-click it, and choose the **Trendline: Properties** command from the context menu.

Hint: Alternatively, select the trend line and either click the icon in the Chart toolbar, or double-click the trend line to access its properties dialog.

Options available:

Format property sheet

Use this property sheet to modify the following settings:

- **Line** group box

  Lets you modify the line style used to draw the trend line.

Trendline property sheet

- **Type** group box

  Lets you determine the type of trend line (linear trend, exponential trend, etc.).

  The available types of trend lines are based on the following formulas:

Linear:	$y = ax + b$
Polynomial:	$y = b + c_1x + c_2x^2 + c_3x^3 + ... + c_6x^6$
Exponential:	$y = ce^{bx}$ (e = Euler's number)
Logarithmic:	$y = c \ln(x) + b$
Potential:	$y = cx^b$
Moving average:	$f(x_i) = (x_i + x_{i-1} + x_{i-2} + ... + x_{i-n+1}) / n$

- **Based on series**

  Lets you choose the data series for which the trend line is displayed.

- **Forecast** group box

  Lets you extend the trend line beyond the given data points.

  Example: If 3 data points are given (e.g., the sales figures of the 1st, 2nd, and 3rd year) and you enter 1 in the **Forward** box, the trend line will be extended by one unit (= data point), so that it displays a forecast for the sales in the 4th year.

- **Crossing point**

  To force the trend line to intersect the y axis at a specific y coordinate, check this option and enter the desired y coordinate. Available for certain types of trend lines only.

- **Show formula in chart**

  If this option is checked, the formula used to calculate the trend line will be displayed in the chart.

- **Show correlation in chart**

  If this option is checked, the correlation coefficient R^2 of the data series will be displayed in the chart.

- **Name** group box

  Lets you modify the name of the trend line (displayed in the legend). Select the **Custom** option and enter the desired name.

Category axis (x axis)

The x axis of a chart is also called *category axis*.

Showing/hiding axes: To show/hide axes, select the chart, choose **Object > Properties**, and switch to the **Elements** property sheet. Check the axes to be displayed. For example, if you check the **X axis** option, the x axis (category axis) will be displayed.

Modifying properties: To change the properties of the category axis, select it, right-click it, and choose the **Category Axis: Properties** command from the context menu.

> ***Hint:*** Alternatively, select the axis and either click the icon in the Chart toolbar, or double-click the axis to access its properties dialog.

Options available:

Format property sheet

Use this property sheet to modify the following settings:

- **Line** group box

  Lets you modify the line style used to draw the axis.

- **Major ticks** and **Minor ticks** group boxes

  Lets you modify the placement of the tick marks displayed on the axis.

- **Tick labels** group box

  Lets you modify the placement of the tick labels displayed at the tick marks.

Scale property sheet

Use this property sheet to change the scaling of the axis.

> ***Annotation:*** The first, second, third, etc., data point of *all* data series is called a *category*.

- **Axis ends** group box

  Lets you determine where to end the visible part of the axis: **In categories** or **Between categories**.

- **Number of categories between** group box

  By default, PlanMaker draws a tick mark on the axis at *every* category and adds a tick label to *every* tick mark. To alter these settings:

  The **Tick marks** option determines the frequency tick marks are set. Enter 1, and a tick mark is set for every category. Enter 2, and a tick mark is set for every second category, etc.

  The **Tick labels** option determines the frequency tick marks are labeled. Enter 1, and every tick mark is labeled. Enter 2, and every second tick mark is labeled, etc.

- **Intersection between X and Y axis** group box

  Use this option to determine where the x axis (category axis) will cross the y axis (value axis): **At low end** (where the axis begins), **At high end** (where the axis ends), or at the specified category number.

- **Invert axis direction**

  If this option is checked, the direction of the axis is reversed.

Font property sheet

Use this property sheet to change the character format (font, font size, font styles, etc.) of the axis labels.

Note: If desired, the axis labels can be rotated by choosing the **Custom** option and selecting the desired angle under **Rotation**.

Value axis (y axis)

The y axis of a chart is also called *value axis*.

Showing/hiding axes: To show/hide axes, select the chart, choose **Object > Properties**, and switch to the **Elements** property sheet. Check the axes to be displayed. For example, if you check the **Y axis** option, the y axis (value axis) will be displayed.

Modifying properties: To change the properties of the value axis, select it, right-click it, and choose the **Value Axis: Properties** command from the context menu.

> ***Hint:*** Alternatively, select the axis and either click the icon in the Chart toolbar, or double-click the axis to access its properties dialog.

Options available:

Format property sheet

Use this property sheet to modify the following settings:

- **Line** group box

  Lets you modify the line style used to draw the axis.

- **Major ticks** and **Minor ticks** group boxes

  Lets you modify the placement of the tick marks displayed on the axis.

- **Tick labels** group box

  Lets you modify the placement of the tick labels displayed at the tick marks.

Scale property sheet

Use this property sheet to change the scaling of the axis.

- **Lowest value** and **Highest value** group boxes

  These options determine where the axis will begin and end. **Auto** chooses a suitable value automatically. To use a different value, select **Custom** and enter the desired value.

- **Intersection between X and Y axis** group box

  Use this option to determine where the x axis (category axis) will cross the y axis (value axis): **Auto** chooses a suitable value automatically, **Maximum value** places the x axis at the end of the y axis, and **Custom** uses a user-defined value.

- **Major step value** group box

  Lets you modify the interval between major tick marks on the axis.

- **Minor step value** group box

  Lets you modify the interval between minor tick marks on the axis.

- **Invert axis direction**

  If this option is checked, the direction of the axis is reversed.

- **Logarithmic scale**

  If this option is checked, the axis will use a logarithmic scale (e.g., 10, 100, 1000, etc.) rather than a linear scale.

Font property sheet

Use this property sheet to change the character format (font, font size, font styles, etc.) of the axis labels.

Note: If desired, the axis labels can be rotated by choosing the **Custom** option and selecting the desired angle under **Rotation**.

Series axis (z axis)

The z axis of a chart is also called *series axis*. It is only available for certain three-dimensional charts.

Showing/hiding axes: To show/hide axes, select the chart, choose **Object > Properties**, and switch to the **Elements** property sheet. Check the axes to be displayed.

For example, if you check the **Z axis** option, the z axis (series axis) will be displayed.

Modifying properties: To change the properties of the series axis, select it, right-click it, and choose the **Series Axis: Properties** command from the context menu.

> ***Hint:*** Alternatively, select the axis and either click the icon in the Chart toolbar, or double-click the axis to access its properties dialog.

Options available:

Format property sheet

Use this property sheet to modify the following settings:

- **Line** group box

  Lets you modify the line style used to draw the axis.

- **Major ticks** and **Minor ticks** group boxes

  Lets you modify the placement of the tick marks displayed on the axis.

- **Tick labels** group box

  Lets you modify the placement of the tick labels displayed at the tick marks.

Scale property sheet

Use this property sheet to change the scaling of the axis.

- **Number of series between** group box

  By default, PlanMaker draws a tick mark on the axis at *every* data series and adds a tick label to *every* tick mark. To alter these settings:

  The **Tick marks** option determines the frequency at which tick marks are set. Enter 1, and a tick mark is set for every data series. Enter 2, and a tick mark is set for every second data series, etc.

  The **Tick labels** option determines the frequency at which tick marks are labeled. Enter 1, and every tick mark is labeled. Enter 2, and every second tick mark is labeled, etc.

- **Invert axis direction**

  If this option is checked, the direction of the axis is reversed.

Font property sheet

Use this property sheet to change the character format (font, font size, font styles, etc.) of the axis labels.

Note: If desired, the axis labels can be rotated by choosing the **Custom** option and selecting the desired angle under **Rotation**.

Gridlines

Adding *gridlines* to a chart can improve its readability.

Two types of gridlines are available:

- *Major gridlines* are painted at every major tick mark on the axis.
- *Minor gridlines* subdivide the major grid into a finer grid.

Showing/hiding gridlines: Gridlines can be enabled for each axis. To determine which gridlines to display, select the chart, choose **Object > Properties**, switch to the **Elements** property sheet, and check all major or minor grids you want to be plotted.

> ***Hint:*** Alternatively, use the two icons in the Chart toolbar, or choose **Object > Chart > Show Vertical Grid Lines** or **Show Horizontal Grid Lines** to activate grid lines.

Modifying properties: To change the properties of, e.g., the major grid of the value axis, select one of its gridlines, right-click it, and choose the **Value Axis Major Gridlines: Properties** command from the context menu.

> ***Hint:*** Alternatively, select one of the lines and either click the icon in the Chart toolbar, or double-click one of the lines to access the properties dialog.

Options available:

Format property sheet

Use this property sheet to modify the following settings:

- **Line** group box

  Lets you modify the line style used to draw the gridlines.

Changing the scaling of gridlines

To change the scaling of gridlines, modify the properties of the corresponding *axis* (**Scaling** property sheet).

Legend

If desired, you can add a legend to a chart. A *legend* is a small box indicating which colors/patterns are assigned to the data series displayed in the chart.

Showing/hiding the legend: To show/hide the legend, select the chart, choose **Object > Properties**, and switch to the **Elements** property sheet. Open the **Legend** drop-down list, and choose the desired location.

If you choose **Custom**, the legend can be moved to any position (using the mouse). If you choose **None**, the legend will not be displayed.

> ***Hint:*** Alternatively, use the icon in the Chart toolbar or the **Object > Chart > Show Legend** command to show/hide the legend.

Modifying properties: To change the properties of the legend, select it, right-click it, and choose the **Legend: Properties** command from the context menu.

> ***Hint:*** Alternatively, select the legend and either click the icon in the Chart toolbar, or double-click the legend to access its properties dialog.

Options available:

Format property sheet

Use this property sheet to modify the following settings:

- **Border** group box

  Lets you add border lines in the selected line style to the legend.

  If the **Shadow** option is checked, a drop shadow effect will be added to the border. The **Adjust** button can be used to customize the appearance of the shadow.

- **Filling** group box

  Lets you change the filling of the legend.

  To use complex fill types (gradients, bitmaps, etc.), select the **Effects** option and click the **Customize** button. For more information on fill types, see section "Object properties, Filling property sheet", page 198.

Font property sheet

Use this property sheet to change the character format (font, font size, font styles, etc.) of the legend entries.

Legend property sheet

Use this property sheet to change the placement of the legend.

If you choose **Custom**, the legend can be moved to any position (using the mouse). If you choose **None**, the legend will not be displayed.

Changing common chart properties

The previous sections discussed how to change the properties of specific chart *elements*. The following section details the *common* chart properties.

To modify the common properties of a chart, select the chart and choose the **Object > Properties** command.

> ***Hint:*** Click the icon in the Chart toolbar will also access the Object Properties dialog.

The options available are covered on the pages that follow.

Chart properties, Format property sheet

Use the **Format** property sheet to change size and positioning of the chart. For details, see section “Object properties, Format property sheet”, page 197.

Chart properties, Properties property sheet

Use the **Properties** property sheet to modify common object settings. For details, see section “Object properties, Properties property sheet”, page 205.

Chart properties, Chart Type property sheet

Use the **Chart Type** property sheet to change the chart type. For details on chart types, see section “Changing the chart type”, page 233.

Chart properties, Data Source property sheet

Use the **Data Source** property sheet to modify settings related to the chart’s data source area (i.e., the cells containing the data the chart is based on).

Options available:

- **Data source area**

  Lets you specify the cell range containing the data the chart is based on. By default, the cells selected when the chart was created are used.

- **Data series are in** group box

  Lets you specify how the data source area will be arranged in the chart: *by columns* or *by rows*. See also section “Changing the arrangement of data series”, page 238.

- **Data source area contains** group box

  Lets you specify what kind of data the data source area consists of.

  Hint: If the first row of the data source area contains headings for the data listed below, check the **Names** option. PlanMaker will automatically label the data series with the corresponding headings.

- **Include hidden cells**

  When the data source area contains cells that have been hidden, PlanMaker usually does *not* display them in the chart. Check this option if you want hidden cells to be displayed as well.

Chart properties, Series property sheet

Use the **Series** property sheet to modify settings related to the data series of the chart.

Options available:

- **Series**

  The **Series** list contains a list of all data series displayed in the charts. Click one of the series to change its settings.

  Use the arrow buttons to change the order of the data series. The **Add** and **Delete** buttons add/delete a data series.

- **Data sources** group box

  Allows you to specify which cells' contents are used to build up the selected data series.

  By default, the cells selected when the chart was created are used. To enter different values:

  Name: Lets you modify the name of the data series. Either enter the cell containing the name or type in a text string directly, or, leave this box empty, and PlanMaker will automatically assign a name (Series 1, Series 2, etc.).

  Y values: Lets you choose a different cell range for the y values of the data series.

  Annotation: With most chart types, the *y values* are the data to be displayed in the chart. For example, in a Column chart, the y values determine the height of the columns. Exception: In XY Scatter charts and Bubble charts, the y values determine the y coordinate of the data points.

  X values: Lets you choose a different cell range for the x values of the data series.

  Annotation: With most chart types, the *x values* are used to label the category axis (x axis). Exception: In XY Scatter charts and Bubble charts, the x values determine the x coordinate of the data points.

Bubble size: Lets you choose a different cell range for the bubble sizes of the data points (only available in Bubble charts). If omitted, all bubbles will have the same size.

- **Display this series as** group box

  Allows you to modify the way the selected data series is displayed. For example, in a Column chart, you can change the appearance of one or more data series to lines instead of columns.

- **Use secondary axis for this series**

  If you check this option, the selected data series will be displayed using a secondary value axis (y axis). Secondary axes can have a different scale than primary axes.

  Annotation: Using a secondary axis is helpful if one or more data series require a completely different scale on the axis because they contain values many times larger or smaller than the other data series.

Chart properties, Elements property sheet

Use the **Elements** property sheet to add/remove chart elements or to add captions to them.

Options available:

- **Chart title**

  Lets you enter a title for the chart. The title will be displayed above the chart.

- **Primary Axes** group box

  Allows you to configure the primary axes:

  The checkbox in front of the axis determines if it will be displayed in the chart.

  The text box to the right lets you enter a caption for the axis.

  The options **Major grid** and **Minor grid** determine if a grid will be displayed in the background of the chart. For more details on gridlines, see section “Gridlines”, page 255.

- **Secondary Axes** group box

  Allows you to configure the secondary axes (only available for charts that contain secondary axes).

- **Legend**

  Allows you to change the position of the legend. A *legend* is a small box indicating which colors/patterns are assigned to the data series displayed in the chart. For more details, see section “Legend”, page 256.

Chart properties, 3D View property sheet

> ***Note:*** This property sheet is only available for three-dimensional chart types.

Use the **3D View** property sheet to modify the 3D effect settings for the chart.

Options available:

- **Rotation angle** and **Elevation angle**

  Lets you modify the viewing position. **Rotation angle** rotates the chart around the vertical axis; **Elevation angle** changes the height of the viewing position.

- **Perspective**

  To display the chart with perspective distortion, check this option and choose the amount of distortion (0 to 100 percent).

- **Height** and **Depth**

  Lets you modify the height and depth of the chart (as a percentage of its original size).

Chart properties, Radar property sheet

> ***Note:*** This property sheet is only available for Radar charts.

Use the **Radar** property sheet to modify settings specific to Radar charts.

Options available:

- **Starting angle**

  Rotates the chart by the specified angle.

- **Orientation**

  Specifies if the data points are arranged clockwise or counterclockwise.

- **Round chart**

  If this option is checked, circle segments are drawn between the axes instead of lines.

- **Polar coordinates**

  If this option is checked, polar coordinates are used instead of Cartesian coordinates. Only available if **Round chart** is checked.

  If **Angle between axes** is set to *x*, an axis is plotted every *x* degrees.

  If **Angle between axis descriptions** is set to *x*, an axis label is plotted every *x* degrees.

- **Limit plot area to radar**

  If this option is checked, only the area inside the radar will be filled. If it is not checked, the rectangle surrounding the radar will be filled as well.

Updating charts

By default, charts are automatically updated when the content of one of the cells it is based on changes. If desired, this feature can be disabled, requiring charts to be updated manually.

Deactivating automatic update

To deactivate the automatic update of charts, choose **File > Properties**, switch to the **Calculate** property sheet, and uncheck the **Update automatically** option in the **Charts** group box.

As a result, charts will only be updated when the **Tools > Update Charts** command (keyboard shortcut: F8) is invoked.

Moving charts to another worksheet

FreeOffice: This feature is not included in **SoftMaker *FreeOffice***.

When you create a new chart, it will always be inserted into the current worksheet. Of course you can change its position whenever needed:

To move a chart to another place within the current worksheet, just select it with a mouse click and drag to the desired location.

In case you want to move a chart to a *different* worksheet, proceed as follows:

1. Select the chart of interest.
2. Invoke the command **Object > Chart > Change Chart Location**.
3. Choose the desired option (see below) and click on **OK**.

The chart is moved accordingly.

Options available:

- **As new sheet**

  When you choose this option, the chart will be transferred to its own *chart sheet*. PlanMaker removes the chart from the current sheet, creates a new chart sheet for it, and places the chart there.

  A "chart sheet" is a special type of worksheet: It doesn't contain any table cells, but solely the chart in its full size. Note: On such sheets, only commands related to editing charts are available.

- **As object in ...**

  When you choose this option, the chart is placed as an object in the specified worksheet, as usual.

Saving charts as images

FreeOffice: This feature is not included in **SoftMaker *FreeOffice***.

Whenever needed, you can save an image of a chart as a picture file. This makes it easier, for example, to share the chart with others or to insert it into a web page or any other document.

Proceed as follows:

1. Select the chart of interest.

2. Invoke the command **Object > Chart > Save as Image**.

3. In the **Save as type** list, choose the desired image format. (PNG format is recommended.)

   Tip: The *PNG format* is always a good choice here, since it offers a fairly good and at the same time lossless compression.

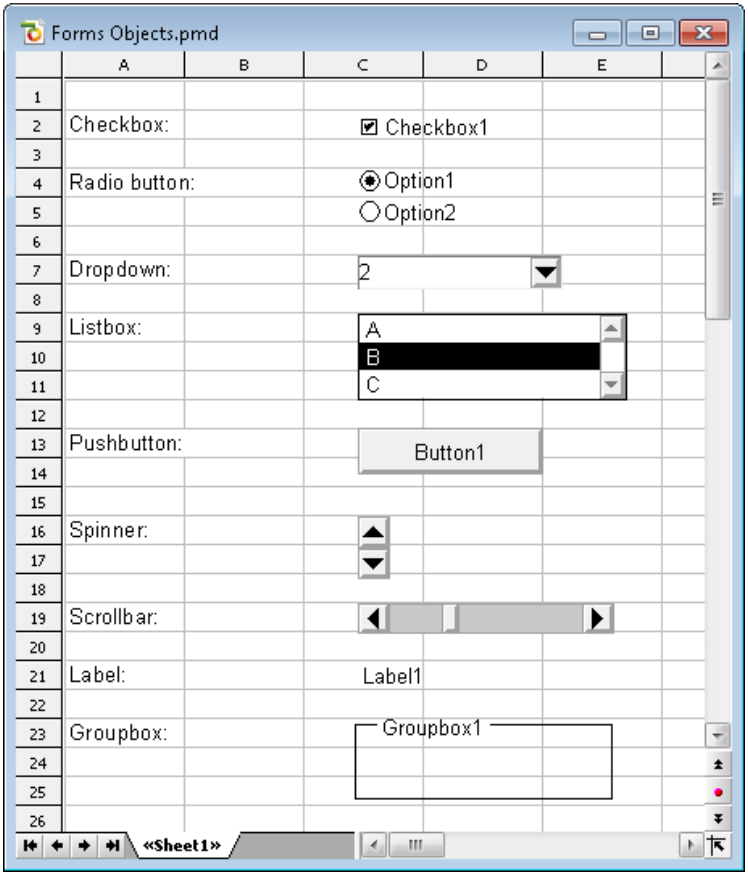
4. Enter a filename for the image file and confirm with **OK**.

5. Another dialog appears where you can select an image resolution or enter your own values for width and height. Confirm with **OK**.

PlanMaker creates the specified picture file and stores an image of the chart in it.

Forms

You can paste *Forms objects* into your tables and, in this way, create forms.



The following types of forms objects are available:

- **Checkboxes** for checking
- **Radio buttons** for selection among multiple alternatives
- **Dropdowns** for selection from an expanding list
- **Listboxes** for selection from a list
- **Pushbuttons** for clicking

- **Spinners** for increasing/decreasing values by mouse click
- **Scrollbars** for increasing/decreasing values by mouse click
- **Labels** for static descriptions
- **Groupboxes** for visually grouping related items

Forms objects always have a **Result cell**. This is the cell, which holds the value that the forms object returns. Each forms object can be assigned to a different result cell.

If, for instance, you insert a listbox with several entries in it, 1 is displayed in the result cell when the first entry is clicked, 2 when the second entry is clicked, etc.

In this chapter, you will find detailed information on forms. It contains the following sections:

- **Working with forms objects**

  The first section covers general information on working with forms objects. You will learn how to insert, edit, operate, and evaluate forms objects.

- **Forms objects in detail**

  The second section contains detailed information on each individual type of forms object.

Working with forms objects

In the following sections, you will find general information regarding the use and application of forms objects:

- **Inserting forms objects**
- **Editing forms objects**
- **Operating and evaluating forms objects**
- **Forms objects and Excel macros and scripts**

Then, in the section “Forms objects in detail”, we will cover the individual types of forms objects in detail.

Inserting forms objects

Inserting forms objects is not much different from inserting other kinds of objects (for more information about that, see the chapter “Objects (pictures, drawings, etc.)”, page 191).

To insert a forms object, proceed as follows:

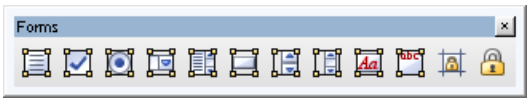
1. Select the **Object > New Forms Object** menu command.
2. A sub-menu opens; choose the desired type of forms object from it.
3. With the mouse, drag a frame with the desired position and size in the document.

   Alternatively, click where you want the upper left corner of the object to be placed. The object will be inserted in a standard size.

You will find detailed information about each individual type of forms object in the section “Forms objects in detail”, page 269.

Using the Forms toolbar

You can also use the *Forms toolbar* to insert forms objects. To activate or deactivate this toolbar, invoke the **View > Toolbars** command and click on the checkbox in front of **Forms**.



The icons in this toolbar represent the following functions (from left to right):

- Insert text frame
- Insert checkbox
- Insert radio button
- Insert dropdown
- Insert listbox
- Insert button
- Insert spinner
- Insert scrollbar
- Insert label
- Insert groupbox

- Toggle cell protection (see the section “Sheet protection”, page 319)
- Toggle sheet protection (see the section “Sheet protection”, page 319)

Hint: Move the mouse pointer over any of these icons, and a short explanation of its function is displayed.

Editing forms objects

Editing forms objects is not very different from editing other types of objects. (See the chapter “Objects (pictures, drawings, etc.)”, page 191).

There is, however, one important difference:

Important: Forms objects *cannot* be selected with a left-click by the mouse. To select a forms object, click on it with the *right* mouse button.

Alternatively, you can switch to Object mode through **View > Object Mode**, where you can select forms objects with a left click.

When you have selected a forms object, you can edit it just as any other type of object; for example, move it with the mouse, change its dimensions, modify its properties with **Object > Properties**, etc.

Information about the properties of the individual types of forms objects can be found in the section “Forms objects in detail”, page 269.

Operating and evaluating forms objects

Using forms objects is very much like using control elements in dialog windows. For instance, checkboxes can by checked or unchecked with a mouse click, a listbox entry can be selected by clicking on it, etc.

Evaluation of forms objects

Forms objects are evaluated through the *result cell* of the object. This is the cell to which the result of the forms object is returned.

The location of the result cell can be determined individually for each forms object: right click on the object and select **Properties** from the sub-menu that appears. Click on the **Forms object** tab and enter the desired cell address in **Result cell**.

For example: You have given a list the result cell D4. If you click the first entry in the list, 1 will be displayed in D4. If you click the fifth entry, 5 will be displayed, etc.

The relationship between a forms object and its result cell is also two-way: If you enter 3 into the result cell, the third entry in the list is selected.

Forms objects and Excel macros and scripts

Microsoft Excel files can contain macros and VBA scripts that can be used by forms objects. In PlanMaker, this isn't possible, however:

> ***Important:*** If you open an Excel file that has macros or scripts, you won't be able to run them; however, they do remain in the file. So, if you open and edit such an Excel file in PlanMaker and then save it, the macros and scripts will *not* be lost.

Forms objects in detail

In this section we describe in detail the individual types of forms objects. The following objects are covered:

- Checkboxes
- Radio buttons
- Dropdowns
- Listboxes
- Pushbuttons
- Spinners
- Scrollbars
- Labels and groupboxes

Checkboxes

To insert a *checkbox*, use the **Object** > **New Forms Object** > **Checkbox** command.

Checkboxes can be used for yes/no questions in forms. A checked checkbox stands for **Yes**, an unchecked one stands for **No**.

Operating checkboxes

Click the box to check it. If you click it again, it will become unchecked.

Changing the properties of checkboxes

To modify the properties of a checkbox, first select it (for example, by *right* clicking on it). Then invoke the **Object > Properties** command.

A dialog window with the following options will appear:

Format property sheet

On this property sheet, you can modify the size and positioning of the object. See the section “Object properties, Format property sheet”, page 197.

Properties property sheet

On this property sheet, you can modify common object settings. See the section “Object properties, Properties property sheet”, page 205.

Forms Object property sheet

On this property sheet, you can make settings that are specific to checkboxes:

- **Text**

  Here you can enter the text that is displayed to the right of the box.

- **Value**

  Here you can specify the initial state of the checkbox, whether it should appear checked or unchecked in the document.

- **Result cell**

  Here you specify to which cell the result of the forms object should be returned.

  One of the following values will appear in this cell:

  TRUE, when the checkbox is checked.

  FALSE, when the checkbox is unchecked.

The error value #N/A, when the state of the checkbox is ambiguous.

- **Appearance** group box

  Here you can specify the font styles (font face, size, color, etc.) for the text.

- **3D effect**

  If you check this option, the checkbox is drawn with a 3D effect.

Radio buttons

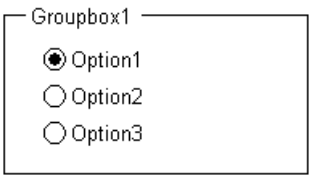
To insert a *radio button*, use the **Object > New Forms Object > Radio button** command.

Radio buttons can be used in forms to select a single option from multiple options.

Using groupboxes to combine radio buttons

Important: Radio buttons must always be used in groups of at least two.

To indicate that a group of radio buttons belongs together, enclose them in a groupbox.



First, insert the radio buttons that belong together into the document (one under the other, for example), then wrap a group box around them with **Object > New Forms Object > Groupbox**.

Operating radio buttons

Click one of the radio buttons to select it. Only one radio button within a group can be selected at a time.

Changing the properties of radio buttons

To modify the properties of a radio button, first select it (for example, by *right* clicking on it). Then invoke the **Object > Properties** command.

A dialog window with the following options will appear:

Format property sheet

On this property sheet, you can modify the size and positioning of the object. See the section “Object properties, Format property sheet”, page 197.

Properties property sheet

On this property sheet, you can modify common object settings. See the section “Object properties, Properties property sheet”, page 205.

Forms Object property sheet

On this property sheet, you can make settings that are specific to radio buttons:

- **Text**

  Here you can enter the text that is displayed to the right of the radio button.

- **Value**

  Here you can specify the initial state of the checkbox, whether it should appear selected or unselected in the document.

- **Result cell**

  Here you specify to which cell the result of the forms object should be returned.

  As mentioned previously, radio buttons must always be used in groups of at least two. The result cell displays which among the radio buttons is selected. When the first is selected, 1 is displayed, when the second is selected, 2 is displayed, etc.

- **Appearance** group box

  Here you can specify the font styles (font face, size, color, etc.) for the text.

- **3D effect**

  If you check this option, the radio button is drawn with a 3D effect.

Dropdowns

To insert an expandable *dropdown list*, use the **Object > New Forms Object > Dropdown** command.

Dropdown lists figure prominently in many dialog windows. When you expand a dropdown, a list of available options is shown. Naturally, this is ideal for forms, as it saves typing and eliminates the possibility of typos.

Operating dropdowns

Click the arrow at the right of the list to open the dropdown. Then you can select an entry by clicking on it.

Changing the properties of dropdowns

To modify the properties of a dropdown, first select it (for example, by *right* clicking on it). Then invoke the **Object > Properties** command.

A dialog window with the following options will appear:

Format property sheet

On this property sheet, you can modify the size and positioning of the object. See the section “Object properties, Format property sheet”, page 197.

Properties property sheet

On this property sheet, you can modify common object settings. See the section “Object properties, Properties property sheet”, page 205.

Forms Object property sheet

On this property sheet, you can make settings that are specific to dropdown lists:

- **Lines (max.)**

  Here you can specify the maximum number of lines to be displayed when the list is opened.

- **List area**

  Here you specify which cell range contains the items to be contained in the dropdown list.

  If, for example, you fill the cells F5 through F7 with the values “dog”, “cat” and “mouse” and enter F5:F7 in the list area, those three values will appear in the list.

- **Result cell**

  Here you specify to which cell the result of the forms object should be returned.

  The result cell displays which entry in the list is selected. When the first entry is selected, 1 appears. When the second entry is selected, 2 appears, etc.

- **Appearance** group box

  Here you can specify the font styles (font face, size, color, etc.) for the text.

- **3D effect**

  If you check this option, the list is drawn with a 3D effect.

Listboxes

To insert a *listbox*, use the **Object > New Forms Object > Listbox** command.

Listboxes figure prominently in many dialog windows. They display several entries which the user can choose by clicking on them. Naturally, this is ideal for forms, as it saves typing and eliminates the possibility of typos.

Changing the properties of listboxes

To modify the properties of a listbox, first select it (for example, by *right* clicking on it). Then invoke the **Object > Properties** command.

A dialog window with the following options will appear:

Format property sheet

On this property sheet, you can modify the size and positioning of the object. See the section “Object properties, Format property sheet”, page 197.

Properties property sheet

On this property sheet, you can modify common object settings. See the section “Object properties, Properties property sheet”, page 205.

Forms Object property sheet

On this property sheet, you can make settings that are specific to listboxes:

- **Selection Type**

  You should always use the **Single** option here.

  The other options **Multi** and **Extended** allow multiple items to be selected in the list box, but return nothing to the result cell. They are only there for compatibility with Excel.

- **List area**

  Here you specify which cell range contains the items to be contained in the listbox list.

  If, for example, you fill the cells F5 through F7 with the values “dog”, “cat” and “mouse” and enter F5:F7 in the list area, those three values will appear in the list.

- **Result cell**

  Here you specify to which cell the result of the forms object should be returned.

  The result cell displays which entry in the list is selected. When the first entry is selected, 1 appears. When the second entry is selected, 2 appears, etc

- **Appearance** group box

  Here you can specify the font styles (font face, size, color, etc.) for the text.

- **3D effect**

  If you check this option, the list is drawn with a 3D effect.

Pushbuttons

To insert a *pushbutton*, use the **Object > New Forms Object > Pushbutton** command.

Note: In PlanMaker, pushbuttons *cannot* be used to execute macros or VBA scripts; they are merely present for compatibility with Excel.

Changing the properties of pushbuttons

To modify the properties of a pushbutton, first select it (for example, by *right* clicking on it). Then invoke the **Object > Properties** command.

A dialog window with the following options will appear:

Format property sheet

On this property sheet, you can modify the size and positioning of the object. See the section “Object properties, Format property sheet”, page 197.

Properties property sheet

On this property sheet, you can modify common object settings. See the section “Object properties, Properties property sheet”, page 205.

Forms Object property sheet

On this property sheet, you can make settings that are specific to pushbuttons:

- **Text**

  Here you can specify the text that should appear on the button.

- **Appearance** group box

  Here you can specify the font styles (font face, size, color, etc.) for the text.

Spinners

To insert a *spinner*, use the **Object > New Forms Object > Spinner** command.

Spinners allow you to increment or decrement a value by mouse click. Clicking the upward pointing arrow increments the value, clicking on the downward pointing arrow decrements it.

Changing the properties of spinners

To modify the properties of a spinner, first select it (for example, by *right* clicking on it). Then invoke the **Object > Properties** command.

A dialog window with the following options will appear:

Format property sheet

On this property sheet, you can modify the size and positioning of the object. See the section “Object properties, Format property sheet”, page 197.

Properties property sheet

On this property sheet, you can modify common object settings. See the section “Object properties, Properties property sheet”, page 205.

Forms Object property sheet

On this property sheet, you can make settings that are specific to spinners:

- **Parameters** group box

  Here you can specify the following parameters:

  Current value: The current value (reflects manual changes made to the result cell).

  Minimum value: The minimum value, which the current value cannot fall below.

  Maximum value: The maximum value, which the current value cannot exceed.

  Incremental change: The absolute value of the change when incrementing or decrementing.

- **Result cell**

  Here you specify to which cell the result of the forms object should be returned.

- **3D effect**

  If you check this option, the spinners are drawn with a 3D effect.

Scrollbars

To insert a *scrollbar*, use the **Object > New Forms Object > Scrollbar** command.

With scrollbars, values can be incremented or decremented by mouse click. Clicking the upward pointing arrow increments the value by the specified incremental value, while clicking the downward pointing arrow decrements it.

Furthermore, you can make larger changes by moving the slider on the scrollbar with the mouse.

Changing the properties of scrollbars

To modify the properties of a scrollbar, first select it (for example, by *right* clicking on it). Then invoke the **Object > Properties** command.

A dialog window with the following options will appear:

Format property sheet

On this property sheet, you can modify the size and positioning of the object. See the section “Object properties, Format property sheet”, page 197.

Properties property sheet

On this property sheet, you can modify common object settings. See the section “Object properties, Properties property sheet”, page 205.

Forms Object property sheet

On this property sheet, you can make settings that are specific to scrollbars:

- **Parameters** group box

  Here you can specify the following parameters:

Current value: The current value (reflects manual changes made to the result cell).

Minimum value: The minimum value, which the current value cannot fall below.

Maximum value: The maximum value, which the current value cannot exceed.

Incremental change: The absolute value of the change when incrementing or decrementing.

Page change: The absolute value of the change when clicking between the scrollbar's slider and one of the arrow buttons.

- **Result cell**

  Here you specify to which cell the result of the forms object should be returned.

- **3D effect**

  If you check this option, the scrollbar is drawn with a 3D effect.

Labels and groupboxes

Aside from the aforementioned forms objects there are two more types of forms objects that *cannot* be filled out, but are instead intended for labeling and grouping:

- **Labels**

  In a *label* you can enter any desired text, which should be displayed within a form.

- **Groupboxes**

  Groupboxes are rectangles, which can be labeled in the upper left corner with a description. They can also be used to visually group form elements together.

To insert a label or a groupbox, use the command **Object > New Forms Object > Label** or, respectively, the command **Object > New Forms Object > Groupbox**. Then drag a rectangle in the document with the mouse that has the desired dimensions.

Changing the properties of labels and groupboxes

To modify the properties of a label or a groupbox, first select it (for example, by *right* clicking on it). Then invoke the **Object > Properties** command.

A dialog window with the following options will appear:

Format property sheet

On this property sheet, you can modify the size and positioning of the object. See the section “Object properties, Format property sheet”, page 197.

Properties property sheet

On this property sheet, you can modify common object settings. See the section “Object properties, Properties property sheet”, page 205.

Forms Object property sheet

On this property sheet, you can make settings that are specific to labels/groupboxes:

- **Text** group box

  Here you specify the text to be displayed.

- **Appearance** group box

  Here you can specify the font styles (font face, size, color, etc.) for the text.

- **3D effect**

  If you check this option, the object is drawn with a 3D effect.

Language tools

PlanMaker comes with an integrated spell checker, allowing you to check the spelling of text entered in table cells and text frames. Additionally, text in text frames can be hyphenated automatically.

This chapter provides information on working with this tool, as follows:

- **Setting up the language**

  The *language* for spell checker and hyphenator can be set with the command **Tools > Options** (**Language** property sheet).

- **Spell checking**

  The *spell checker* examines the text in your document for spelling mistakes. When it finds mistakes, it suggests corrections.

- **Hyphenation**

  The *hyphenator* automatically hyphenates long words at the ends of lines (e.g., in text frames). For more information on this feature, see the section "Hyphenation (text frames only)" (page 153).

- **SmartText**

  With PlanMaker's *SmartText* feature, you can have your "favorite" typing errors corrected automatically and create short-cuts for frequently needed phrases, such as "sd" for "sales department."

See the following pages for detailed information.

Setting up the language

If you have installed several languages, you can change the language for the spell checker, hyphenator and thesaurus, as needed.

To do this, proceed as follows:

1. Invoke the **Tools > Options** command.
2. Switch to the **Language** property sheet.

3. Select the desired language from the **Language** list and confirm with **OK**.

Spell checking

FreeOffice: **SoftMaker** ***FreeOffice*** does *not* include any of the premium SoftMaker dictionaries normally shipped with **SoftMaker Office**. Its spell checker supports solely the use of Hunspell dictionaries.

In a standard installation, only Hunspell dictionaries for English and German are installed. If you want to add additional languages, refer to the section "Installing Hunspell dictionaries".

The *spell checker* examines the text in your document for spelling mistakes. When it finds mistakes, it suggests corrections.

This section describes the different spell checking tools in detail. It covers the following topics:

- **Manual spell checking**

  The *manual spell checker* lets you check and correct the spelling of the entire text in a document, word by word.

- **Spell checking as you type**

  The *on-the-fly spell checker* checks each word you type immediately. When a typing mistake is detected, a dialog box that lets you correct the word pops up.

- **Editing user dictionaries**

  When you teach the spell checker new words, they are added to your user dictionary. You can edit this dictionary at any time in order to delete incorrect entries.

See the following pages for detailed information.

Hint: In case you want to check the spelling of text written in a language that is currently not installed, read the section "Installing additional dictionaries" (page 391).

Manual spell checking

FreeOffice: **SoftMaker** ***FreeOffice*** does *not* include any of the premium SoftMaker dictionaries normally shipped with **SoftMaker Office**. Its spell checker supports solely the use of Hunspell dictionaries.

In a standard installation, only Hunspell dictionaries for English and German are installed. If you want to add additional languages, refer to the section "Installing Hunspell dictionaries".

Note: Cells containing calculations are automatically skipped by the spell checker.

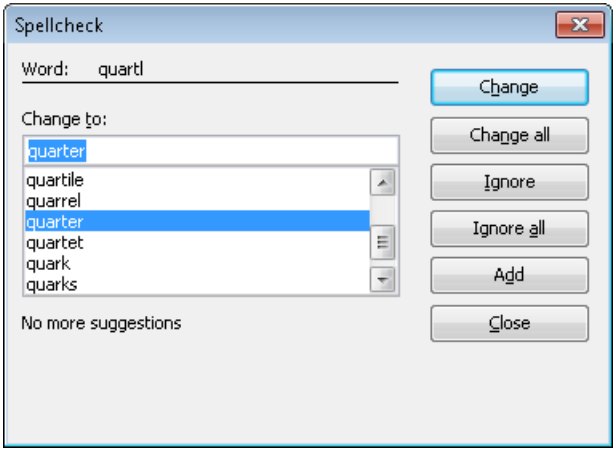
You activate the manual spell checker with the **Tools > Check Spelling** command. This checks the current worksheet word for word for spelling errors.

When you invoke this command, a dialog is displayed to let you choose which parts of the worksheet to check:

- If the **Check worksheet** option is activated, all table cells on the current worksheets will be checked.
- If the **Check all frames** option is activated, additionally all text frames and drawings containing text will be checked.

Make your choice and then start the spell check with **OK**.

PlanMaker now goes through the text word for word. If an unrecognized word is found, the spell checker stops and displays the word in a dialog box.



In the list under **Change to**, PlanMaker presents suggestions for the correct spelling of the word (if any are found).

By means of the buttons, you can specify what is to be done with the unknown word:

Button	Explanation
Change	Lets you correct the word. Before you use this button, type the correct spelling in the **Change to** input field or select one of the suggested words from the list.
Change all	Works like the **Change** button, but changes *all* further instances of the word (from here to the end of the document).
Ignore	Ignores the supposed spelling error and continues with the spelling check.
Ignore All	Ignores *all* further instances of this word. Note: Use **Ignore** or **Ignore All** only for words that are correctly written but are *not* to be added to the dictionary. When you exit PlanMaker, it forgets the list of ignored words.
Add	Advises PlanMaker to add the word to the user dictionary and in this way to enlarge its vocabulary. Note: Use this option for correctly spelled words that PlanMaker does not yet know. PlanMaker remembers these words permanently.

If you want to exit the spell checker before it reaches the end of the document, click on **Close**.

Spell checking as you type

FreeOffice: **SoftMaker** ***FreeOffice*** does *not* include any of the premium SoftMaker dictionaries normally shipped with **SoftMaker Office**. Its spell checker supports solely the use of Hunspell dictionaries.

In a standard installation, only Hunspell dictionaries for English and German are installed. If you want to add additional languages, refer to the section “Installing Hunspell dictionaries”.

If the **Check spelling as you type** option is activated, spelling is checked as the text is typed, and the spell check dialog box will open automatically when an unknown word is typed.

Note: When you enter a calculation into a cell, its spelling will *not* be checked.

To activate the on-the-fly spell checker, choose **Tools > Options**, switch to the **Language** property sheet, and activate the **Check spelling as you type** option.

Now, every time you type a word, PlanMaker quickly looks up that word in its dictionaries. As long as you type words that the spell checker knows, nothing visible happens. But if you type an unknown word, the spell checker displays a dialog box.

This dialog box is like the one for manual spell checker that was presented in the preceding section. You can read there about how to use this dialog.

You will notice that there is also a **SmartText** button in the dialog box. This is for creating a SmartText entry from the word. You will learn more about this feature in section "SmartText", page 305.

Editing user dictionaries

Occasionally, a mistake is made and the spell checker is taught a word that is not spelled correctly. The command **Tools > Edit User Dictionaries** was devised for such a situation. With it, you can remove from PlanMaker's vocabulary words that you have previously taught it.

To do this, invoke **Tools > Edit User Dictionaries**, select the word to be deleted and click on **Delete**. The word is now removed from the user dictionary; thus, the spell checker will now view this word as incorrectly spelled, as it did before the word was added.

With this function you can delete only those words that you yourself have supplied to PlanMaker. Words in the dictionaries that come with the program cannot be removed.

Note: Every language has its own user dictionary. You can select the user dictionary to be edited from the **Language** dropdown list.

SmartText

PlanMaker's *SmartText* feature can save you a lot of work: you can define SmartText entries for frequently needed phrases and then call them out in your text quickly and easily.

For example, you can define a SmartText entry named "sd" containing "sales department". Now you can call out this SmartText entry at any time. Simply type "sd" and then press the space bar, the Enter key ↵, or a punctuation character key. Immediately, "sd" is replaced with "sales department".

In this way, you can use PlanMaker to put together a personal "computer shorthand" and save significant typing time.

In this section, you will learn details about PlanMaker's SmartText feature, including the following:

- **Creating SmartText entries**

  SmartText entries can be created either with the **Insert > SmartText** command or the on-the-fly spell checker. You give the SmartText entry a name (e.g., "sd") and then enter the desired content (e.g., "sales department").

- **Inserting SmartText entries**

  To call up a SmartText entry, simply type its name and then press the space bar, the Enter key ↵, or a punctuation character. The name will be immediately replaced by the content of the SmartText entry.

  Alternatively, SmartText entries can be inserted manually using the command **Insert > SmartText**.

- **Editing SmartText entries**

  You can create new SmartText entries with the command **Insert > SmartText**, and you can also edit, rename, and delete existing entries.

Detailed information is provided on the following pages.

Creating SmartText entries

To create a new SmartText entry, choose one of the following methods:

A) Using the Insert > SmartText dialog

To create, for example, a SmartText entry with the name “sd” containing “sales department”, proceed as follows:

1. Invoke the command **Insert** > **SmartText**.
2. Click on the **New** button to create a new SmartText entry.
3. Give the SmartText entry a name (“sd” in our example).

   Later, the SmartText entry can be called up by using the specified name.
4. Confirm with **OK**, which takes you back to the main dialog.
5. Type the text of the SmartText entry in the large input field (“sales department” in our example).
6. Click on **Save** to save your new SmartText entry.
7. Exit the dialog by clicking on the **Close** button.

The SmartText entry has now been created. In the next section (“Inserting SmartText entries”), you will learn how to use your new SmartText entry.

B) Using the “Check spelling as you type” option

Alternatively, SmartText entries can be created using the on-the-fly spell checker (activated by the **Check spelling as you type** option).

Note: This procedure is faster only if you have the **Check spelling as you type** option turned on *permanently*. Otherwise, the previous procedure is more efficient.

To create a SmartText entry named “sd” containing the text “sales department”:

1. Make sure the **Check spelling as you type** option in the **Tools** > **Options** dialog (**Language** property sheet) is activated.
2. Type “sd” and press the space bar.
3. The on-the-fly spell checker displays a dialog indicating that the word “sd” is unknown.
4. Click the **SmartText** button.
5. Type “sales department”.
6. Confirm with **OK**.

The result is the same: the SmartText entry “sd” has now been created.

To learn more about the on-the-fly spell checker, see the section “Spell checking as you type”, page 284.

Inserting SmartText entries

Once you define a SmartText entry, you can use it anytime as you compose your documents.

Type the name of the SmartText entry (e.g., “sd” in our example) in the text, and then press either the space bar, the Enter key [↵], or a punctuation character. PlanMaker immediately replaces “sd” with the content of the SmartText entry, in our example, “sales department”.

> ***Note:*** If this does not work, the **Expand SmartText entries** option might be disabled. If so, invoke the command **Tools** > **Options**, switch to the **Language** property sheet, and turn on this option.

Alternatively, you can use a dialog to insert SmartText entries in the text by invoking the command **Insert** > **SmartText**, choosing the desired entry, and then clicking the **Insert** button.

Editing SmartText entries

You can edit SmartText entries that you have previously defined with the command **Insert** > **SmartText** as follows:

- **Creating a new SmartText entry**

  To create a new SmartText entry, click the **New** button (see section “Creating SmartText entries”, page 286).

- **Deleting a SmartText entry**

  To delete an entry, select it from the **SmartText entries** list and then click on the **Delete** button.

- **Renaming a SmartText entry**

  If you want to change the name of an entry, select it from the list and click on the **Rename** button. A dialog box appears, and you can enter the new name there.

Editing a SmartText entry

To edit an entry, select it from the list and then click in the large input field. Now you can modify the content of the SmartText entry.

When you have made the desired changes, click on the **Save** button.

Inserting a SmartText entry

To insert a SmartText entry into the text, select it from the list and click on the **Insert** button (see also the section “Inserting SmartText entries”, page 288).

To exit the dialog, click the **Close** button. If the active SmartText entry has been changed and not yet saved, PlanMaker will ask automatically if it should save the changes.

Managing documents

PlanMaker provides the following functions for efficiently managing and accessing documents:

- **Quick paths**

  You can set up *quick paths* to change immediately to folders that are frequently used to save or retrieve files.

- **Document summary**

  Every document can have a *document summary* that you can display and edit using the **Summary** property sheet in the **File > Properties** dialog. You can specify the document's title, subject and author, enter keywords for the file manager's search function, and compose a brief description of the document's contents.

- **The file manager**

  The integrated file manager provides a convenient way to access your documents. It allows you to see at a glance the names and summaries of your documents, and to examine, open, print or delete them with the press of a key. With the search function, you can look for documents not only by filename, but also by subject, title, author, etc.

You will find detailed information for each of these functions on the following pages.

Quick paths

PlanMaker gives you the capability to define up to twenty *quick paths* and use them to change to specific folders where you open or save files frequently.

A *quick path* is a symbolic statement like "Taxes" that stands for a specific folder on the hard disk (for example, the folder C:\ACOUNTING\TAXES).

When you want to open a file in this folder, all you need to do is click on the **Quick path** button in the **File > Open** dialog and select its quick path. The dialog changes immediately to the C:\ACOUNTING\TAXES folder.

Quick paths are available not only in the **File > Open** dialog, but also in all other dialog boxes that have to do with opening or saving files.

See the next pages for details.

Defining quick paths

To define a new quick path, complete the following steps:

1. Open any type of file dialog, for example, the **File > Open** dialog.
2. Click the **Quick path** button.
3. A menu opens below the button. Select the **Create new quick path** command from it.
4. At **Name of quick path** enter a meaningful name for the quick path – for example, "Taxes".
5. At **Path** enter the desired folder – for example, c:\Accounting\Taxes.
6. Confirm with **OK**.

From now on, PlanMaker will change to the folder C:\ACOUNTING\TAXES when the quick path "Taxes" is invoked.

Quick paths with search patterns: Quick paths can also include search patterns for file names. For example, you can define a quick path as c:\Accounting\Taxes\2012*.*, which tells PlanMaker to change to the folder C:\ACOUNTING\TAXES and display only those files whose names begin with "2012".

Keyboard shortcut: The & sign can be used in a quick path name to give the name a keyboard shortcut. For example, if you enter "&Taxes" as the name, the quick path of this name can be invoked by pressing the [T] key whenever the list of quick paths is opened.

Using quick paths

Quick paths are available in all file dialogs – for example the dialogs for the **File > Open** and the **Object > New Picture** commands.

To invoke a quick path, do the following:

1. Click on the **Quick path** button in a file dialog.

2. A menu of all the previously defined quick paths opens. Select the desired quick path.

PlanMaker now changes to the folder specified for the quick path.

Editing and deleting quick paths

To modify or delete an existing quick path, do the following:

1. Click on the **Quick path** button in a file dialog.
2. A menu opens. Select the **Change quick paths** command from it.
3. A dialog box appears. Select the desired quick path from the list box.
4. Click on **Change** to edit the name or path, or on **Delete** to remove the quick path.

Document summary

You can use the command **File > Properties** not only to make document specific settings, but also to enter *summary* information about the document.

The *summary* contains additional information (subject, author, keywords, etc.) about a document. To view or edit it, invoke the command **File > Properties** and switch to the **Summary** property sheet. Enter your modifications, and confirm with **OK**.

> ***Tip:*** Using the file manager (see the next section), you can search for documents based on the contents of their summaries. For example, you can have the file manager find all documents from a specific author.

Automatic prompt for summary information when saving: At your option, you can have PlanMaker prompt you to fill in the document summary whenever you save a newly created document. To enable this function, invoke the command **Tools > Options**, switch to the **Files** property sheet, and enable the **Prompt for summary information when saving** option. Now, each time you save a new document for the first time, the dialog box for the entry of summary information will appear.

The file manager

The *file manager* displays a list of documents from one or more folders and lets you open, print, delete or view any document with a click of the mouse.

To start the file manager, use the command **File > File Manager**, or you can use the keyboard shortcut F12.

The File Manager window can be resized and moved to any position on the screen. The widths of the columns can be changed by dragging the lines that separate the column headers.

By clicking on one of the column headers, you can sort the files according to the contents of the column under that header.

You can select a file with the cursor keys or with a mouse click and then invoke a function to be performed on the file by clicking on one of the buttons. The functions associated with these buttons are described in the next section.

You can use the **Search** button to change to another folder. Apart from that, this button also provides access to search functions that work with document *summary* information, so that you can search for specific titles, subjects, authors, keywords, etc.

See the next pages for details.

The file manager's buttons

The buttons in the file manager have the following functions:

- **Open**

  When you click on this button, PlanMaker opens the selected file.

  Tip: You can also open a file by double clicking on its filename.

- **Close**

  Use this button to exit the file manager.

- **Search**

  You can click on this button to search for specific files or simply to select a new folder for display in the file manager. For more information on this topic, see the next section (entitled "Searching with the file manager").

- **Output**

  Use this button to print or e-mail the selected file. When you click on the button, a menu opens with the following functions (depending on the operating system):

  E-mail: send document via e-mail

  Print: print the document

- **Rename**

  Click on this button if you want to change the name of the selected file.

- **Delete**

  If you click on this button, the selected file will be deleted (after confirmation).

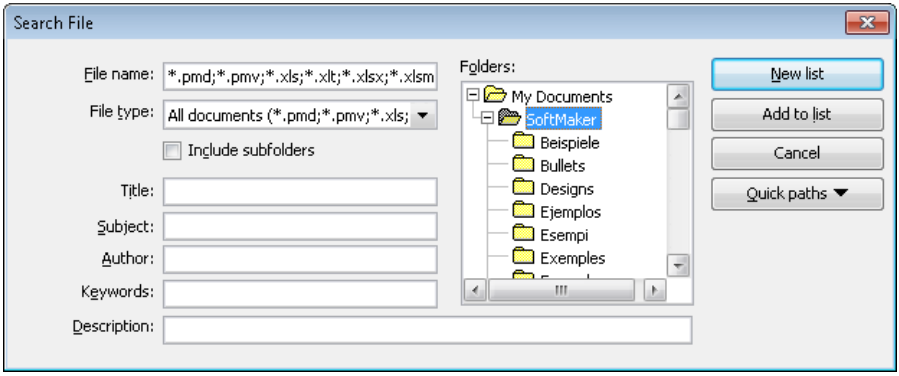
- **Preview**

  Click on this button to preview the selected file.

  A preview window appears. To open the document displayed in the preview window, click **Open**. To close the preview, click **Cancel**.

Searching with the file manager

With the help of the file manager's **Search** button, you can have PlanMaker look for specific files or simply choose the folder to be displayed in the file manager.



You can search for files that meet criteria of the following types: filename, folder, file type, as well as the items in the document summary (title, subject, author, keywords, and description).

Moreover, you can combine several search criteria. For example, if you only specify a particular folder in the search dialog, PlanMaker will display *all* the documents in this folder. But if you also enter a search term in the **Title** field, PlanMaker will find only those documents that are both in the selected folder *and* contain the given search term in the **Title** field of their summaries.

The search dialog has the following functions:

- **File name**

  Allows you to search for a specific file or a filename pattern.

  With the default setting, the search function will find *all* documents of the chosen file type in the chosen folder.

  If you specify a unique filename like MYREPORT.PMD, only files with exactly this name will be found.

  If you specify a filename pattern like MY*.PMD, all documents whose filenames begin with "My" will be found.

- **File type**

  From this list, you can choose the type of the files to be targeted in the search. For example, if you want to search for files in Excel Format, select this format from the **File type** list.

- **Title, Subject, Author, etc.**

  By making entries in these fields, you can target your search to the contents of the summaries that are included in your documents (see the section "Document summary").

  If you fill in several fields, the file manager will search for documents that meet *all* of your specified conditions. For example, if you enter "tax" in the **Keywords** field and "Smith" in the **Author** field, only documents whose summaries contain corresponding entries for *both* fields will be found.

  You will get different search results depending on the precision with which you specify the search terms. For example, if you typed "tax" as the search term in the **Keywords** field, your search would also turn up documents whose keywords contain "tax increase" and "my income tax", etc. – that is, all the documents in which "tax" was contained *anywhere* in the keywords.

  Case is of no significance in search terms. If the search term is entered as "tax", the search will also find documents whose keywords contain "Tax".

Folders

Here you can select the folder in which the file manager is to carry out the search.

Include subfolders

If this option is enabled, the file manager searches not only the selected folder, but also all folders below the selected folder.

“New list” button

Starts a new search using the current settings.

“Add to list” button

Also starts a new search; however, any previous search results remain in the list rather than being cleared from the list.

Outliner

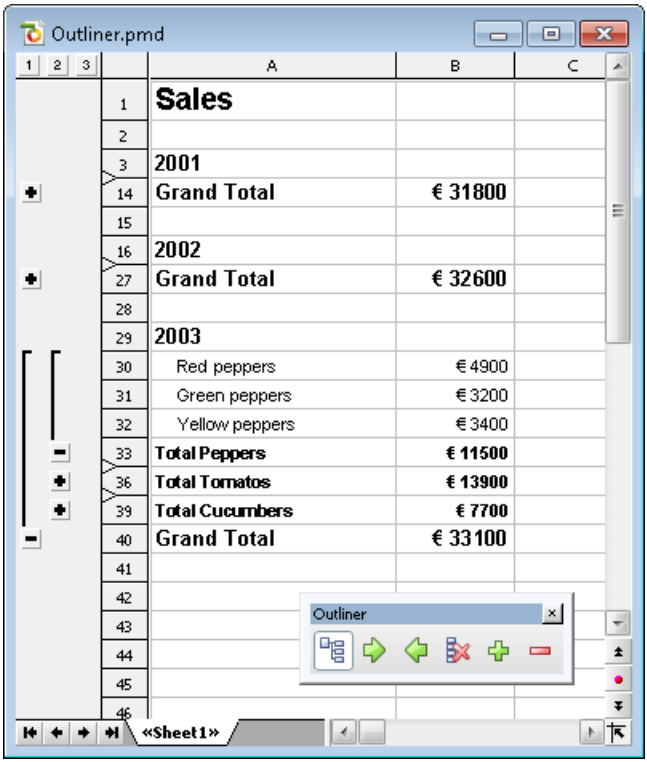
The *Outliner* allows you to create an *outline* for a worksheet. In outlined worksheets, you can easily decide whether just the *summarized* data should be displayed, or the *detail* data should appear as well.

The process of creating an outline is about *grouping* consecutive cell rows that contain related detail data. For example, if a table contains sales figures for the last few years, with the monthly sales listed below each year, *group* each list of monthly figures. After that, you can hide/unhide (or, collapse/expand) the monthly sales for each year with a single mouse click.

Outlines can contain various outline levels, allowing you to nest the data to be displayed as desired.

Using the Outline pane

In worksheets containing an outline, a pane named *Outline pane* is displayed to the left of the document window.



Use the Outline pane to hide/unhide grouped cells:

- Click the Plus ✚ and Minus ▬ signs to hide/unhide groups of cells.
- Click the 1 2 3 buttons on top of the Outline pane to determine which outline levels to display. For example, if you click the "2" button, all cells with an outline level between 1 and 2 will be displayed.

Note: Worksheets can be outlined by row, or by column. In a column outline, *columns* are grouped instead of rows, and the Outline pane is displayed above the table instead of to the left of the table.

Using the Outline toolbar

In addition to the Outline pane, a toolbar called the *Outline toolbar* is displayed in every document that contains an outline.

This toolbar provides icons for creating and modifying the outline of the document. From left to right:

- Show/hide Outline pane (only available in documents containing an outline)
- Group the selected cells
- Ungroup the selected cells
- Clear outline of the selected cells
- Show details (equivalent to clicking on the Plus icon in the Outline pane)
- Hide details (equivalent to clicking on the Minus icon in the Outline pane)

For more information on working with outlines, read the following pages.

Grouping cells

To create an outline, *group* the rows (or columns) containing detail data. After that, you can hide/unhide such groups with a single click.

To group cells:

1. Select the rows (or columns) to be grouped.
2. Choose **Table** > **Outliner** > **Group**.

   Alternatively, click the icon in the Outline toolbar.

The cells are now grouped.

Note: Ungrouped cells have an outline level of 1. When you group cells, their outline level is set to 2. You can even group a subset of cells within a group of cells, thereby increasing the outline level to 3, etc. Outlines can contain up to 8 outline levels.

Ungrouping grouped cells

To ungroup grouped cells:

1. Select the rows (or columns) to be ungrouped.
2. Choose **Table** > **Outliner** > **Ungroup**.

   Alternatively, click the icon in the Outline toolbar.

The cells are now ungrouped. To be precise, their outline level is reduced by 1. This means, that if you ungroup cells with an outline level of 3, they will not be completely ungrouped, but their outline level will be reduced to 2.

Completely removing the outline of grouped cells

To completely remove the outline of cells:

1. Select the rows (or columns) whose outline you want to remove. ***Note:*** If you do not select any cells, the outline of the *entire* worksheet will be removed.
2. Choose **Table** > **Outliner** > **Clear Outline**.

   Alternatively, click the icon in the Outline toolbar.

The outline is removed; all cells now have outline level 1.

Showing/hiding grouped cells

After creating an outline for a worksheet (as described in the previous section), you can hide/unhide detail data (i.e., grouped cells) as desired.

To hide/unhide grouped cells, use the *Outline pane* displayed to the left of (or above) the worksheet. If the Outline pane is not displayed, verify that the **Table** > **Outliner** > **Automatically Show Outline Pane** command is activated.

To hide/unhide grouped cells:

- If a bar with a minus sign is displayed, the cells are grouped. To hide them, click the minus sign.
- A plus sign indicates grouped cells that are currently hidden. To unhide them, click the plus sign.
- The 1 2 3 buttons on top of the Outline pane allow you to determine which outline levels to display. For example, if you click the “2” button, all cells with an outline level between 1 and 2 will be displayed.

Note: When you hide cells, the cells are not only hidden on the screen, but also ignored by charts evaluating these cells.

Outliner options

The **Table > Outliner > Options** command allows you to modify options related to the outline of the current worksheet:

- **Title below group rows**

  Check this option if the cell groups have a title (a row containing, for example, a heading or summary) *below* the data rather than *above* the data.

  This option only affects the placement of the minus sign displayed in the Outline pane. If enabled, the minus sign will be displayed below the cells; if disabled, it will be displayed above the cells.

- **Title right of the group columns**

  Similar to above, except this option only affects worksheets with a column outline. If enabled, the minus sign will be displayed to the *right* of the cells; if disabled, it will be displayed to the *left* of the cells.

- **Automatically show Outline pane**

  If this option is enabled, the Outline pane will be displayed automatically if the worksheet contains grouped cells. If disabled, the Outline pane will not be displayed.

  Hint: This option can also be toggled using the **Table > Outliner > Automatically Show Outline Pane** command.

- **Protect outline**

  If this option is enabled, the outline will be protected if sheet protection is activated for the worksheet (see also section “Sheet protection”, page 319).

  The current state of the outline will then be frozen. Users will not be able to group/ungroup cells or hide/unhide grouped cells.

Internet functions

PlanMaker provides the following Internet functions:

- **Working with links**

  You can create hyperlinks in PlanMaker documents (e.g., to an Internet address or to another PlanMaker document).

- **Saving HTML documents**

  You can save documents in HTML format using the **File > Save as** command.

See the following pages for detailed information.

Working with links

You can put *hyperlinks* in your PlanMaker documents and then follow them by clicking with the mouse.

For example, you can place a link to a web page in a document. When the user clicks on it, the web browser starts automatically and presents the page.

Creating a link

To create a link, proceed as follows:

1. Select the text that is to be made into a link.
2. Invoke the command **Format > Link**.
3. Enter the target of the link in the **URL or file name** box; that is, enter the path and name of the internet resource or file to which the selected text is to refer.

   Links to web pages must be entered as “http://” followed by the address of the page – for example, “http://www.softmaker.com/index.htm”.
4. Below, in the **Bookmark** field, you can specify, if desired, a position in the target document to be opened (see below). However, this field is normally left empty.
5. Confirm with **OK**.

The link is now created. You recognize this by a change in the color of the text, which indicates the presence of a link.

> ***Hint:*** Alternatively, hyperlinks can also be added using the HYPERLINK function (which is much more flexible).

Jumping to specific bookmarks or cell references

Using hyperlinks, you can not only specify the target URL or file name, but also specify a bookmark (for HTML documents) or cell reference (for PlanMaker documents) for the link to jump to.

For example: If you set **URL or file name** to "Sales.pmd" and under **Jump target** enter "D42", the link will open the file SALES.PMD and jump to cell D42.

Using placeholders in links

Hint: In hyperlinks, you can use an asterisk (*) as a placeholder for the cell content.

For example: In an empty cell, choose **Format > Link** and enter http://* in the **URL or file name** box. After that, if you enter, say, www.softmaker.com in that cell, the link will point to the internet address http://www.softmaker.com.

Following links

To follow a link, position the text cursor at any character within the link text. Then invoke the command **Edit > Go to link**. PlanMaker responds by opening the linked document.

> ***Tip:*** You can also follow links by clicking on the link text with the mouse.

Editing or removing a link

To edit an existing hyperlink, first select the link text. Then invoke the command **Format > Link**. A dialog box like the one described above then appears. Here you can edit the target of the link.

To remove a link, proceed as follows:

Removing a link by deleting the link text

When you delete text that has been formatted as a link, the link is removed with the text.

Removing only the link

If you want to remove only the link and leave the text in place, select the text and invoke **Format > Remove Link**.

Saving HTML documents

To save the current document in HTML format, proceed as follows:

1. Invoke the command **File > Save as**.
2. Choose the **HTML** format from the **Save as Type** list.
3. Enter the filename under which the file is to be saved and confirm with **OK**.

The document is now saved in HTML format. All formatting not supported in HTML format is automatically removed.

Tip: After saving the document, open it with your web browser to check its appearance.

Outputting documents

In this chapter, you will find detailed information about outputting documents (printing, e-mailing, etc.).

The following topics are covered:

- **Print preview**

  The first section covers the use of the **File > Print Preview** command which displays a preview of the printed document on the screen.

- **Printing**

  The next section introduces the **File > Print** command which actually prints a document.

- **Exporting to a PDF file**

  Using the **File > Export as PDF** command, you can export a document to a PDF file. Such files can be viewed on virtually any computer, provided that it has a PDF viewer installed.

- **E-mailing**

  When you would like to send a document by e-mail, you can use the command **File > Send**.

Detailed explanations are presented in the following pages.

Print preview

The *print preview* displays a preview of the printed document on the screen. Using this feature can help you avoid wasting paper on test prints.

To open the print preview, choose the **File > Print Preview** command.

To close it, click on the **Close** button or press the Esc key.

Using the print preview toolbar

The print preview window provides a toolbar with the following controls (from left to right):

Use these controls to jump from page to page.

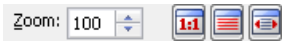
The first/last button jumps to the first/last page.

The buttons labeled with a left/right arrow jump to the previous/next page.

The edit field in the middle lets you jump to a specific page. Type in the desired page number and press the Enter key ↵.

The next three buttons have the following functions:

- The left button invokes the **File > Page Setup** command to modify the page format (paper size, orientation, margins, headers and footers, etc.). See also section “Page format”, page 173.
- The middle button invokes the **File > Print** command which prints the document. See also section “Printing”, page 311.
- The right button invokes the **File > Export as PDF file** command which generates a PDF file from the document. See also section “Exporting to a PDF file”, page 314.



These controls can be used to change the zoom level. Either type in a zoom level in the **Zoom** box and press the Enter key ↵, or click the arrows to gradually decrease/increase the zoom level.

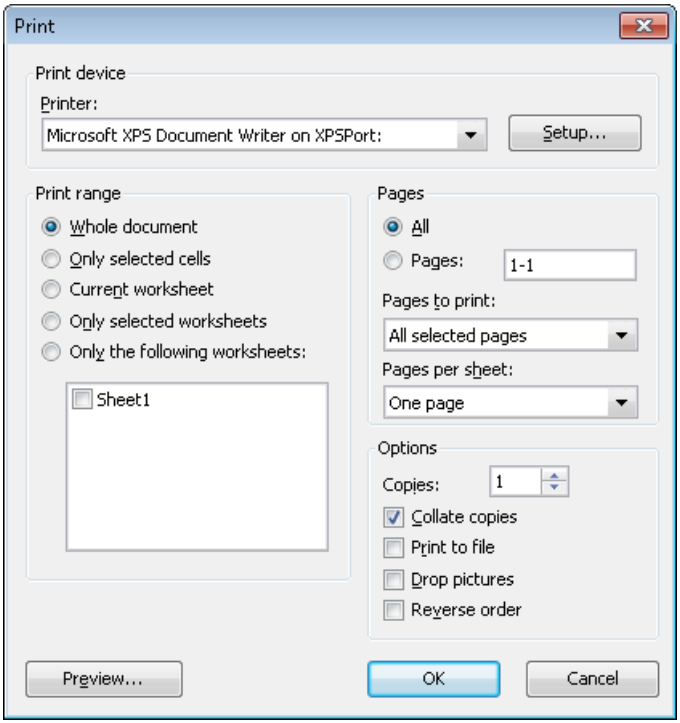
The three buttons at the right let you switch to a predefined zoom level:

- Actual document size (zoom level 100%)
- Fit page in window
- Fit margins in window

To close the print preview window, click the **Close** button.

Printing

To print the current document, choose **File > Print** or use the keyboard shortcut for this command: Ctrl P.



A dialog box appears, allowing you to make the following settings:

Printer

Lets you choose the desired printer.

The **Setup** button opens a window with options to set up and configure the connected printer(s).

Linux users can also specify the command to be used for printing here.

Print range

Lets you choose which parts of the document to print:

- **Whole document**

  Print the entire document (all worksheets).

- **Only selected cells**

  Print only those cells that are currently selected on the current worksheet.

- **Current worksheet**

  Print only the current worksheet.

- **Only selected worksheets**

  Print only those worksheets that are currently selected in the worksheet register.

- **Only the following worksheets**

  Print only the selected worksheets. To specify which sheets to print, check the desired worksheets in the list displayed below this option.

Pages

Lets you choose which pages to print:

- **All**

  Print all pages.

- **Pages:**

  Print only the specified pages. Enter the desired page number(s) in the input box. For example:

12	Prints page 12 only
12-15	Prints pages 12 to 15
12-	Print page 12 and all pages following
-12	Print pages 1 through 12

  If you want to enter multiple page ranges, separate by commas. Example:

2-5, 12	Prints pages 2 through 5 and page 12

- In addition, you can specify with the **Pages to print** option, whether all pages or only the odd or even numbered pages in the given range are to be printed.
- Furthermore, the **Pages per sheet** option allows you to print more than just one page on each sheet of paper. For example, when you select **Four Pages**, each sheet of the printout will contain four pages (scaled down accordingly).

Options

This part of the dialog contains additional printing options:

- **Copies**

  Here you can specify the number of copies of the document to be printed.

- **Collate copies**

  When you print multiple copies of a document, this option determines if the printout will be sorted after page numbers.

  If you check this option and print multiple copies of a document with e.g. three pages, the pages will be output in the following order: 1-2-3, 1-2-3, 1-2-3, ...

  If it is not checked, the order will be: 1-1-1..., 2-2-2..., 3-3-3...

  Note: Not all printers support this feature.

- **Print to file**

  Redirects the print output to a file instead of a physical printer.

- **Drop pictures**

  Skips over all pictures and drawings when printing (useful for fast test printing).

- **Reverse order**

  Prints the pages from last to first.

To start printing, click **OK**.

Hint: Before actually printing a document, you can preview the printout using the **File > Print Preview** command.

Exporting to a PDF file

You can export documents to a PDF file.

PDF files can be viewed on virtually any computer, provided that it has a PDF viewer installed (for example, the "Adobe Reader"). Text formatting and objects (pictures, drawings, etc.) are retained exactly as in the original file.

To export a document to a PDF file, proceed as follows:

1. Choose the **File > Export as PDF** command.
2. A dialog window appears where you can change the settings described below. After that, confirm with **OK**.
3. Another dialog window appears where you can specify the filename and location of the PDF file to create. After that, confirm with **OK**.

The PDF file will then be created. To view it, open the PDF file in a PDF viewer of your choice.

> ***Hint:*** If your computer does not have a PDF viewer installed, you can find numerous suitable programs in the Internet – for example, the free "Adobe Reader".

The dialog mentioned above provides the following options:

General property sheet

On this property sheet, you can specify which parts of the document to export, and change several other settings. The options available are almost identical to the ones provided in the **File > Print** dialog, which is described in the section "Printing" (page 311).

Preferences property sheet

This property sheet contains options for modifying the output quality, including the following:

- **AutoShape options**

> ***FreeOffice:*** In **SoftMaker *FreeOffice***, the maximum resolution is limited to 300 dpi.

Sets the quality (resolution) in which AutoShapes and all other types of drawings are exported. The higher the setting, the larger the resulting file will be.

Image options

Lets you choose if images should be stored using a **lossless compression** method or the (lossy) **JPEG compression** method. If you choose the latter option, the **JPEG quality** option becomes available and lets you modify the quality level of the compression.

> ***Hint:*** Lossless compression provides perfect image quality. However, if your document contains a large number of images (especially photographs), the resulting file can become rather large. If this is the case, you may want to switch to JPEG compression, which provides a much higher compression rate for photographic images.

The option **Use alpha channel for transparencies** determines whether an "alpha channel" should be used when rendering transparencies in images or drawings. Usually, these look best when this option is enabled. However, some PDF viewers are unable to render alpha channels flawlessly, so we included an option to deactivate this feature.

Other options

Include PlanMaker document: Stores a copy of your PlanMaker document inside the PDF file. This enables users to open the resulting PDF file directly in PlanMaker. The program will then extract the original PlanMaker document from the PDF file and display it.

Open file in PDF viewer after exporting: Launches your PDF viewer and displays the PDF file after it has been exported (provided that you have a PDF viewer installed on your computer).

Use relative paths for file links: Automatically converts any hyperlink to a file into a relative path (instead of an absolute path). For example, when you have inserted a link to the file c:\Documents\Lists\test.txt and export the PDF document to the folder c:\Documents, the file path for this link will be changed to "Lists\text.txt".

Font options

The **Font embedding** options let you choose if the fonts used in the document should be included in the PDF file.

If font embedding is enabled, the PDF file can be viewed in its original fonts on any computer – even if this computer does not have the fonts installed. If it is

disabled, text will be rendered using different fonts selected automatically by the system.

View property sheet

This property sheet contains advanced options for the display of the PDF file in a PDF viewer, including the following:

- **Navigation pane**

  Use this option to specify what to display in the navigation pane of the PDF viewer. (The navigation pane is a panel displayed left of the PDF document.)

  Options available:

  Default: Use the PDF viewer's default setting.

  Empty: Do not display anything in the navigation pane.

  Bookmarks: Display the document's bookmarks in the navigation pane.

  Page thumbnails: Display miniatures of the document's pages in the navigation pane.

- **Zoom**

  Use this option to set the default zoom level of the PDF file, as follows:

  Default: Use the PDF viewer's default setting.

  Full page: Select the zoom level at which the entire page fits in the window.

  Fit width: Select the zoom level at which the page width fits in the window.

  Fit height: Select the zoom level at which the page height fits in the window.

  Custom: Set the zoom level to a custom value (in percent).

- **Page layout**

  Use this option to specify the page layout to display, as follows:

  Default: Use the PDF viewer's default setting.

  Single pages: Display as single pages.

  Two pages - odd pages left: Display as two facing pages (odd pages on the left).

Two pages - odd pages right: Display as two facing pages (odd pages on the right).

- **Additional options**

  This section provides the following additional options:

  Display document title: Display the document's title in the title bar of the PDF viewer (instead of its file name). Hint: You can change the title of a document on the **Summary** property sheet of the **File > Properties** dialog.

  Center viewer on screen: Automatically center the program window of the PDF viewer on the screen when the PDF file is opened.

  Full-screen mode: Automatically switch the PDF viewer to full-screen mode when the PDF file is opened.

  Hide menu bar: Hide the menu bar of the PDF viewer.

  Hide toolbars: Hide all toolbars of the PDF viewer.

  Hide navigation pane controls: Hide all controls of the navigation pane.

Security property sheet

This property sheet provides options that allow you to encrypt the resulting PDF file and to set up passwords that protect the file against opening or changing it.

- **Encryption type**

  Here you can select if the PDF file should be encrypted. You can choose between **40 bit encryption** (low level of security) and **128 bit encryption** (high level of security).

  > ***Note:*** The other options on this property sheet are not available until you have chosen an encryption method.

- **Password to open the document**

  If you enter a password here, the PDF viewer will ask for this password when users try to open the PDF file. If they don't enter the correct password, the viewer will refuse to display the file.

  If you leave this field empty, any user can open the file without having to enter a password.

- **Password to set permissions**

  Additionally, you can restrict the access rights for the PDF file. To do this, first enter a password required to change the access rights. Then, use the options in the **Permission** section of the dialog to specify which permissions should be granted.

  Background information: In some PDF viewers, a command for changing the access rights is available. If users try to invoke this command, they will be asked for the password you have entered here.

- **Permissions**

  Here you can specify which types of actions should be permitted. Only available when you have specified a password to set permissions (see above).

E-mailing

Provided an appropriate e-mail program is installed on your computer, you can send documents by e-mail from PlanMaker.

To do this, proceed as follows:

1. Create or open the document that is to be e-mailed.
2. Invoke the **File > Send** command.
3. Select the file format in which the e-mail is to be sent.

   If you choose the **PlanMaker document** format, the recipient receives an e-mail with the PlanMaker document as an attachment. In order to read the attachment, the recipient needs to have either PlanMaker itself, or else SoftMaker's free **PlanMaker Viewer**, which can be downloaded from **www.officeviewers.com**.

Your default e-mail application is invoked and a blank e-mail message is generated, with the document as an attachment. You can specify the recipients and type in a subject and message, if desired, and then send the e-mail.

Protecting cells and documents

PlanMaker provides options for protecting documents or specific document contents. For example, cells can be protected from unintentional changes, or entire documents can be password-protected.

The following options are available:

- **Sheet protection**

  Use *sheet protection* to protect individual cells against changes, and/or to hide their content on screen or in printouts.

- **Workbook protection**

  Use *workbook protection* to prevent users from adding, deleting, or hiding/unhiding worksheets.

- **Document protection**

  Use *document protection* to password-protect the current document against reading and/or writing. Note: If read protection is enabled, PlanMaker will additionally encrypt the document.

See the following pages for detailed information.

Sheet protection

Use *sheet protection* to protect individual cells against changes, and/or to hide their content on screen or in printouts.

Protecting cells requires two steps:

- **Step 1: Setting up protection settings for cells**
- **Step 2: Activating sheet protection**

See the following pages for detailed information.

Step 1: Setting up protection settings for cells

To protect cells, first determine *which* cells to protect by changing the cells' protection settings:

1. Select the cells whose protection settings you want to modify.
2. Choose **Format** > **Cell**.
3. Switch to the **Protection** property sheet.
4. Choose the desired protection settings (see below).
5. Click **OK** to confirm.

Protection settings available:

- **Protect cell**

  Protect cell against changes, if sheet protection is activated.

  Use this option to prevent users from changing the content or the format of the cell.

  > ***Important:*** By default, this option is enabled for *all* cells in the worksheet. To allow users to alter specific cells when sheet protection is activated, select those cells, and *disable* the **Protect cell** option.

- **Hide formula**

  Do not display the formula used to calculate the cell content, but only show the result, if sheet protection is activated.

- **Hide cell**

  Hide the cell content on screen, if sheet protection is activated.

- **Do not print cell**

  Hide the cell content in printouts, if sheet protection is activated.

Step 2: Activating sheet protection

After having specified the protection settings for cells (see above), activate sheet protection to enable settings.

Note: Activating sheet protection affects the current worksheet only.

To activate sheet protection:

1. Choose **Tools > Sheet Protection**.
2. If desired, enter a password required to deactivate sheet protection. Leave blank if you do not want to assign a password.
3. Click **OK** to confirm.

Sheet protection is now activated.

After that, only cells *not* flagged with the **Protect cell** option can be modified. Note: These cells are displayed with a green triangle in their lower right corner.

Hint: If sheet protection is active, you can use the Tab key to jump from one editable cell to the next.

In addition, if sheet protection is activated, the following restrictions apply:

- Most menu commands for editing the worksheet are unavailable.
- Size, position and all other properties of objects cannot be changed anymore (except for objects where you have deactivated the **Locked** property)
- Text in text frames cannot be changed anymore (except for objects where you have deactivated the **Text locked** property)
- New objects can no longer be inserted into the worksheet.

Deactivating sheet protection

To deactivate sheet protection, choose **Tools > Disable Sheet Protection**.

Once deactivated, all cells will be editable and displayable again, no matter what protection settings they have.

Hint: The current state of sheet protection is saved within the document. If a password has been assigned, users will be required to enter the password to disable sheet protection.

Workbook protection

If you activate *workbook protection*, PlanMaker disables the **Table** > **Worksheet** command and the context menu of the worksheet register.

As a result:

- Users can't add worksheets.
- Users can't copy, delete, or rename worksheets.
- Users can't hide/unhide worksheets.

See the following pages for detailed information.

Activating workbook protection

To activate workbook protection:

1. Choose **Tools** > **Workbook Protection**.
2. If desired, enter a password required to deactivate workbook protection. Leave blank if you do not want to assign a password.
3. Click **OK** to confirm.

Workbook protection is now activated. Users are no longer able to add, delete, rename, or hide/unhide worksheets.

In addition, most of the options in the **File** > **Properties** dialog become unavailable.

Deactivating workbook protection

To deactivate workbook protection, choose **Tools** > **Disable Workbook Protection**.

Users will be allowed to add, delete, rename, and hide/unhide worksheets.

Hint: The current state of workbook protection is saved within the document. If a password has been assigned, users will be required to enter the password to disable workbook protection.

Document protection

You can protect your documents from being read or saved by unauthorized persons by applying *document protection* – or, to be more precise, read and/or write protection – to them. For example, you can require the entry of a password to open or save a protected document.

To protect the current document, invoke the command **File > Properties**, switch to the **Protection** property sheet and select the kind of protection you want. Then enter whatever password you like for reading and/or writing.

The following types of protection are available:

- **No protection**
- **Write protection** (the document can be opened, but saving is only possible if the correct password is given)
- **Read protection** (the document can be opened only if the correct password is given)
- **Protection depending on password** (a combination of read and write protection)

Detailed information about enabling and disabling document protection is given on the following pages.

Enabling document protection

You can protect your documents from being read or saved by unauthorized persons by applying *document protection* – or, to be more precise, read and/or write protection – to them. For example, you can require the entry of a password to open or save a protected document.

When a document is read protected it is also encrypted, so that it cannot be examined with the use of programs other than PlanMaker.

To protect a document, do the following:

1. Invoke the command **File > Properties**.
2. Switch to the **Protection** property sheet.
3. Select the kind of document protection desired (see below).

4. Enter the read and/or write password (at least 4, and no more than 15 characters).

   Important: If you forget a password you can no longer open, or save, the document. Therefore, it is advisable to write down the password, paying attention to the cases of letters!

5. Confirm with **OK**.

6. A dialog appears and requires you to verify the read and/or write password by reentering it.

7. Confirm with **OK**.

8. Exit the dialog box with **OK**.

9. Save the document to make the changes effective.

From now on anyone who attempts to open this document will be asked automatically for the password. If the correct password is entered, the protection will be lifted for the duration of the edit session.

Using the above described dialog, you can select any of the following types of protection:

- **No protection**

  The document is not protected. This is the default setting.

- **Write protection**

  When the document is opened, the user is given the opportunity to enter the write password. The document can be saved only when the correct write password has been entered.

  If the user enters a false password, or no password at all, the document is opened *write protected* and cannot be saved – not even under another name.

- **Read protection**

  When the user tries to open the document, he is prompted to enter the read password. If he enters a false password, or no password at all, the document is not opened.

  Furthermore, the document is saved in an encrypted form, so that it cannot be examined with programs other than PlanMaker.

- **Protection depending on password**

  Here, *two* dialogs prompting for a password appear successively when the document is opened. The fist one asks for the read password, the second one asks for the write password.

  If the user enters the *read password*, he is permitted to open the document but not to save it.

  If he also enters the *write password*, he has full access. Thus, he can both read and save the document.

  If he enters a *false password*, or nothing at all, access to the document is denied.

Disabling document protection

When you succeed in opening a read or write protected document by entering the correct password, protection is disabled – but only *temporarily*. When you close the document, protection is again "armed" and the query for the password reappears the next time someone makes an attempt to open the document.

To disable the protection on a document *permanently*, do the following:

1. Open the document.
2. Invoke the command **File > Properties**.
3. Switch to the **Protection** property sheet.
4. Select the **No protection** option.
5. Confirm with **OK**.
6. Save the document, so that the changes will take effect.

Document protection is now permanently disabled.

The next time someone opens the document, no password query will interfere. All users can now open and save it.

Working with other file formats

Normally, PlanMaker saves a document in its native file format, namely, the *"PlanMaker document"* format. PlanMaker documents can be recognized easily by the filename extension .PMD (PlanMaker document). When you save a document, PlanMaker automatically appends this extension to the name you give it. For example, if you save a document under the name "Taxes", its complete filename will be TAXES.PMD.

You can save a file in various other file formats as well, which is useful, for example, when you want to do additional work on a document using another program. And you can also open documents in PlanMaker that have been created with other applications.

In this chapter you will learn how to work with other file formats. It covers the following topics:

- **Saving and opening files in other file formats**

  The first section describes how to save or open a document in a different file format. You simply invoke the **File** > **Save as** command (or, the **File** > **Open** command respectively) and choose the file format in the **Save as type** list.

- **Working with text files**

  When you open or save plain text files, a dialog box providing additional options appears. This section contains information on these options.

- **Working with Excel files**

  The last section provides information on working with Microsoft Excel files.

See the following pages for detailed information.

Saving and opening files in other file formats

This section provides information on saving and opening documents in a different file format.

Saving a document in a different file format

To save the active document in a different file format, invoke the command **File > Save as** and open the dropdown list **Save as Type**. Choose the desired format, enter a new filename if desired, and confirm by clicking on **OK**.

Opening a document stored in a different file format

To open a document stored in a different file format, invoke the command **File > Open**, open the **Files of type** list, and select the format of the file to be opened. Then select the file and confirm with **OK**.

Supported file formats

The list of available file types in Open and Save dialogs offers (among others) the following file formats:

- **PlanMaker document**

  The native file format and default for PlanMaker documents. This is the format in which you will typically save your documents.

- **PlanMaker template**

  Template for PlanMaker documents (see also section “Document templates”, page 162)

- **Microsoft Excel document**

  You can also open and save documents in Microsoft Excel file format. Supports Excel 5.0 through 2003 (.xls files) as well as Excel 2007 through 2010 (.xlsx files).

  For detailed information on this format, see section “Working with Excel files”, page 331.

  FreeOffice: In **SoftMaker *FreeOffice***, .xlsx files can only be opened. Saving files in .xlsx format is not possible.

- **Microsoft Excel template**

  Template for Microsoft Excel documents.

- **TextMaker document** (export only)

  For exporting PlanMaker files to SoftMaker's word processor TextMaker.

- **PlanMaker 2010 document** and **PlanMaker 2008 document**

  For storing files in the file formats of PlanMaker **2010** or **2008** (older versions of PlanMaker).

- **PlanMaker 2006 document**

  For storing files in the file format of PlanMaker **2006**, an older version of PlanMaker.

- **dBase**

  dBase database file format, either with DOS, Windows or Unicode character set. An additional dialog, where you can choose the character set, will appear before the file is opened.

  Note: Most dBase databases are stored in **dBase/*DOS*** file format rather than **dBase/*Windows*** file format – even if they were created with a Windows application.

- **Text file**

  Plain text file format, for example, with the cell values separated by tabs or commas. For detailed information, see the section "Working with text files" below.

Working with text files

As described in the previous section, you can also open and save plain text files (for example, CSV files) with PlanMaker:

- To *open* a text file, invoke **File > Open**, select the desired text file, and click on **OK**.

- To *save* a document as a text file, invoke **File > Save as**, open the **Files of type** list, and choose the entry **Text file**. Then, enter a file name and confirm with **OK**.

In both cases, a dialog where you can specify the format of the text file appears.

The dialog provides the following options:

Options available when saving text files

When you *save* a document as a text file, the following settings can be made in the dialog:

- **Character set**

  Here you can specify which character set to use when the text file is saved.

  Note: PlanMaker automatically suggests a suitable character set. Usually, there is no need to change this setting.

- **Data format**

  Here you can specify in which way the cell contents should be stored in the text file. The following two options are available:

  Separators between fields: If you choose this option, the cell contents will be separated by a certain character (for example, a semicolon or a tab).

  Example:

  ```
  Peter;Miller;24;Main Street
  Elizabeth;Jones-Nightingdale;1733;University Drive
  ```

  Fixed field widths: If you choose this option, the cell contents will be distributed over columns with a fixed width. Gaps will be filled with spaces.

  Example:

  ```
  Peter      Miller              24    Main Street
  Elizabeth  Jones-Nightingdale  1733  University Drive
  ```

- **Separator**

  Here you can choose which character should be used to separate the individual cell contents from each other (e.g., semicolons or tabs).

  > ***Note:*** The character used as a separator should *not* occur *within* cell contents. Otherwise, PlanMaker would split such cells into two entries.

- **Text marker**

  If desired, PlanMaker can surround the content of all cells that contain *text* with a certain character (e.g. quotation marks).

  If you want this, choose the desired character here.

- **Encoding of newlines**

  Here you can specify the control characters that are added at the end of lines (in order to indicate the beginning of a new line).

  Note: PlanMaker suggests suitable control characters automatically. Usually, there is no need to change this setting.

  Available options:

  CR+LF: This is the recommended setting for **Windows**.

  LF: This is the recommended setting for **Linux** and **Unix**.

  CR: This control character was used on older Apple Mac systems (prior to Mac OS X).

Options available when opening text files

When you *open* a text file, the same options are available as for saving. Use them to specify the format of the text file you want to open.

There's one additional option when opening files:

- **Number of header lines**

  If the first few lines of your text file contain headings (or, lines with some explanatory text, etc.), enter the number of these lines here. This will instruct PlanMaker *not* to split these lines into columns. They will be left unchanged and stored into just one cell per line.

  The default value is 0 (i.e., no header lines).

Working with Excel files

The following pages provide information on working with Microsoft Excel files in PlanMaker.

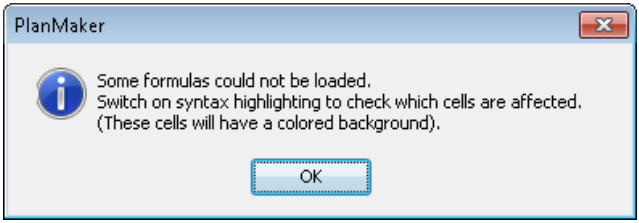
Opening and saving Excel files

As described in the section "Saving and opening files in other file formats", PlanMaker is able to open and save documents saved in Microsoft Excel format.

However, some arithmetic functions are either incompatible, or not supported by PlanMaker or Excel. This section provides help resolving these issues:

Warning message issued when opening an Excel file

When you open an Excel file containing arithmetic functions that are not compatible with PlanMaker, the following warning message is displayed:



To resolve, proceed as follows:

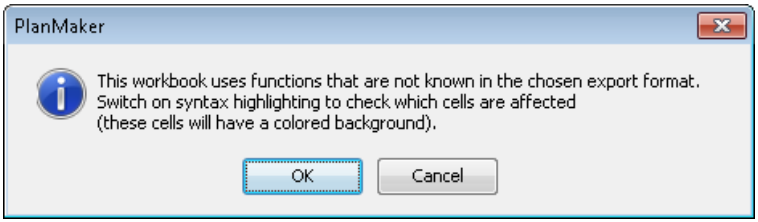
1. Choose the **View** > **Syntax Highlighting** command to activate syntax highlighting.
2. All cells containing formulas where the conversion failed will be highlighted with a colored background.

   These cells must be revised individually. Compare their content with the content of the corresponding cells in the Excel document, and replace incompatible arithmetic functions with PlanMaker functions. For detailed descriptions of all arithmetic functions supported by PlanMaker, see section "Functions from A to Z", page 413.
3. When all cells are revised, deactivate syntax highlighting.

Save the document (in PlanMaker format) to finalize changes.

Warning message issued when saving a document in Excel format

When you save a PlanMaker document in Excel format, if the document contains formulas that are not Excel-compatible, the following warning message is displayed:



To resolve, proceed as follows:

1. Choose the **View** > **Syntax Highlighting** command to activate syntax highlighting.
2. All cells containing formulas that are not Excel-compatible will be highlighted with a colored background.

   These cells must be revised individually. Replace all Excel incompatible arithmetic functions with Excel functions. For help, see function description of the affected function in this manual.
3. When all cells are revised, deactivate syntax highlighting.

Save the document in Excel format again. If no further warning messages are displayed, all incompatibilities have been eliminated.

Differences between PlanMaker and Excel

This section provides a list of the most significant differences between PlanMaker and Excel:

General

- PlanMaker is not able to execute **macros** and **VBA scripts** stored in Excel documents. When an Excel file is opened that contains macros or scripts, they will be ignored. However, PlanMaker will not remove them – if the file is saved in Excel format, the macros and scripts will remain functional.

Arithmetic functions

- Some of PlanMaker's **arithmetic functions** are not supported by Excel (and vice versa). If you open or save a document in Excel format, a warning mes-

sage will be displayed if the file contains incompatible arithmetic functions. For more information, see section “Opening and saving Excel files”, page 331.

Arithmetic operators

- In Excel, the **intersection operator** is the space bar. In PlanMaker, a backslash (\) has to be used. However, PlanMaker automatically converts this operator when you open/save an Excel file.

- In Excel, **extended cell references** like A1:B3:D5 can be entered. In PlanMaker, the notation A1:B3~D5 is used. However, PlanMaker automatically converts such cell references when you open/save an Excel file.

- In Excel, the order of precedence is incorrect for the **exponentiation operator** (^) and the **negation operator** (-), whereas PlanMaker uses the correct order. For example, in Excel, -1^2 returns 1 (wrong), whereas PlanMaker returns -1 (correct, since ^ has precedence over -).

  However, when you open/save an Excel file, PlanMaker automatically resolves this compatibility issue by replacing the ^ operator by the POWER function (which returns the same result in both PlanMaker and Excel).

Working with Arabic text

In this chapter, you will learn everything you need to know about editing text in *Arabic* script in your documents. The following topics are covered:

- **Activating extended support for Arabic text**
- **Changing the text direction in table cells**
- **Changing the text direction in text frames**
- **Changing the direction of worksheets**
- **Changing the font of Arabic text (in text frames)**

See the next pages for details.

Important: The features described in this chapter are only available when you have activated the **Extended support for Arabic text** option in the program settings (see next section).

Activating extended support for Arabic text

PlanMaker includes an "Extended Support for Arabic Text" option that provides some additional features for editing text in Arabic script.

To activate this option, proceed as follows:

1. Invoke the **Tools > Options** command.
2. Switch to the **General** property sheet.
3. Activate the **Extended support for Arabic text** option.

Important: The features described in this chapter are only available when this option is activated.

Changing the text direction in table cells

When the **Extended support for Arabic text** option is enabled, you can change the text direction in any given table cell whenever needed.

To do so, proceed as follows:

1. Invoke the **Format > Cell** command.
2. Switch to the **Alignment** property sheet.
3. Under **Text direction**, choose the desired option: context sensitive, left-to-right, or right-to-left.

Tipp: With the default setting **Context sensitive**, PlanMaker automatically chooses the appropriate text direction: When you enter text in Arabic into a cell, the text direction is set to right-to-left, otherwise, it is set to left-to-right.

Changing the text direction in text frames

In *text frames*, when the **Extended support for Arabic text** option is enabled, you can change the text direction of a paragraph whenever needed.

To do so, proceed as follows:

1. Place the text cursor in the desired paragraph within the text frame.
2. Invoke the **Format > Paragraph** command.
3. Switch to the **Paragraph** property sheet.
4. Under **Text direction**, activate the option **Right to left** to change the text direction to right-to-left.

   To set the text direction to left-to-right, deactivate the option.

Tipp: Using the keyboard

A much quicker way to change the text direction of a paragraph in a text frame is provided with the following keyboard shortcuts:

- When you press Ctrl and the *left* Shift key ⇧ simultaneously, the text direction changes to left-to-right.

- When you press Ctrl and the *right* Shift key ⇧ simultaneously, the text direction changes to right-to-left.

Note: On some systems (e.g. Ubuntu Linux), these keyboard shortcuts are reserved for other functions. In this case, you can alternatively use the keyboard shortcuts Ctrl Shift⇧ A (for left-to-right) and Ctrl Shift⇧ D (for right-to-left).

Changing the direction of worksheets

When the **Extended support for Arabic text** option is enabled, you can change the direction of a worksheet whenever needed.

To do so, proceed as follows:

1. Invoke the **Table > Properties** command in the desired worksheet.
2. Under **Text direction**, activate the option **Right to left** to change the direction to right-to-left.

   To set the direction to left-to-right, deactivate the option.

The direction of the worksheet changes accordingly.

Thus, when you change the direction of a worksheet to right-to-left, the column on the very *right* becomes the first column (instead of the column at the very *left*).

In other words, the horizontal direction of the table is reversed – as follows:

A1	A2	A3
B1	B2	B3
C1	C2	C3

A3	A2	A1
B3	B2	B1
C3	C2	C1

Left: Table direction set to left-to-right
Right: Table direction set to right-to-left

Note: Of course you can still change the writing direction of each table cell individually (as described in the section “Changing the text direction in table cells” above).

Changing the font of Arabic text (in text frames)

Note: This option affects only text frames, not table cells.

When the **Extended support for Arabic text** option is enabled, in text frames the dialog box for the **Format** > **Character** command presents lists for typeface, font size, style and language under not only a single category, but under *three*:

- For Latin scripts (e.g. English)
- For East Asian scripts (Chinese, Japanese, and Korean)
- For complex scripts (e.g. Arabic)

Thus, in text frames you can specify the settings for each kind of script separately.

For example, if you specify “Arial” as the typeface for Latin characters and “Simplified Arabic” as the typeface for characters in complex scripts (like Arabic), all Latin characters that you type will appear in Arial, and all Arabic characters you type will appear in the font “Simplified Arabic”.

Note: PlanMaker recognizes automatically whether given characters are part of the Latin, Asian, or complex scripts.

Scripts (BasicMaker)

Note: BasicMaker is not included in some versions of SoftMaker Office. Available only under Windows.

FreeOffice: In **SoftMaker *FreeOffice***, BasicMaker is not included.

BasicMaker is a tool that allows you to compose and execute scripts written in the programming language *SoftMaker Basic*. *SoftMaker Basic* is modeled after the industry standard *Visual Basic for Applications (VBA)* from Microsoft.

Scripts can be used to automate tasks in the word processor TextMaker and the spreadsheet application PlanMaker.

Invoking BasicMaker

To start BasicMaker, or to execute a BasicMaker script, use one of the following procedures:

- **Starting BasicMaker from the Start menu**

  You can start BasicMaker by clicking on **Start** > **Programs** > **SoftMaker Office** > **Utilities** > **BasicMaker** in the **Start** menu.

- **Starting BasicMaker from within TextMaker/PlanMaker**

  Alternatively, you can start BasicMaker from within TextMaker or PlanMaker. From the main menu in TextMaker/PlanMaker, choose the command **Tools** > **Edit Script**.

- **Running a script directly from within TextMaker/PlanMaker**

  To execute a script, invoke the command **Tools** > **Run Script** in TextMaker/PlanMaker. A file dialog appears. Choose a script, confirm with **OK**, and the script will be executed immediately.

For more information on BasicMaker and details on “programming” TextMaker and PlanMaker, see the BasicMaker online documentation (which is available in BasicMaker’s **Help** menu).

Document windows

Every document you create or open is displayed in its own *document window*, allowing you to work on multiple documents simultaneously, and copy data between them as needed.

This chapter contains information on working with document windows.

Creating document windows

Use the **File > New** command to create an empty document window. To open a file in a document window, choose the **File > Open** command.

PlanMaker lets you open as many documents as will fit in memory. If you do not want the document that you are opening to replace the current document, you can open the document in its own window. To open a document in a new window, select the **New Window** option in the Open or New dialog box.

Activating document windows

When you enter text or invoke menu commands, only the *active* document window is affected.

To change the active document window:

Mouse (only in Windows and Linux versions): Click on any part of the document window to activate.

Keyboard: From the **Window** menu, choose the name of the document window to activate.

Closing document windows

To close a document window, choose **File > Close**.

The active document window, together with its content, is now closed. If the document has changed since it was last saved, a message box appears first, questioning whether you want to save the document.

Hint: To close *all* currently open document windows at once, choose **Window > Close all**.

Maximizing document windows

Document windows can be maximized so they cover the entire workspace.

To maximize a document window:

Mouse: Click the icon in the title bar of the document window to maximize. To restore the original size of a maximized window, click the icon.

Keyboard: Open the system menu of the document window by pressing Alt - (minus key), and choose the **Maximize** command. To restore the original size of a maximized window, choose the **Restore** command.

Minimizing document windows

Document windows can be minimized as an icon displayed at the bottom of the program window.

To minimize a document window:

Mouse: Click the icon in the title bar of the document window to minimize. To restore a minimized window, double-click its icon or choose from the **Window** menu.

Keyboard: Open the system menu of the document window by pressing Alt - (minus key), and choose the **Minimize** command. To restore a minimized window, choose from the **Window** menu.

Arranging document windows

Use the following commands to arrange all open document windows:

- With the command **Window > Cascade** you tell PlanMaker to stack the windows one behind another as in a file cabinet. The active window is placed at the top of the stack.
- With **Window > Tile Vertically** the windows are arranged one below another.
- With **Window > Tile Horizontally** they are arranged one beside another.

To change the position or size of a document window:

Mouse: Drag the title bar of the window to move. To change its size, drag any of its borders.

Keyboard: Open the system menu of the document window by pressing Alt - (minus key), and choose the **Move** or **Size** command. Use the arrow keys to move/size the window.

Note: Changing position/size is not possible with maximized windows.

Using document tabs

FreeOffice: This feature is not included in **SoftMaker *FreeOffice***.

When you open two or more documents, a bar with *document tabs* appears below the toolbars. One tab is displayed for each open document window:

The document tabs bar

With document tabs, the following actions can be performed:

Switching between document windows

When you click on a tab with the *left* mouse button, the corresponding document becomes the active document. This allows you to switch between your open document windows quickly.

Alternatively you can use the keyboard: Ctrl F6 switches to the next document window and Ctrl Shift⇧ F6 to the previous one.

Closing document windows

When you click on a tab with the *middle* mouse button, the corresponding document is closed.

Alternatively, you can close a document by left-clicking on the **x** icon displayed on the right of the tab.

When you click on a tab with the *right* mouse button, a small menu containing commands for closing the current document or all other documents appears.

Showing/hiding the document tabs bar

The **Window** > **Document Tabs** command lets you choose if the document tabs bar should be displayed. When you invoke this command, a menu with the following choices opens:

- **Off**

  Disables the document tabs bar.

- **For two or more documents**

  Automatically displays the document tabs bar when you have two or more documents opened.

- **Always visible**

  Always displays the document tabs bar (even if just one document is opened).

Further settings related to document tabs can be made in the dialog of the **Tools** > **Options** command (**General** property sheet). See the section “Preferences, General property sheet” (page 349) for details.

Moving data between document windows

You can move text, cells, objects, etc. across window boundaries. Thus, you can move or copy table cells from one window to another. The commands needed to do

this were fully explained in section “Selecting cells” starting on page 58 and in the sections following it.

You will recall the essentials: If, for example, you select some cells in one window, you can copy them to the clipboard with **Edit > Copy** or Ctrl C, change to another window and insert the cells there with **Edit > Paste** or Ctrl V.

Customizing PlanMaker

PlanMaker gives you control over numerous program settings, allowing you to adapt the program to your personal working style.

This chapter covers all the details. It is divided into the following sections:

- **Preferences**

  To modify PlanMaker's *global* preferences, use the **Tools > Options** command. These settings apply to the program as a whole, and thus to *all* documents.

- **Document properties**

  To modify the properties of a *document*, use the **File > Properties** command. These settings affect the current document only.

- **Worksheet properties**

  To modify the properties of a *worksheet*, use the **Table > Properties** command. These settings affect the current worksheet only.

- **Customizing the document display**

  This section describes how to adjust the way a document is displayed on the screen. Most of the necessary commands are found in the **View** menu.

- **Customizing toolbars**

  To customize the program's toolbars (Standard toolbar, Formatting toolbar, etc.), use the **View > Toolbars** command.

- **Customizing keyboard shortcuts**

  To customize keyboard shortcuts for menu commands, use the **Tools > Customize > Keyboard Mappings** command.

- **Customizing AutoFill lists**

  To customize the lists used to automatically fill cells with the **Edit > Fill** command, use the **Tools > Edit Lists** command.

- **Installing additional dictionaries**

  When you install SoftMaker Office, dictionaries for some languages are already installed by default. In case you want to install additional dictionaries, follow the instructions given in this section.

See the following pages for detailed information.

Preferences

To modify PlanMaker's *global* preferences, use the **Tools > Options** command. These settings apply to *all* documents.

The dialog box associated with this command contains several property sheets, each of which presents options relating to a different topic area. If you click on the **Files** property sheet, for example, you will be able to make settings that control the opening and saving of files.

On the next pages, you will find detailed information on each of the individual options available.

Preferences, View property sheet

The **View** property sheet in the **Tools > Options** dialog box contains settings related to the display of tables:

Markers

Here you change the appearance of the little triangles that are displayed in cells that contain a comment and cells that are protected.

- **Color of comment markers**

  Changes the color of the little triangle that is displayed inside cells that contain a comment.

- **Color of protection markers**

  Changes the color of the little triangle that is displayed inside cells that are not protected (when sheet protection is enabled).

- **Color of protection markers**

  Changes the size of these markers.

Preferences, General property sheet

The **General** property sheet in the **Tools** > **Options** dialog box contains common program settings:

Buttons "User (Home)" and "User (Business)"

Click one of these buttons to open another dialog where you can enter your personal information such as name, address, phone number, etc.

To insert this information in documents, use the USERFIELD function.

Maximum number of undo steps

Here you can specify the number of actions that can be reversed with the **Edit** > **Undo** command. You can increase this number up to a maximum of 999 undo operations.

Extended support for Asian fonts

Note: This option affects only text frames, not table cells.

When this option is enabled, in text frames the dialog box for the **Format** > **Character** command presents lists for typeface, font size, style and language under not only a single category, but under *three*:

- For Latin scripts (e.g. English)
- For East Asian scripts (Chinese, Japanese, and Korean)
- For complex scripts (e.g. Arabic)

Thus, in text frames you can specify the settings for each kind of script separately.

For example, if you specify "Arial" as the typeface for Latin characters and "SimHei" as the typeface for Asian characters, all the Latin characters that you type will appear in Arial, and all the Asian characters you type will appear in SimHei.

Note: PlanMaker recognizes automatically whether given characters are part of the Latin, Asian, or complex scripts.

Extended support for Arabic text

When you activate this option, additional features for editing text in *Arabic* script will become available. See the chapter “Working with Arabic text” (page 335) for details.

Show warning when loading OLE objects

Linux only: When this option is enabled, PlanMaker displays a warning that OLE objects cannot be displayed when you open a document containing such objects. (Only the Windows version of PlanMaker is able to display OLE objects.)

Document tabs

FreeOffice: This feature is not included in **SoftMaker *FreeOffice***.

When you open two or more documents, a bar with *document tabs* will appear below the toolbars. One tab is displayed for each open document window.

You can use document tabs to switch between the currently opened documents with a single mouse-click. (See section “Using document tabs”, page 343 for details.)

The following settings can be made:

- Use the dropdown list below **Document tabs** to choose if the document tabs bar should be displayed. Available options:

  Off: Disables the document tabs bar.

  For two or more documents: Automatically displays the document tabs bar when you have two or more documents opened.

  Always visible: Always displays the document tabs bar (even if just one document is opened).

- **Show document icon:** If enabled, an icon indicating the file type of the corresponding document is displayed on the left of each tab.

- **Show close button on inactive tabs:** If enabled, an **x** button is displayed on the right of each tab. You can click this button to close the corresponding window.

  If you deactivate this option, the **x** button is displayed in the tab for the *current* window only.

Preferences, Edit property sheet

The **Edit** property sheet in the **Tools** > **Options** dialog box contains settings related to editing cells:

■ Move selection after input

Determines where to move the selection after the user has entered data in a cell and pressed the Enter key [↵]. For example, if you choose **Down**, the selection will move down to the cell below the current cell.

■ In-cell editing

If this option is checked, cells can be edited directly in the worksheet. If it is unchecked, cells can only be edited using the Edit toolbar (displayed above the spreadsheet).

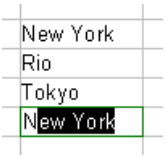
■ Automatic percent input

Determines, how PlanMaker reacts when you type numbers into a cell that contains a percent value or that is formatted with the “Percent” number format. If enabled, a percent sign is automatically added to your input.

■ Autocomplete cells

When you fill out a cell with this option enabled, PlanMaker automatically makes suggestions from the text entries directly above or below the cell.

Example: You have entered the values “New York”, “Rio” and “Tokyo” into a column. If you type the letter “N” in the cell directly below these entries now, the program automatically suggests “New York”. If you type the letter “T”, “Tokyo” is suggested, etc.



To accept the suggestion, press the Enter key [↵]. To reject it, simply continue typing or press the [Del] key.

If you do not want PlanMaker to make such suggestions while you are typing, you can always turn this option off.

Left arrow key never exists cell editing

Use this option to specify what should happen when you navigate to a cell, type in a value and press the left arrow key [←]:

On: The text cursor is moved to the left (within your input).

Off: The cell frame is moved to the left. In other words, your input is accepted, and the cell left of the current cell is made the active cell.

Warning if a formula contains errors

If you enter a formula that contains an error (e.g., missing a closing parenthesis), PlanMaker issues an error message when you press Enter. If you do not want an error message to be displayed, uncheck this option.

Note: Independent from this option, erroneous formulas are generally replaced by the text #NULL! when you save the document.

Formula tooltips

If this option is enabled, whenever you enter an arithmetic function in a cell, a tooltip providing information about the required function parameters appears below the cell.

Apply character formatting to entire words

Enabling this option has the following effect:

When the text cursor is inside a word and you change the character formatting (i.e. choose a different font or activate boldface), the entire word will be affected.

This allows you to format single words more quickly (without having to select them first).

Number separators

Here you can change which characters to use as decimal separator and as thousands separator for numbers.

> ***Important:*** Normally, you should leave this option set to **System default**. If you specify custom settings that are incorrect, most calculations will deliver wrong or invalid results.

If you choose **System default**, PlanMaker determines the decimal separator and thousands separator from your current system settings automatically. (This is the default setting.)

If you switch to **Custom**, PlanMaker lets you to specify your own decimal separator and thousands separator.

- **Calculation in status bar**

  When you select multiple cells, their sum is automatically displayed in the status bar. To have a different calculation displayed there, select the desired type of calculation here.

Preferences, Appearance property sheet

The **Appearance** property sheet in the **Tools** > **Options** dialog allows you to customize the appearance of the program's user interface.

Dialog style

Sets the general style of PlanMaker's dialog boxes and toolbars. This does not change the way you use the software, only the way it appears.

Dialog language

Lets you select the language to be used in menus and dialog boxes. The selections available here depend on what alternative user interface languages were installed along with the program.

Show fonts in font list

When this option is enabled, PlanMaker renders the names of fonts that appear in lists (such as the font list in the Formatting toolbar) using their corresponding fonts. This lets you see at a glance how each font looks like.

Show tooltips

Lets you specify whether or not tooltips should be displayed.

Tooltips are little text boxes that are displayed next to the mouse pointer when you position the pointer over certain screen elements, for example a button on a toolbar.

Beep on errors

When this option is enabled, a sound plays when PlanMaker displays an error or warning message.

Use large icons

When this option is enabled, larger icons are displayed in toolbars and menus.

Note: Changes to this setting become effective only after the program is restarted.

Use system file dialogs

Windows only: This option controls the type of dialogs that appear when commands to open and save files are issued. The options are:

Disabled: PlanMaker uses its own file dialogs.

Enabled: PlanMaker uses the file dialogs provided by the operating system.

The former are easier to use; the latter offer more options.

Smooth edges of screen fonts

Not available on all operating systems: When this option is enabled, PlanMaker uses a technology called "anti-aliasing" to smooth the edges of fonts and improve their appearance on the screen.

The options available vary according to the operating system.

Workspace color

This option allows you to change the background color of document windows.

Window Manager dialogs

Linux only: When this option is disabled, PlanMaker for Linux draws its own dialogs. This is somewhat faster than using the window manager to draw them. However, in this case dialogs cannot extend beyond the boundaries of the program window.

When this option is enabled, the window manager draws the dialogs.

Window Manager positioning

Linux only: When this option is disabled, PlanMaker for Linux positions dialogs itself – and always centers them in the program window.

When this option is enabled, PlanMaker leaves it to the window manager to position dialogs wherever it will.

Measurement

Linux only: Here you can specify the units of measure PlanMaker should use by default: **Metric** (centimeter) or **U.S.** (inch).

(Under Windows, this option is not necessary, since the program automatically uses the setting chosen in the "Regional and Language" options of Windows' Control Panel.)

Tip: You can always override this setting and enter a value into a dialog field in another unit of measure by typing one of the following unit abbreviations after the value:

Unit	Explanation
cm	centimeter
in	inch – 1 in equals 2.54 cm.
pt	point – 72 pt equals 1 in.
pi	Pica (for characters)

For example if you typed "5.08 cm" for the left margin, PlanMaker would set the margin to 5.08 cm (= 2 in).

Preferences, Language property sheet

The **Language** property sheet in the **Tools > Options** dialog contains settings that are related to the program's language tools (spell checker, hyphenator, etc.).

Language

Here you can select the language to be used for spell checking and hyphenation. To choose your setting, open the dropdown list and select the desired language from the available options.

Spell-checking

In this section you can configure the spell-checker. Settings available:

- **Check spelling as you type**

  If you activate this option, PlanMaker will check the spelling of text *as you type*. As soon as you make a mistake, a dialog box will appear to facilitate a correction. See section “Spell checking as you type” (page 284).

  Note: When this option is turned off, you can still check the spelling in a document using the *manual* spell-checker. To launch it, use the **Tools > Check Spelling** command. See section “Manual spell checking” (page 283).

- **Beep on errors:** When this option is enabled, PlanMaker issues a warning tone when it encounters an unknown word while checking spelling as you type.

- **Hunspell dictionaries**

  FreeOffice: **SoftMaker *FreeOffice*** does *not* include any of the premium SoftMaker dictionaries normally shipped with **SoftMaker Office**. Its spell checker supports solely the use of Hunspell dictionaries.

  In a standard installation, only Hunspell dictionaries for English and German are installed. If you want to add additional languages, refer to the section “Installing Hunspell dictionaries”.

  As an alternative to its own dictionaries, SoftMaker Office also supports the use of *Hunspell* dictionaries. These dictionaries are available as free downloads. Most of them were created by private users or non-profit organizations.

  The **Hunspell dictionaries** button allows you to a) install Hunspell dictionaries that you have downloaded and b) specify for which languages to use Hunspell dictionaries.

  For details, see section “Installing additional dictionaries” (page 391).

Expand SmartText entries

As described in the section “SmartText” (beginning on page 286), you can create SmartText entries (e.g. “sd” for “sales department”) with PlanMaker.

When this option is enabled, your SmartText entries can be expanded right in the text. All you have to do is type the abbreviation for the SmartText entry (e.g., “sd”) and then press the space bar, Enter key or a punctuation key in order to signal PlanMaker to replace the abbreviation with the content of the SmartText entry.

If this option is disabled, SmartText entries can be called out only with the **Insert > SmartText** command.

Preferences, Files property sheet

The **Files** property sheet in the **Tools > Options** dialog contains settings related to opening and saving files:

Template folder

Here you can specify the folder in which the templates for PlanMaker documents are stored. The dialog that appears when you invoke **File > New** presents templates for your selection that are found in this folder.

> ***Note:*** Normally, this setting should not be changed. Change it only in the event that you have actually moved the template folder to another place.

Default file format

Here you can select the file format that PlanMaker will use by default to save newly created documents.

The available choices are PlanMaker’s own file format or the Microsoft Excel file format in several versions.

> ***Important:*** The Excel format is not able to accommodate features specific to PlanMaker. If you save a PlanMaker document in Excel format, certain formatting options and other features could be lost. Accordingly, it is recommended to use the default setting “PlanMaker”.

Saving group box

Here you can make settings that affect the way documents are saved:

- **Create backup files**

  If this option is enabled, whenever you save a document, PlanMaker will first create a backup copy of the last saved version in a file with the name extension .BAK. So, if you save the document REPORT.PMD, the existing REPORT.PMD file is first renamed REPORT.BAK, and then the edited document is saved under the name REPORT.PMD.

  If you don't want this behavior, disable the option.

  > ***Tip:*** Normally, you should not disable this option. Otherwise, if you should inadvertently save a document after making changes that you didn't mean to make, you would have no recourse to a backup copy of the original. If the option had not been disabled, you could restore the original simply by copying the .BAK file to the .PMD file.

- **Prompt for summary information when saving**

  When you enable this option, a dialog box will appear automatically the first time you save a new document to enable you to enter some additional information about it (for more information, see the section "Document summary", page 293).

- **Autosave documents every ... minutes**

  When you enable this option, PlanMaker automatically makes a backup copy of every open document in a temporary folder on a periodic basis. You can enter a period of 1 to 100 minutes.

  When you exit PlanMaker in the normal manner, these copies are automatically deleted. However, if PlanMaker is abruptly shut down by a power failure, for example, while you are working on open documents, these copies become available when the program is restarted. PlanMaker recognizes that there has been a failure and offers to open the backup copies of all the documents that had been modified but not saved just prior to the failure.

  You can then check each of the restored documents to determine if any of the most recently made changes have actually been lost, and then save them with **File > Save**.

Opening group box

Here you can make settings that affect the way documents are opened:

- **Open documents in new windows**

  If this option is checked, whenever you open a document using **File > Open** or **File > New**, a *new* document window will be created.

  If it is unchecked, the current document will be closed and the new document will be opened in the *same* document window.

  Note: You only set the default state of this option here. The **File > New** and **File > Open** dialogs have their own **New Window** checkboxes, which allow you to specify on a document-by-document basis whether or not a new window should be opened.

- **Recently used files**

  PlanMaker displays a list of the files most recently opened in it in the **File** menu. If you select an item on the list, the corresponding file will be opened immediately. Using the **Recently used files** option you can specify the number of files to be displayed in the list.

Preferences, System property sheet

The **System** property sheet in the **Tools > Options** dialog contains the following system settings:

Compress pictures in memory

If this option is enabled, pictures inserted into documents will be stored *compressed* in memory. Advantage: Documents containing many pictures consume significantly less main memory. Disadvantage: The compression of course consumes some CPU time.

As a general rule, you should leave this option enabled.

Note: Changes to this setting become effective only after PlanMaker is restarted.

Limit internal picture cache

PlanMaker uses an internal picture cache to speed up the display of images in a document. If this option is enabled, the size of this cache is restricted to a maximum of 20% of your PC's main memory.

As a general rule, you should leave this option enabled.

If you frequently work with documents containing many high-resolution pictures, you may consider deactivating this option. Pictures will then usually be displayed faster throughout the document; however, it can occur that PlanMaker consumes a large amount of main memory.

Smooth edges of pictures

When this option is enabled, PlanMaker uses anti-aliasing to smooth edges and lines in images. Advantage: The display quality of scaled images is improved. Disadvantage: This of course consumes some CPU time.

Check for updates

Windows only: Here you can specify how often the software should check if software updates are available. Software updates provide bug fixes and feature improvements.

Note: Checking for updates is possible only when your device has Internet access.

If you want to disable the automatic update check, choose the **Never** option from the list. In that case you have to check for updates manually (by clicking the **Check Now** button.)

Associate file types

Windows only: This button can be used to associate certain file types (for example, Microsoft Excel documents) with PlanMaker. As a result, such files can be opened with a double click on the file in Windows Explorer. PlanMaker will automatically start (if it is not already running) and open the file.

When you click on the **Associate file types** button, a dialog appears. It indicates which files types currently are associated with PlanMaker. To activate or deactivate any of these associations, click on the checkbox in front of it.

Use SHM extensions

Linux only: When this option is enabled, PlanMaker uses shared memory caching to speed up the responsiveness of the display.

Note: Depending on the particular system, in certain cases the amount of shared memory available might not be sufficient for PlanMaker. In such cases, PlanMaker automatically disables this option.

Use XIM

Linux only: When this option is enabled, PlanMaker supports the composition of accented characters (à, ô, é, etc.) using "XIM".

For example, with a German keyboard, you can insert the character "ô" by first pressing the [^] key and then pressing the [0] key.

If you disable this option, composing characters like this is no longer possible.

Hint: On some systems, disabling this option improves the responsiveness of the display when you are typing text fast.

Mouse wheel

Linux only: If your mouse has a mouse wheel, you can set the scrolling increment for a turn of the wheel either by page (one complete page) or by a certain number of lines.

External applications

Linux only: This button opens a dialog where you can specify which external applications to start on certain actions. For example, when a PDF file is created, the application specified in the **PDF Viewer** field will be launched to display the result.

Note: You don't *have to* fill out these fields. For all fields that are left empty, your system's default application for the corresponding action will be used. Make changes to this dialog only when you want applications *different* from the default applications to be used. To do so, enter the file name of the corresponding executable (including the entire file path, if necessary).

User-defined font paths

Linux only: Here you can specify paths to supplementary fonts for PlanMaker. To do this, enter the subdirectory in which the font files reside. If you want to enter multiple directories, separate them with colons.

PlanMaker can then use these fonts in addition to the fonts available to it from the operating system.

Note: Changes to this setting become effective only after the program is restarted.

Preferences, Fonts property sheet

The **Fonts** property sheet in the **Tools > Options** dialog allows you to specify which fonts to display in font lists (e.g. in the dialog of the **Format > Character** command).

The property sheet presents a list of all fonts installed on your system. To activate or deactivate a font in the list, click on the checkbox in front of its name. Fonts where you have removed the checkmark are no longer displayed in font lists.

Background information: The fonts installed on your system by default contain several fonts that you will probably never need – for example, fonts that contain solely glyphs for foreign languages that you don't use. If you like, you can hide such fonts as described above.

Use font filtering of the operating system (Windows 7 only)

Users of Windows 7 will additionally find an option named **Use font filtering of the operating system** on this property sheet. When activated, your system will *automatically* hide all fonts that contain solely glyphs for foreign languages in font lists.

Document properties

With the **File > Properties** command you can make settings that apply only to the current document and are saved with it. These settings are called *document properties*.

The settable document properties are grouped by topic and each group is presented on one of several property sheets. For example, if you click on the **Summary** property sheet, you can enter summary information about the document.

On the next pages, you will find detailed information on each of the individual document properties available.

Document properties, Summary property sheet

The **Summary** property sheet in the **File > Properties** dialog allows you to enter *summary information* about the current document.

The summary information can include descriptive entries about the document (subject, author, keywords, etc.) that the file manager can use in searches.

For more information, see section “Document summary”, page 293.

Document properties, Colors property sheet

The **Colors** property sheet in the **File > Properties** dialog allows you to add and edit custom colors for the current document.

When you open a color list – for example, the color list in the Formatting toolbar – you see only a small subset of the more than 16 million colors that are available. This subset is called the *color palette* of the document.

You can modify this color palette at any time. You can add new colors and modify colors you have added. However, the first 24 colors in the palette are default colors than cannot be changed.

> ***Important:*** Changes in the color palette are saved *in the document*. Thus, you can compose a different color palette for every document.

Adding a color

To add a color to the palette of the current document, do the following:

1. Invoke the command **File > Properties** and switch to the **Colors** property sheet.

> ***Tip:*** Alternatively, you can gain access to this dialog from any other dialog box that contains a color list. To do this, select the **Define color...** entry in the color list (the last entry).

2. Set the desired color (see the section "Working with the color controls" below).
3. Click on the **New** button.
4. Give the new color whatever name you like and confirm with **OK**.
5. Exit the dialog with **OK**.

PlanMaker now adds the new color to the document's color palette. From now on, it will be available in all dialog boxes that permit color selection.

Changing a color

> ***Note:*** You can change only those colors that you have added. The first 24 colors in the palette are default colors that cannot be changed.

To change a color, do the following:

1. Invoke the command **File** > **Properties** and switch to the **Colors** property sheet.

   Or: Select the **Define color...** entry in any color list.
2. Select the color to be changed from the **Color palette** list.
3. Make the desired changes (see the section "Working with the color controls" below).
4. Click on **Change**.

The color is now changed for the current document.

Deleting or renaming a color

You can delete or rename user-defined colors at any time. To do this, invoke the colors dialog, select a color from the **Color palette** list, and click the **Delete** or **Rename** button.

Working with the color controls

The controls in the colors dialog allow you to set colors in a number of different ways. All these ways lead to the same results – just choose the method that suits you the best:

- **Using the color field and luminance slider**

  Setting colors is easiest when you use the large color field and the luminance slider to its right. The color field presents all the available hues in all available saturations, while the luminance slider next to it provides a means of varying the luminance.

  To set a color, first click on the desired color in the large color field. Then click on the desired luminance in the luminance slider.

- **Using the hue, saturation and luminance controls**

  Alternatively you can set colors with the controls labeled **Hue**, **Sat** (saturation) and **Lum** (luminance). Values between 0 and 240 are allowed for each.

- **Using the Red, Green and Blue controls**

  Colors can also be specified by their red, green and blue components. The controls labeled **Red**, **Green** and **Blue** are provided for this purpose. Here, values between 0 and 255 are allowed.

Document properties, Internet property sheet

The **Internet** property sheet in the **File > Properties** dialog allows you to change the colors and background of the current document and set other HTML related options.

- **Do not save colors in HTML file**

  If you enable this option, the color settings you make on this property sheet will apply only within PlanMaker. They will not be preserved when you save the document as an HTML file. So, if you open the HTML file in a web browser, the document will appear in the browser's default colors – not in the colors set here.

- **Show blink style as**

  Text that is formatted with the HTML attribute "blink" is not displayed in PlanMaker as blinking but is indicated with the color selected here. By default this color is yellow.

- **Background color**

  Here you can change the document's background color.

  With the default setting "Auto" the background color is not changed. Accordingly, when you save the document in HTML format and open it in a browser, the document is displayed with the browser's default background color.

- **Background image**

  You can specify a picture to be used for the background of the document by entering the filename of the desired image here. The background is created by tiling the image.

  You must specify the full path and filename of the image. You can either enter this information manually or click on the **Browse** button to locate the image file on your hard disk.

  Note: Background images are not displayed in PlanMaker; they only appear when the file is saved in HTML format and opened in a web browser.

- **Unvisited link**

  Here you can select the color to be used to represent unvisited links. The default color is blue.

- **Visited link**

  Here you can select the color for visited links. The default is dark magenta.

- **Current link**

  Here you can select the color for the currently selected link. The default is red.

Additional colors: If none of the existing colors suits you, you can always compose your own colors. To do this, click on "Define color...", the last item in the color list (see section "Document properties, Colors property sheet", page 363).

Document properties, Statistics property sheet

The **Statistics** property sheet in the **File > Properties** dialog box displays statistical information about the current document:

- The **Cells** section displays how many cells are filled with text, numbers, formulas, etc.

- The **General** section displays the number of worksheets and the number of pages.
- The **Objects** section displays the number of objects (charts, pictures, etc.) in the current documents.
- The **Actions** section displays when the document has been created, saved, and printed.

Document properties, Options property sheet

The **Options** property sheet in the **File > Properties** dialog box contains common settings for the current document:

"Text frames" group box

- **Tab width**

  Determines the tab width for text entered in text frames.

"Worksheet" group box

- **Syntax highlighting**

  If this option is checked, cells will be colorized according to their content.

  Equivalent to the **View > Syntax Highlighting** command (see section "Syntax highlighting", page 93).

- **Show formulas**

  If this option is checked, cells containing a calculation will display the formula instead of the result.

  Equivalent to the **View > Show Formulas** command (see section "Displaying formulas instead of results", page 93).

- **Protection indicator**

  If this option is checked, a green triangle will be displayed in all *un*protected cells when sheet protection is activated (see also section "Sheet protection", page 319).

- **Hyphenation**

  If this option is checked, cells where the option **Wrap text** is activated (using the **Format > Cell** command) will be hyphenated.

"Comments" group box

- **Show indicators**

  If this option is checked, a yellow triangle is displayed in cells that contain a comment. See also section "Inserting comments", page 103.

- **Always show comments**

  Normally, comments are displayed only when you point with your mouse to a cell that contains a comment. If you check this option, all comments in the current document will be displayed permanently.

"Decimal point after input" group box

- **Move by ... decimals**

  If this option is checked, numbers entered in cells will be shifted by the specified number of decimal places.

  This is helpful if, for example, many numbers with two decimal places have to be entered. If this option is set to 2 and the number 42 is entered, it will be converted to 0.42. If 234 is entered, it will be converted to 2.34. The decimal points do not have to be entered manually.

"Window" group box

- **Vertical scrollbar**

  If this option is checked, a vertical scrollbar is displayed in the document window.

- **Horizontal scrollbar**

  If this option is checked, a horizontal scrollbar is displayed in the document window.

- **Sheet tabs**

  If this option is checked, the *worksheet register* with tabs for each worksheet is displayed below the document. These tabs can be used for switching between worksheets and creating/managing worksheets.

"Objects" group box

- **Guidelines for text frames**

  If this option is checked, non-printing border lines are displayed around text frames. These lines make it easier to determine and change the position/size of text frames.

- **Show hidden objects**

  As described in the section "Hiding objects" (page 206), you can make inserted objects invisible on the screen.

  If you enable this option, any object whose **Visible** property has been disabled becomes visible on the screen again.

Default currency

Use this option to change the default currency of the current document.

> ***Note:*** Normally, this option should be set to **System default**. PlanMaker will then automatically use the system's default currency.

Setting this option to a different currency has the following consequences:

1. When using the icon in the Formatting toolbar to format a number in currency format, the currency chosen here will be used instead of the system's default currency.

2. The same applies when using one of the arithmetic functions that PlanMaker automatically formats in currency format.

"Compatibility" button

This button provides access to settings that affect functions internal to the program, in order to improve compatibility with documents created in older versions of

PlanMaker or in Microsoft Excel. These options are set automatically when such a document is opened and normally should not be changed.

Document properties, Calculate property sheet

The **Calculate** property sheet in the **File > Properties** dialog box contains document-specific settings related to calculations:

"Recalculation" group box

Determines if the calculations in the current document should be kept up-to-date automatically:

- **Recalc automatically**

  If this option is enabled, calculations are updated automatically when the content of a cell is changed.

  This is the default setting. It guarantees that all calculations are up-to-date.

- **Recalc only before ...**

  If this option is enabled, calculations will be updated only when **saving** or **printing** the document, or when **copying** or cutting cells.

  If all of the above options are deactivated, calculations will no longer be updated.

  Hint: You can instruct PlanMaker to update all calculations by choosing the **Tools > Recalculate** command at any time.

"External references" group box

These options are related to *external* cell references (i.e. cell references that refer to cells in a different file). For details, see the section "External cell references", page 402.

Options available:

- **Update data on opening**

  Lets you choose if all external cell references in a document should be updated (once) when the document is opened. Options available:

Always: When the document is opened, update its external references.

Never: When the document is opened, *do not* update its external references.

Ask user: When the document is opened, ask the user if external references should be updated.

- **Save external data in document**

  If this option is activated, PlanMaker saves a copy of all values returned by external cell references in the document. If the file for an external reference is missing when the external reference is updated, the value last stored will still be displayed.

  If you turn this option off, PlanMaker instead displays an error value when you update an external reference while the corresponding file cannot be accessed.

"Rounding" group box

Checking these options increases the accuracy of calculations.

Since computers use a different numeral system than humans, some calculations may, in very rare cases, lead to very small rounding errors. This issue is not PlanMaker-specific but affects practically all computer applications.

However, PlanMaker has two options that, when activated, almost eliminate such rounding problems:

- If **Round final result** is checked, PlanMaker automatically rounds the final result of each calculation to 15 decimal places.
- If **Round intermediate results** is checked, PlanMaker also rounds any intermediate result within a calculation to 15 places.

The first option reduces the probability of receiving a rounding error significantly; the second option reduces it even more. However, the disadvantage of checking these options is that the time required to recalculate the document increases.

A classical example for such rounding errors:

If these options are deactivated, the formula (0.1+0.2-0.3)=0 returns FALSE, though TRUE would be the correct result. If both options are activated, the calculation returns the correct result.

“Charts” group box

Like calculations, charts are updated automatically when the content of any cell changes. To disable this feature, uncheck the **Update automatically** option.

Hint: You can instruct PlanMaker to update all charts in the current document by choosing the **Tools > Update Charts** command at any time.

“Iterations” group box

This option affects only cells containing a *circular reference*. For example, if cell A1 contains the formula =A1*2, this is called a circular reference, because the calculation in cell A1 refers to cell A1 itself.

If the **Use iterations** option is checked, such calculations are repeated until a) the number of **Maximum iterations** is exceeded, or b) the difference between the current result and the previous result of the iteration is less than **Maximum change**.

By default, this option is not checked.

Note: Unless you actually use circular references in calculations on purpose, this option should *not* be checked, since it significantly increases the time required to recalculate the document.

Document properties, Protection property sheet

The **Protection** property sheet in the **File > Properties** dialog box allows you to apply *document protection* to the current document.

Opening and/or saving a protected document is possible only following the entry of a correct password. Documents with read protection are also encrypted, so that they cannot be examined with programs other than PlanMaker.

You will find information about this topic in chapter “Document protection”, page 323.

Document properties, Fonts property sheet

Note: This property sheet is available only in the **Windows** version of PlanMaker.

The **Fonts** property sheet in the **File > Properties** dialog box displays a list of all fonts used in the current document.

The list is divided into fonts that are available on the current device – and fonts that are not available (i.e. not installed).

Worksheet properties

To modify the *worksheet properties*, use the **Table > Properties** command. These settings affect the current *worksheet* only.

Options available:

- **Row headers**

  Determines whether row headers are displayed in the worksheet.

  Row headers are buttons labeled with the row number, displayed to the left of the worksheet.

- **Column headers**

  Determines whether column headers are displayed in the worksheet.

  Column headers are buttons labeled with the column number, displayed above the worksheet.

  Hint: Alternatively, row and column headers can be turned on/off using the **View > Row & Column Headers** command.

- **Page breaks**

  Determines whether dark gray lines indicating the location of page breaks are displayed in the spreadsheet.

- **Show zero values**

  A cell contains a *zero value* when it contains either the number 0 (zero) or a calculation that returns zero.

  If this option is enabled, the number “0” will be displayed in such cells as usual. If you disable it, nothing will be displayed there.

- **Gridlines**

  Determines whether gridlines are displayed between cells on-screen. Also, you can change the color of these lines as desired.

  Hint: By default, gridlines are not printed. To print gridlines, choose **File > Page Setup**, switch to the **Options** property sheet, and check the **Gridlines** option.

- **Alternating shade**

  When you activate this option, alternating shading is applied to the lines of the table: Odd lines are shaded as specified with the **Shading 1** button, even lines are shaded as specified with the **Shading 2** button.

- **Text direction**

  For tables in *Arabic* script, you can change the direction of the worksheet to right-to-left here.

  Doing this will reverse the horizontal direction of the worksheet – so that the cell A1 is no longer in the top left corner but in the top right corner.

  See also chapter "Working with Arabic text" (page 335).

Customizing the document display

This section provides information on how to adjust the way the document appears on the screen:

- **Zoom level**

  The zoom commands allow you to adjust the zoom level of a worksheet.

- **Full screen view**

  In *full screen* view mode, PlanMaker maximizes its program window and hides all toolbars in order to display as much of the document as possible. To enter this mode, use the **View > Full Screen** command.

See the following pages for detailed information.

Zoom level

The zoom level can be set individually for each worksheet.

Choose **View** > **Actual Size** to display the worksheet in its original size.

Choose **View** > **Zoom Level** to set any other zoom level:

Zoom level	Explanation
Fit to selection	Zooms in to the current selection as far as possible
Previous zoom	Restores the previous zoom level
50%, **75%**, etc.	Sets the zoom level to the desired level

Alternatively, custom values can be entered into the input box (50 to 400 percent).

Tip: Using the zoom slider

FreeOffice: This feature is not included in **SoftMaker *FreeOffice***.

You can also use the zoom slider at the bottom right of the screen to modify the zoom level.

To change the zoom level, either drag the slider with your mouse, or click on the minus icon or the plus icon.

Full screen view

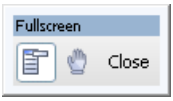
In *full screen* view mode, PlanMaker maximizes its program window and hides all toolbars in order to display as much of the document content as possible.

To enter this mode, use the **View** > **Full Screen** command.

To exit it, choose the **View** > **Full Screen** command again or press the Esc key.

Using the toolbar of the full screen view

When you activate the full screen view mode, an additional toolbar appears on the screen.



The "Fullscreen" toolbar

The icons in this toolbar have the following functions (from left to right):

- Show/hide menu bar
- Enter/exit "Drag sheet" mode

  If this mode is activated, you can scroll your document using the mouse. Simply click into the document and drag the mouse pointer into the desired direction (with the mouse button still held down).

  Note: Clicking text, for example to position the caret or to select something, is not possible in this mode.

  To exit the "Drag sheet" mode, click this button once again.
- A click on the **Close** button leaves full screen mode.

Customizing toolbars

PlanMaker provides *toolbars* for quick access to the program's functions. Each icon on a toolbar represents a particular command. When you click on an icon, the corresponding command is executed.

A toolbar (here: the Standard toolbar)

This section describes how you can adapt these useful aids to your personal working style. Using the **View > Toolbars** command, you can take the following actions to configure the toolbars:

- Displaying and hiding toolbars
- Positioning toolbars on the screen
- Managing toolbars (creating, deleting or renaming your own toolbars)
- Customizing toolbar icons (adding, removing or repositioning icons)
- Creating user-defined toolbar icons (for starting other programs)

These topics are treated in detail on the following pages in the order listed.

Displaying and hiding toolbars

You can enable or disable individual toolbars at any time – for example, when you want to gain more room on the screen for text editing.

To select the toolbars you would like to display, proceed as follows:

1. Invoke the **View > Toolbars** command.
2. Click on the check box in front of a toolbar's name to enable or disable it.
3. Exit the dialog box with **Close**.

The toolbars you have checked or unchecked are now enabled or disabled.

> ***Tip:*** There is a faster way to do this: When you click with the *right* mouse button on any toolbar, a list of all available toolbars is displayed. To enable or disable a toolbar, simply click on the corresponding list entry.

Visible in mode...

Some toolbars are visible only in particular working modes of PlanMaker. The Formatting toolbar, for example, is visible only in normal editing mode. When you switch to Object mode, which is only for editing objects, it disappears, since it has no function in this mode.

The **Visible in mode** option controls this behavior. With it, you can specify when a toolbar will be visible, for example:

Option	Meaning
All modes	The selected toolbar is always visible (provided that it is not disabled).
Edit mode	The toolbar is visible only in normal *Edit mode*, and not in Object mode (see also section "Object mode", page 192). Example: the Formatting toolbar
Object mode	The toolbar is visible only in *Object mode* and not in normal Edit mode (see also section "Object mode", page 192). Example: the Object toolbar

Chart	The toolbar appears only when a *chart* is selected. Example: the Chart toolbar
Outline	The toolbar appears only if the current worksheet contains an *outline* (also see section "Outliner", page 299). Example: the Outline toolbar
Picture	The toolbar appears only when a picture is selected. Example: the Picture toolbar

To change the setting for one of the toolbars, invoke **View > Toolbars**, select the toolbar, and then choose the desired option in **Visible in mode**.

> ***Note:*** Normally, it does not make sense to change this setting for the default toolbars (Standard toolbar, Formatting toolbar, etc.). These options are primarily meant for user-defined toolbars.

Positioning toolbars on the screen

You can position individual toolbars anywhere you like on the screen. To do this, you can either use the **View > Toolbars** command or simply drag a toolbar to the desired position with the mouse.

Changing the position with the View > Toolbars command

Proceed as follows:

1. Invoke the **View > Toolbars** command.
2. Select the toolbar you want to move by clicking on it.
3. Select the desired position for the toolbar in the **Position** list.

Note: If you choose the **Floating** option, the toolbar icons are displayed in a window that can be moved or sized just like an application window.

Changing the position with the mouse

All enabled toolbars can also be repositioned with the mouse. Proceed as follows:

1. Position the mouse pointer over an *empty* area of the toolbar.
2. Press the left mouse button and hold it down.

3. While holding the mouse button down, drag the toolbar to the desired position.

4. Release the mouse button to place the toolbar at the new position.

A positioning aid is active while you are dragging, so that when you drag the toolbar near one of the edges of the program window, it jumps automatically to that edge. If you leave the toolbar at the top edge of the window, for example, the result is the same as if you selected the **Top** position in the **View > Toolbars** dialog box.

Locking a toolbar in position: When you want to avoid accidentally dragging a particular toolbar out of its position with the mouse, invoke **View > Toolbars**, select that toolbar, and enable the **Locked** option.

Managing toolbars

You can create new toolbars, delete, and rename existing toolbars, edit toolbar icons, etc. To perform these tasks, use the buttons in the dialog box for the **View > Toolbars** command.

Creating new toolbars

PlanMaker allows you to create your own toolbars whenever you wish.

For example, if you frequently need to use commands in the **Window** menu that are not present in the Standard toolbar, it might be worthwhile for you to set up your own toolbar for them.

You create a new toolbar as follows:

1. Click the **New** button (in the dialog box of the **View > Toolbars** command).

2. A dialog box appears and prompts you to enter a name for the new toolbar – "My toolbar" for example. Enter a name and confirm with **OK**.

3. The new toolbar is set up. Close the dialog box or click on the **Customize** button to add icons to the toolbar. You can read more about this in the section entitled "Customizing toolbar icons", page 380.

Deleting and renaming toolbars

To delete or rename a toolbar in the **View > Toolbars** dialog box, select it and click **Delete** or **Rename**.

Note: You can delete and rename only toolbars that you have created yourself. The default toolbars (Standard toolbar, Formatting toolbar, etc.) cannot be removed.

Resetting toolbars

You can undo any changes you have made to one of the default toolbars by selecting it in the **View > Toolbars** dialog box and clicking **Reset**.

Now the toolbar contains the standard icons, as it did before you changed it. In addition, the default settings for **Visible in mode** and **Position** are restored.

Note: This command is applicable only to the default toolbars (Standard toolbar, Formatting toolbar, etc.), and not to user-created toolbars.

Customizing the icons in a toolbar

You can edit the icons on toolbars with the **Customize** button. Information about this is provided in the following section.

Customizing toolbar icons

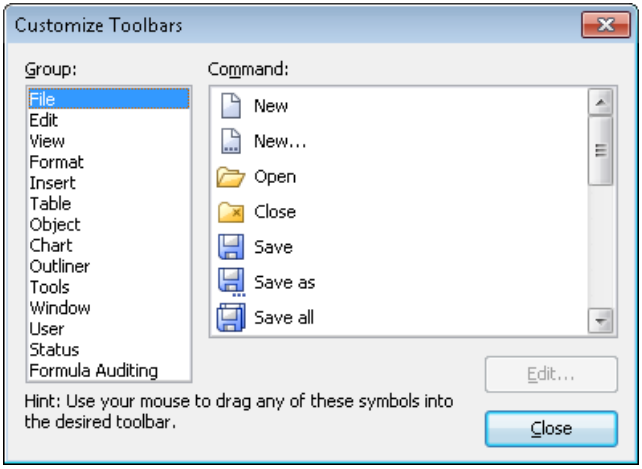
You can edit the icons on a toolbar as you wish. Specifically, you can add, remove, and reposition the icons, and you can also insert and remove separator lines.

This can be accomplished as follows:

1. Make sure that the toolbar to be edited is enabled. If it is not, invoke **View > Toolbars** and enable it.
2. Invoke the command **Tools > Customize > Toolbars**. Alternatively, you can invoke this command by clicking the **Customize** button in the **View > Toolbars** dialog box.
3. Use one of the procedures described below to add, remove, or reposition an icon.
4. Exit the dialog with **Close**.

Tip: The **Tools > Customize > Toolbars** command can also be invoked from the context menu for toolbars or by double clicking on an *empty* area in any of the toolbars.

When you invoke this command, a dialog box appears and presents a list of all the icons that are available for addition to a toolbar.



The icons for the individual commands are organized under several categories to make them easier to find. If you select a category in the **Group** list, all the available icons in that category will be displayed in the **Command** list.

Editing the icons in a toolbar can be accomplished as follows:

- **Adding an icon**

  Simply drag the icon with the mouse from the dialog box directly to the desired position on the toolbar.

- **Deleting an icon**

  Drag the icon off the toolbar (into the text, for example) to delete it.

- **Moving an icon**

  Drag the icon to the desired position in the toolbar with your mouse. When you drag an icon to a position between two other icons, it is inserted there.

  You can also drag an icon from one toolbar to another.

- **Inserting a separator line or space**

  If you drag an icon a small distance to the right, a separator line or space (depending on the operating system) will be inserted to the left of the icon.

- **Removing a separator line or space**

  If you drag the icon that is to the immediate right of the separator line or space a little to the left, the separator or space will be removed.

Resetting a toolbar: If you should happen to make a mistake while editing one of the default toolbars, you can always reset the toolbar. To do this, invoke the **View > Toolbars** command, select the toolbar to be reset with a mouse click and click the **Reset** button. All the changes you have made to the toolbar will be undone, and it will again contain the default icons.

Creating user-defined toolbar icons

You can also create *user-defined icons* and add them to PlanMaker's toolbars. Such icons can be used to start other programs of your choosing.

To set up a user-defined icon, for example, an icon for starting the Windows Notepad, proceed as follows:

1. Invoke the command **Tools > Customize > Toolbars**.
2. Select the **User** category from the **Group** list.
3. Select one of the icons from the **Command** list. The first three icons are already assigned to the Windows Calculator, the Windows Character Map, and the Windows Control Panel to serve as examples. Select the fourth icon for this exercise.
4. Click the **Edit** button. A dialog box appears.
5. Enter a short description of the program to be started in the **Description** field. In this example, you could enter "Windows Notepad".
6. Enter the complete path and filename for the program to be started in the **Command line** field, for example, C:\WINDOWS\NOTEPAD.EXE. If you are unsure of the path and filename, you can click on the **Browse** button to search for the program file on your hard disk.
7. *Optional:* If the program's own icon is not the one you want to use to represent the program in the toolbar, you can enter the path and name for an icon file that you want to use in the **Icon file** field.

   Note, however, that the icons used in toolbars are somewhat smaller than the usual Windows icons.
8. Confirm with **OK**.

9. The user-defined icon is now set up. If you want to add it to one of the toolbars, drag it with the mouse into the desired toolbar.

As soon as you exit the dialog box with **Close**, you can try your newly created icon. In the example above, clicking on the newly defined icon should start Windows Notepad.

If it does not work, this is because the program path or filename is incorrect. In that case, edit the icon as described above to correct the error.

Using the toolbar menu

Some toolbars end with a double arrow », as shown in the following picture:

When you click on this double arrow, the *toolbar menu* will open.

This menu gives you quick access to all the toolbar related commands detailed in the previous sections. In detail, the toolbar menu includes the following commands:

- **Add/remove buttons**

  This command opens a list of all icons available for a toolbar. When you click on one of its entries, the corresponding icon will instantaneously be activated or deactivated in the toolbar.

  (Note: This command is meant for quickly turning icons on or off. If you want to perform further customizations to the icons displayed in a toolbar, follow the instructions given in the section “Customizing toolbar icons”, page 380.)

- **Position**

  Use this command to change the position of a toolbar. Available options: top, bottom, left, right, or floating (in a little window that can be moved and resized with the mouse).

- **Toolbars**

  Invokes the **View** > **Toolbars** command that allows you to activate or deactivate, configure, and manage toolbars.

  See section “Customizing toolbars” (page 376).

■ **Customize**

Invokes the **Tools** > **Customize** > **Toolbars** command that allows you to edit the icons on a toolbar (add, remove, move icons).

See section “Customizing toolbar icons” (page 380).

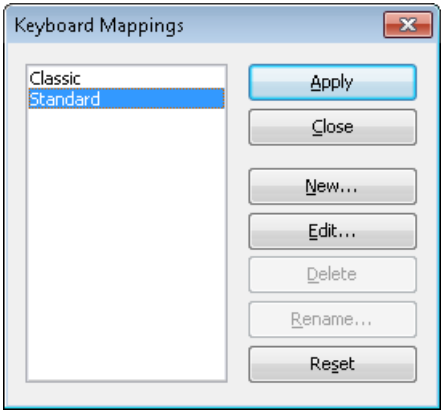
■ **Reset this toolbar**

Resets the toolbar. All customizations made to the toolbar’s icons and settings will be reverted.

Customizing keyboard shortcuts

As you know, PlanMaker’s most frequently used commands can be invoked with “keyboard shortcuts”. For example, you can execute the **File** > **Save** command very quickly by pressing the key combination Ctrl S.

With the **Tools** > **Customize** > **Keyboard Mappings** command, these keyboard shortcuts can be customized, as desired. You can assign new shortcuts to commands and change or delete existing shortcuts.



Moreover, you can work with complete *keyboard mappings*. The keyboard shortcuts for all the commands are stored in a keyboard mapping. When you switch between two keyboard mappings, all the shortcuts change accordingly.

To customize PlanMaker’s keyboard shortcuts, use the following buttons in the **Tools** > **Customize** > **Keyboard mappings** dialog box:

- **Apply button:** Activate the selected keyboard mapping
- **New button:** Create a new keyboard mapping

> ***Note:*** If you simply want to add or change a few keyboard shortcuts, it is not necessary to set up your own keyboard mapping. Simply click on the **Edit** button and modify the standard keyboard mapping itself.

- **Edit button:** Edit the keyboard shortcuts in a keyboard mapping
- **Delete button:** Delete a keyboard mapping
- **Rename button:** Rename a keyboard mapping
- **Reset button:** Reset the shortcuts in a keyboard mapping to the default (possible only for the predefined **Standard** and **Classic** mappings).

Detailed information is provided on the following pages.

Activating a keyboard mapping

You can select which keyboard mapping to activate with the **Tools** > **Customize** > **Keyboard mappings** command.

To do this, proceed as follows:

1. Invoke the command **Tools** > **Customize** > **Keyboard mappings**.
2. Select the desired keyboard mapping.
3. Click on **Apply** to activate it.

Now the shortcuts defined in this keyboard mapping become available.

As stated in the introduction, all the shortcuts for all the commands are stored in a keyboard mapping. Accordingly, when you switch between two keyboard mappings, all the shortcuts change.

By default, the following two keyboard mappings are pre-defined:

Standard — The standard mapping contains all the keyboard shortcuts described in this manual (e.g. Ctrl S for the Save command)

Classic — A largely WordStar-compatible keyboard mapping (for users who have worked previously with WordStar or other programs with a WordStar compatible keyboard mapping).

> ***Tip:*** You will find a table for the **Standard** keyboard mapping in the chapter entitled “Keyboard shortcuts”, page 677.

If necessary, you can modify either of these two standard mappings and also create your *own* keyboard mappings, a topic which is covered in the following sections.

Creating a new keyboard mapping

The **Tools** > **Customize** > **Keyboard mappings** command allows you to build complete *keyboard mappings*. Thus, you can set up different keyboard mappings to be used for different purposes, and switch between them as needed.

> ***Note:*** When all you want to do is add or change a few keyboard shortcuts, it is not necessary to set up your own keyboard mapping. Simply click on the **Edit** button and modify the standard keyboard mapping itself.

To create a new keyboard mapping, complete the following steps:

1. Invoke the command **Tools** > **Customize** > **Keyboard mappings**.
2. Choose the existing keyboard mapping that you want to use as a basis for the new one.

   > ***Note:*** The new keyboard mapping will automatically be assigned all the keyboard shortcuts contained in the mapping you choose here.

3. Click the **New** button.
4. A dialog box appears and prompts you to enter a name for the new keyboard mapping. Enter, for example “My keyboard mapping” and then confirm with **OK**.

The new keyboard mapping is now set up. Next a dialog appears to allow you to modify the shortcuts contained in it. You will find information about this in the section entitled “Editing the shortcuts in a keyboard mapping”, page 387.

Renaming or deleting a keyboard mapping

User-created keyboard mappings can be renamed or deleted at any time.

These tasks are carried out as follows:

1. Invoke the **Tools** > **Customize** > **Keyboard mappings** command.

2. Select the keyboard mapping you want to delete or rename with a mouse click.

3. Click on **Rename** to give it a new name.

   Or: Click on **Delete** to delete it.

You can rename or delete only keyboard mappings that you have created yourself. The predefined **Standard** and **Classic** mappings cannot be renamed or removed.

Editing the shortcuts in a keyboard mapping

The **Tools** > **Customize** > **Keyboard mappings** command is not only for managing keyboard mappings. The most important function of this command is the modification of the shortcuts contained in a mapping. The **Edit** button handles this function.

Assigning a shortcut for a command

When you find that you are using one of the menu commands frequently, you can assign a shortcut for it, so that in the future you will be able to execute it quickly with a simple keystroke combination.

As an example, we will assign the shortcut Ctrl F12 to the **Format** > **Standard** command. Proceed as follows:

1. Invoke the **Tools** > **Customize** > **Keyboard mappings** command.

2. If necessary, select the desired keyboard mapping (if you want to modify a keyboard mapping other than the one that is currently activated).

3. Click on the **Edit** button.

4. Select a command category from the **Group** list. Then, from the **Command** list, select the command whose shortcut you want to modify.

   In our example, you would select “Format” in the **Group** list and “Standard” from the **Command** list.

5. Click in the **Please press accelerator** field and then press the desired shortcut. In the example, you would press Ctrl F12.

   Hint: If you make a typing mistake, you can always press the backspace key ← to remove the keyboard shortcut you entered.

6. ***Don’t forget:*** Click on **Add** to assign this shortcut to the command.

7. Confirm with **OK** and exit the main dialog box with **Close**.

From now on, you can execute the **Format** > **Standard** command with the key combination [Ctrl] [F12].

Available keyboard shortcuts

Notice that some of the keystroke combinations that are possible on your keyboard are not allowed as shortcuts.

As a rule, you should use **alphabetic keys**, **numeric keys** or **function keys** for shortcuts. You can combine them with [Ctrl], [Alt] and/or the Shift key [Shift⇧].

You can easily check to see if the key combination you want to use is allowed. Click in the **Please press accelerator** field, and then try to enter your key combination. If it does not appear in the field, it is not allowed.

Some examples of valid keyboard shortcuts include:

- [Ctrl] [A]
- [Alt] [A] (However, key combinations including the Alt key are not recommended, since they are usually occupied by the main menu entries).
- [Ctrl] [Alt] [A]
- [Ctrl] [Shift⇧] [A]
- [Ctrl] [Alt] [Shift⇧] [A]
- [Ctrl] [F1]
- etc.

Note: Alphabetic keys by themselves are *not* allowed. Thus, you cannot use [A] or [Shift⇧] [A] as a shortcut.

Shortcut already assigned: If you press a shortcut that is already assigned, the current assignment will be shown just below the entry field. You should press the Backspace key [←] to delete your shortcut and try a different shortcut. Otherwise, you will overwrite the existing assignment for the shortcut.

Two part shortcuts: You can also use two part shortcuts (in accordance with the WordStar standard), for example, [Ctrl] [K] [X]. However, in this case only shortcuts of the form “Ctrl + letter + letter” are allowed.

Removing a keyboard shortcut

Any time after assigning a shortcut to a command, you can undo your actions and remove the assignment.

To do this, proceed as follows:

1. Invoke, as described above, the **Edit Keyboard Mapping** dialog.
2. Select the command category from the **Group** list and then select the desired command from the **Command** list.
3. All the shortcuts currently assigned to this command appear in the **Current shortcut keys** field. Select the shortcut you want to remove and click on the **Remove** button.
4. Confirm with **OK**, and exit the main dialog box with **Close**.

The shortcut is now removed, and the command cannot be invoked with this shortcut anymore.

Resetting the shortcuts in a keyboard mapping

If you click on the **Reset** button in the dialog box of the **Tools** > **Customize** > **Keyboard mappings** command, all the shortcuts of the selected keyboard mapping will be reset to their default settings.

> ***Note:*** During this process, *all* modifications that you have made to the shortcuts in this keyboard mapping are lost.

This function is applicable only to the pre-defined keyboard mappings, **Standard** and **Classic**.

Customizing AutoFill lists

As described in section “Filling cells automatically” (page 70), the **Edit** > **Fill** command can be used to fill a cell range with a repeating list of values.

The **Tools** > **Edit Lists** command allows you to create customized lists for the **Fill** command.

For example, if you create a list with the content “Red”, “Green”, and “Blue” and later start a fill operation from a cell that contains the text “Red”, PlanMaker will continue the series and fill with Green, Blue, Red, Green, Blue, etc.

To create or change an AutoFill list, choose **Tools > Edit Lists** and use one of buttons available in the dialog:

- **New** button: Create a new list
- **Edit** button: Edit list
- **Delete** button: Delete list
- **Import** button: Generate a new list from the currently selected cells

See the following pages for detailed information.

Creating a new AutoFill list

To create a new AutoFill list for the **Edit > Fill** command:

1. Choose **Tools > Edit Lists**.
2. Click the **New** button.
3. Another dialog appears. Use it to enter the desired list entries. Press the Enter key ↵ after each entry to start a new line.
4. Click **OK** to confirm.

Editing AutoFill lists

To edit a user-defined AutoFill list created with the **Edit > Fill** command:

1. Choose **Tools > Edit Lists**.
2. Select the desired list.
3. Click the **Edit** button.
4. Use the resulting dialog to edit the list entries.
5. Click **OK** to confirm.

Deleting AutoFill lists

To delete a user-defined AutoFill list created with the **Edit** > **Fill** command:

1. Choose **Tools** > **Edit Lists**.
2. Select the desired list.
3. Click the **Delete** button.

Importing AutoFill list from cells

If a PlanMaker document contains a cell range whose contents you want to save as an AutoFill list:

1. Select the desired cells.
2. Choose **Tools** > **Edit Lists**.
3. Click the **Import** button.

PlanMaker reads the contents of the selected cells and creates a new AutoFill list from them. Each cell becomes a list entry.

Installing additional dictionaries

FreeOffice: **SoftMaker *FreeOffice*** does *not* include any of the premium SoftMaker dictionaries normally shipped with **SoftMaker Office**. However, as an alternative, the spell checker supports the use of free *Hunspell* dictionaries.

When you install SoftMaker Office, dictionaries for some languages are already installed by default. In case you want to install additional dictionaries, follow the instructions given in the following sections:

- **Installing additional SoftMaker dictionaries**

  Windows only: In the Windows version of SoftMaker Office, you can install additional *SoftMaker* dictionaries anytime using the setup program for SoftMaker Office. (Not available in **SoftMaker *FreeOffice***.)

- **Installing Hunspell dictionaries**

  Additionally, all SoftMaker Office applications support the use of free *Hunspell* dictionaries, which can be downloaded free of charge at **www.softmaker.com**. To install a Hunspell dictionary, use the **Tools > Options** command (**Language** property sheet).

- **Choosing a different dictionary for a language**

  In case you have installed more than one dictionary for a certain language (e.g. a SoftMaker dictionary *and* a Hunspell dictionary), you can switch between these dictionaries anytime. Read the last section for details.

For detailed information, see the pages that follow.

Installing additional SoftMaker dictionaries

FreeOffice: **SoftMaker *FreeOffice*** does *not* include any of the premium SoftMaker dictionaries normally shipped with **SoftMaker Office**. However, as an alternative, the spell checker supports the use of free *Hunspell* dictionaries.

For information on installing additional *Hunspell* dictionaries, see the next section (“Installing Hunspell dictionaries”).

Note for Linux users: This section applies to the **Windows** version only. Under Linux, *all* available SoftMaker dictionaries are installed during the setup procedure anyway.

SoftMaker Office is shipped with elaborate dictionaries for numerous languages. To install any of these dictionaries *after* the main installation, proceed as follows:

1. Launch the setup program (that you have used to install SoftMaker Office) once again.

   If you obtained SoftMaker Office on *CD-ROM*, you will find the setup program in the root folder of the CD.

   If you obtained SoftMaker Office by *download*, simply launch the setup program that you have downloaded. In case you have deleted it meanwhile, download the setup program one more time. For instructions on how to do this, see the e-mail that you received from us after purchasing the software.

2. After several dialog windows that you can simply confirm you will get to a dialog with the following options: **Change**, **Repair**, and **Remove**. Click on **Change**.

3. Another dialog appears, listing all individual components of SoftMaker Office. In this list, open the category **Proofing Tools** by clicking on the plus sign (+) displayed in front of it.

4. You are now presented a list of all languages supported by the language tools in SoftMaker Office.

   When you click on the icon displayed in front of a language, options for installing the corresponding language will be displayed. For each language that you want to install, choose the option **Will be installed on local hard drive**.

5. When you have made your selections, click on the **Next** button until the installation procedure begins.

The selected dictionaries will now be installed.

Installing Hunspell dictionaries

FreeOffice: **SoftMaker** ***FreeOffice*** does *not* include any of the premium SoftMaker dictionaries normally shipped with **SoftMaker Office**. However, as an alternative, the spell checker supports the use of free *Hunspell* dictionaries.

In a standard installation, only Hunspell dictionaries for **English** and **German** are installed. In case you want to add additional languages, follow the procedure described below.

As an alternative to its own dictionaries, SoftMaker Office also supports the use of *Hunspell* dictionaries. These dictionaries are available as free downloads. Most of them were created by private users or non-profit organizations.

Hunspell dictionaries are available for very many languages. In case you don't find a SoftMaker dictionary for a certain language, it might be worth checking if a Hunspell dictionary is available for that language.

For a list of all Hunspell dictionaries supported by SoftMaker Office, visit the "Download" area of our website **www.softmaker.com**. You can also download the dictionaries there, free of charge.

To download and install a Hunspell dictionary, proceed as follows:

1. With your web browser, navigate to: **www.softmaker.com**

2. In the "Download" area, navigate to the free Hunspell dictionaries.

3. You are now presented a list of all Hunspell dictionaries that SoftMaker Office supports. Download the dictionary of interest and store it on your hard disk.

4. Launch any SoftMaker Office application (TextMaker, PlanMaker, or Presentations).

5. Invoke the **Tools > Options** command and switch to the **Language** property sheet.

6. Click on the **Hunspell dictionaries** button.

7. A dialog showing a list of all languages/dictionaries installed appears. Click on the **Add Hunspell dictionary** button.

8. A file dialog is displayed. Use it to browse to the folder where you have stored the downloaded dictionary.

9. Select the dictionary file from the files list and click on **Open**.

The dictionary will be installed and is from now on available in any SoftMaker Office application.

Choosing a different dictionary for a language

FreeOffice: **SoftMaker** ***FreeOffice*** does *not* include any of the premium SoftMaker dictionaries normally shipped with **SoftMaker Office**. However, as an alternative, the spell checker supports the use of free *Hunspell* dictionaries.

(See also section “Installing Hunspell dictionaries”.)

In case you have installed more than one dictionary for a certain language (e.g. a SoftMaker dictionary *and* a Hunspell dictionary), you can switch between these dictionaries anytime. Proceed as follows:

1. Invoke the **Tools > Options** command and switch to the **Language** property sheet.

2. Click on the **Hunspell dictionaries** button.

3. A dialog showing a list of all languages/dictionaries installed appears. First, select the **language** of interest in that list.

4. Then, select the dictionary to use for the chosen language in the **Dictionary** dropdown list. The list can have the following entries:

SoftMaker: The SoftMaker dictionary shipped with SoftMaker Office. (This is the default setting.)

Hunspell: A Hunspell dictionary (free dictionary, see previous section)

5. Confirm with **OK**.

From now on, the spell-checker will use the selected dictionary for the specified language.

Formulas and functions

This chapter provides instructions on working with formulas, including comprehensive descriptions of PlanMaker's arithmetic functions:

- **Formula basics**

  The first section provides basic information on formulas.

- **Entering formulas**

  This section provides information on entering formulas in cells.

- **Relative vs. absolute cell references**

  This section explains the difference between *relative* cell references (like =A1) and *absolute* cell references (like =$A$1) in formulas.

- **External cell references**

  The next section is about *external* cell references in formulas (i.e. cell references that refer to cells in a different file).

- **Error values**

  If a formula results in an error, an *error value* is displayed instead of the result. This section provides information on error values.

- **Working with arrays**

  This section provides instructions on working with arrays and array formulas.

- **Working with database functions**

  This section provides information on database functions such as DCount, DSum, etc.

- **Functions from A to Z**

  This section contains comprehensive descriptions of PlanMaker's arithmetic functions.

Hint: A short introduction to working with formulas is also provided in chapter "The PlanMaker Tour", page 41.

Formula basics

Formulas can be composed of the following components:

- Fixed values (e.g., numbers or text)
- Cell references (e.g., A1 or D2:D3)
- Arrays (see section "Working with arrays", page 408)
- Arithmetic operators (e.g., + or -, see section "Arithmetic operators in formulas" below)
- Arithmetic functions (e.g., SUM)

For example, a formula can look as follows:

```
= 67 + (A3 * Sum(B1:C5))
```

Arithmetic operators in formulas

Formulas can contain any of the operators listed below.

Please note that operators follow a strict *order of precedence*, which defines the evaluation order of expressions containing operators: Operators with higher precedence are evaluated before operators with lower precedence.

Parentheses can be used to override the order of precedence and force parts of a formula to be evaluated before other parts. For example, 1+2*2 returns 5, since multiplication has precedence over addition. If the formula (1+2)*2 is used instead, the result will be 6, since the parentheses override the order of precedence.

Operators available, listed in order of precedence:

1st	\	Intersection
2nd	%	Percentage
3rd	^	Exponentiation*
4th	+	Positive sign (not addition!)
	–	Negative sign (negation)* (not subtraction!)
5th	*	Multiplication
	/	Division
6th	+	Addition

	–	Subtraction
7th	&	Concatenation (For example, "Plan" & "Maker" returns “PlanMaker”)
8th	=	Is equal
	<>	Is not equal
	<	Is less
	>	Is greater
	<=	Is less or equal
	>=	Is greater or equal

* ***Note:*** In Excel, the order of precedence is incorrect for the **exponentiation operator** (^) and the **negation operator** (-), whereas PlanMaker uses the correct order. For example, in Excel, -1^2 returns 1 (wrong), whereas PlanMaker returns -1 (correct, since ^ has precedence over -).

Entering formulas

Hint: A short introduction to entering formulas is also provided in the chapter “The PlanMaker Tour”, page 41.

To enter a formula in a cell, use one of the following procedures:

Entering formulas manually

Important: Formulas have to begin with an *equal sign* (=). For example, to calculate 2+2, enter =2+2.

To enter formulas manually, type them in starting with an equal sign. Then, press the Enter key [↵] to confirm, or the [Esc] key to abort.

Alternatively, use the following buttons of the Edit toolbar:

- To accept the input, click the button (identical to pressing [↵]).
- To cancel the input, click the button (identical to pressing [Esc]).

To edit a formula later, navigate to the cell containing the formula and press the F2 key. Alternatively, double-click the cell.

Using the mouse to enter formulas

When entering a formula, you can use the mouse to select a single cell or a cell range, and have its address pasted into the formula.

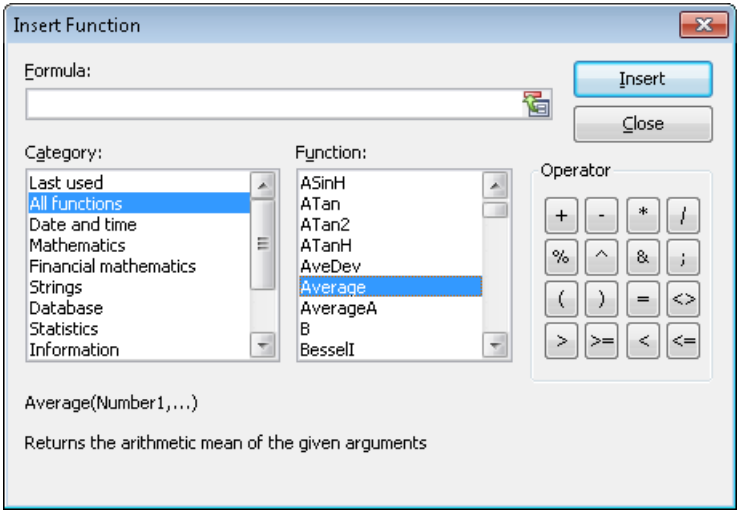
For example, to enter the formula =SUM(B2:D4), proceed as follows:

1. Enter =SUM(
2. With the mouse, select cells B2 to D4 by dragging a rectangle from B2 to D4 with the left mouse button pressed.
3. When you release the mouse button, the cell address is automatically pasted into the formula. The formula now displays: =SUM(B2:D4
4. Enter the closing parenthesis) and press the Enter key ↵ to complete the formula.

The cell will now contain the formula =SUM(B2:D4).

Using the Insert > Function command

To utilize arithmetic functions in formulas, either just type in the function name manually or use the lists provided in the **Insert** > **Function** dialog box.



Components of the **Insert > Function** dialog box:

- **Formula** input box

  Lets you edit the formula.

- **Category**

  Determines which type of functions to display in the **Function** list box.

- **Function**

  Displays all functions of the selected category. To copy a function to the **Formula** input box, double click it.

- **Operator** group box

  Contains buttons for common arithmetic operators. To copy an operator to the **Formula** input box, click the corresponding button.

- **Insert** button

  To finish editing the formula in the **Formula** input box, click **Insert**. The dialog will close, and the formula will be inserted in the current cell.

- **Close** button

  To close the dialog *without* inserting the formula, click **Close**.

Relative vs. absolute cell references

Cell references in calculations can be entered either as *relative* cell references (like =A1) or as *absolute* cell references (like =$A$1).

This section explains the difference between relative and absolute cell addressing:

Relative cell references

When you enter a reference to another cell into a formula, normally *relative* cell addressing is used.

You see that when you enter the formula =B1+B2 in cell B3, and copy or move B3 to C3 afterwards. The formula will automatically adapt and change to =C1+C2.

Absolute cell references

If you do *not* want formulas to automatically adapt when they are copied or moved, use *absolute* cell addressing instead of relative cell addressing. To make a relative cell reference absolute, type a dollar sign ($) in front of the column number and row number.

For example, if you enter =$B$1+$B$2 in cell B3, and move B3 to C3 afterwards, the formula will *not* adapt. It will still add the cells B1 and B2.

Note: If desired, you can also make just one component of a cell reference absolute by typing a dollar sign only in front of the column number (e.g., $B1) or the row number (e.g., B$1).

Tip: Using the F4 key to change cell addressing

When you enter a cell reference in a formula, you can use the F4 key to switch the type of addressing.

For example, after having typed =A4,

=$A4 will be displayed, when you press F4,

=A$4 will be displayed, when you press F4 once again,

=$A$4 will be displayed, when you press F4 once again.

If you press F4 once again, the old entry =A4 will be displayed again.

External cell references

In calculations, you can use cell references that refer to cells located in a *different* PlanMaker or Excel document. Such references are called *external* cell references.

In this section, you will learn everything you need to know about this. The following topics are covered:

- **Entering external cell references**
- **Updating and managing external cell references**

See the next pages for details.

Entering external cell references

Cell references that refer to cells in a different document have to be entered in calculations as follows:

='C:\My Folder\[My Workbook.pmd]Sheet1'!A1

This example returns a cell reference to the cell A1 in the worksheet “Sheet1” in the PlanMaker document “My Workbook.pmd” in the folder “C:\My Folder”.

As you can see, external cell references must consist of the following components:

- **Quotation mark**

  External cell references should always start with a quotation mark. You can use either single quotes (') or double quotes (").

- **Folder**

  Next, enter the entire path to the folder where the external file is located – for example: C:\My Folder\

  Hint: If the external file is in the same folder as your document, you can omit the path.

- **File name in square brackets**

  Next comes the file name, enclosed in square brackets. Only PlanMaker and Excel files are allowed.

- **Sheet name**

  The next component is the name of the worksheet that holds the desired cell.

- **Quotation mark**

  Next comes another quotation mark.

- **Exclamation mark**

  Then an exclamation mark.

- **Cell reference**

  The last component is the address of the cell that you want to refer to.

To complete your input, press the Enter key [↵]. PlanMaker will now read the content of the cell in the specified external file.

For information on updating and managing external cell references, see the next pages.

Notes

- If PlanMaker is unable to find the specified file, a dialog where you can select the file will appear when you press the Enter key.

  Tip: If you don't want to type in the entire path and file name manually, you can use the following trick: In the cell reference, simply enter [x.pmd] instead of the path and file name – for example: [x.pmd]Sheet1!A1. This will "force" PlanMaker to display a file dialog where you can comfortably choose the file you want to refer to.

- If PlanMaker is unable to find the specified worksheet, a dialog where you can select the worksheet from the specified file will appear when you press Enter.

- Normally, PlanMaker remembers the entire (absolute) path of the external file. However, if the external file is located in the same folder as your document (or one of its subfolders), PlanMaker stores only the relative path.

  This means in practice: If your document and the external file reside in the same folder, references to this external file will stay intact even when you move both files to a different folder.

- ***Tip:*** There's an alternative way to create external references, where you don't have to type in *anything* manually:

  1. Open the document containing the cell you want to refer to.
  2. Copy this cell to the clipboard.
  3. Switch back to the current document.
  4. Navigate to the cell where you want the reference to be inserted.
  5. Invoke the **Edit > Paste Special** command.
  6. Click on the **Create references** button.

  PlanMaker now creates an external reference to this cell.

Updating and managing external cell references

Use the **Table > External References** command to update and manage external cell references in a document.

Invoking this command opens a dialog that lists all files the current document refers to.

The buttons in this dialog allow you to perform the following actions:

- **Update**

  Updates all external cell references that refer to the file currently selected in the list.

  (Also see the notes on updating below.)

- **Update all**

  Updates all external references in the entire document.

- **Open**

  Opens the external file currently selected in the list.

- **Change**

  Lets you choose a different file for the external file currently selected in the list. All references to this file in the document will be adopted accordingly.

- **Previous**

  Jumps to the previous cell that contains a reference to the file selected in the list.

- **Next**

  Jumps to the next cell that contains a reference to the file selected in the list.

The **Close** button closes the dialog.

Notes on updating external cell references

Note: The values returned by external cell references are *not* updated automatically every time the worksheet is recalculated.

External cell references are updated only in the following cases:

- When you open a document, all external cell references inside are updated automatically (once).

  (If required, you can turn this automatic update off – see the options described below.)

- After that, you can update external references manually whenever needed. To do so, choose **Table > External References** and use the **Update** or **Update all** buttons as described above.

Options for updating external cell references

There are some options related to updating external references in the document properties.

To change them, choose **File > Properties** and switch to the **Calculate** property sheet. There, the following options are available in the **External references** section:

- **Update data on opening**

  Lets you choose if all external cell references in a document should be updated (once) when the document is opened. Options available:

  Always: When the document is opened, update its external references.

  Never: When the document is opened, *do not* update its external references.

  Ask user: When the document is opened, ask the user if its external references should be updated.

- **Save external data in document**

  If this option is activated, PlanMaker saves a copy of all values returned by external cell references in the document. If the file for an external reference is missing when the external reference is updated, the value last stored will still be displayed.

  If you turn this option off, PlanMaker instead displays an error value when you update an external reference while the corresponding file cannot be accessed.

Note: The above options aren't global settings but *document* properties. This means that you can set them up individually for each document.

Error values

If a formula results in an error, an *error value* is displayed instead of the result.

For example, if a cell contains the formula =1/A1 and a zero is entered in cell A1, the error value #DIV/0! will be displayed in the cell, because numbers cannot be divided by zero.

The following error values exist:

Error value	Explanation
#REF!	Invalid cell reference. Displayed when a formula contains a cell reference that is invalid or nonexistent.
#DIV/0!	Division by zero. Displayed when a formula contains a division by zero (which is undefined for any number).
#NULL!	Invalid formula. Displayed when a formula contains syntax errors (for example, a missing parenthesis or missing arguments).
#NAME?	Invalid name. Displayed when a formula refers to a table name or named range that is nonexistent.
#N/A	Not available. Displayed when a cell contains a) a #N/A error value, or b) a formula referring to a cell containing a #N/A error value. See "NA (error value #N/A)", page 581 for details.
#VALUE!	Invalid value. Displayed when a function is used with an inappropriate parameter type (for example, if a number is passed to a function that is expecting a text string).
#NUM!	Invalid number. Displayed when a function is used with a number that is out of range (for example, too large, or negative instead of positive)

Hint: To test if a cell returns an error value, use the functions ISERROR and ISERR.

Tip: Additionally, you can use the **Tools > Formula Auditing** command to find and analyze cells that contain an error value. See the section "Analyzing tables" (page 92) for details. (This feature is not included in **SoftMaker *FreeOffice***.)

Working with arrays

PlanMaker allows you to enter *arrays* (also known as *matrices*) in spreadsheets and perform calculations with them.

An array is a rectangular table of numbers, structured as follows:

$$\mathbf{A} = \begin{pmatrix} a_{11} & a_{12} & \dots & a_{1n} \\ a_{21} & a_{22} & \dots & a_{2n} \\ \vdots & & & \\ a_{m1} & a_{m2} & \dots & a_{mn} \end{pmatrix}$$

The entries a_{11} through a_{mn} are called the *elements* of array **A**.

An array consisting of *m* rows and *n* columns is called an *m* by *n* array (or *m* x *n* array).

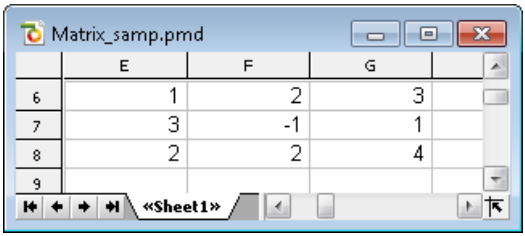
Entering arrays into cells

To enter an array in PlanMaker, distribute the array's rows and columns over the spreadsheet's rows and columns.

For example, the following array ...

$$\begin{pmatrix} 1 & 2 & 3 \\ 3 & -1 & 1 \\ 2 & 2 & 4 \end{pmatrix}$$

... has to be entered as follows:



As you can see, for PlanMaker arrays are nothing but rectangular cell ranges.

Entering array formulas

PlanMaker provides *array functions* that allow you to perform calculations with arrays. A formula containing an array function is called an *array formula*.

Since most array formulas return an entire array of values rather than a single value, entering array formulas differs from entering other formulas.

For example, to calculate the inverse of the 3x3 array shown above, proceed as follows:

1. **Select a cell range for the resulting array**

   Before entering the formula, you have to select the cell range where the resulting array should be placed. The inverse of a 3x3 array also has 3x3 elements. Therefore, you have to select a range of 3 by 3 cells – for example E10:G12.

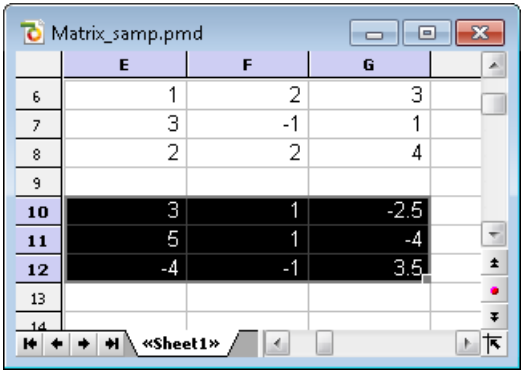
2. **Enter the array formula**

   After that, enter the array formula, for example =MINVERSE(E6:G8).

3. **Press Ctrl+Shift+Enter**

   Important: To finalize the formula, do not press just Enter, but press the key combination Ctrl ⇧ ↵.

The cells E10:G12 now contain the resulting array, i.e., the inverse of the array in E6:G8:



Notes:

- If you have selected a cell range larger than the resulting array, the error value #N/A ("not available") will be displayed in the superfluous cells. ***Important:*** If the selected cell range is too small, parts of the array will not be displayed.

- There are array functions that return just a single value rather than an entire array – for example, the MDETERM function (that returns the determinant of an array). In that case the procedure described above is not necessary, and the formula can be entered just like any other formula.

- To edit an existing array formula: Select all cells covered by the resulting array, edit the formula, and press [Ctrl] [⇧] [↵]. If you press just the Enter key instead, PlanMaker issues a warning and asks you if you want to overwrite the array by a single value.

- ***Hint:*** To select all cells covered by an array formula, click any of the involved cells and press [Ctrl] [7].

Entering array constants in formulas

If desired, arrays can be entered as *constants* instead of cell references. For this purpose, surround the array by braces { }, and separate columns by commas and rows by semicolons.

For example, the following array ...

$$\begin{pmatrix} 1 & 2 & 3 \\ 3 & -1 & 1 \\ 2 & 2 & 4 \end{pmatrix}$$

... can be entered as follows:

={1,2,3; 3,-1,1; 2,2,4}

Notes:

- The notation described above is suitable for *fixed* values only; formulas and cell references are not allowed.

- You can also enter *vectors* in the notation described above. For a horizontal vector enter, e.g., {1,2,3}; for a vertical vector enter {1;2;3}.

Working with database functions

PlanMaker provides *database functions* that allow you to query and evaluate a cell range that is structured like a database.

Database functions expect the following syntax:

FUNCTION_NAME(DatabaseArea, Column, CriteriaArea)

For example, the DSUM function returns the sum of all cells in the **DatabaseArea** cell range that are in the specified **Column** and match the conditions defined in the **CriteriaArea** cell range.

To utilize database functions, proceed as follows:

Creating a database area

A *database area* can be any cell range containing data to evaluate.

It has to be structured as follows:

- Its first row must contain labels for the database columns (e.g., Amount, Price, etc.).
- The data has to be arranged row by row (one row for each record).

The rows of the database area represent what is called a *record* in database applications, with the cells being the *fields* of the database.

Creating a criteria area

The *criteria area* is a cell range containing conditions that the database records have to match.

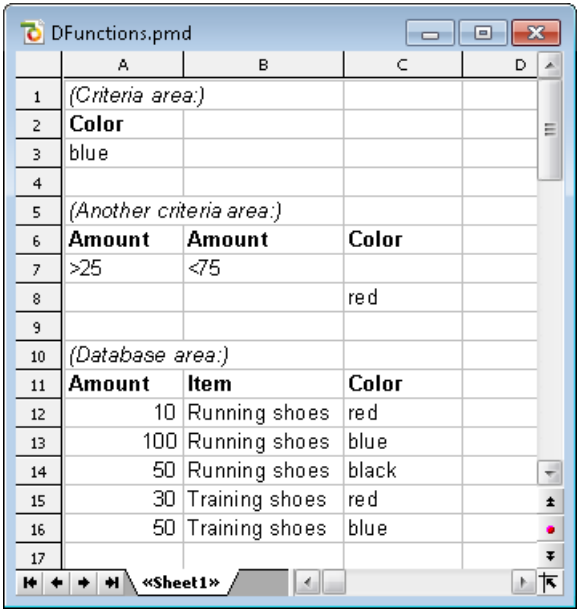
It has to be structured as follows:

- ***Important:*** The criteria area has to be located *above* the database area.
- The criteria area must not overlap the database area.
- Like the database area, the first row of the criteria area must also contain labels for the columns below (e.g., Amount, Price, etc.).
- Below the labels, conditions can be entered. You can enter either single values or comparisons like ">42" or "<=10".
- If multiple conditions have been entered in the same row, the database contents have to match the conditions in column 1 *and* column 2 *and* column 3, etc.
- If multiple rows with conditions have been entered, the database contents have to match the conditions in row 1 *or* row 2 *or* row 3, etc.

Utilizing database functions

After having filled out database area and criteria area, you are ready to apply database functions.

Some examples, assuming that the following spreadsheet has been created:



	A	B	C	D
1	*(Criteria area:)*			
2	**Color**			
3	blue			
4				
5	*(Another criteria area:)*			
6	**Amount**	**Amount**	**Color**	
7	>25	<75		
8			red	
9				
10	*(Database area:)*			
11	**Amount**	**Item**	**Color**	
12	10	Running shoes	red	
13	100	Running shoes	blue	
14	50	Running shoes	black	
15	30	Training shoes	red	
16	50	Training shoes	blue	
17				

In this spreadsheet, for example, the following calculations can be performed:

DCOUNT(A11:C16, , A2:A3) returns 2. This formula counts the number of records matching the condition Color = blue.

DCOUNT(A11:C16, , A6:B7) returns 3. This formula counts the number of records matching the condition (Amount > 25 and Amount < 75).

DCOUNT(A11:C16, , A6:C8) returns 4. This formula counts the number of records matching the condition (Amount > 25 and Amount < 75) *or* (Color = red).

DSUM(A11:C16, "Amount", A2:A3) returns 150. This formula calculates the sum of the values in the “Amount” column for all records matching the condition Color = blue.

DSUM(A11:C16, 1, A2:A3) returns 150. Same as above, except that the column was specified by its relative number instead of its label.

Functions from A to Z

This section provides an alphabetical list of PlanMaker's arithmetic functions, including comprehensive descriptions of each function.

ABS (absolute value)

Syntax:

ABS(Number)

Description:

Returns the absolute value of a number, i.e., removes its sign.

Example:

ABS(42) returns 42

ABS(0) returns 0

ABS(-42) returns 42

See also:

SIGN, NEG

ACOS (arccosine)

Syntax:

ACOS(Number)

Description:

Returns the arccosine of **Number**, i.e., the angle whose cosine is **Number**.

Number must be in the range -1 to 1.

Example:

ACOS(1) returns 0

ACOS(COS(0.1234)) returns 0.1234

See also:

COS

ACOSH (inverse hyperbolic cosine)

Syntax:

ACOSH(Number)

Description:

Returns the inverse hyperbolic cosine of **Number**, i.e., the value whose hyperbolic cosine is **Number**.

Example:

ACOSH(1.1) returns 0.44357

ACOSH(COSH(0.1234)) returns 0.1234

See also:

COSH

ACOT (arccotangent)

Syntax:

ACOT(Number)

Description:

Returns the arccotangent of **Number**, i.e., the angle whose cotangent is **Number**.

Compatibility note:

This function is *not* supported by Microsoft Excel. If you save a document in Excel format, all calculations using this function will be replaced by their last result as a *fixed* value.

Example:

ACOT(1) returns 0.7854 (45°)

ACOT(COT(0.1234)) returns 0.1234

See also:

COT

ACOTH (inverse arccotangent)

Syntax:

ACOTH(Number)

Description:

Returns the inverse arccotangent of **Number**, i.e., the value whose hyperbolic tangent is **Number**.

Compatibility note:

This function is *not* supported by Microsoft Excel. If you save a document in Excel format, all calculations using this function will be replaced by their last result as a *fixed* value.

Example:

ACOTH(2) returns 0.54931

ACOTH(COTH(0.1234)) returns 0.1234

See also:

COTH

ADDRESS (cell address as text)

Syntax:

ADDRESS(Row, Column [, Abs] [, Mode] [, SheetName])

Description:

Returns a text string containing the address of the cell in the specified **Row** and **Column**.

Row is the row number of the cell.

Column is the column number of the cell.

The optional argument **Abs** specifies the type of reference to be returned:

1 or omitted: Absolute row and column

2: Absolute row, relative column

3: Relative row, absolute column

4: Relative row and column

The optional argument **Mode** is just a placeholder (for compatibility reasons with Excel). It will not be evaluated.

The optional argument **SheetName** lets you specify a worksheet name. If specified, it will be prepended to the resulting cell reference. In other words:

If it is not specified, only the cell address will be returned.

If it is specified, *SheetName!Address* will be returned (see last example).

Example:

ADDRESS(1, 5) returns $E$1

ADDRESS(1, 5, 4) returns E1

ADDRESS(1, 5, 4, , "MySheet1") returns MySheet1!E1

See also:

INDIRECT, OFFSET, COLUMN, ROW

AND (logical AND function)

Syntax:

AND(Value1, Value2 [, Value3 ...])

Description:

Returns the logical value TRUE if all of the given arguments are TRUE, otherwise returns FALSE.

Example:

AND(TRUE, TRUE) returns TRUE

AND(TRUE, FALSE) returns FALSE

AND(FALSE, FALSE) returns FALSE

AND(A1>0, A1<1) returns TRUE, if A1 is greater than zero *and* less than one.

See also:

OR, XOR, NOT

AREAS (number of areas)

Syntax:

AREAS(Reference)

Description:

Returns the number of contiguous cell ranges the specified cell reference consists of.

Example:

AREAS(A1:B2) returns 1

AREAS((A1:B2, E5:G7)) returns 2

See also:

INDEX, COLUMNS, ROWS

ASIN (arcsine)

Syntax:

ASIN(Number)

Description:

Returns the arcsine of **Number**, i.e., the angle whose sine is **Number**.

Number must be in the range -1 to 1.

Example:

ASIN(1) returns 1.5708... (90°)

ASIN(SIN(0.1234)) returns 0.1234

See also:

SIN

ASINH (inverse hyperbolic sine)

Syntax:

ASINH(Number)

Description:

Returns the inverse hyperbolic sine of **Number**, i.e., the value whose hyperbolic sine is **Number**.

Example:

ASINH(1.1) returns 0.9503

ASINH(SINH(0.1234)) returns 0.1234

See also:

SINH

ATAN (arctangent)

Syntax:

ATAN(Number)

Description:

Returns the arctangent of **Number**, i.e., the angle whose tangent is **Number**.

Example:

ATAN(1) returns 0.7854 (45°)

ATAN(TAN(0.1234)) returns 0.1234

See also:

ATAN2, TAN

ATAN2 (arctangent 2)

Syntax:

ATAN2(x, y)

Description:

Returns the arctangent of the given coordinates, i.e., the angle between the x axis and a line from the origin (0, 0) to a point with the coordinates (x, y).

Example:

ATAN2(1, 1) returns 0.7854 (45°)

See also:

ATAN, TAN

ATANH (inverse hyperbolic tangent)

Syntax:

ATANH(Number)

Description:

Returns the inverse hyperbolic tangent of **Number**, i.e., the value whose hyperbolic tangent is **Number**.

Number must be > -1 and < 1.

Example:

ATANH(0.5) returns 0.54931

ATANH(TANH(0.1234)) returns 0.1234

See also:

TANH

AVEDEV (average deviation)

Syntax:

AVEDEV(Number1, Number2 [, Number3 ...])

Description:

Returns the average deviation of the given numbers from their mean.

Number1, **Number2**, etc., are the numbers to be evaluated. Empty cells, text, and logical values are ignored.

Example:

AVEDEV(2, 2, 2, 2) returns 0

AVEDEV(2, 2, 2, 3) returns 0.375

See also:

DEVSQ, STDEV, VAR

AVERAGE (arithmetic mean)

Syntax:

AVERAGE(Number1, Number2 [, Number3 ...])

Description:

Returns the arithmetic mean of the given numbers (i.e., their sum divided by their number).

Number1, **Number2**, etc., are the numbers to be evaluated. Empty cells, text, and logical values are ignored.

Example:

AVERAGE(1, 2, 6) equals (1+2+6) / 3, which is 3.

See also:

AVERAGEA, GEOMEAN, HARMEAN

AVERAGEA (arithmetic mean)

Syntax:

AVERAGEA(Value1, Value2 [, Value3 ...])

Description:

Returns the arithmetic mean of the given values (i.e., their sum divided by their number), including logical values and text.

Value1, **Value2**, etc., are the values to be evaluated. Empty cells are ignored.

Note:

Unlike the AVERAGE function, AVERAGE**A** also evaluates logical values and text:

FALSE evaluates as 0.

TRUE evaluates as 1.

Text evaluates as 0.

Example:

AVERAGEA(1, 2, 6) equals (1+2+6) / 3, which is 3.

If the cells A1:A4 contain the values 0, 1, 4, and TRUE:

AVERAGEA(A1:A4) equals (0+1+4+1) / 4, which is 1.5.

See also:

AVERAGE

AVERAGEIF (average if condition is true)

Syntax:

AVERAGEIF(Range, Criterion [, AverageRange])

Description:

Returns the arithmetic mean of those values in a cell range that fulfill the specified criterion.

Range is the cell range to be evaluated.

Criterion is the criterion that the values in **Range** have to fulfill to be included.

Use numbers or text (like "42" or "bolts") to obtain the average of all cells that contain that value.

Use conditions (like ">10" or "<=5") to obtain the average of all cells that match the specified condition (see examples below).

Note: Criteria always have to be surrounded by double quotation marks (").

AverageRange (optional) lets you specify the cell range containing the values to be used for calculating the average. If omitted, the values in **Range** will be used.

Compatibility note:

This function is *not* supported by the **.xls** file format (used in Microsoft Excel 2003 and earlier). If you save a document in this format, all calculations using this function will be replaced by their last result as a *fixed* value.

Accordingly, if you use this function, you should not save your document in the "Microsoft Excel 97-2003 (.xls)" file format, but choose one of the following formats instead:

- "PlanMaker document (.pmd)"
- or: "Microsoft Excel 2007-2010 (.xlsx)"

Example:

If the cells A1:A5 contain 1, 2, 3, 2, 1:

AVERAGEIF(A1:A5, "2") returns 2

AVERAGEIF(A1:A5, ">=2") returns (2+3+2)/3, which gives 2.33333

See also:

AVERAGE, AVERAGEIFS, COUNTIF, COUNTIFS, SUMIF, SUMIFS

AVERAGEIFS (average if conditions are true)

Syntax:

AVERAGEIFS(AverageRange, Range1, Criterion1 [, Range2, Criterion2 ...])

Description:

Returns the arithmetic mean of those values in a cell range that fulfill *all* of the specified criteria.

This function is similar to the AVERAGEIF function, but allows you to specify more than just one range/criterion to be searched.

Apart from that, the order of the parameters is different: In AVERAGEIF, **Average-Range** is the last parameter – in AVERAGEIFS, it is the first.

AverageRange is the cell range containing the values to be used for calculating the average.

Range1 is the first cell range to be checked for the specified criterion. This range must have the same dimensions as **AverageRange**.

Criterion1 is the criterion that the values in **Range1** have to fulfill to be included.

Use numbers or text (like "42" or "bolts") to obtain the average of all cells that contain that value.

Use conditions (like ">10" or "<=5") to obtain the average of all cells that match the specified condition (see examples below).

Note: Criteria always have to be surrounded by double quotation marks (").

Unlike the AVERAGEIF function, AVERAGEIFS allows you to specify more than just one cell range and criterion to be checked. If you do so, only occurrences where *all* criteria are fulfilled are included in the calculation of the average.

Compatibility note:

This function is *not* supported by the **.xls** file format (used in Microsoft Excel 2003 and earlier). If you save a document in this format, all calculations using this function will be replaced by their last result as a *fixed* value.

Accordingly, if you use this function, you should not save your document in the "Microsoft Excel 97-2003 (.xls)" file format, but choose one of the following formats instead:

- "PlanMaker document (.pmd)"
- or: "Microsoft Excel 2007-2010 (.xlsx)"

Example:

AVERAGEIFS(A1:A10, C1:C10, ">1", C1:C10, "<2")

This formula returns the average of only those cells in the cell range A1:A10 where the corresponding cell in the range C1:C10 is greater than 1 and less than 2.

See also:

AVERAGE, AVERAGEIF, COUNTIF, COUNTIFS, SUMIF, SUMIFS

B (PlanMaker 97 compatibility function)

Syntax:

B(n, p, k1 [, k2])

Description:

Returns the probability to get a) exactly **k1** successes, or b) between **k1** and **k2** successes in a binomial experiment with **n** independent trials.

n is the number of independent trial runs.

p is the probability of a success for each trial run. Must be > 0 and < 1.

k1 is the lower limit for the number of successes.

k2 (optional) is the upper limit for the number of successes.

Note:

This function was retained only for compatibility with PlanMaker 97. Use of the following Excel-compatible function is recommended instead:

B(n, p, k1) equals BINOMDIST(k1, n, p, FALSE)

B(n, p, k1, k2) equals BINOMDIST(k2, n, p, TRUE) - BINOMDIST(k1-1, n, p, TRUE)

Compatibility note:

This function is *not* supported by Microsoft Excel. If you save a document in Excel format, all calculations using this function will be replaced by their last result as a *fixed* value.

See also:

BINOMDIST

BESSELI (modified Bessel function In(x))

Syntax:

BESSELI(x, n)

Description:

Returns the modified Bessel function $I_n(x)$.

x is the value to be evaluated.

n is the order of the Bessel function. Must be > 0.

See also:

BESSELJ, BESSELK, BESSELY

BESSELJ (Bessel function Jn(x))

Syntax:

BESSELJ(x, n)

Description:

Returns the Bessel function $J_n(x)$.

x is the value to be evaluated.

n is the order of the Bessel function. Must be > 0.

See also:

BESSELI, BESSELK, BESSELY

BESSELK (modified Bessel function Kn(x))

Syntax:

BESSELK(x, n)

Description:

Returns the modified Bessel function $K_n(x)$.

x is the value to be evaluated.

n is the order of the Bessel function. Must be > 0.

See also:

BESSELI, BESSELJ, BESSELY

BESSELY (Bessel function Yn(x))

Syntax:

BESSELY(x, n)

Description:

Returns the Bessel function $Y_n(x)$ (also known as the Weber function or the Neumann function).

x is the value to be evaluated.

n is the order of the Bessel function. Must be > 0.

See also:

BESSELI, BESSELJ, BESSELK

BETADIST (beta distribution)

Syntax:

BETADIST(X, Alpha, Beta [, A, B])

Description:

Returns the beta cumulative distribution function.

X is the value to be evaluated. Must be in the range A to B.

Alpha and **Beta** are shape parameters of the function. They both have to be > 0.

A and **B** (optional) are the lower and upper bound to the interval of X. If they are omitted, **A** is set to 0 and **B** is set to 1 (thus leading to a standard cumulative beta distribution).

X must be in the range **A** to **B**.

See also:

BETAINV

BETAINV (percentiles of the beta distribution)

Syntax:

BETAINV(Probability, Alpha, Beta [, A, B])

Description:

Returns the inverse of the beta cumulative distribution function (i.e., percentiles of this distribution).

Probability is the probability to be evaluated. Must be > 0 and ≤ 1.

Alpha and **Beta** are shape parameters of the function. They both have to be greater than zero.

A and **B** (optional) are the lower and upper bound to the interval of X. If they are omitted, **A** is set to 0 and **B** is set to 1 (thus leading to a standard cumulative beta distribution).

Note:

The result of this function is calculated using an iterative search technique. If the search does not converge after 100 iterations, a #N/A error value is returned.

See also:

BETADIST

BIN2DEC (binary number to decimal number)

Syntax:

BIN2DEC(Number)

Description:

Converts the given binary number (base 2) to a decimal number (base 10).

Number is the number to be converted. It must not contain more than 32 places. Negative numbers have to be transformed to two's complement notation (see last example).

Example:

BIN2DEC("101010") returns 42

BIN2DEC("00101010") returns 42 as well

BIN2DEC("11111111111111111111111111010110") returns -42

See also:

DEC2BIN, BIN2HEX, BIN2OCT

BIN2HEX (binary number to hexadecimal number)

Syntax:

BIN2HEX(Number [, Digits])

Description:

Converts the given binary number (base 2) to a hexadecimal number (base 16).

Number is the number to be converted. It must not contain more than 32 places. Negative numbers have to be transformed to two's complement notation (see last example).

The optional argument **Digits** lets you specify the number of places to be displayed. If omitted, PlanMaker determines the number of required places automatically.

Digits has to be greater than zero. If **Digits** is smaller than the minimum number of places required to display the number, the function returns a #NUM error value.

Digits will be ignored if **Number** is negative.

Example:

BIN2HEX("101010") returns 2A

BIN2HEX("00101010") returns 2A as well

BIN2HEX("11111111111111111111111111010110") returns FFFFFFD6 (negative value)

See also:

HEX2BIN, BIN2DEC, BIN2OCT

BIN2OCT (binary number to octal number)

Syntax:

BIN2OCT(Number [, Digits])

Description:

Converts the given binary number (base 2) to an octal number (base 8).

Number is the number to be converted. It must not contain more than 32 places. Negative numbers have to be transformed to two's complement notation (see last example).

The optional argument **Digits** lets you specify the number of places to be displayed. If omitted, PlanMaker determines the number of required places automatically.

Digits has to be greater than zero. If **Digits** is smaller than the minimum number of places required to display the number, the function returns a #NUM error value.

Digits will be ignored if **Number** is negative.

Example:

BIN2OCT("101010") returns 52

BIN2OCT("00101010") returns 52 as well

BIN2OCT("11111111111111111111111111010110") returns 37777777726 (negative value)

See also:

OCT2BIN, BIN2DEC, BIN2HEX

BINOMDIST (binomial distribution)

Syntax:

BINOMDIST(k, n, p, Cumulative)

Description:

Returns the binomial distribution function.

The binomial distribution can be used to determine the probability to get **k** successes in an experiment with **n** independent trials with only two possible outcomes (success or failure) with a fixed probability of **p** for each trial.

For example, a coin toss experiment is a binomial experiment (see example below).

k is the number of successes. Must be in the range 0 to **n**.

n is the number of independent trial runs.

p is the probability of a success for each trial run. Must be in the range 0 to 1.

The logical value **Cumulative** lets you specify which type of function will be used:

FALSE: BINOMDIST uses the probability density function, which returns the probability that there are *exactly* **k** successes.

TRUE: BINOMDIST uses the cumulative distribution function, which returns the probability that there are *at most* **k** successes.

Example:

When you toss a coin 10 times (**n**=10), what is the probability that it lands on its tail (**p**=50%) exactly 4 times (**k**=4)?

BINOMDIST(4, 10, 50%, FALSE) returns 0.20508.

What is the probability that it lands on its tail *at most* 4 times?

BINOMDIST(4, 10, 50%, TRUE) returns 0.37695.

See also:

COMBIN, CRITBINOM, NEGBINOMDIST

CEILING (round up to a multiple of base)

Syntax:

CEILING(Number, Base)

Description:

Rounds **Number** up (away from zero) to the nearest multiple of **Base**.

Positive numbers are rounded to the nearest multiple of **Base** that is *larger* than **Number**.

Negative numbers are rounded to the nearest multiple of **Base** that is *smaller* than **Number**.

Number and **Base** must have the same sign, otherwise the function returns a #NUM! error value.

Example:

CEILING(42.5, 1) returns 43

CEILING(-42.5, -1) returns -43

CEILING(21, 5) returns 25

CEILING(12.3456, 0.01) returns 12.35

See also:

FLOOR, MROUND, ROUND, TRUNC

CELL (information about a cell)

Syntax:

CELL(Type [; Reference])

Description:

Returns various types of information about a cell.

Type specifies the type of information to return. **Type** can be one of the following text strings:

Type	Description
"address"	Returns the address of the cell (as a text string).
"col"	Returns the column number of the cell (as a number).
"color"	Returns 1 if the cell uses the number format option **Negative numbers in red**, or 0 if not.
"contents"	Returns the value stored in the cell.
"filename"	Returns the full path and filename of the document that contains the cell.
"format"	(*Not* supported. Returns a #N/A error value.)
"parentheses"	(*Not* supported. Returns a #N/A error value.)
"prefix"	Returns one of the following text strings: ' if the cell contains left-aligned text " if the cell contains right-aligned text ^ if the cell contains centered text \ if the cell contains fill-aligned text "" if the cell contains anything else
"protect"	Returns 1 if the cell is protected, or 0 if not.
"row"	Returns the row number of the cell.

"type"	Returns one of the following text strings: b (for blank) if the cell is empty l (for label) if the cell contains text v (for value) if the cell contains anything else
"width"	(*Not* supported. Returns a #N/A error value.)

Reference (optional) is the address of the cell to be evaluated.

If **Reference** is a range of cells, only the top left cell will be evaluated.

If **Reference** is omitted, the current cell will be evaluated. (Excel behaves differently; see the note below.)

Compatibility note:

This function is not fully identical to Microsoft Excel's CELL function. The following restrictions apply:

1. Some types of information are not supported by PlanMaker (see the table above).

2. When the parameter **Reference** is omitted, PlanMaker evaluates the current cell, whereas Excel evaluates the cell that was *last changed*.

Example:

=CELL("row"; B5) returns the row number of the cell B5, i.e. 5.

See also:

FILENAME, COLUMN, ROW

CHAR (character from ANSI code)

Syntax:

CHAR(Number)

Description:

Returns a single character with the specified ANSI code.

Number must be at least 10.

Example:

CHAR(65) returns A

CHAR(32) returns a blank

CHAR(CODE("X") returns X

See also:

CODE

CHIDIST (chi-square distribution)

Syntax:

CHIDIST(X, DegreesFreedom)

Description:

Returns the one-tailed probability of the chi-square distribution.

X is the value to be evaluated. Must be ≥ 0.

DegreesFreedom is the number of degrees of freedom. Must be ≥ 1 and < 10^10.

See also:

CHIINV, CHITEST

CHIINV (percentiles of the chi-square distribution)

Syntax:

CHIINV(Probability, DegreesFreedom)

Description:

Returns the inverse of the chi-square distribution function (i.e., percentiles of this distribution).

Probability is the one-tailed probability to be evaluated. Must be in the range 0 to 1.

DegreesFreedom is the number of degrees of freedom. Must be ≥ 1 and < 10^10.

Note:

The result of this function is calculated using an iterative search technique. If the search does not converge after 100 iterations, a #N/A error value is returned.

See also:

CHITEST, CHIDIST

CHITEST (chi-square test for independence)

Syntax:

CHITEST(ObservedValues, ExpectedValues)

Description:

Returns the chi-square test for independence.

ObservedValues are the observed values to be tested against the expected values.

ExpectedValues are the expected values.

See also:

CHIINV, CHIDIST

CHOICE (x>0, x=0, x<0?)

Syntax:

CHOICE(Number, IfGreater [, IfZero, IfLess])

Description:

Returns one of the following values:

IfGreater, if **Number** is greater than zero.

IfZero, if **Number** equals zero.

IfLess, if **Number** is less than zero.

The last two arguments are optional.

Compatibility note:

This function is *not* supported by Microsoft Excel. If you save a document in Excel format, all calculations using this function will be replaced by their last result as a *fixed* value.

Example:

CHOICE(42, "Greater", "Zero", "Smaller") returns Greater

CHOICE(0, "Greater", "Zero", "Smaller") returns Zero

CHOICE(-42, "Greater", "Zero", "Smaller") returns Smaller

See also:

IF

CHOOSE (choose value from list)

Syntax:

CHOOSE(Index, Value1, Value2 [, Value3 ...])

Description:

Returns the value with the specified index from a list of values.

Index specifies the value to be returned. If **Index** is 1, the first value will be returned, if **Index** is 2, the second value will be returned, and so on.

If **Index** is smaller than 1 or greater than the total number of values, the function returns a #VALUE! error value.

Example:

CHOOSE(2, "One", "Two", "Three") returns Two

See also:

INDEX, VLOOKUP, HLOOKUP

CLEAN (remove unprintable characters)

Syntax:

CLEAN(Text)

Description:

Removes all unprintable characters (characters with an ANSI code below 32) from the specified text string.

CODE (ANSI code of a character)

Syntax:

CODE(Text)

Description:

Returns the ANSI code of the first character in the specified text string.

Example:

CODE("A") returns 65

CODE("Arthur") returns 65 as well

CODE(CHAR(123)) returns 123

CODE("") returns 0

See also:

CHAR

COLUMN (column number of a reference)

Syntax:

COLUMN([Reference])

Description:

Returns the column number(s) of a cell reference:

If **Reference** is a single cell, the column number of this cell is returned.

If **Reference** is a range of cells, their column numbers are returned as a horizontal array. Note: In this case, the formula has to be entered as an *array formula* (see section “Working with arrays”, page 408).

If **Reference** is omitted, the column number of the cell that invokes this function is returned.

Example:

COLUMN(D2) returns 4

COLUMN(D2:F4) returns {4,5,6}

COLUMN() returns 3 when you use this calculation in cell C5

See also:

ROW, COLUMNS

COLUMNS (number of columns in a range)

Syntax:

COLUMNS(Range)

Description:

Returns the number of columns in the specified cell range.

Example:

COLUMNS(A1:D5) returns 4

See also:

ROWS, COLUMN

COMBIN (combinations)

Syntax:

COMBIN(n, k)

Description:

Returns the number of combinations of size **k** in a population of size **n**.

n is the total number of items. Must be > **k**.

k is the number of items in each combination. Must be > 0 and < **n**.

n and **k** should be integers; digits right of the decimal point are ignored.

Example:

In a lottery called “6 out of 49”, 6 balls are picked out of 49 numbered balls. How many combinations are possible?

COMBIN(49, 6) returns 13983816

See also:

PERMUT

COMPLEX (create complex number)

Syntax:

COMPLEX(Real, Imag [, Suffix])

Description:

Creates a complex number x + yi or x + yj out of the given real and imaginary coefficients.

Real is the real coefficient.

Imag is the imaginary coefficient.

Suffix (optional) is the suffix used for the imaginary component:

i or omitted: A complex number of the form x + yi is returned.

j: A complex number of the form x + yj is returned.

Hint:

To enter complex numbers in cells, you can either make use of the COMPLEX function or simply type them in. For example, the complex number 2+4i can be entered either as =COMPLEX(2, 4) or simply as 2+4i.

The same applies for formulas – *except* for the fact that complex numbers have to be surrounded by double quotation marks ("). For example, instead of typing =IMPOWER(COMPLEX(2, 4)), you could also type =IMPOWER("2+4i").

Example:

COMPLEX(2, 4) returns 2+4i

COMPLEX(2, 4, "i") returns 2+4i as well

COMPLEX(2, 4, "j") returns 2+4j

See also:

IMAGINARY, IMREAL

CONCATENATE (concatenate text strings)

Syntax:

CONCATENATE(Text1, Text2 [, Text3 ...])

Description:

Combines two or more text strings into one text string.

Annotation:

The **&** operator does exactly the same: CONCATENATE("Text1", "Text2") is equivalent to "Text1" & "Text2".

Example:

CONCATENATE("Good ", "Morning") returns Good Morning

CONCATENATE(2, " slices", " of ", "bread") returns 2 slices of bread

CONFIDENCE (confidence interval)

Syntax:

CONFIDENCE(Alpha, Sigma, n)

Description:

Returns a value that allows you to determine the 1-alpha confidence interval for the population mean of a distribution.

The 1-alpha confidence interval is a range of values around the sample mean x covering the interval from (x - CONFIDENCE) to (x + CONFIDENCE). The probability that this interval contains the population mean is 1-**Alpha**.

Alpha is the significance level to compute the confidence level. Must be in the range 0 to 1.

For example, if **Alpha** is 5%, the probability that the population mean is *outside* the confidence interval is 5%. The probability that it is *inside* is 1-**Alpha**, i.e., 95%. Therefore, 1-alpha is also called the “confidence level”.

Sigma is the population standard deviation. Must be > 0.

n is the size of the sample. Must be > 0.

Example:

CONFIDENCE(0.05, 1.6, 65) returns 0.38897

CONVERT (unit conversion)

Syntax:

CONVERT(Number, From, To)

Description:

Converts a number between different measurement systems.

Number is the number to be converted.

From is the unit of **Number** (see table below).

To is the target unit (see table below).

Both units have to be in the same category. For example, you can convert meters to miles, but of course not to minutes.

A #N/A error value is displayed if a) **From** and **To** are not from the same category, or b) invalid unit codes.

Note: Unit codes are case-sensitive!

The following unit codes are available:

Mass	Code
Gram	g
Slug	sg
Pound (avoirdupois)	lbm
u (atom mass)	u
Ounce (avoirdupois)	ozm

Distance	Code
Meter	m
Statute mile	mi
Nautical mile	Nmi
Inch	in
Foot	ft
Yard	yd
Ångström	ang
Pica	Pica
Light year*	ly
Parsec (parallax second)*	parsec

* These units are not supported by Microsoft Excel.

Time	Code
Second	sec
Minute	mn
Hour	hr
Day	day
Year**	yr
Fortnight*	ftn

* This unit is not supported by Microsoft Excel.

** Based on a year with 365.25 days

Liquid measure	Code
Liter	l (lower case “L”)
Teaspoon	tsp
Tablespoon	tbs
Fluid Ounce	oz
Cup	cup
Pint (U.S.)	pt
Pint (U.K.)	uk_pt
Quart	qt
Gallon	gal

Force	Code
Newton	N
Dyne	dyn
Pound-force	lbf

Power	Code
Watt	W
HP (Horsepower)	HP

Magnetism	Code
Tesla	T
Gauss	ga

Energy	Code
Joule	J
Erg	e
Thermodynamic calorie	c
IT calorie	cal
Electron volt	eV
Horsepower-hour	HPh
Watt-hour	Wh
Foot-pound force	flb
BTU (British Thermal Unit)	BTU

Pressure	Code
Pascal	Pa
Atmosphere	atm
mm of Mercury	mmHg

Temperature	Code
Degree Fahrenheit	F
Degree Celsius	C
Degree Kelvin	K

Additionally, prefixes can be added to metric units; "mg", for instance, stands for milligrams.

The following prefixes are available:

Prefix (and factor)	Code
Exa (10^18)	E
Peta (10^15)	P
Tera (10^12)	T
Giga (10^9)	G
Mega (10^6)	M
Kilo (1000)	k
Hecto (100)	h
Deka (10)	e
Deci (0.1)	d
Centi (0.01)	c
Milli (0.001)	m
Micro (10^-6)	u
Nano (10^-9)	n
Pico (10^-12)	p
Femto (10^-15)	f
Atto (10^-18)	a

Example:

CONVERT(1, "day", "sec") returns 86400 (days -> seconds)

CONVERT(1, "mi", "km") returns 1.60934 (miles -> kilometers)

CONVERT(100, "kW", "HP") returns 134.10201 (100 kW -> HP)

CONVERT(1, "aparsec", "cm") returns 3.08568 (Attoparsec -> cm)

CORREL (correlation coefficient)

Syntax:

CORREL(Range1, Range2)

Description:

Returns the correlation coefficient of two data sets.

The correlation coefficient is a measure of the relationship between two data sets.

Range1 and **Range2** are references to the two cell ranges containing the two data sets. Empty cells and logical values are ignored.

Range1 and **Range2** must have the same number of values, otherwise the function returns a #N/A error value.

Example:

If A1:A3 contains the values 2, 5, 3 and B1:B3 contains 2, 7, 4:

CORREL(A1:A3, B1:B3) returns 0.99718

See also:

FISHER, COVAR

COS (cosine)

Syntax:

COS(Number)

Description:

Returns the cosine of **Number**.

Example:

COS(PI()) returns -1

COS(RADIANS(180)) returns -1

See also:

ACOS

COSH (hyperbolic cosine)

Syntax:

COSH(Number)

Description:

Returns the hyperbolic cosine of **Number**.

Example:

COSH(0.1) returns 1.005

See also:

ACOSH

COT (cotangent)

Syntax:

COT(Number)

Description:

Returns the cotangent of **Number**.

Compatibility note:

This function is *not* supported by Microsoft Excel. If you save a document in Excel format, all calculations using this function will be replaced by their last result as a *fixed* value.

Example:

COT(PI()/4) returns 1

COT(RADIANS(45)) returns 1

See also:

ACOT

COTH (hyperbolic cotangent)

Syntax:

COTH(Number)

Description:

Returns the hyperbolic cotangent of **Number**.

Compatibility note:

This function is *not* supported by Microsoft Excel. If you save a document in Excel format, all calculations using this function will be replaced by their last result as a *fixed* value.

Example:

COTH(0.45) returns 2.37024

See also:

ACOTH

COUNT (number of cells filled with numbers)

Syntax:

COUNT(Range1 [, Range2 ...])

Description:

Counts the number of cells containing numbers.

This functions counts only cells with numbers (including dates) and text representing a number. To count cells with *any* content, use the COUNT**A** function instead.

Example:

If the cells A1:A3 contain 42, "Test", and TRUE and cell A4 is empty:

COUNT(A1:A4) returns 1

See also:

COUNTA, ISNUMBER

COUNTA (number of cells filled)

Syntax:

COUNTA(Range1 [, Range2 ...])

Description:

Counts the number of cells containing any kind of value (i.e., cells that are not empty).

Example:

If the cells A1:A3 contain 42, "Test", and TRUE and cell A4 is empty:

COUNTA(A1:A4) returns 3

See also:

COUNT, ISBLANK

COUNTBLANK (number of empty cells)

Syntax:

COUNTBLANK(Range1 [, Range2 ...])

Description:

Counts the number of cells that are empty.

Example:

If the cells A1:A3 contain 42, "Test", and TRUE and cell A4 is empty:

COUNTBLANK(A1:A4) returns 1

See also:

ISBLANK, COUNT

COUNTIF (count if condition is true)

Syntax:

COUNTIF(Range, Criterion)

Description:

Counts those cells in a cell range that fulfill the specified criterion.

Range is the cell range to be evaluated.

Criterion is the criterion that the values in **Range** have to fulfill to be included.

Use numbers or text (like "42" or "bolts") to count all cells that contain that value.

Hint: To count all non-empty cells, use "*" as criterion. For example COUNTIF(D2:D4, "*") counts all cells in the specified area that are not empty.

Use conditions (like ">10" or "<=5") to count all cells that match the specified condition (see examples below).

Note: Criteria always have to be surrounded by double quotation marks (").

Example:

If the cells A1:A5 contain 1, 2, 3, 2, 1:

COUNTIF(A1:A5, "2") returns 2

COUNTIF(A1:A5, ">=2") returns 3

See also:

AVERAGEIF, AVERAGEIFS, COUNT, COUNTIFS, SUMIF, SUMIFS

COUNTIFS (count if conditions are true)

Syntax:

COUNTIFS(Range1, Criterion1 [, Range2, Criterion2 ...])

Description:

Applies criteria to the cells in the specified cell ranges and counts how often *all* of these criteria are fulfilled.

This function is similar to the COUNTIF function, but allows you to specify more than just one range/criterion to be searched.

Range1 is the first cell range to be checked for a criterion. Please note that all of the cell ranges specified must have the same dimensions.

Criterion1 is the criterion that the values in **Range1** have to fulfill.

Use numbers or text (like "42" or "bolts") to check if the cell contains a certain value.

Use conditions (like ">10" or "<=5") to check if the cell matches a certain condition.

Note: Criteria always have to be surrounded by double quotation marks (").

Unlike the COUNTIF function, COUNTIFS allows you to specify more than just one cell range and criterion to be checked. If you do so, the function counts only occurrences where *all* criteria are fulfilled.

Compatibility note:

This function is *not* supported by the **.xls** file format (used in Microsoft Excel 2003 and earlier). If you save a document in this format, all calculations using this function will be replaced by their last result as a *fixed* value.

Accordingly, if you use this function, you should not save your document in the "Microsoft Excel 97-2003 (.xls)" file format, but choose one of the following formats instead:

- "PlanMaker document (.pmd)"
- or: "Microsoft Excel 2007-2010 (.xlsx)"

Example:

COUNTIFS(C1:C10, ">1", C1:C10, "<2")

This formula counts how many cells in the cell range C1:C10 are greater than 1 and less than 2.

COUNTIFS(A1:D4, "tuna", G10:K14, ">500")

This formula counts how often the following conditions are met: The cell in A1:D4 contains "tuna" *and* the corresponding cell in G10:K14 contains a value greater than 500.

See also:

AVERAGEIF, AVERAGEIFS, COUNT, COUNTIF, SUMIF, SUMIFS

COUNTP (PlanMaker 97 compatibility function)

Syntax:

COUNTP(Range1 [, Range2 ...])

Description:

Counts the number of cells containing numbers or logical values.

Note:

This function was retained only for compatibility with PlanMaker 97. Using the Excel-compatible functions COUNT or COUNTA is recommended instead.

The difference between these three functions is:

COUNTA counts all cells that are not empty.

COUNT counts only cells that contain *numbers*.

COUNTP counts only cells that contain *numbers* or *logical values*.

Compatibility note:

This function is *not* supported by Microsoft Excel. If you save a document in Excel format, all calculations using this function will be replaced by their last result as a *fixed* value.

Example:

If the cells A1:A3 contain 42, "Test", and TRUE and cell A4 is empty:

COUNTA(A1:A4) returns 3

COUNT(A1:A4) returns 1

COUNTP(A1:A4) returns 2

See also:

COUNT, COUNTA

COVAR (Covariance)

Syntax:

COVAR(Range1, Range2)

Description:

Returns the covariance of two data sets.

The covariance is the average of the products of the deviations for each pair of values. It can be used to determine the extent to which two data sets vary ("co-vary").

Range1 and **Range2** are references to the two cell ranges containing the two data sets. Empty cells, text, and logical values are ignored.

Range1 and **Range2** must have the same number of values, otherwise the function returns a #N/A error value.

Example:

If A1:A3 contains the values 2, 5, 3 and B1:B3 contains 2, 7, 4:

COVAR(A1:A3, B1:B3) returns 2.55556

See also:

FISHER, CORREL

CREATEDATE (date the document was created)

Syntax:

CREATEDATE()

Description:

Returns the date/time the current document was created.

Compatibility note:

This function is *not* supported by Microsoft Excel. If you save a document in Excel format, all calculations using this function will be replaced by their last result as a *fixed* value.

Example:

In a document created on the 24th of August, 2012 at 9:03 AM:

CREATEDATE() returns 08/24/12 9:03 AM

Note: To change the format of the resulting date, choose the **Format > Cell** command and select the desired date format (e.g., date only, date and time, or time only).

See also:

NOW

CRITBINOM

Syntax:

CRITBINOM(n, p, Alpha)

Description:

Returns the smallest value for which the cumulative binomial distribution is greater than or equal to the criterion value **Alpha**.

This function is applicable to binomial distributions only (i.e., experiments with only two possible outcomes: “success” or “failure”).

n is the number of independent trial runs.

p is the probability of a success for each trial run. Must be in the range 0 to 1.

Alpha is the criterion value. Must be in the range 0 to 1.

Example:

CRITBINOM(100, 7%, 1%) returns 2

See also:

BINOMDIST

CUMIPMT (cumulative interest)

Syntax:

CUMIPMT(Rate, NPer, PV, P1, P2, Type)

Description:

Returns the cumulative interest payments between period **P1** and period **P2**. This function is applicable to loans with periodic constant payments, and a constant interest rate.

Rate is the interest rate (per payment period).

NPer is the total number of payment periods.

PV is the present value (the loan amount).

P1 and **P2** define the time interval to be evaluated. P1 is the first period, and P2 is the last.

Type is the timing of the payments:

0 or omitted: Payment at the end of each period.

1: Payment at the beginning of each period.

Example:

Loan terms: $100,000 at 10% per year, to be repaid over 72 months with monthly payments at the end of each month.

How much interest has to be paid in the periods (= months) 24 through 36?

CUMIPMT(10%/12, 6*12, 100000, 24, 36, 0) returns -7219.88.

Note that all values have to use the same time unit, *months* in this case, since the payments are made *monthly*. Therefore, in the above formula, the yearly interest rate had to be divided by 12 to get the *monthly* interest rate.

See also:

CUMPRINC, PPMT, IPMT, PMT

CUMPRINC (cumulative principal)

Syntax:

CUMPRINC(Rate, NPer, PV, P1, P2, Type)

Description:

Returns the cumulative principal payments between period **P1** and period **P2**. This function is applicable to loans with periodic constant payments, and a constant interest rate.

Rate is the interest rate (per payment period).

NPer is the total number of payment periods.

PV is the present value (the loan amount).

P1 and **P2** define the time interval to be evaluated. P1 is the first period, and P2 is the last.

Type is the timing of the payments:

0 or omitted: Payment at the end of each period.

1: Payment at the beginning of each period.

Example:

Loan terms: $100,000 at 10% per year, to be repaid over 72 months with monthly payments at the end of each month.

How much principal has to be paid in the periods (= months) 24 through 36?

CUMPRINC(10%/12, 6*12, 100000, 24, 36, 0) returns -16863.71.

Note that all values have to use the same time unit, *months* in this case, since the payments are made *monthly*. Therefore, in the above formula, the yearly interest rate had to be divided by 12 to get the *monthly* interest rate.

See also:

CUMIPMT, PPMT, IPMT, PMT

CURRENCY (format number as currency)

Syntax:

CURRENCY(Number [, n])

Description:

Returns a text string containing **Number** formatted in currency format and rounded to **n** decimal places.

The currency symbol applied depends on your computer's language settings. For example, in the U.S. a dollar sign $ is applied, in Germany, a Euro sign € is applied, etc.

Number is the number to be converted.

n (optional) is the number of decimal places. If **n** is omitted, **Number** is rounded to two places.

If **n** is a negative value, **Number** is rounded to the left of the decimal point. For example, if **n** is -2, **Number** is rounded to the nearest multiple of hundred (see last example).

Annotation:

Please keep in mind that the result of this function is a **text string**. To round a number *without* converting it to a text string, use one of the round functions (e.g., ROUND) instead.

Alternatively, you can let PlanMaker display a number rounded and formatted as a currency by applying one of the currency formats to the number (using the **Format > Cell** command).

Compatibility note:

This function is *not* supported by Microsoft Excel. If you save a document in Excel format, all calculations using this function will be replaced by their last result as a *fixed* value.

Example:

CURRENCY(123.456) returns the text string $123.46

CURRENCY(123.456, 2) returns the text string $123.46

CURRENCY(123.456, -2) returns the text string $100

DATE (create a date value)

Syntax:

DATE(Year, Month, Day)

Description:

Returns a date created out of the specified **Year**, **Month**, and **Day**.

Example:

DATE(2012, 9, 25) returns the date 09/25/2012

See also:

DATEVALUE, TIME, TIMEVALUE

DATEDIF (date difference)

Syntax:

DATEDIF(StartDate, EndDate, Mode)

Description:

Returns the number of days, months, or years between two dates.

StartDate and **EndDate** are the two dates to be evaluated. **StartDate** must be less (i.e., earlier) than **EndDate**.

Mode lets you specify the kind of value to be returned:

"y"	Number of years between StartDate and EndDate
"m"	Number of months between StartDate and EndDate
"d"	Number of days between StartDate and EndDate
"ym"	Number of months, excluding years (as if StartDate and EndDate were in the same year)
"yd"	Number of days, excluding years (as if StartDate and EndDate were in the same year)
"md"	Number of months, excluding month and years (as if StartDate and EndDate were in the same month and year)

Note:

This function is an *undocumented* Excel function. It still exists in Microsoft Excel, but has been removed from Excel's help file and therefore seems to be no longer officially supported.

Example:

To calculate the age of a person, enter his/her date of birth in cell A1 (e.g., 4/3/1970). In A2, enter the current date (e.g., 6/8/2004). Then use one of the following calculations:

Years:
DATEDIF(A1, A2, "y") returns 30 (years)

Months:
DATEDIF(A1, A2, "m") returns 371 (months)

Days:
DATEDIF(A1, A2, "d") returns 11297 (days)

Years, months and days:
DATEDIF(A1, A2, "y") returns 30 (years)
DATEDIF(A1, A2, "ym") returns 11 (months)
DATEDIF(A1, A2, "md") returns 5 (days)

See also:

NOW, NETWORKDAYS, DAYS

DATEVALUE (convert text into date value)

Syntax:

DATEVALUE(Text)

Description:

Converts text representing a date to a serial date value.

Note:

This function was retained only for compatibility with older spreadsheet applications. It is no longer commonly used, as current spreadsheet applications (including PlanMaker) automatically convert text representing a date to a serial date value, where necessary.

Example:

DATEVALUE("09/25/2008") returns 39716.

See also:

TIMEVALUE, DATE, TIME

DAVERAGE (database function)

Syntax:

DAVERAGE(DatabaseArea, Column, CriteriaArea)

Description:

Returns the average of those values in a column of a database area that match the conditions specified in the criteria area.

Detailed instructions on the use of database related functions are available in section “Working with database functions”, page 410.

DatabaseArea is a cell range containing the database to be evaluated. The first row of **DatabaseArea** must contain labels for the database columns (e.g., Amount, Price, etc.).

Column is the desired column of the database area. You can specify **Column** by its relative column number or by its column label in double quotation marks (e.g., "Amount", "Price", etc.).

CriteriaArea is a cell range containing one or more conditions that have to be fulfilled. The first row of **CriteriaArea** has to contain column labels (e.g., Amount, Price, etc.).

See also:

AVERAGE

DAY (day of a date)

Syntax:

DAY(Date)

Description:

Returns the day of a date.

Example:

DAY("09/25/2012") returns 25

See also:

YEAR, ISOWEEK, WEEKNUM, MONTH, WEEKDAY

DAYS (days between two dates)

Syntax:

DAYS(Date1, Date2)

Description:

Returns the number of days between two dates.

Compatibility note:

This function is *not* supported by Microsoft Excel. If you save a document in Excel format, all calculations using this function will be replaced by their last result as a *fixed* value.

Example:

DAYS("01/01/2012", "01/14/2012") returns 13

DAYS("01/14/2012", "01/01/2012") returns -13

See also:

DATEDIF, NETWORKDAYS, DAYS360, TIMEDIFF

DAYS360 (days between two dates)

Syntax:

DAYS360(StartDate, EndDate [, Mode])

Description:

Returns the number of days between two dates, based on a year with 360 days (12 months with 30 days each).

StartDate and **EndDate** are the two dates to be evaluated.

Mode (optional) is a logical value that lets you specify how dates occurring on the 31st of a month should be evaluated:

FALSE or omitted: The **U.S. (NASD) method** is used: If **StartDate** is the 31st of a month, the 30th of the same month will be used instead. If **EndDate** is the 31st of a month, the 1st of the following month will be used instead. Exception: If **StartDate** *and* **EndDate** are the 31st of a month, the 30th of the same month will be used instead (for both dates).

TRUE: The **European method** is used: If **StartDate** or **EndDate** is the 31st of a month, the 30th of the same month will be used instead.

Example:

DAYS360("01/01/2012", "02/01/2012") returns 30

DAYS360("02/01/2012", "03/01/2012") returns 30

DAYS360("01/01/2008", "01/01/2009") returns 360

See also:

DATEDIF, DAYS, NETWORKDAYS, TIMEDIFF

DAYSPERMONTH (days per month)

Syntax:

DAYSPERMONTH(Date)

Description:

Returns the number of days in the specified month.

Compatibility note:

This function is *not* supported by Microsoft Excel. If you save a document in Excel format, all calculations using this function will be replaced by their last result as a *fixed* value.

Example:

DAYSPERMONTH("09/25/2012") returns 30

DAYSPERMONTH("10/25/2012") returns 31

DAYSPERYEAR (days per year)

Syntax:

DAYSPERYEAR(Date)

Description:

Returns the number of days in the specified year.

Compatibility note:

This function is *not* supported by Microsoft Excel. If you save a document in Excel format, all calculations using this function will be replaced by their last result as a *fixed* value.

Example:

DAYSPERYEAR("01/01/2008") returns 366 (2008 is a leap year)

DAYSPERYEAR("01/01/2009") returns 365 (2009 is not a leap year)

See also:

YEAR, DAYS, DAYS360

DB (fixed-declining balance depreciation)

Syntax:

DB(Cost, Salvage, Life, Per [, Months])

Description:

Returns the depreciation of an asset for the specified period, using the fixed-declining balance method.

Cost = Initial cost of asset

Salvage = Salvage value (value at the end of the depreciation)

Life = Life of asset (in number of periods)

Per = Period to evaluate (in the same time unit as **Life**)

Months (optional) = Number of Months in the first year (12 if omitted)

Example:

Asset parameters: initial cost = 100000, salvage value = 20000, life = 10 years

DB(100000, 20000, 10, 1) returns 14900.00 (depreciation in year 1)

DB(100000, 20000, 10, 2) returns 12679.90 (depreciation in year 2)

etc.

See also:

DDB, SYD, SLN

DCOUNT (database function)

Syntax:

DCOUNT(DatabaseArea, Column, CriteriaArea)

Description:

Returns the number of those values in a column of a database area that match the conditions specified in the criteria area.

Only cells containing numbers (including dates) are counted; cells with text or logical values are ignored.

Detailed instructions on the use of database related functions are available in section “Working with database functions”, page 410.

DatabaseArea is a cell range containing the database to be evaluated. The first row of **DatabaseArea** must contain labels for the database columns (e.g., Amount, Price, etc.).

Column is the desired column of the database area. You can specify **Column** by its relative column number or by its column label in double quotation marks (e.g., "Amount", "Price", etc.).

CriteriaArea is a cell range containing one or more conditions that have to be fulfilled. The first row of **CriteriaArea** has to contain column labels (e.g., Amount, Price, etc.).

See also:

DCOUNTA

DCOUNTA (database function)

Syntax:

DCOUNTA(DatabaseArea, Column, CriteriaArea)

Description:

Returns the number of those values in a column of a database area that match the conditions specified in the criteria area.

Unlike the DCOUNT function, DCOUNT**A** not only counts cells containing numbers but also counts cells with text or logical values.

Detailed instructions on the use of database-related functions are available in section “Working with database functions”, page 410.

DatabaseArea is a cell range containing the database to be evaluated. The first row of **DatabaseArea** must contain labels for the database columns (e.g., Amount, Price, etc.).

Column is the desired column of the database area. You can specify **Column** by its relative column number or by its column label in double quotation marks (e.g., "Amount", "Price", etc.).

CriteriaArea is a cell range containing one or more conditions that have to be fulfilled. The first row of **CriteriaArea** has to contain column labels (e.g., Amount, Price, etc.).

See also:

DCOUNT

DDB (double-declining balance depreciation)

Syntax:

DDB(Cost, Salvage, Life, Per [, Factor])

Description:

Returns the depreciation of an asset for the specified period, using the double-declining balance method (or a variable-declining balance method, if **Factor** is specified).

Cost = Initial cost of asset

Salvage = Salvage value (value at the end of the depreciation)

Life = Life of asset (in number of periods)

Per = Period to evaluate (in the same time unit as **Life**)

Factor (optional) = Rate at which the balance declines (2 if omitted)

Example:

Asset parameters: initial cost = 100000, salvage value = 20000, life = 10 years

DDB(100000, 20000, 10, 1) returns 20000 (depreciation in year 1)

DDB(100000, 20000, 10, 2) returns 16000 (depreciation in year 2)

etc.

See also:

DB, SYD, SLN

DEC2BIN (decimal number to binary number)

Syntax:

DEC2BIN(Number [, Digits])

Description:

Converts the given decimal number (base 10) to a binary number (base 2).

Number is the number to be converted. It must be in the range -(2^31) to (2^31)-1. Negative numbers have to be transformed to two's complement notation (see last example).

The optional argument **Digits** lets you specify the number of places to be displayed. If omitted, PlanMaker determines the number of required places automatically.

Digits has to be greater than zero. If **Digits** is smaller than the minimum number of places required to display the number, the function returns a #NUM error value.

Digits will be ignored if **Number** is negative.

Example:

DEC2BIN(42) returns 101010

DEC2BIN(42, 8) returns 00101010

DEC2BIN(42, 4) returns the error value #NUM! because the number 42 cannot be represented with fewer than 6 binary digits

DEC2BIN(-42) returns 1111111111111111111111111010110

See also:

BIN2DEC, DEC2HEX, DEC2OCT

DEC2HEX (decimal number to hexadecimal number)

Syntax:

DEC2HEX(Number [, Digits])

Description:

Converts the given decimal number (base 10) to a hexadecimal number (base 16).

Number is the number to be converted. It must be in the range -(2^31) to (2^31)-1. Negative numbers have to be transformed to two's complement notation (see last example).

The optional argument **Digits** lets you specify the number of places to be displayed. If omitted, PlanMaker determines the number of required places automatically.

Digits has to be greater than zero. If **Digits** is smaller than the minimum number of places required to display the number, the function returns a #NUM error value.

Digits will be ignored if **Number** is negative.

Example:

DEC2HEX(42) returns 2A

DEC2HEX(42, 8) returns 0000002A

DEC2HEX(42, 1) returns the error value #NUM! because the number 42 cannot be represented with fewer than 2 hexadecimal digits

DEC2HEX(-42) returns FFFFFFD6

See also:

HEX2DEC, DEC2BIN, DEC2OCT

DEC2OCT (decimal number to octal number)

Syntax:

DEC2OCT(Number [, Digits])

Description:

Converts the given decimal number (base 10) to an octal number (base 8).

Number is the number to be converted. It must be in the range -(2^31) to (2^31)-1. Negative numbers have to be transformed to two's complement notation (see last example).

The optional argument **Digits** lets you specify the number of places to be displayed. If omitted, PlanMaker determines the number of required places automatically.

Digits has to be greater than zero. If **Digits** is smaller than the minimum number of places required to display the number, the function returns a #NUM error value.

Digits will be ignored if **Number** is negative.

Example:

DEC2OCT(42) returns 52

DEC2OCT(42, 8) returns 00000052

DEC2OCT(42, 1) returns the error value #NUM! because the number 42 cannot be represented with fewer than 2 octal digits

DEC2OCT(-42) returns 37777777726

See also:

OCT2DEC, DEC2BIN, DEC2HEX

DECIBEL (decibel value of two quantities)

Syntax:

DECIBEL(P2 [, P1])

Description:

Returns the decibel value (dB) for the ratio of two quantities.

The calculation is based on the following formula:

DECIBEL(P2, P1) = 10 * LOG10(P2/P1)

Note the order of the two parameters: The dividend **P2** of the quotient has to be specified first, the divisor **P1** second – not vice versa.

P2 and **P1** have to be numbers. Their quotient has to be greater than zero.

The parameter **P1** is optional. If it is not specified, PlanMaker sets it to 1 (one) automatically.

Compatibility note:

This function is *not* supported by Microsoft Excel. If you save a document in Excel format, all calculations using this function will be replaced by their last result as a *fixed* value.

Example:

DECIBEL(1000, 10) returns 20

DECIMALS (fractional part of a number)

Syntax:

DECIMALS(Number)

Description:

Returns the fractional part of the given number (i.e., the digits to the right of the decimal point).

Compatibility note:

This function is *not* supported by Microsoft Excel. If you save a document in Excel format, all calculations using this function will be replaced by their last result as a *fixed* value.

Example:

DECIMALS(5.779) returns 0.779

See also:

TRUNC

DEGREES (convert radians to degrees)

Syntax:

DEGREES(Number)

Description:

Converts radians into degrees.

The following conversion formula is used:

DEGREES(x) = x * 180 / PI()

Example:

DEGREES(PI()) returns 180

See also:

RADIANS

DELTA (test for equality)

Syntax:

DELTA(Number1, Number2)

Description:

Tests if two values are equal. If they are, 1 is returned, otherwise 0 is returned.

Number1 and **Number2** have to be numbers or text strings representing numbers, otherwise a #VALUE! error value is returned.

Example:

DELTA(1, 2) returns 0

DELTA(2, 2) returns 1

DELTA(2, "2") returns 1

DELTA("Text", "Text") returns a #VALUE! error value

See also:

EXACT

DEVSQ (average square deviation)

Syntax:

DEVSQ(Number1, Number2 [, Number3 ...])

Description:

Returns the sum of squares of deviations of the specified numbers from their sample mean.

Empty cells, text strings, and logical values are ignored.

Example:

DEVSQ(2, 2, 2, 3) returns 0.75

See also:

AVEDEV, STDEV, SUM, VAR

DGET (database function)

Syntax:

DGET(DatabaseArea, Column, CriteriaArea)

Description:

Returns the value in a column of a database area that matches the given criteria.

Detailed instructions on the use of database related functions are available in section “Working with database functions”, page 410.

DatabaseArea is a cell range containing the database to be evaluated. The first row of **DatabaseArea** must contain labels for the database columns (e.g., Amount, Price, etc.).

Column is the desired column of the database area. You can specify **Column** by its relative column number or by its column label in double quotation marks (e.g., "Amount", "Price", etc.).

CriteriaArea is a cell range containing one or more conditions that have to be fulfilled. The first row of **CriteriaArea** has to contain column labels (e.g., Amount, Price, etc.).

Note:

If more than one value matches the specified criteria, the function returns a #NUM! error value.

DMAX (database function)

Syntax:

DMAX(DatabaseArea, Column, CriteriaArea)

Description:

Returns the largest of those values in a column of a database area that match the conditions specified in the criteria area.

Detailed instructions on the use of database related functions are available in section “Working with database functions”, page 410.

DatabaseArea is a cell range containing the database to be evaluated. The first row of **DatabaseArea** must contain labels for the database columns (e.g., Amount, Price, etc.).

Column is the desired column of the database area. You can specify **Column** by its relative column number or by its column label in double quotation marks (e.g., "Amount", "Price", etc.).

CriteriaArea is a cell range containing one or more conditions that have to be fulfilled. The first row of **CriteriaArea** has to contain column labels (e.g., Amount, Price, etc.).

See also:

MAX, DMIN

DMIN (database function)

Syntax:

DMIN(DatabaseArea, Column, CriteriaArea)

Description:

Returns the smallest of those values in a column of a database area that match the conditions specified in the criteria area.

Detailed instructions on the use of database related functions are available in section “Working with database functions”, page 410.

DatabaseArea is a cell range containing the database to be evaluated. The first row of **DatabaseArea** must contain labels for the database columns (e.g., Amount, Price, etc.).

Column is the desired column of the database area. You can specify **Column** by its relative column number or by its column label in double quotation marks (e.g., "Amount", "Price", etc.).

CriteriaArea is a cell range containing one or more conditions that have to be fulfilled. The first row of **CriteriaArea** has to contain column labels (e.g., Amount, Price, etc.).

See also:

MIN, DMAX

DOLLARDE (dollar price, decimal)

Syntax:

DOLLARDE(Value, Divisor)

Description:

Converts a dollar price, expressed as a fraction, into a decimal dollar price.

Value is the number to be converted.

Divisor is the denominator of the fraction. It must be greater than or equal to 1. **Divisor** should be an integer; digits right of the decimal point are ignored.

Example:

DOLLARDE(27.4; 8) converts the fraction 27 4/8 into the decimal value 27.5.

See also:

DOLLARFR

DOLLARFR (dollar price, fraction)

Syntax:

DOLLARFR(Value, Divisor)

Description:

Converts a decimal dollar price into a dollar price expressed as a fraction.

Value is the number to be converted.

Divisor is the denominator of the fraction. It must be greater than or equal to 1. **Divisor** should be an integer; digits right of the decimal point are ignored.

Example:

DOLLARFR(27.5; 8) returns 27.4 (since 27.5 equals the fraction 27 4/8)

See also:

DOLLARDE

DPRODUCT (database function)

Syntax:

DPRODUCT(DatabaseArea, Column, CriteriaArea)

Description:

Returns the product of those values in a column of a database area that match the conditions specified in the criteria area.

Detailed instructions on the use of database related functions are available in section “Working with database functions”, page 410.

DatabaseArea is a cell range containing the database to be evaluated. The first row of **DatabaseArea** must contain labels for the database columns (e.g., Amount, Price, etc.).

Column is the desired column of the database area. You can specify **Column** by its relative column number or by its column label in double quotation marks (e.g., "Amount", "Price", etc.).

CriteriaArea is a cell range containing one or more conditions that have to be fulfilled. The first row of **CriteriaArea** has to contain column labels (e.g., Amount, Price, etc.).

See also:

PRODUCT

DSTDEV (database function)

Syntax:

DSTDEV(DatabaseArea, Column, CriteriaArea)

Description:

Estimates the standard deviation of a population based on a sample, using those values in a column of a database area that match the conditions specified in the criteria area.

Detailed instructions on the use of database related functions are available in section “Working with database functions”, page 410.

DatabaseArea is a cell range containing the database to be evaluated. The first row of **DatabaseArea** must contain labels for the database columns (e.g., Amount, Price, etc.).

Column is the desired column of the database area. You can specify **Column** by its relative column number or by its column label in double quotation marks (e.g., "Amount", "Price", etc.).

CriteriaArea is a cell range containing one or more conditions that have to be fulfilled. The first row of **CriteriaArea** has to contain column labels (e.g., Amount, Price, etc.).

See also:

STDEV, DSTDEVP

DSTDEVP (database function)

Syntax:

DSTDEVP(DatabaseArea, Column, CriteriaArea)

Description:

Calculates the standard deviation of a population based on the entire population, using those values in a column of a database area that match the conditions specified in the criteria area.

Detailed instructions on the use of database related functions are available in section “Working with database functions”, page 410.

DatabaseArea is a cell range containing the database to be evaluated. The first row of **DatabaseArea** must contain labels for the database columns (e.g., Amount, Price, etc.).

Column is the desired column of the database area. You can specify **Column** by its relative column number or by its column label in double quotation marks (e.g., "Amount", "Price", etc.).

CriteriaArea is a cell range containing one or more conditions that have to be fulfilled. The first row of **CriteriaArea** has to contain column labels (e.g., Amount, Price, etc.).

See also:

STDEVP, DSTDEV

DSUM (database function)

Syntax:

DSUM(DatabaseArea, Column, CriteriaArea)

Description:

Returns the sum of those values in a column of a database area that match the conditions specified in the criteria area.

Detailed instructions on the use of database related functions are available in section “Working with database functions”, page 410.

DatabaseArea is a cell range containing the database to be evaluated. The first row of **DatabaseArea** must contain labels for the database columns (e.g., Amount, Price, etc.).

Column is the desired column of the database area. You can specify **Column** by its relative column number or by its column label in double quotation marks (e.g., "Amount", "Price", etc.).

CriteriaArea is a cell range containing one or more conditions that have to be fulfilled. The first row of **CriteriaArea** has to contain column labels (Amount, Price, etc.).

See also:

SUM

DVAR (database function)

Syntax:

DVAR(DatabaseArea, Column, CriteriaArea)

Description:

Estimates the variance of a population based on a sample, using those values in a column of a database area that match the conditions specified in the criteria area.

Detailed instructions on the use of database related functions are available in section “Working with database functions”, page 410.

DatabaseArea is a cell range containing the database to be evaluated. The first row of **DatabaseArea** must contain labels for the database columns (e.g., Amount, Price, etc.).

Column is the desired column of the database area. You can specify **Column** by its relative column number or by its column label in double quotation marks (e.g., "Amount", "Price", etc.).

CriteriaArea is a cell range containing one or more conditions that have to be fulfilled. The first row of **CriteriaArea** has to contain column labels (e.g., Amount, Price, etc.).

See also:

VAR, DVARP

DVARP (database function)

Syntax:

DVARP(DatabaseArea, Column, CriteriaArea)

Description:

Calculates the variance of a population based on the entire population, using those values in a column of a database area that match the conditions specified in the criteria area.

Detailed instructions on the use of database related functions are available in section “Working with database functions”, page 410.

DatabaseArea is a cell range containing the database to be evaluated. The first row of **DatabaseArea** must contain labels for the database columns (e.g., Amount, Price, etc.).

Column is the desired column of the database area. You can specify **Column** by its relative column number or by its column label in double quotation marks (e.g., "Amount", "Price", etc.).

CriteriaArea is a cell range containing one or more conditions that have to be fulfilled. The first row of **CriteriaArea** has to contain column labels (Amount, Price, etc.).

See also:

VARP, DVAR

EDATE (date before/after n months)

Syntax:

EDATE(StartDate, m)

Description:

Returns the date that is **m** months before/after **StartDate**.

StartDate is the start date.

m is the number of months.

If **m** is positive, a date in the *future* will be returned.

If **m** is negative, a date in the *past* will be returned.

Example:

EDATE("03/30/2012", 1) returns 04/30/2012

EDATE("03/31/2012", 1) returns 04/30/2012 as well, because April has just 30 days.

See also:

EOMONTH

EFFECT (effective interest rate)

Syntax:

EFFECT(NomRate, NPerYear)

Description:

Returns the effective annual interest rate, given the nominal annual interest rate and the number of compounding periods per year.

NomRate is the nominal annual interest rate.

NPerYear is the number of compounding periods per year.

Example:

To calculate the effective annual interest rate of an investment with a nominal annual interest rate of 5%, compounded quarterly:

EFFECT(5%, 4) returns approx. 5.09%

See also:

NOMINAL

EOMONTH (end of month in n months)

Syntax:

EOMONTH(StartDate, m)

Description:

Returns the last day of the month that is **m** months before/after **StartDate**.

StartDate is the start date.

m is the number of months.

If **m** is positive, a date in the *future* will be returned.

If **m** is negative, a date in the *past* will be returned.

If **m** is zero, the last day of the *current* month will be returned.

Example:

EOMONTH("09/25/2012", 0) returns 09/30/2012

EOMONTH("09/25/2012", 1) returns 10/31/2012

EOMONTH("09/25/2012", -1) returns 08/31/2012

See also:

EDATE

ERF (Gaussian error function)

Syntax:

ERF(LowerLimit [, UpperLimit])

Description:

Return the Gaussian error function.

LowerLimit is the lower bound for the integral.

UpperLimit (optional) is the upper bound for the integral. If omitted, the integral between zero and **LowerLimit** will be returned.

See also:

ERFC

ERFC (complement of Gaussian error function)

Syntax:

ERFC(LowerLimit)

Description:

Return the complement to the Gaussian error function.

LowerLimit is the lower bound of the integral. Must be ≥ 0.

See also:

ERF

ERROR.TYPE (error type)

Syntax:

ERROR.TYPE(Reference)

Description:

Returns a number representing the type of error value in a cell.

Reference is a reference to a single cell.

Possible results of this function:

Error value in cell	Result
No error value	#N/A
#NULL!	1
#DIV/0!	2
#VALUE!	3
#REF!	4
#NAME?	5
#NUM!	6
#N/A	7

For more details about error values, see section “Error values”, page 407.

Example:

If A1 contains 1/0 and A2 contains 1/1:

ERROR.TYPE(A1) returns 2 (i.e., #DIV/0!)

ERROR.TYPE(A2) returns #N/A (i.e., no error)

The calculation below returns "Error!" if any kind of error occurs in cell A1, otherwise it returns the contents of A1:

IF(ISNA(ERROR.TYPE(A1)), A1, "Error!")

See also:

IFERROR, ISERR, ISERROR, ISNA, section “Error values” on page 407

EUROCONVERT (convert EU currencies)

Syntax:

EUROCONVERT(Number, From, To)

Description:

Converts a number from one EU currency to another. Applicable only to currencies of countries that are members of the EU (European Union) and have adopted the European currency *Euro*.

This function can perform three types of conversions:

a) Convert a number from one of these currencies **to Euros**, e.g., French Francs to Euros.

b) Convert a number **from Euros** to one of these currencies, e.g. Euros to French Francs.

c) Convert a number from **one of these currencies to another** by first converting it to Euros and then to the other currency (a method called "triangulation"), e.g., French Francs -> Euros -> Spanish Pesetas. **Note:** This method can lead to rounding errors of ±0.01.

Number is the number to be converted.

From and **To** are codes representing the source and target currency (see table below). Use either PM codes or ISO codes.

Note: Microsoft Excel only supports ISO codes. If you want to keep your calculations Excel-compatible, use only ISO codes (right column).

Country	PM code	ISO code
All Euro countries (Euro)	€	EUR
Austria (Schilling)	öS	ATS
Belgium (Franc)	BF	BEF
Finland (Markka)	mk	FIM
France (Franc)	F	FRF
Germany (Mark)	DM	DEM
Greece (Drachma)	Dr	GRD
Ireland (Pound)	IR£	IEP
Italy (Lira)	L	ITL
Luxembourg (Franc)	LF	LUF
Malta (Lira)	Lm	MTL

Netherlands (Guilder)	fl	NLG
Portugal (Escudo)	esc	PTE
Slovakia (Koruna)	Sk	SKK
Slovenia (Tolar)	SIT	SIT
Spain (Peseta)	pts	ESP

Example:

EUROCONVERT (100, "DM", "€") converts 100 German Marks to Euros. The result is 51.13 (Euro).

EUROCONVERT (100, "DEM", "EUR") does the same, but uses ISO codes. The result is of course the same: 51.13 (Euro).

EUROCONVERT (100, "DEM", "ATS") returns 703.55 (Austrian Schillings).

EVEN (round up to next even number)

Syntax:

EVEN(Number)

Description:

Rounds **Number** up (away from zero) to the nearest even integer.

Example:

EVEN(42) returns 42

EVEN(43) returns 44

EVEN(-43) returns -44

See also:

ODD, MROUND, ROUND, ISEVEN

EXACT (compare texts)

Syntax:

EXACT(Text1, Text2)

Description:

Returns TRUE if **Text1** and **Text2** are exactly the same. This function is case-sensitive.

Example:

EXACT("aaa", "aaa") returns TRUE

EXACT("aaa", "Aaa") returns FALSE

EXACT(UPPER("aaa"), UPPER("Aaa")) returns TRUE

See also:

FIND, SEARCH

EXP (power of e)

Syntax:

EXP(Number)

Description:

Returns *e* raised to the power of **Number**.

The constant *e* (2.71828...) is the base of the natural logarithm (LN).

Number is the exponent.

Example:

EXP(5) returns 148.4132

EXP(LN(0.1234)) returns 0.1234

See also:

LN, POWER

EXPONDIST (exponential distribution)

Syntax:

EXPONDIST(x, Lambda, Cumulative)

Description:

Returns the exponential distribution function.

An exponential distribution can be used to model time intervals like the time between phone calls or the time customers have to wait at a counter.

x is the value to be evaluated. Must be ≥ 0.

Lambda (λ) is the average number of successes per time interval. Must be > 0.

The logical value **Cumulative** lets you specify which type of function will be returned:

FALSE: The probability density function is returned.

TRUE: The cumulative distribution function is returned.

See also:

POISSON

FACT (factorial)

Syntax:

FACT(Number)

Description:

Returns the factorial of the specified number.

The factorial of a number is the product of all positive integers in the range from 1 to **Number**, i.e., 1*2*3*...***Number**.

Number must be ≥ 0.

Example:

FACT(9) equals 1*2*3*4*5*6*7*8*9, which is 362880.

See also:

FACTDOUBLE

FACTDOUBLE (double factorial)

Syntax:

FACTDOUBLE(Number)

Description:

Returns the double factorial of the specified number.

The double factorial is calculated as follows:

If **Number** is even, its double factorial is 2*4*6*...***Number**.

If **Number** is odd, its double factorial is 1*3*5*...***Number**.

Number must be ≥ 0.

Example:

FACTDOUBLE(10) equals 2*4*6*8*10, which equals 3840.

FACTDOUBLE(11) equals 1*3*5*7*9*11, which equals 10395.

See also:

FACT

FALSE (logical value FALSE)

Syntax:

FALSE()

Description:

Returns the logical value FALSE.

See also:

TRUE

FDIST (F distribution)

Syntax:

FDIST(X, DegreesFreedom1, DegreesFreedom2)

Description:

Returns the F probability distribution function.

X is the value to be evaluated. Must be ≥ 0.

DegreesFreedom1 is the numerator degrees of freedom.

DegreesFreedom2 is the denominator degrees of freedom.

Both degrees of freedom must be ≥ 1 and < 10^10.

See also:

FINV, FTEST

FILENAME (file name of the document)

Syntax:

FILENAME([IncludePath])

Description:

Returns the file name of the current document.

IncludePath (optional) determines if the path (drive and folder) should be included:

FALSE or omitted: don't include path

TRUE: include path

Compatibility note:

This function is *not* supported by Microsoft Excel. If you save a document in Excel format, all calculations using this function will be replaced by their last result as a *fixed* value.

Example:

If you save a document as *Balance.pmd* in folder *c:\Documents*:

FILENAME() returns Balance.pmd

FILENAME(TRUE) returns c:\Documents\Balance.pmd

See also:

USERFIELD, SHEETNAME

FIND (search for text)

Syntax:

FIND(SearchedText, Text [, StartPos])

Description:

Returns the position of the text string **SearchedText** within the text string **Text**.

StartPos (optional) lets you specify the position (= character) at which to start the search. If omitted, the search starts at the first character.

The FIND function is case-sensitive. To perform a non case-sensitive search, use the SEARCH function instead.

Example:

FIND("a", "Banana") returns 2

FIND("A", "Banana") returns the error value #VALUE!, since the text string does not contain an upper case “A”.

FIND("a", "Banana", 3) returns 4

See also:

SEARCH, REPLACE, SUBSTITUTE

FINV (percentiles of the F distribution)

Syntax:

FINV(Probability, DegreesFreedom1, DegreesFreedom2)

Description:

Returns the inverse of the F probability distribution function (i.e., percentiles of this distribution).

Probability is the probability to be evaluated. Must be in the range 0 to 1.

DegreesFreedom1 is the numerator degrees of freedom.

DegreesFreedom2 is the denominator degrees of freedom.

Both degrees of freedom must be ≥ 1 and < 10^10.

Note:

The result of this function is calculated using an iterative search technique. If the search does not converge after 100 iterations, a #N/A error value is returned.

See also:

FTEST, FDIST

FISHER (Fisher transformation)

Syntax:

FISHER(Number)

Description:

Returns the Fisher transformation.

Number must be > -1 and < 1.

See also:

FISHERINV, CORREL, COVAR

FISHERINV (inverse of the Fisher transformation)

Syntax:

FISHERINV(Number)

Description:

Returns the inverse of the Fisher transformation.

See also:

FISHER

FIXED (format number as text with fixed decimals)

Syntax:

FIXED(Number [, n] [, NoThousandsSep])

Description:

Returns a text string containing **Number** rounded to **n** decimal places.

Number is the number to be converted.

n (optional) is the number of decimal places. If **n** is omitted, **Number** is rounded to two places.

If **n** is a negative value, **Number** is rounded to the left of the decimal point. For example, if **n** is -2, **Number** is rounded to the nearest multiple of hundred (see last example).

NoThousandsSep (optional) is a logical value that lets you specify if the resulting text string should contain thousands separators:

FALSE or omitted: Add thousands separators

TRUE: Do not add thousands separators

Annotation:

Please keep in mind that the result of this function is a **text string**. To round a number *without* converting it to a text string, use one of the round functions (e.g., ROUND) instead.

Alternatively, you can let PlanMaker display a number rounded by applying one of the number formats to the number (using the **Format > Cell** command).

Example:

FIXED(1234.5678, 2) returns the text string 1,234.57

FIXED(1234.5678, 2, TRUE) returns the text string 1234.57 (without thousands separators)

FIXED(1234.5678, -2) returns the text string 1,200

See also:

ROUND, ROUNDDOWN, ROUNDUP, TRUNC

FLOOR (round down to a multiple of base)

Syntax:

FLOOR(Number, Base)

Description:

Rounds **Number** down (towards zero) to the nearest multiple of **Base**.

Positive numbers are rounded to the nearest multiple of **Base** that is *smaller* than **Number**.

Negative numbers are rounded to the nearest multiple of **Base** that is *larger* than **Number**.

Number and **Base** must have the same sign, otherwise the function returns a #NUM! error value.

Example:

FLOOR(42.5, 1) returns 42

FLOOR(-42.5, -1) returns -42

FLOOR(21, 5) returns 20

FLOOR(12.3456, 0.01) returns 12.34

See also:

CEILING, MROUND, ROUND, TRUNC

FORECAST (forecast using linear regression)

Syntax:

FORECAST(x, y_values, x_values)

Description:

Returns the y coordinate for the given x coordinate on a best-fit line based on the given values.

A *best-fit line* is the result of a *linear regression*, a statistical technique that adapts a line to a set of data points (for example, the results of a series of measurements).

This function can be used, for example, to predict the resistance of a temperature-sensitive resistor at a specific temperature after having measured the resistance at several other temperatures.

x is the x value for which a prediction is desired.

y_values are the known y values (e.g., the resistance).

x_values are the known x values (e.g., the temperature).

Example:

The resistance of a temperature-sensitive resistor has been measured at several temperatures.

Cells A1:A4 contain the temperatures measured: 8, 20, 25, 28

Cells B1:B4 contain the resistances measured: 261, 508, 608, 680

The following calculation returns an estimate for the resistance at 15 degrees:

FORECAST(15, B1:B4, A1:A4) returns 405.21805 (Ohm)

See also:

INTERCEPT, SLOPE

FREQUENCY (frequency)

Syntax:

FREQUENCY(Values, Bounds)

Description:

Returns a frequency distribution for the given set of values. Use this function to count how many values are part of the specified intervals.

The result of this function is a vertical array (see notes below).

Values is a cell range or an array containing the values to be evaluated. Blank cells and text strings are ignored.

Bounds is a cell range or an array containing the bounds for the intervals. For example, if **Bounds** is the array {10; 15; 42}, the function returns an array with the following values:

1. The number of values that are <=10.

2. The number of values that are >10 and <=15.

3. The number of values that are >15 and <=42.

4. The number of values that are >42.

Both **Values** and **Bounds** have to be vertical arrays (i.e., must not consist of more than one column).

Note:

Formulas using this function have to be entered as an *array formula* (see section “Working with arrays”, page 408).

Please note that the array returned by this function contains *one element more* than the number of values in **Bounds**.

See also:

COUNT

FTEST (F-test)

Syntax:

FTEST(Array1, Array2)

Description:

Returns the result of an F-test, i.e., the one-tailed probability that the variances in the two given data sets are not significantly different.

Array1 and **Array2** are the two arrays to be evaluated.

They both have to consist of at least 2 values.

If the variance of **Array1** or **Array2** is zero, the function returns a #DIV/0! error value.

See also:

FINV, FDIST

FV (future value)

Syntax:

FV(Rate, NPer, Pmt [, PV] [, Type])

Description:

Returns the future value of an investment based on periodic constant payments, and a constant interest rate.

Rate is the interest rate (per payment period).

NPer is the total number of payment periods.

Pmt is the payment made for each period.

PV (optional) is the present value. If omitted, it will be set to zero.

Type (optional) is the timing of the payments:

0 or omitted: Payment at the end of each period.

1: Payment at the beginning of each period.

See also:

FVSCHEDULE, IPMT, NPER, PMT, PV, RATE

FVSCHEDULE (future value)

Syntax:

FVSCHEDULE(PV, Rates)

Description:

Returns the future value of an initial principal after applying a series of *variable* compound interest rates.

The function expects the following arguments:

PV is the present value (the initial principal).

Rates is a cell range or an array containing the different interest rates (in their actual order, namely, rate for the first period, rate for the second period, etc.)

Example:

To calculate the future value of an investment of $10,000 that pays 5% interest in the first, 5.2% in the second, 5.5% in the third, and 5.9% in the fourth year, you enter the four interest rates (in the correct order) in cells A1 to A4 and then employ the following formula:

FVSCHEDULE(10000, A1:A4) returns 12341.09

The different interest rates can also be entered directly using the following form:

FVSCHEDULE(10000, {5%, 5.2%, 5.5%, 5.9%})

See also:

FV

GAMMADIST (gamma distribution)

Syntax:

GAMMADIST(X, Alpha, Beta, Cumulative)

Description:

Returns the gamma distribution.

X is the value to be evaluated. Must be ≥ 0.

Alpha and **Beta** are shape parameters of the function. They both have to be greater than zero.

The logical value **Cumulative** lets you specify which type of function will be returned:

FALSE: The probability density function is returned.

TRUE: The cumulative distribution function is returned.

See also:

GAMMAINV

GAMMAINV (percentiles of the gamma distribution)

Syntax:

GAMMAINV(Probability, Alpha, Beta)

Description:

Returns the inverse of the gamma cumulative distribution function (i.e., percentiles of this distribution).

Probability is the probability to be evaluated. Must be in the range 0 to 1.

Alpha and **Beta** are shape parameters of the function. They both have to be greater than zero.

Note:

The result of this function is calculated using an iterative search technique. If the search does not converge after 100 iterations, a #N/A error value is returned.

See also:

GAMMADIST

GAMMALN (logarithm of the gamma function)

Syntax:

GAMMALN(x)

Description:

Returns the natural logarithm of the gamma function.

x is the value to be evaluated. Must be > 0.

See also:

FACT

GAUSS (PlanMaker 97 compatibility function)

Syntax:

GAUSS(x)

Description:

Returns the integral of the PHI function (standard normal cumulative distribution function) minus 0.5.

Note:

This function was retained only for compatibility with PlanMaker 97. Use of the following Excel-compatible function is recommended instead:

GAUSS(x) equals NORMSDIST(x) - 0.5

See also:

PHI, NORMDIST, NORMSDIST

GCD (greatest common divisor)

Syntax:

GCD(Number1, Number2 [, Number3 ...])

Description:

Returns the GCD (greatest common divisor) of the specified integers. The GCD is the largest integer that will divide all of the given integers without a remainder.

Number1, **Number2**, etc., are the numbers to be evaluated. All of them should be integers; digits right of the decimal point are ignored.

Example:

GCD(25, 100, 250) returns 25

GCD(25, 105, 250) returns 5

If cells A1 to A3 contain the values 4, 8, and 6, respectively:

GCD(A1:A3) returns 2

See also:

LCM

GEOMEAN (geometric mean)

Syntax:

GEOMEAN(Number1, Number2 [, Number3...])

Description:

Returns the geometric mean of the specified numbers.

The geometric mean is the *n*-th root of the product of the given values (*n* is the total number of values).

Number1, **Number2**, etc., are the numbers to be evaluated. All of them have to be greater than zero. Empty cells, text strings, and logical values are ignored.

Example:

GEOMEAN(1, 2, 6) returns 2.28943

See also:

HARMEAN, AVERAGE

GESTEP (greater or equal to threshold value?)

Syntax:

GESTEP(Number, Step)

Description:

Returns 1 if **Number** ≥ **Step**, else returns 0.

Example:

GESTEP(41, 42) returns 0

GESTEP(42, 42) returns 1

GESTEP(42.1, 42) returns 1

See also:

DELTA

GROWTH (values of an exponential regression)

Syntax:

GROWTH(y_values [, x_values] [, New_x_values] [, Constant])

Description:

Returns the values of an exponential regression.

Exponential regression is a statistical technique that adapts an exponential curve to a set of data points (for example, the results of a series of measurements).

The GROWTH function returns an array with the y values of a best-fit exponential curve based on the given y values and x values.

y_values are the known y values. All of them must be positive, otherwise a #NUM! error value is returned.

x_values (optional) are the known x values. If omitted, the values 1, 2, 3, ... will be used.

New_x_values (optional) are the x values for which you want to determine the corresponding y values on the curve. If omitted, the values in **x_values** will be used.

Constant (optional) is a logical value that lets you specify if the constant b should be calculated automatically or forced to equal one:

TRUE or omitted: b will be calculated from the given data.

FALSE: b is forced to equal 1 (one); the m values are adjusted accordingly.

Note:

Formulas using this function have to be entered as an *array formula* (see section "Working with arrays", page 408).

See also:

LINEST, LOGEST, TREND

HARMEAN (harmonic mean)

Syntax:

HARMEAN(Number1, Number2 [, Number3 ...])

Description:

Returns the harmonic mean of the specified numbers.

The harmonic mean is obtained by dividing *n* by the sum of reciprocals of the given values (*n* is the total number of values).

Number1, **Number2**, etc., are the numbers to be evaluated. All of them must be > 0. Empty cells, text strings, and logical values are ignored.

Example:

HARMEAN(1, 2, 6) returns 1.8

See also:

GEOMEAN, AVERAGE

HEX2BIN (hexadecimal number to binary number)

Syntax:

HEX2BIN(Number [, Digits])

Description:

Converts the given hexadecimal number (base 16) to a binary number (base 2).

Number is the number to be converted. It must be in the range 80000000 to 7FFFFFFF. Negative numbers have to be transformed to two's complement notation (see last example).

The optional argument **Digits** lets you specify the number of places to be displayed. If omitted, PlanMaker determines the number of required places automatically.

Digits has to be greater than zero. If **Digits** is smaller than the minimum number of places required to display the number, the function returns a #NUM error value.

Digits will be ignored if **Number** is negative.

Example:

HEX2BIN("2A") returns 101010

HEX2BIN("2A", 8) returns 00101010

HEX2BIN("2A", 2) returns the error value #NUM!, because this number cannot be represented with fewer than 5 binary digits

HEX2BIN("FFFFFFD6") returns 11111111111111111111111111010110 (negative value)

See also:

BIN2HEX, HEX2DEC, HEX2OCT

HEX2DEC (hexadecimal number to decimal number)

Syntax:

HEX2DEC(Number)

Description:

Converts the given hexadecimal number (base 16) to a decimal number (base 10).

Number is the number to be converted. It must be in the range 80000000 to 7FFFFFFF. Negative numbers have to be transformed to two's complement notation (see last example).

Example:

HEX2DEC("2A") returns 42

HEX2DEC("FFFFFFD6") returns -42

See also:

DEC2HEX, HEX2BIN, HEX2OCT

HEX2OCT (hexadecimal number to octal number)

Syntax:

HEX2OCT(Number [, Digits])

Description:

Converts the given hexadecimal number (base 16) to an octal number (base 8).

Number is the number to be converted. It must be in the range 80000000 to 7FFFFFFF. Negative numbers have to be transformed to two's complement notation (see last example).

The optional argument **Digits** lets you specify the number of places to be displayed. If omitted, PlanMaker determines the number of required places automatically.

Digits has to be greater than zero. If **Digits** is smaller than the minimum number of places required to display the number, the function returns a #NUM error value.

Digits will be ignored if **Number** is negative.

Example:

HEX2OCT("2A") returns 52

HEX2OCT("2A", 4) returns 0052

HEX2OCT("2A", 1) returns the error value #NUM!, because this number cannot be represented with fewer than 2 octal digits

HEX2OCT("FFFFFFD6") returns 37777777726 (negative value)

See also:

OCT2HEX, HEX2BIN, HEX2DEC

HLOOKUP (look up row-wise)

Syntax:

HLOOKUP(Crit, Range, n [, Sorted])

Description:

Scans the first row of **Range** for a value. If found, the function returns the content of the cell located in the same column and **n**-th row of **Range**.

If no exact match is found, the next smallest value will be taken. If no smaller value exists, a #N/A error value is returned.

Note: HLOOKUP can search horizontally only. To search vertically, use VLOOKUP instead.

Crit is the value to be searched for (case insensitive).

Range is the cell range or array to be evaluated. Its first row should contain the values to be scanned.

n is the relative row number in **Range** from which a value will be returned.

If **n** is less than 1, a #VALUE! error value is returned. If **n** is greater than the total number of rows in **Range**, a #REF! error value is returned.

Sorted is a logical value determining whether the values in the first row of **Range** are in sorted order:

TRUE or omitted: Values have to be sorted in ascending order.

FALSE: Values do not have to be sorted.

See also:

VLOOKUP, INDEX, MATCH

HOLIDAY (dates of movable Christian holidays)

Syntax:

HOLIDAY(Year; Type)

Description:

Returns the date of the specified movable Christian holiday in the given year.

Year is an integer number that specifies the year to evaluate.

Type is an integer number that specifies which holiday to calculate, as follows:

0: Good Friday

1: Easter Sunday

2: Easter Monday

3: Ascension Day

4: Whitsunday (Pentecost)

5: Whitmonday

6: (Feast of) Corpus Christi

7: Ash Wednesday

8: Repentance Day (Germany)

9: 1st Sunday of Advent

Compatibility note:

This function is *not* supported by Microsoft Excel. If you save a document in Excel format, all calculations using this function will be replaced by their last result as a *fixed* value.

Example:

HOLIDAY(2008; 1) returns 03/23/2008 (Easter Sunday in 2008)

HOLIDAY(YEAR(TODAY(); 1) returns the date of Easter Sunday in the current year

See also:

WORKDAY, NETWORKDAYS

HOUR (hour)

Syntax:

HOUR(Time)

Description:

Returns the hour of a time value.

Example:

HOUR("12:34:56 AM") returns 12

See also:

MINUTE, SECOND, MILLISECONDS

HYPERLINK (hyperlink)

Syntax:

HYPERLINK(TargetAddress [, Text])

Description:

Displays a hyperlink to the specified **target address** in the cell. The text displayed is either the target address or the text specified in the optional parameter **Text**.

For example, you can place a link to a web page in a cell. When the user clicks on it, the web browser starts and presents the page.

Links to other PlanMaker documents are possible as well. When clicked, PlanMaker opens the specified document.

TargetAddress is the address you want the link to point to. You can use a fixed text string, a calculation, or a reference to a cell that contains the target address. See the examples below.

Text (optional) is the text to be displayed in the cell. If it is not specified, the target address will be displayed instead.

Example:

=HYPERLINK("http://www.softmaker.com")

The above hyperlink opens the web page www.softmaker.com in the web browser.

=HYPERLINK("http://www.softmaker.com", "Our Homepage")

Ditto, but instead of the target address, the text “Our Homepage” is displayed as link text.

=HYPERLINK("c:\My Folder\Filename.pmd")

The above link opens the file c:\My Folder\Filename.pmd in PlanMaker.

Note: You can not only open PlanMaker files with this function, but practically any kind of document (provided that it is associated with an application that opens it).

=HYPERLINK("[c:\My Folder\Filename.pmd]Sheet1!A5")

The above link opens the file c:\My Folder\Filename.pmd in PlanMaker and jumps to the cell A5 on the worksheet “Sheet1”. Note: The entire file path and name has to be enclosed in brackets. Behind the file name, add the name of the worksheet, an exclamation mark, and the address of the target cell.

=HYPERLINK("[c:\My Folder\Filename.pmd]Sheet1!MyRange")

The above link opens the file c:\My Folder\Filename.pmd in PlanMaker and jumps to the top left corner of the named range “MyRange” on the worksheet “Sheet1”.

=HYPERLINK("http://www.softmaker.com#MyAnchor")

The above link opens the web page www.softmaker.com in the browser and jumps to the anchor named “MyAnchor”. Alternatively, you could also use the syntax =HYPERLINK("[http://www.softmaker.com]MyAnchor") for this.

=HYPERLINK(E1; E2)

The above link opens the target address given in the cell E1. As a link text, the text given in cell E2 is displayed.

See also:

Links can also be created using the procedure described in section “Working with links” (page 305). However, the HYPERLINK function is more flexible.

HYPGEOMDIST (hypergeometric distribution)

Syntax:

HYPGEOMDIST(k, n, K, N)

Description:

Returns the hypergeometric distribution.

The hypergeometric distribution can be used to calculate the probability to, for example, obtain **k** red balls when randomly drawing **n** balls (*without* replacement) from an urn containing **N** balls, with **K** of them red balls.

k is the number of successes in the sample (success = drawing a red ball).

n is the size of the sample (the number of balls to be drawn)

K is the total number of successes in the population (the total number of *red* balls).

N is the size of the population (the total number of balls).

All of these values should be integers; digits right of the decimal point are ignored.

Example:

An urn contains 10 balls (N=10) with 2 of them red (K=2). To determine the probability to obtain exactly 1 red ball (k=1) when drawing 5 balls (n=5), use the following calculation:

HYPGEOMDIST(1, 5, 2, 10) returns 0.55556

See also:

NEGBINOMDIST

IF (if-then-else condition)

Syntax:

IF(Condition, IfTrue [, IfFalse])

Description:

Returns **IfTrue**, if the specified condition is TRUE, else returns **IfFalse** (if given).

Condition can be any kind of value or expression that returns TRUE or FALSE.

IfTrue and **IfFalse** can be any kind of value or expression (including formulas).

Example:

IF(A1<5, "Order!", "ok") returns "Order!" if A1<5, otherwise it returns "ok".

See also:

CHOICE

IFERROR (returns string only on errors)

Syntax:

IFERROR(Value, String)

Description:

Normally returns **Value** – unless that value results in any kind of error value. In that case, the specified **String** is returned instead.

Compatibility note:

This function is *not* supported by the **.xls** file format (used in Microsoft Excel 2003 and earlier). If you save a document in this format, all calculations using this function will be replaced by their last result as a *fixed* value.

Accordingly, if you use this function, you should not save your document in the "Microsoft Excel 97-2003 (.xls)" file format, but choose one of the following formats instead:

- "PlanMaker document (.pmd)"
- or: "Microsoft Excel 2007-2010 (.xlsx)"

Example:

IFERROR(A1, "Error!") returns the value in cell A1, as long as A1 doesn't contain an error value. If it does, the text string "Error!" is returned instead.

See also:

ISERR, ISERROR, ISNA, ERROR.TYPE, section "Error values" (page 407)

IMABS (absolute value of a complex number)

Syntax:

IMABS(ComplexNumber)

Description:

Returns the absolute value (modulus) of a complex number.

ComplexNumber must be a complex number in x+yi or x+yj format.

Annotation: Complex numbers can be created with the COMPLEX function.

Example:

IMABS("2+4i") returns 4.47214

See also:

COMPLEX, IMARGUMENT, IMEXP, IMCONJUGATE

IMAGINARY (imaginary coefficient of a complex number)

Syntax:

IMAGINARY(ComplexNumber)

Description:

Returns the imaginary coefficient of a complex number.

ComplexNumber must be a complex number in x+yi or x+yj format.

Annotation: Complex numbers can be created with the COMPLEX function.

Example:

IMAGINARY("2+4i") returns 4

See also:

COMPLEX, IMREAL

IMARGUMENT (angle of a complex number)

Syntax:

IMARGUMENT(ComplexNumber)

Description:

Returns the angle (in radians) from the real axis to the representation of a complex number in polar coordinates.

ComplexNumber must be a complex number in x+yi or x+yj format.

Annotation: Complex numbers can be created with the COMPLEX function.

Example:

IMARGUMENT("2+4i") returns 1.10715

See also:

COMPLEX, IMABS, IMEXP, IMCONJUGATE

IMCONJUGATE (conjugate complex number)

Syntax:

IMCONJUGATE(ComplexNumber)

Description:

Returns the complex conjugate of a complex number.

ComplexNumber must be a complex number in x+yi or x+yj format.

Annotation: Complex numbers can be created with the COMPLEX function.

Example:

IMCONJUGATE("2+4i") returns 2-4i

See also:

COMPLEX, IMABS, IMARGUMENT, IMEXP

IMCOS (cosine of a complex number)

Syntax:

IMCOS(ComplexNumber)

Description:

Returns the cosine of a complex number.

ComplexNumber must be a complex number in x+yi or x+yj format.

Annotation: Complex numbers can be created with the COMPLEX function.

Example:

IMCOS("2+4i") returns -11.3642347064011 - 24.8146514856342i

See also:

COMPLEX, IMSIN

IMDIV (division of complex numbers)

Syntax:

IMDIV(ComplexNumber1, ComplexNumber2)

Description:

Returns the quotient of two complex numbers, i.e., divides **ComplexNumber1** by **ComplexNumber2**.

ComplexNumber1 and **ComplexNumber2** must be complex numbers in x+yi or x+yj format.

Annotation: Complex numbers can be created with the COMPLEX function.

Example:

IMDIV("4+12i", "2+4i") returns 2.8+0.4i

See also:

COMPLEX, IMPRODUCT, IMSUB, IMSUM

IMEXP (exponential of a complex number)

Syntax:

IMEXP(ComplexNumber)

Description:

Returns the exponential of a complex number.

ComplexNumber must be a complex number in x+yi or x+yj format.

Annotation: Complex numbers can be created with the COMPLEX function.

Example:

IMEXP("2+4i") returns -4.82980938326939 - 5.59205609364098i

See also:

COMPLEX, IMABS, IMARGUMENT, IMCONJUGATE

IMLN (natural logarithm of a complex number)

Syntax:

IMLN(ComplexNumber)

Description:

Returns the natural logarithm (base *e*) of a complex number.

ComplexNumber must be a complex number in x+yi or x+yj format.

Annotation: Complex numbers can be created with the COMPLEX function.

Example:

IMLN("2+4i") returns 1.497866136777 + 1.10714871779409i

See also:

COMPLEX, IMLOG10, IMLOG2

IMLOG10 (base-10 logarithm of a complex number)

Syntax:

IMLOG10(ComplexNumber)

Description:

Returns the base-10 logarithm of a complex number.

ComplexNumber must be a complex number in x+yi or x+yj format.

Annotation: Complex numbers can be created with the COMPLEX function.

Example:

IMLOG10("2+4i") returns 0.650514997831991 + 0.480828578784234i

See also:

COMPLEX, IMLN, IMLOG2

IMLOG2 (base-2 logarithm of a complex number)

Syntax:

IMLOG2(ComplexNumber)

Description:

Returns the base-2 logarithm of a complex number.

ComplexNumber must be a complex number in x+yi or x+yj format.

Annotation: Complex numbers can be created with the COMPLEX function.

Example:

IMLOG2("2+4i") returns 2.16096404744368 + 1.59727796468811i

See also:

COMPLEX, IMLN, IMLOG10

IMNEG (negative value of a complex number)

Syntax:

IMNEG(ComplexNumber)

Description:

Returns the negative of a complex number.

ComplexNumber must be a complex number in x+yi or x+yj format.

Annotation: Complex numbers can be created with the COMPLEX function.

Compatibility note:

This function is *not* supported by Microsoft Excel. If you save a document in Excel format, all calculations using this function will be replaced by their last result as a *fixed* value.

Hint: As an alternative to IMNEG(A1) the following calculation can be used:

COMPLEX(-IMREAL(A1), -IMAGINARY(A1))

Example:

IMNEG("2+4i") returns -2-4i

See also:

COMPLEX

IMPOWER (power of a complex number)

Syntax:

IMPOWER(ComplexNumber, Exponent)

Description:

Returns a complex number raised to a power.

ComplexNumber must be a complex number in x+yi or x+yj format.

Exponent is the power the complex number will be raised to.

Annotation: Complex numbers can be created with the COMPLEX function.

Example:

IMPOWER("2+4i", 2) returns -12+16i

See also:

COMPLEX, IMSQRT

IMPRODUCT (product of complex numbers)

Syntax:

IMPRODUCT(ComplexNum1, ComplexNum2 [, ComplexNum3 ...])

Description:

Returns the product of the given complex numbers.

ComplexNum1, **ComplexNum2**, etc., must be complex numbers in x+yi or x+yj format.

Annotation: Complex numbers can be created with the COMPLEX function.

Example:

IMPRODUCT("2+4i", "1+2i") returns -6+8i

See also:

COMPLEX, IMDIV, IMSUB, IMSUM

IMREAL (real coefficient of a complex number)

Syntax:

IMREAL(ComplexNumber)

Description:

Returns the real coefficient of a complex number.

ComplexNumber must be a complex number in x+yi or x+yj format.

Annotation: Complex numbers can be created with the COMPLEX function.

Example:

IMREAL("2+4i") returns 2

See also:

COMPLEX, IMAGINARY

IMSIN (sine of a complex number)

Syntax:

IMSIN(ComplexNumber)

Description:

Returns the sine of a complex number.

ComplexNumber must be a complex number in x+yi or x+yj format.

Annotation: Complex numbers can be created with the COMPLEX function.

Example:

IMSIN("2+4i") returns 24.8313058489464 - 11.3566127112182i

See also:

COMPLEX, IMCOS

IMSQRT (square root of a complex number)

Syntax:

IMSQRT(ComplexNumber)

Description:

Returns the square root of a complex number.

ComplexNumber must be a complex number in x+yi or x+yj format.

Annotation: Complex numbers can be created with the COMPLEX function.

Example:

IMSQRT("2+4i") returns 1.79890743994787 + 1.11178594050284i

See also:

COMPLEX, IMPOWER

IMSUB (difference of complex numbers)

Syntax:

IMSUB(ComplexNumber1, ComplexNumber2)

Description:

Returns the difference of two complex numbers, i.e., subtracts **ComplexNumber2** from **ComplexNumber1**.

ComplexNumber1 and **ComplexNumber2** must be complex numbers in x+yi or x+yj format.

Annotation: Complex numbers can be created with the COMPLEX function.

Example:

IMSUB("2+4i", "1+2i") returns 1+2i

See also:

COMPLEX, IMDIV, IMPRODUCT, IMSUM

IMSUM (sum of complex numbers)

Syntax:

IMSUM(ComplexNum1, ComplexNum2 [, ComplexNum3 ...])

Description:

Returns the sum of the given complex numbers.

ComplexNum1, **ComplexNum2**, etc., must be complex numbers in x+yi or x+yj format.

Annotation: Complex numbers can be created with the COMPLEX function.

Example:

IMSUM("2+4i", "1+2i") returns 3+6i

See also:

COMPLEX, IMDIV, IMPRODUCT, IMSUB

INDEX (cell in a particular row/column of a range)

Syntax:

INDEX(Range, Row, Column [, PartRange])

Description:

Returns a reference to the cell at the intersection of the specified row and column in **Range**.

Range is the cell range from which to return a reference.

Row is the relative number of the row in **Range**.

Column is the relative number of the column in **Range**.

If **Row** or **Column** refers to a cell outside **Range**, a #REF! error value is returned.

The optional argument **PartRange** is just a placeholder (for compatibility with Microsoft Excel). It will not be evaluated.

Compatibility note:

This function is not fully identical to Microsoft Excel's INDEX function. The following restrictions apply:

1. The argument **Range** must consist of exactly one contiguous cell range. Nonadjacent ranges are not supported.

2. The optional argument **PartRange** is ignored.

Example:

INDEX(B2:D4, 2, 2) returns a reference to cell C3

See also:

MATCH, VLOOKUP, HLOOKUP

INDIRECT (create reference from text)

Syntax:

INDIRECT(Text [, Mode])

Description:

Returns a cell reference from the specified text string.

Text is a text string containing a cell address like "A1", "$A$1", etc., or a named range.

The optional argument **Mode** is just a placeholder (for compatibility with Microsoft Excel). It will not be evaluated.

Example:

INDIRECT("A1") returns a reference to cell A1.

If cell D2 contains the text string "E5", INDIRECT(D2) returns a reference to cell E5.

See also:

ADDRESS, OFFSET, COLUMN, ROW

INT (round down to nearest integer)

Syntax:

INT(Number)

Description:

Rounds **Number** down to the nearest integer.

Example:

INT(5.9) returns 5

INT(-5.1) returns -6

See also:

TRUNC, ROUNDDOWN, ROUNDUP, ROUND

INTERCEPT (intercept point of a linear trend)

Syntax:

INTERCEPT(y_values, x_values)

Description:

Returns the y coordinate of the point where a best-fit line based on the given values intersects the y axis.

A *best-fit line* is the result of a *linear regression*, a statistical technique that adapts a line to a set of data points (for example, the results of a series of measurements).

This function can be used to predict, for example, the resistance of a temperature-sensitive resistor at 0° after having measured the resistance at several other temperatures.

y_values are the known y values (e.g., the resistance).

x_values are the known x values (e.g., the temperature).

Example:

The resistance of a temperature-sensitive resistor has been measured at several temperatures.

Cells A1:A4 contain the temperatures measured: 8, 20, 25, 28

Cells B1:B4 contain the resistances measured: 261, 508, 608, 680

The following calculation returns an estimate for the resistance at 0 degrees:

INTERCEPT(B1:B4, A1:A4) returns 93.69817 (Ohm)

See also:

FORECAST, SLOPE

Annotation:

INTERCEPT(y_values, x_values) equals FORECAST(0, y_values, x_values).

INTERSECTION (intersection of two ranges)

Syntax:

INTERSECTION(Range1, Range2)

Description:

Returns a reference to the intersection of **Range1** and **Range2**.

Annotation:

Alternatively, use the \ operator to obtain the intersection of two ranges. For example, SUM(INTERSECTION(A1:D4, C3:E6)) equals SUM(A1:D4\C3:E6).

Compatibility note:

When working with intersections, please note that there are the following differences between PlanMaker and Microsoft Excel:

1. The INTERSECTION function is *not* supported by Excel.

However, if you save a document making use of this function in Excel format, all of its occurrences will automatically be replaced by corresponding operators.

2. In Excel, the intersection operator is a blank, not a backslash (\).

However, this will not affect any Excel files you open or save with PlanMaker, as PlanMaker automatically "translates" \ operators to Excel-compatible blank operators, and vice versa.

Example:

INTERSECTION(A1:D4, C3:E6) returns a reference to the range C3:D4

IPMT (interest payment)

Syntax:

IPMT(Rate, Per, NPer, CV [, FV] [, Type])

Description:

Returns the interest due in the specified period of an investment based on periodic constant payments, and a constant interest rate.

Rate is the interest rate (per payment period).

Per is the payment period to be evaluated.

NPer is the total number of payment periods.

PV is the present value.

FV (optional) is the future value. If omitted, it will be set to zero.

Type (optional) is the timing of the payments:

0 or omitted: Payment at the end of each period.

1: Payment at the beginning of each period.

Example:

Loan terms: $100,000 at 10% per year, to be repaid over 72 months with monthly payments at the end of each month.

How much interest has to be paid in the 32nd period (i.e., the 32nd month)?

IPMT(10%/12, 32, 72, 100000) returns -534

Note that all values have to use the same time unit, *months* in this case, since the payments are made *monthly*. Therefore, in the above formula, the yearly interest rate had to be divided by 12 to get the *monthly* interest rate.

See also:

CUMPRINC, CUMIPMT, FV, ISPMT, NPER, PMT, PV, RATE

IRR (internal rate of return)

Syntax:

IRR(Values [, Guess])

Description:

Returns an estimate for the internal rate of return for a series of cash flows.

The calculation is based on the cash flows specified in the **Values** argument. Payments have to be entered as negative values, incomes as positive values. The cash flows do not have to be even but they must occur in regular intervals (e.g., monthly).

Values is a cell range or array containing the cash flows (in their actual order, namely cash flow for the first period, cash flow for the second period, etc.). At least one payment and one income have to be given.

Guess (optional) lets you specify an estimate for the result (see note below).

Note:

The result of this function is calculated using an iterative search technique. If the search does not converge after 20 iterations, a #NUM error value is returned. If this occurs, try altering the **Guess** parameter.

See also:

NPV, MIRR, RATE, XIRR

ISBLANK (is empty?)

Syntax:

ISBLANK(Reference)

Description:

Returns TRUE if the specified cell is empty.

Example:

If A1 contains any kind of value, C7 is empty:

ISBLANK(A1) returns FALSE

ISBLANK(C7) returns TRUE

See also:

ISNA, COUNT, COUNTA

ISERR (is an error value except #N/A?)

Syntax:

ISERR(Reference)

Description:

Returns TRUE if the specified cell contains any kind of error value **except #N/A**.

Example:

ISERR(A1) returns TRUE if A1 contains an error; e.g., a division by zero.

ISERR(A1) returns FALSE if A1 contains the error value #N/A or any kind of value that is not leading to an error value.

See also:

ISERROR, ISNA, ERROR.TYPE, IFERROR, section “Error values” (page 407)

ISERROR (is an error value?)

Syntax:

ISERROR(Reference)

Description:

Returns TRUE if the specified cell contains any kind of error value.

Example:

ISERROR(A1) returns TRUE if A1 contains an error; e.g., a division by zero.

See also:

ISERR, ISNA, ERROR.TYPE, IFERROR, section “Error values” (page 407)

ISEVEN (is an even number?)

Syntax:

ISEVEN(Number)

Description:

Returns TRUE if the specified value is even, FALSE if it is odd.

Number should be an integer; digits right of the decimal point are ignored.

Example:

ISEVEN(2) returns TRUE

ISEVEN(2.75) returns TRUE

ISEVEN(3) returns FALSE

ISEVEN(3.75) returns FALSE

See also:

ISODD

ISFORMULA (is a formula?)

Syntax:

ISFORMULA(Reference)

Description:

Returns TRUE if the specified cell contains a formula.

Compatibility note:

This function is *not* supported by Microsoft Excel. If you save a document in Excel format, all calculations using this function will be replaced by their last result as a *fixed* value.

Example:

If A1 contains a formula, and C7 contains a fixed number or text string, then:

ISFORMULA(A1) returns TRUE

ISFORMULA(C7) returns FALSE

See also:

ISREF

ISLOGICAL (is a logical value?)

Syntax:

ISLOGICAL(Reference)

Description:

Returns TRUE if the specified cell contains a logical value (i.e., TRUE or FALSE).

Example:

If A1 contains TRUE, and C7 contains a text string, then:

ISLOGICAL(A1) returns TRUE

ISLOGICAL(C7) returns FALSE

See also:

ISTEXT, ISNUMBER

ISNA (is not available?)

Syntax:

ISNA(Reference)

Description:

Returns TRUE if the specified cell contains a #N/A error value.

Cells contain a #N/A error value if they contain a) the formula =NA(), or b) a calculation resulting in a #N/A error. More details about the usage of #N/A error values can be found in section “NA (error value #N/A)”, page 581.

Example:

If A1 contains a #N/A error value, then:

ISNA(A1) returns TRUE

See also:

NA(), ERROR.TYPE, IFERROR, ISERR, ISERROR, section “Error values” (page 407)

ISNONTEXT (is no text?)

Syntax:

ISNONTEXT(Value)

Description:

Returns TRUE if the specified value is <u>not</u> text.

Example:

If A1 contains a text string, C7 contains a number, then:

ISNONTEXT(A1) returns FALSE

ISNONTEXT(C7) returns TRUE

See also:

ISTEXT, ISLOGICAL, ISNUMBER

ISNUMBER (is numeric?)

Syntax:

ISNUMBER(Value)

Description:

Returns TRUE if the specified value is a number.

Dates are considered as numbers as well, whereas logical values are *not*.

Example:

If the cells A1 to A4 contain the values:

"Text", 42, 09/25/2012, and TRUE, respectively, then:

ISNUMBER(A1) returns FALSE

ISNUMBER(A2) returns TRUE

ISNUMBER(A3) returns TRUE

ISNUMBER(A4) returns FALSE

See also:

ISNUMBERP, ISLOGICAL, ISTEXT, ISNONTEXT

ISNUMBERP (PlanMaker 97 compatibility function)

Syntax:

ISNUMBERP(Value)

Description:

Returns TRUE if the specified value is a number or a logical value.

Dates are considered as numbers as well.

Note:

This function was retained only for compatibility with PlanMaker 97. Using the Excel-compatible function ISNUMBER is recommended instead.

The difference between these two functions is that ISNUMBER**P** treats logical values as numbers, whereas ISNUMBER does not.

Compatibility note:

This function is *not* supported by Microsoft Excel. If you save a document in Excel format, all calculations using this function will be replaced by their last result as a *fixed* value.

Example:

If the cells A1 to A4 contain the following values:

"Text", 42, 09/25/2012, and TRUE, respectively, then:

ISNUMBERP(A1) returns FALSE

ISNUMBERP(A2) returns TRUE

ISNUMBERP(A3) returns TRUE

ISNUMBERP(A4) returns TRUE (!)

See also:

ISNUMBER

ISODD (is an odd number?)

Syntax:

ISODD(Number)

Description:

Returns TRUE if the specified number is odd, FALSE if it is even.

Number should be an integer; digits right of the decimal point are ignored.

Example:

ISODD(1) returns TRUE

ISODD(1.75) returns TRUE

ISODD(2) returns FALSE

ISODD(2.75) returns FALSE

See also:

ISEVEN

ISOWEEK (number of week, ISO standard)

Syntax:

ISOWEEK(Date [, ReturnYear])

Description:

Returns the week number of a date (following ISO 8601 standard).

Unlike the Excel compatible WEEKNUM function, ISOWEEK follows the rules defined in the ISO 8601 standard, including:

1. Weeks always begin on Monday (not Sunday).

2. The first week of a year is defined as the week that contains January 4th.

Annotation:

This may lead to situations where December 29, 30, and 31 are considered part of the first week of the next year (or where January 1, 2, and 3 are considered part of the last week of the previous year).

For this reason, ISOWEEK can be invoked with an additional parameter called **ReturnYear** which leads to the following results:

If set to 0 or omitted, the function returns the *week number*.

If set to 1, the function returns the *year* to which this week belongs to (according to ISO 8601 standard). See examples below.

Compatibility note:

This function is *not* supported by Microsoft Excel. If you save a document in Excel format, all calculations using this function will be replaced by their last result as a *fixed* value.

Example:

ISOWEEK("01/01/2004") returns 1

ISOWEEK("01/01/2005") returns 53

ISOWEEK("01/01/2005"; 1) returns 2004

See also:

WEEKNUM, YEAR, MONTH, DAY, WEEKDAY

ISPMT (interest payment)

Syntax:

ISPMT(Rate, Per, NPer, CV)

Description:

Returns the interest due in the specified period of an investment.

Rate is the interest rate (per payment period).

Per is the payment period to be evaluated.

NPer is the total number of payment periods.

PV is the present value.

See also:

IPMT, PMT, PPMT

ISREF (is a valid reference?)

Syntax:

ISREF(Reference)

Description:

Returns TRUE if the specified value is a valid reference.

Example:

ISREF(A1) returns TRUE

ISREF($A$1) returns TRUE

ISREF(A1:C7) returns TRUE

ISREF("some text") returns FALSE

ISREF(FirstQuarter) returns FALSE, as long as the name ”FirstQuarter” does not exist. As soon as you assign the name ”FirstQuarter” to a range of cells, the calculation will return TRUE.

See also:

ISFORMULA

ISTEXT (is text?)

Syntax:

ISTEXT(Value)

Description:

Returns TRUE if the specified value is text.

Example:

If A1 contains a text string, and C7 contains a number, then:

ISTEXT(A1) returns TRUE

ISTEXT(C7) returns FALSE

See also:

ISNONTEXT, ISLOGICAL, ISNUMBER

KURT (kurtosis)

Syntax:

KURT(Number1, Number2, Number3, Number4 [, Number5 ...])

or

KURT(Range1, Range2 [, Range3 ...])

Description:

Returns the Kurtosis of a probability distribution.

The Kurtosis is a measure of the “peakedness” of a distribution compared to a normal distribution (see NORMDIST function).

A normal distribution has a kurtosis of zero. A more peaked distribution has a positive kurtosis, a more flat distribution has a negative kurtosis.

Number1, **Number2**, etc., are the values to be evaluated. Empty cells, text strings, and logical values are ignored.

At least four values have to be given; otherwise, the function returns a #DIV/0! error value.

Note:

This function does not accept value pairs (x value and y value) as arguments, but *only* the values of the distribution. If the same values appear multiple times, they must be repeated in the argument list accordingly (see example).

Example:

Measuring the height of several test persons led to the following results: 1 x 1.60m, 2 x 1.65m, 4 x 1.70m, 2 x 1.75m, and 1x1.80m.

To calculate the kurtosis of this distribution, the following formula can be used:

KURT(1.60, 1.65, 1.65, 1.70, 1.70, 1.70, 1.70, 1.75, 1.75, 1.80) returns 0.08036.

See also:

SKEW, NORMDIST

LARGE (k-th largest number)

Syntax:

LARGE(Range, k)

Description:

Returns the **k**-th largest value in a data set.

Range is the cell range or array to be evaluated.

k determines which number to return. If k=1, the largest value will be returned; if k=2, the second largest value will be returned, etc.

k must not be smaller than 1 or greater than the total number of values in **Range**. Otherwise, the function returns a #NUM! error value.

Example:

If the cells A1:A5 are filled with the numbers 4, 2, 6, 5, and 9:

LARGE(A1:A5, 1) returns 9

LARGE(A1:A5, 2) returns 6

LARGE(A1:A5, 3) returns 5

etc.

See also:

SMALL, MAX, PERCENTILE, PERCENTRANK, RANK

LASTPRINTED (date last printed)

Syntax:

LASTPRINTED()

Description:

Returns the date the current document was last printed.

Compatibility note:

This function is *not* supported by Microsoft Excel. If you save a document in Excel format, all calculations using this function will be replaced by their last result as a *fixed* value.

See also:

LASTSAVED

LASTSAVED (date last saved)

Syntax:

LASTSAVED()

Description:

Returns the date the current document was last saved.

Compatibility note:

This function is *not* supported by Microsoft Excel. If you save a document in Excel format, all calculations using this function will be replaced by their last result as a *fixed* value.

See also:

LASTPRINTED

LCM (least common multiple)

Syntax:

LCM(Number1, Number2 [, Number3 ...])

Description:

Returns the LCM (least common multiple) of the specified integers. The LCM is the smallest positive integer that is a multiple of the given integers.

Number1, **Number2**, etc., are the numbers to be evaluated. All of them must be ≥ 1. Additionally, all of them should be integers; digits right of the decimal point are ignored.

Example:

LCM(5, 10, 15) returns 30

If cells A1 to A3 contain the values 4, 8, and 6:

LCM(A1:A3) returns 24

See also:

GCD

LEFT (left part of a text string)

Syntax:

LEFT(Text [, n])

Description:

Returns the first **n** characters of **Text**.

If **n** is omitted, only the first character is returned.

Example:

LEFT("peanut", 3) returns pea

LEFT("peanut") returns p

See also:

RIGHT, MID, REPLACE

LEN (length)

Syntax:

LEN(Value)

Description:

Returns the number of characters in a text string.

Value is the value to be evaluated, usually a text string. If **Value** is a number, a date, or a logical value, it will be converted to a text string automatically.

Example:

LEN("Text") returns 4

LEN(42) returns 2

LEN(-42) returns 3

LEN(42.5) returns 4

LEN(TRUE) returns 4

See also:

LEFT, RIGHT, MID

LINEST (statistics of a linear regression)

Syntax:

LINEST(y_values [, x_values] [, Constant] [, Stats])

Description:

Returns statistics of a linear regression.

Linear regression is a statistical technique that adapts a line (called “trend line” or “best-fit line”) to a set of data points (for example, the results of a series of measurements).

The LINEST function calculates a trend line from the given y values and x values, and then returns an array in the form {m,b}. The coefficient m is the slope of the trend line, the constant b is the y-intercept point (the point where the trend line intersects the y axis).

The equation for trend lines is:

$y = m*x + b$

If more than one range of x-values is given, the equation is:

$y = (m_1*x_1) + (m_2*x_2) + ... + (m_n*x_n) + b$

In this case, LINEST returns an array in the form $\{m_n, m_{n-1}, ..., m_2, m_1, b\}$.

Additionally, if the optional argument **Stats** is used, several statistics of the regression (standard error, coefficient of determination, etc.) are appended to the resulting array.

y_values are the known y values.

x_values (optional) are the known x values. If omitted, the values 1, 2, 3, ... will be used.

Constant (optional) is a logical value that lets you specify if the constant b (the y-intercept point) should be calculated automatically or forced to equal zero:

TRUE or omitted: b will be calculated from the given data.

FALSE: b is forced to equal 0 (zero); the m coefficient(s) are adjusted accordingly.

Stats (optional) is a logical value that lets you specify if additional regression statistics should be returned:

FALSE or omitted: Do not return additional statistics.

TRUE: Return additional regression statistics. In this case, a matrix in the following form will be returned:

{m_n, m_{n-1}, ..., m_2, m_1, b; sm_n, sm_{n-1}, ..., sm_2, sm_1, sb; R^2, sey; F, df; ssreg, ssresid}

A graphical representation of this array would look like this:

m_n	m_{n-1}	...	m_2	m_1	b
sm_n	sm_{n-1}	...	sm_2	sm_1	sb
R^2	sey				
F	df				
ssreg	ssresid				

The abbreviations used in this illustration represent the following values:

Abbreviation	Description
sm_1, sm_2, etc.	Standard error for the coefficients m_1, m_2, etc.
sb	Standard error for constant b
R^2	Square of the Pearson product moment correlation coefficient
sey	Standard error for y
F	F statistic
df	Degrees of freedom
ssreg	Regression sum of squares
ssresid	Residual sum of squares

Note:

Formulas using this function have to be entered as an *array formula* (see section “Working with arrays”, page 408).

Example:

LINEST({4;5;6}) returns the matrix {1,3}, which indicates that the coefficient m equals 1 and the constant b equals 3.

See also:

LOGEST, TREND, GROWTH

LN (natural logarithm)

Syntax:

LN(Number)

Description:

Returns the natural logarithm (base *e*) of **Number**.

Number must be > 0.

Example:

LN(0.7) returns -0.3567

LN(EXP(1.234)) returns 1.234

See also:

LOG, LOG10, EXP

LOG (logarithm)

Syntax:

LOG(Number [, Base])

Description:

Returns the logarithm of **Number** to the specified base.

Number must be > 0.

If **Base** is omitted, base 10 is used.

Example:

LOG(100) equals $\log_{10}(100)$, and returns 2

LOG(10 ^ 0.1234) returns 0.1234

LOG(8, 2) equals $\log_{2}(8)$, and returns 3

See also:

LOG10, LN

LOG10 (base-10 logarithm)

Syntax:

LOG10(Number)

Description:

Returns the base-10 logarithm of **Number**.

Number must be > 0.

Example:

LOG10(100) returns 2

LOG10(10 ^ 0.1234) returns 0.1234

See also:

LOG, LN

LOGEST (statistics of an exponential regression)

Syntax:

LOGEST(y_values [, x_values] [, Constant] [, Stats])

Description:

Returns statistics of an exponential regression.

Exponential regression is a statistical technique that adapts an exponential curve to a set of data points (for example, the results of a series of measurements).

The equation for this exponential curve is:

y = b*m^x

If more than one range of x-values is given, the equation is:

$y = b * (m_1 \hat{} x_1) * (m_2 \hat{} x_2) * ... * (m_n \hat{} x_n)$

The LOGEST function calculates this exponential line from the given y values and x values, and then returns an array in the form $\{m_n, m_{n-1}, ..., m_2, m_1, b\}$.

y_values are the known y values.

x_values (optional) are the known x values. If omitted, the values 1, 2, 3, ... will be used.

Constant (optional) is a logical value that lets you specify if the constant b should be calculated automatically or forced to equal one:

TRUE or omitted: b will be calculated from the given data.

FALSE: b is forced to equal 1 (one); the m values are adjusted accordingly.

Statistics (optional) is a logical value that lets you specify if additional regression statistics should be returned:

FALSE or omitted: Do not return additional statistics.

TRUE: Return additional regression statistics. In this case, a matrix in the following form will be returned:

$\{m_n, m_{n-1}, ..., m_2, m_1, b; sm_n, sm_{n-1}, ..., sm_2, sm_1, sb; R^2, sey; F, df; ssreg, ssresid\}$

A graphical representation of this array would look like this:

m_n	m_{n-1}	...	m_2	m_1	b
sm_n	sm_{n-1}	...	sm_2	sm_1	sb
R^2	sey				
F	df				
ssreg	ssresid				

The abbreviations used in this illustration represent the following values:

Abbreviation	**Description**
sm_1, sm_2, etc.	Standard error for the coefficients m_1, m_2, etc.
sb	Standard error for constant b
R^2	Square of the Pearson product moment correlation coefficient
sey	Standard error for y
F	F statistic
df	Degrees of freedom
ssreg	Regression sum of squares
ssresid	Residual sum of squares

Note:

Formulas using this function have to be entered as an *array formula* (see section “Working with arrays”, page 408).

See also:

LINEST, TREND, GROWTH

LOGINV (percentiles of the gamma distribution)

Syntax:

LOGINV(Probability, Mean, StdDev)

Description:

Returns the inverse of the lognormal cumulative distribution function (i.e., percentiles of this distribution)

Probability is the probability to be evaluated. Must be in the range 0 to 1.

Mean is the mean of LN(x).

StdDev is the standard deviation of LN(x). Must be > 0.

See also:

LN, LOGNORMDIST

LOGNORMDIST (lognormal distribution)

Syntax:

LOGNORMDIST(x, Mean, StdDev)

Description:

Returns the lognormal cumulative distribution.

x is the value to be evaluated. Must be > 0.

Mean is the mean of LN(x).

StdDev is the standard deviation of LN(x). Must be > 0.

See also:

LN, LOGINV, NORMDIST, NORMSDIST

LOOKUP (search cell range)

Annotation:

The LOOKUP function scans a cell range for the specified value and then returns another cell located at a matching position (e.g., in the same row, but a different column). **Important:** The data to be searched in has to be sorted in ascending order.

Hint: There are two alternatives to this function that can also search unsorted data and are more flexible in general: VLOOKUP and HLOOKUP.

The LOOKUP function can be used in two different ways:

Usage with two one-dimensional ranges: Scans a vector (i.e., a one-dimensional cell range) for the specified value and returns the corresponding cell in another vector.

Usage with one two-dimensional range: Scans the first row (or column) of a range for the specified value and returns the corresponding cell in another column (or row, respectively) of the same range.

Usage with two one-dimensional ranges

Syntax:

LOOKUP(Crit, LookupVector, ResultVector)

Description:

This variant of LOOKUP scans **LookupVector** for the specified value. If found, the function returns the content of the cell located in the same row (or column) of the **ResultVector**.

If no exact match is found, the next smallest value will be taken. If no smaller value exists, a #N/A error value is returned.

Crit is the value to search for (case insensitive).

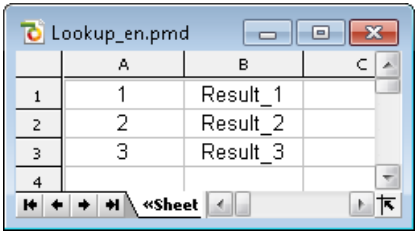
LookupVector is the cell range or array to search in. It must be a vector, which is a range of either just *one* row or *one* column.

Important: The data in **LookupVector** must be sorted in ascending order, otherwise this function might return wrong results. If the values are not sorted, use VLOOKUP or HLOOKUP instead of LOOKUP.

ResultVector is the cell range or array with the values to pick the result from. It also has to be a vector. Additionally, its size and its orientation (horizontal or vertical) must be identical to **LookupVector**.

Example:

In the following table ...



... LOOKUP returns the following results:

LOOKUP(1, A1:A3, B1:B3) returns Result_1

LOOKUP(2, A1:A3, B1:B3) returns Result_2

LOOKUP(3, A1:A3, B1:B3) returns Result_3

LOOKUP(2.5, A1:A3, B1:B3) returns Result_2 (because it is the next smallest value)

LOOKUP(10, A1:A3, B1:B3) returns Result_3 (because it is the next smallest value)

LOOKUP(0, A1:A3, B1:B3) returns #N/A

See also:

VLOOKUP, HLOOKUP, INDEX, MATCH

Usage with one two-dimensional range

Syntax:

LOOKUP(Crit, Range)

Description:

This variant of LOOKUP scans the *first* column (or row) of **Range** for the specified value. If found, the function returns the content of the cell located at the same position in the *last* column (or row, respectively) of **Range**.

If no exact match is found, the next smallest value will be taken. If no smaller value exists, a #N/A error value is returned.

Crit is the value to search for (case insensitive).

Range is the cell range or array to search in.

The dimensions of **Range** determine in which direction it will be scanned:

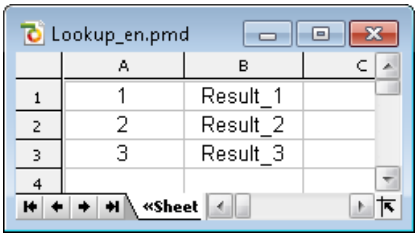
If **Range** has more columns than rows, the first *row* is scanned.

If **Range** has more rows than columns, the first *column* is scanned.

Important: The scanned data in the first row (or column) of **Range** must be sorted in ascending order, otherwise this function might return wrong results. If the values are not sorted, use VLOOKUP or HLOOKUP instead of LOOKUP.

Example:

In the following table ...



... LOOKUP returns the following results:

LOOKUP(1, A1:B3) returns Result_1

LOOKUP(2, A1:B3) returns Result_2

LOOKUP(3, A1:B3) returns Result_3

LOOKUP(2.5, A1:B3) returns Result_2 (because it is the next smallest value)

LOOKUP(10, A1:B3) returns Result_3 (because it is the next smallest value)

LOOKUP(0, A1:B3) returns #N/A

See also:

VLOOKUP, HLOOKUP, INDEX, MATCH

LOWER (convert text to lower case)

Syntax:

LOWER(Text)

Description:

Converts all characters in a text string to lower case letters.

Example:

LOWER("PlanMaker") returns planmaker

See also:

UPPER, PROPER

MATCH (relative position in a range)

Syntax:

MATCH(Crit, Vector [, Mode])

Description:

Returns the relative position of **Crit** in **Vector**. For example, if **Crit** is the third element of **Vector**, the function returns 3.

Crit is the value to be searched for. **Crit** can be any kind of value or a cell reference.

Vector is the cell range or array to be evaluated. **Vector** must be a vector, which is an array or a cell range of either just *one* row or *one* column.

Mode specifies the type of search to be performed:

1 or omitted: Find the largest value that is equal to or *smaller* than **Crit**. ***Important:*** In this mode, the elements in **Vector** have to be sorted in *ascending* order. Otherwise, erroneous results might be returned.

0: Find the first value that is equal to **Crit**. In this mode, the elements in **Vector** do *not* have to be in sorted order.

-1: Find the smallest value that is equal to or *larger* than **Crit**. ***Important:*** In this mode, the elements in **Vector** have to be sorted in *descending* order. Otherwise, erroneous results might be returned.

Annotation: If you use mode 0 and **Crit** is a text string, wildcard characters can be used in **Crit**: A question mark (?) stands for any single character, an asterisk (*) stands for any sequence of characters.

Example:

MATCH("b", {"a";"b";"c";"d"}, 0) returns 2, because "b" is the second element of the given vector.

See also:

INDEX, VLOOKUP, LOOKUP, HLOOKUP

MAX (maximum)

Syntax:

MAX(Number1, Number2 [, Number3 ...])

Description:

Returns the largest value in the given numbers.

Number1, **Number2**, etc., are the numbers to be evaluated. Empty cells, text strings, and logical values are ignored.

Example:

MAX(5, 7, 4, 9) returns 9

If the cells A1:A3 contain -1, -2, and TRUE:

MAX(A1:A3) returns -1 (the logical value TRUE is ignored)

See also:

MAXA, MIN, LARGE

MAXA (maximum)

Syntax:

MAXA(Value1, Value2 [, Value3 ...])

Description:

Returns the largest value in the given values.

Value1, **Value2**, etc., are the values to be evaluated. Empty cells are ignored.

Note:

Unlike MAX, MAX**A** also evaluates logical values and text:

FALSE evaluates as 0.

TRUE evaluates as 1.

Text evaluates as 0.

Example:

MAXA(5, 7, 4, 9) returns 9

If the cells A1:A3 contain -1, -2, and TRUE:

MAXA(A1:A3) returns 1 (since TRUE evaluates as 1)

See also:

MAX

MDETERM (matrix determinant)

Syntax:

MDETERM(Array)

Description:

Returns the determinant of a matrix.

Array is a cell range or array containing the matrix to be evaluated. It must contain numeric values only. Its number of rows has to equal its number of columns.

Example:

MDETERM({9,8,8; 2,4,6; 1,2,1}) returns -40

See also:

Section “Working with arrays” (page 408), MINVERSE, MMULT, MSOLVE, TRANSPOSE

MEDIAN

Syntax:

MEDIAN(Number1, Number2 [, Number3 ...])

Description:

Returns the median of the given set of numbers.

The *median* is the number in the middle of a set of numbers – half of the numbers are smaller than the median, half of them are greater.

Number1, **Number2**, etc., are the numbers to be evaluated. Empty cells, text strings, and logical values are ignored.

Note:

If the total number of values is *odd*, MEDIAN returns the number in the middle of the set of numbers.

If the total number of values is *even*, MEDIAN returns the average of the two numbers in the middle (see second example).

Example:

MEDIAN(1, 2, 3, 4, 5) returns 3

MEDIAN(1, 2, 3, 4, 5, 1000) returns 3.5

See also:

AVERAGE, MODE, PERCENTILE

MID (part of a text string)

Syntax:

MID(Text, Start, Count)

Description:

Returns the section of a text string that starts at character **Start** and is **Count** characters long.

Example:

MID("peanut", 2, 3) returns ean

MID("peanut", 2, 5) returns eanut

MID("peanut", 2, 100) returns eanut as well

MID("peanut", 100, 100) returns an empty text string

See also:

LEFT, RIGHT, REPLACE, FIND, SEARCH

MILLISECONDS (milliseconds)

Syntax:

MILLISECONDS(Time)

Description:

Returns the milliseconds of a time value.

Compatibility note:

This function is *not* supported by Microsoft Excel. If you save a document in Excel format, all calculations using this function will be replaced by their last result as a *fixed* value.

Example:

MILLISECONDS("12:34:56.555") returns 555

See also:

HOUR, MINUTE, SECOND

MIN (minimum)

Syntax:

MIN(Number1, Number2 [, Number3 ...])

Description:

Returns the smallest value in the given numbers.

Number1, **Number2**, etc., are the numbers to be evaluated. Empty cells, text strings, and logical values are ignored.

Example:

MIN(5, 7, 4, 9) returns 4

If the cells A1:A3 contain 5, 2, and TRUE:

MIN(A1:A3) returns 2 (the logical value TRUE is ignored)

See also:

MINA, MAX, SMALL

MINA (minimum)

Syntax:

MINA(Value1, Value2 [, Value3 ...])

Description:

Returns the smallest value in the given values.

Value1, **Value2**, etc., are the values to be evaluated. Empty cells are ignored.

Note:

Unlike MIN, MIN**A** also evaluates logical values and text:

FALSE evaluates as 0.

TRUE evaluates as 1.

Text evaluates as 0.

Example:

MINA(5, 7, 4, 9) returns 4

If the cells A1:A3 contain 5, 2, and TRUE:

MINA(A1:A3) returns 1 (since TRUE evaluates as 1)

See also:

MIN

MINUTE (minute)

Syntax:

MINUTE(Time)

Description:

Returns the minutes of a time value.

Example:

MINUTE("12:34:56 AM") returns 34

MINUTE("09/25/2012 10:30:56 AM") returns 30

See also:

HOUR, SECOND, MILLISECONDS

MINVERSE (inverse matrix)

Syntax:

MINVERSE(Array)

Description:

Return the inverse of a matrix.

The inverse A^{-1} of a matrix A is the matrix that A has to be multiplied by to receive the identity matrix 1.

Array is a cell range or array containing the matrix to be evaluated. It must contain numeric values only. Its number of rows has to equal its number of columns.

Matrices whose determinant is zero cannot be inverted. In this case, the function returns a #NUM! error value.

Note:

Formulas using this function have to be entered as an *array formula* (see section "Working with arrays", page 408).

Example:

MINVERSE({9,8,8;2,4,6;1,2,1}) returns:

{0.2,-0.2,-0.4;-0.1,-0.025,0.95;0,0.25,-0.5}

See also:

Section "Working with arrays" (page 408), MDETERM, MMULT, MSOLVE, TRANSPOSE

MIRR (modified internal rate of return)

Syntax:

MIRR(Values, FinanceRate, ReinvestRate)

Description:

Returns the modified internal rate of return for a series of cash flows. Unlike the IRR function, MIRR considers the finance rate (for investments) and the reinvest rate (for reinvestments).

The calculation is based on the cash flows specified in the **Values** argument. Payments have to be entered as negative values, incomes as positive values. The cash flows do not have to be even but they must occur in regular intervals (e.g., monthly).

Values is a cell range or an array containing the cash flows (in their actual order, namely, cash flow for the first period, cash flow for the second period, etc.). At least one payment and one income have to be given.

FinanceRate is the interest rate paid for investments.

ReinvestRate is the interest rate received for reinvestments.

See also:

IRR, NPV, RATE, XIRR

MMULT (product of matrices)

Syntax:

MMULT(Array1, Array2)

Description:

Returns the product of two matrices.

Array1 and **Array2** are cell ranges or arrays containing the matrices to be evaluated. They must contain numeric values only.

Please note: The number of *columns* in **Array1** must equal the number of *rows* in **Array2**; otherwise, multiplication is not possible.

Note:

Formulas using this function have to be entered as an *array formula* (see section "Working with arrays", page 408).

Example:

MMULT({1,2;3,4}, {5,6;7,8}) returns {19,22;43,50}

See also:

Section "Working with arrays" (page 408), MDETERM, MINVERSE, MSOLVE, TRANSPOSE

MOD (remainder of a division, Excel method)

Syntax:

MOD(x, y)

Description:

Returns the remainder of the division of **x** by **y**, using the erroneous "Excel method".

Important: This function returns wrong results in some cases (see annotation below)!

Example:

MOD(5, 3) returns 2

MOD(5, 0) returns a #DIV/0! error value

MOD(5, -3) returns -1 (which is wrong – see below!)

See also:

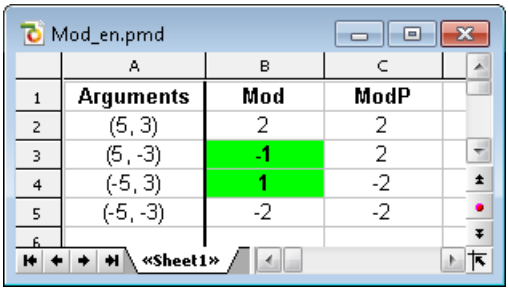
MODP, QUOTIENT

Annotation:

Microsoft Excel returns **wrong results** when you use the MOD function with a negative numerator or denominator.

PlanMaker also returns wrong results in this case (for compatibility reasons), but additionally offers a function named MODP that returns correct results.

The following table shows the differences between MOD and MODP (the highlighted results are wrong):



	A	B	C
1	Arguments	Mod	ModP
2	(5, 3)	2	2
3	(5, -3)	-1	2
4	(-5, 3)	1	-2
5	(-5, -3)	-2	-2
6			

Note: The MODP function is *not* supported by Microsoft Excel. If you save a document in Excel format, all calculations using this function will be replaced by their last result as a *fixed* value.

MODE (most frequently occurring value)

Syntax:

MODE(Number1, Number2 [, Number3 ...])

Description:

Returns the mode of a data set.

The *mode* is the value occurring most frequently in a set of numbers.

Number1, **Number2**, etc., are the numbers to be evaluated.

If the given numbers contain more than one mode, their smallest mode will be returned.

If the given numbers do not contain any value occurring more than once, a #N/A error value will be returned.

Example:

MODE(1, 2, 4, 4, 4, 2, 1) returns 4

MODE(1, 2, 4, 4, 2, 1) returns 1 (if there are multiple modes, the smallest one is returned)

MODE(1, 4, 2) returns #N/A because no value occurs more than once.

See also:

MEDIAN, NORMDIST

MODP (remainder of a division, PlanMaker method)

Syntax:

MODP(x, y)

Description:

Returns the remainder of the division of **x** by **y**, using the "PlanMaker method" (see annotation below).

Example:

MODP(5, 3) returns 2

MODP(5, 0) returns a #DIV/0! error value

MODP(5, -3) returns 2 (see below)

See also:

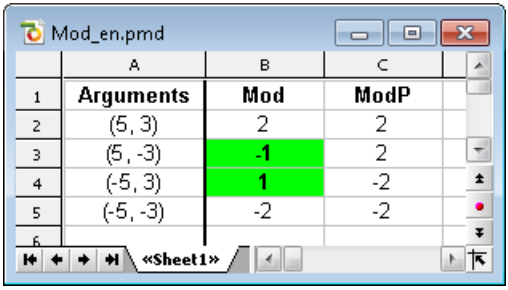
MOD, QUOTIENT

Annotation:

Microsoft Excel returns **wrong results** when you use the MOD function with a negative numerator or denominator.

PlanMaker also returns wrong results in this case (for compatibility reasons), but additionally offers the MODP function described here that returns correct results.

The following table shows the differences between MOD and MODP (the highlighted results are wrong):



	A	B	C
1	Arguments	Mod	ModP
2	(5, 3)	2	2
3	(5, -3)	-1	2
4	(-5, 3)	1	-2
5	(-5, -3)	-2	-2

Note: The MODP function is *not* supported by Microsoft Excel. If you save a document in Excel format, all calculations using this function will be replaced by their last result as a *fixed* value.

MONTH (month of a date)

Syntax:

MONTH(Date)

Description:

Returns the month of a date.

Example:

MONTH("09/25/2012") returns 9

See also:

YEAR, ISOWEEK, WEEKNUM, DAY, WEEKDAY

MROUND (round to a multiple of base)

Syntax:

MROUND(Number, Base)

Description:

Rounds **Number** to the nearest multiple of **Base**.

Base must be > 0.

If the remainder of the division of **Number** by **Base** is smaller than half the value of **Base**, MROUND rounds *down*. If it is greater than or equal to half the value of **Base**, MROUND rounds *up* (see examples below).

Example:

MROUND(1234.5678, 1) returns 1235

MROUND(1234.5678, 0.01) returns 1234.57

MROUND(22, 5) returns 20

MROUND(23, 5) returns 25

MROUND(22.5, 5) returns 25

See also:

FLOOR, CEILING, ROUNDDOWN, ROUNDUP, ROUND, TRUNC

MSOLVE (solution of matrix equation Ax=B)

Syntax:

MSOLVE(ArrayA, VectorB)

Description:

Returns the solution to a linear system of equations by solving the matrix equation Ax=B.

ArrayA is the cell range or array containing matrix **A**. It must contain numeric values only. Its number of rows has to equal its number of columns.

The determinant of this matrix must not be zero; otherwise, the equation cannot be solved.

VectorB is the cell range or array containing vector **B**. **VectorB** must be a vector, which is an array or a cell range of either just *one* row or *one* column.

The result of this function is a vector with the solutions.

Compatibility note:

This function is *not* supported by Microsoft Excel. If you save a document in Excel format, all calculations using this function will be replaced by their last result as a *fixed* value.

Annotation:

The result of this function is calculated using singular value decomposition. When applied to large matrices (more than 10, 20 rows), significant rounding errors can occur.

Note:

Formulas using this function have to be entered as an *array formula* (see section “Working with arrays”, page 408).

Example:

To solve the following linear system of equations...

2x + 3y = 4
2x + 2y = 8

...use the following formula:

MSOLVE({2,3;2,2}, {4,8})

The result is the vector {8;-4}, which means that x=8 and y=-4.

See also:

Section “Working with arrays” (page 408), MDETERM, MINVERSE, MMULT, TRANSPOSE

MULTINOMIAL (multinomial coefficient)

Syntax:

MULTINOMIAL(Number1, Number2 [, Number3 ...])

Description:

Returns the multinomial coefficient of a set of numbers.

Number1, **Number2**, etc., are the numbers to be evaluated. All of them have to be ≥ 1.

Example:

MULTINOMIAL(1, 2, 3, 4, 5) returns 37837800

See also:

FACT

N (convert value into number)

Syntax:

N(Value)

Description:

Converts a value to a number.

Note:

This function was retained only for compatibility with older spreadsheet applications. It is no longer commonly used, as current spreadsheet applications (including PlanMaker) automatically convert values into numbers, where necessary.

Example:

N("Text") returns 0

N("42") returns 0

N(42) returns 42

N(TRUE) returns 1

If A1 contains the date 09/25/2008:

N(A1) returns 39716 (the serial number of that date)

See also:

T, VALUE, TEXT

NA (error value #N/A)

Syntax:

NA()

Description:

Returns the error value #N/A ("not available"). Entering =NA() in a cell indicates that the value in this cell is currently not available.

Use this function in a cell that is empty, but definitely *has* to be filled out later in order to receive correct results in calculations made with this cell. As a result, all calculations referring to this cell will *also* return a #N/A error value (instead of an incorrect result).

If, for example, you calculate the sum of your assets in a balance sheet, but some of the required values are still missing, enter =NA() in these empty cells. As a result, the sum will be a #N/A error value instead of an incomplete value.

Annotation:

Instead of entering =NA() into a cell you can also type #N/A, which will lead to the same result.

See also:

ISNA, ISERR, ISERROR, ERROR.TYPE, section "Error values" (page 407)

NEG (negative value)

Syntax:

NEG(Number)

Description:

Return the negative value of **Number**.

Compatibility note:

This function is *not* supported by Microsoft Excel. If you save a document in Excel format, all calculations using this function will be replaced by their last result as a *fixed* value.

Instead of using NEG, you can simply multiply the value by -1: NEG(*x*) equals (-1) * *x*.

Example:

NEG(42) returns -42

NEG(-42) returns 42

NEG(0) returns 0

See also:

ABS, SIGN

NEGBINOMDIST (negative binomial distribution)

Syntax:

NEGBINOMDIST(k, r, p)

Description:

Returns the negative binomial distribution (also known as Pascal distribution).

The negative binomial distribution can be used to calculate the probability to receive **k** failures before the **r**-th success in an experiment with independent trials and only two possible outcomes (success or failure) with a fixed probability of **p** for each trial.

k is the number of failures. Must be ≥ 0.

r is the number of successes. Must be ≥ 0.

p is the probability of a success for each trial run. Must be in the range 0 to 1.

Example:

NEGBINOMDIST(10, 2, 1/6) returns 0.04935.

See also:

BINOMDIST

NETWORKDAYS (number of workdays)

Syntax:

NETWORKDAYS(StartDate, EndDate [, Holidays])

Description:

Returns the number of workdays between **StartDate** and **EndDate**.

The function counts workdays only, Saturdays and Sundays are skipped. Optionally, you can specify a list of holidays to be skipped as well (see **Holidays** parameter).

StartDate and **EndDate** are the first and the last day of the time interval to be evaluated.

Holidays (optional) is a cell range or an array containing a list of dates to be skipped (e.g., holidays).

Example:

NETWORKDAYS("01/01/2004", "01/31/2004") returns 22.

See also:

WORKDAY, DAYS

NOMINAL (nominal interest rate)

Syntax:

NOMINAL(EffRate, NPerYear)

Description:

Returns the nominal annual interest rate, given the effective annual interest rate and the number of compounding periods per year.

EffRate is the effective annual interest rate.

NPerYear is the number of compounding periods per year.

Example:

To calculate the nominal annual interest rate of an investment with an effective annual interest rate of 5%, compounded quarterly:

NOMINAL(5%, 4) returns approx. 4.91%

See also:

EFFECT

NORMDIST (normal distribution)

Syntax:

NORMDIST(x, Mean, StdDev, Cumulative)

Description:

Returns the normal distribution (also known as Gaussian distribution).

The normal distribution is one of the most important distributions in statistics, since many distributions follow it.

X is the value to be evaluated.

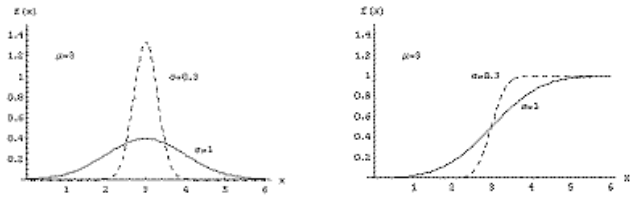
Mean is the arithmetic mean of the distribution.

StdDev is the standard deviation of the distribution. Must be > 0.

The logical value **Cumulative** lets you specify which type of function will be returned:

FALSE: The probability density function is returned.

TRUE: The cumulative distribution function is returned.



Density function ("bell curve") and distribution function

See also:

NORMINV, NORMSDIST

NORMINV (percentiles of the normal distribution)

Syntax:

NORMINV(Probability, Mean, StdDev)

Description:

Returns the inverse of the normal cumulative distribution function (i.e., percentiles of this distribution).

Probability is the probability to be evaluated. Must be in the range 0 to 1.

Mean is the arithmetic mean of the distribution.

StdDev is the standard deviation of the distribution. Must be > 0.

Note:

The result of this function is calculated using an iterative search technique. If the search does not converge after 100 iterations, a #N/A error value is returned.

See also:

NORMDIST

NORMSDIST (standard normal distribution)

Syntax:

NORMSDIST(x)

Description:

Returns the standard normal cumulative distribution function.

The standard normal distribution is a normal distribution (see NORMDIST function) with a mean of zero and a standard deviation of one.

x is the value to be evaluated.

See also:

NORMDIST

NORMSINV (percentiles of the standard distribution)

Syntax:

NORMSINV(Probability)

Description:

Returns the inverse of the standard normal cumulative distribution function (i.e., percentiles of this distribution).

Probability is the probability to be evaluated. Must be in the range 0 to 1.

Note:

The result of this function is calculated using an iterative search technique. If the search does not converge after 100 iterations, a #N/A error value is returned.

See also:

NORMINV, NORMSDIST

NOT (logical NOT function)

Syntax:

NOT(Value)

Description:

Performs a logical negation.

Value must be a logical value or a calculation returning a logical value.

Example:

NOT(TRUE) returns FALSE

NOT(FALSE) returns TRUE

NOT(A1=0) returns TRUE, if A1 contains a value different from zero.

See also:

OR, AND, XOR

NOW (current date and time)

Syntax:

NOW()

Description:

Returns the current date and time.

Note:

The result is a serial date number. PlanMaker automatically formats it in time format so that it will be displayed as a *time*. To select a different date/time format (e.g., to have date *and* time displayed), use the **Format > Cell** command.

See also:

TODAY

NPER (number of periods)

Syntax:

NPER(Rate, Pmt, PV [, FV] [, Type])

Description:

Returns the number of payment periods of an investment based on periodic constant payments, and a constant interest rate.

Rate is the interest rate (per payment period).

Pmt is the payment made for each period.

PV is the present value.

FV (optional) is the future value. If omitted, it will be set to zero.

Type (optional) is the timing of the payments:

0 or omitted: Payment at the end of each period.

1: Payment at the beginning of each period.

See also:

FV, IPMT, PMT, PV, RATE

NPV (net present value)

Syntax:

NPV(Rate, Value1, Value2 [, Value3 ...])

Description:

Returns the net present value of an investment based on regular cash flows and a fixed discount rate.

Rate is the discount rate (per payment period).

Value1, Value2 are the cash flows. You can specify either single values or a cell range. ***Important:*** All cash flows have to occur at the *end* of each period.

Payments have to be entered as negative values, incomes as positive values. The cash flows do not have to be even but they must occur in regular intervals (at the *end* of each period) and be entered in their actual order, namely, cash flow for the first period, cash flow for the second period, etc.

A zero has to be entered for periods where no cash flow occurred.

Differences to the PV function:

1. Cash flows do not have to be even.

2. Cash flows must occur at the end of each period.

Example:

NPV(6.5%, 4000, 5000) returns 8164.16

See also:

PV, XNPV

OCT2BIN (octal number to binary number)

Syntax:

OCT2BIN(Number [, Digits])

Description:

Converts the given octal number (base 8) to a binary number (base 2).

Number is the number to be converted. It must be in the range 20000000000 to 17777777777. Negative numbers have to be transformed to two's complement notation (see last example).

The optional argument **Digits** lets you specify the number of places to be displayed. If omitted, PlanMaker determines the number of required places automatically.

Digits has to be greater than zero. If **Digits** is smaller than the minimum number of places required to display the number, the function returns a #NUM error value.

Digits will be ignored if **Number** is negative.

Example:

OCT2BIN("52") returns 101010

OCT2BIN("52", 8) returns 00101010

OCT2BIN("52", 2) returns the error value #NUM!, because this number cannot be represented with fewer than 6 binary digits

OCT2BIN("37777777726") returns 11111111111111111111111111010110 (negative value)

See also:

BIN2OCT, OCT2DEC, OCT2HEX

OCT2DEC (octal number to decimal number)

Syntax:

OCT2DEC(Number)

Description:

Converts the given octal number (base 8) to a decimal number (base 10).

Number is the number to be converted. It must be in the range 20000000000 to 17777777777. Negative numbers have to be transformed to two's complement notation (see last example).

Example:

OCT2DEC("52") returns 42

OCT2DEC("0052") returns 42 as well

OCT2DEC("37777777726") returns -42

See also:

DEC2OCT, OCT2BIN, OCT2HEX

OCT2HEX (octal number to hexadecimal number)

Syntax:

OCT2HEX(Number [, Digits])

Description:

Converts the given octal number (base 8) to a hexadecimal number (base 16).

Number is the number to be converted. It must be in the range 20000000000 to 17777777777. Negative numbers have to be transformed to two's complement notation (see last example).

The optional argument **Digits** lets you specify the number of places to be displayed. If omitted, PlanMaker determines the number of required places automatically.

Digits has to be greater than zero. If **Digits** is smaller than the minimum number of places required to display the number, the function returns a #NUM error value.

Digits will be ignored if **Number** is negative.

Example:

OCT2HEX("52") returns 2A

OCT2HEX("0052") returns 2A as well

OCT2HEX("52", 1) returns the error value #NUM!, because this number cannot be represented with fewer than 2 hexadecimal digits

OCT2HEX("37777777726") returns FFFFFFD6 (negative value)

See also:

HEX2OCT, OCT2BIN, OCT2DEC

ODD (round up to next odd number)

Syntax:

ODD(Number)

Description:

Rounds **Number** up (away from zero) to the nearest odd integer.

Example:

ODD(41) returns 41

ODD(42) returns 43

ODD(-42) returns -43

See also:

EVEN, MROUND, ROUND, ISODD

OFFSET (shifted reference)

Syntax:

OFFSET(Reference, Rows, Columns [, Height] [, Width])

Description:

Returns a cell reference shifted by the specified number of rows and columns. Additionally, the size of the reference can be modified.

Reference is the cell reference to be evaluated.

Rows is the number of rows **Reference** will be shifted. Positive values shift downwards; negative values shift upwards.

Columns is the number of columns **Reference** will be shifted. Positive values shift to the right; negative values shift to the left.

Height (optional) changes the height of **Reference** to the specified number of rows. **Height** must be a positive value.

Width (optional) changes the width of **Reference** to the specified number of columns. **Width** must be a positive value.

Example:

OFFSET(A1, 2, 0) returns a reference to A3

OFFSET(A1:C3, 1, 1) returns a reference to B2:D4

OFFSET(A1:C3, 1, 1, 5, 3) returns a reference to B2:D6

SUM(OFFSET(A1:C3, 1, 1, 5, 3)) returns the sum of the values in B2:D6

See also:

ADDRESS, INDIRECT, COLUMN, ROW

OR (logical OR function)

Syntax:

OR(Value1, Value2 [, Value3 ...])

Description:

OR returns the logical value TRUE if at least one of the given arguments is TRUE, otherwise it returns FALSE.

You can use this function to verify that *at least one* of multiple conditions is fulfilled.

Example:

OR(TRUE, TRUE) returns TRUE

OR(TRUE, FALSE) returns TRUE

OR(FALSE, FALSE) returns FALSE

OR(A1=0, A1>10) returns TRUE, if A1 is either zero *or* greater than ten.

See also:

XOR, AND, NOT

PCF (interest for fixed-interest investments)

Syntax:

PCF(Per, CV, FV)

Description:

Returns the interest rate required to obtain a specific future value after a specific period. This function is applicable to investments with just one payment (made at the beginning) and a fixed interest rate.

Per is the number of periods.

PV is the present value.

FV is the future value.

Compatibility note:

This function is *not* supported by Microsoft Excel. If you save a document in Excel format, all calculations using this function will be replaced by their last result as a *fixed* value.

Example:

To obtain $5000 with a fixed-interest investment of $3000 after 10 years, the yearly interest rate has to be:

PCF(10, 3000, 5000) returns 0.05241 (i.e., about 5.24%)

See also:

PERIOD, RATE

PEARSON (Pearson correlation coefficient)

Syntax:

PEARSON(Range1, Range2)

Description:

Returns the Pearson product-moment correlation coefficient *r*.

This coefficient is a measure of the strength of the linear relationship between two data sets.

The result of the PEARSON function is in the range -1 to 1:

1 indicates a perfect linear relationship.

-1 indicates a perfect inverse linear relationship (the values in **Range2** decrease as the values in **Range1** increase).

0 indicates that there is no linear relationship at all.

Range1 is the cell range or array containing the independent values. Empty cells, text and logical values are ignored.

Range2 is the cell range or array containing the dependent values. Empty cells, text and logical values are ignored.

Range1 and **Range2** must have the same number of values, otherwise the function returns a #N/A error value.

Example:

If A1:A3 contains the values 1, 2, 3 and B1:B3 contains 2, 3, 4:

PEARSON(A1:A3, B1:B3) returns 1

If A1:A3 contains the values 1, 2, 3 and B1:B3 contains 4, 3, 2:

PEARSON(A1:A3, B1:B3) returns -1

See also:

RSQ, SLOPE, INTERCEPT

PERCENTILE (percentiles of a data set)

Syntax:

PERCENTILE(Range, k)

Description:

Returns the **k**-th percentile of a data set.

For example, if **k** is 0.5, the 0.5 percentile (i.e., the median) will be returned.

Range is the cell range containing the values to be evaluated.

k is the percentile to be returned. Must be in the range 0 to 1.

Example:

If A1:A9 contain the values 1, 2, 3, 4, 5, 6, 7, 8, 9:

PERCENTILE(A1:A9, 0.75) returns 7

See also:

QUARTILE, PERCENTRANK, MEDIAN, MODE

PERCENTRANK (percent rank in a data set)

Syntax:

PERCENTRANK(Range, Number [, Digits])

Description:

Returns the percentile rank of a value in a data set.

Range is a cell range containing the values to be evaluated.

Number is the value whose rank you want to determine. If **Number** is not included in the given values, interpolation will be used.

Digits (optional) is the number of significant digits for the returned value. Must be ≥ 1. If omitted, 3 digits will be used.

Example:

If A1:A9 contain the values 1, 2, 3, 4, 5, 6, 7, 8, 9:

PERCENTRANK(A1:A9, 5) returns 0.5 (indicating that 5 is the median of the given values)

See also:

PERCENTILE, QUARTILE

PERIOD (duration of fixed-interest investments)

Syntax:

PERIOD(Rate, CV, FV)

Description:

Returns the duration (i.e., the number of periods) required to obtain a specific future value in a fixed-interest investment. This function is applicable to investments with just one payment (made at the beginning) and a fixed interest rate.

Rate is the interest rate (per period).

PV is the present value.

FV is the future value.

Compatibility note:

This function is *not* supported by Microsoft Excel. If you save a document in Excel format, all calculations using this function will be replaced by their last result as a *fixed* value.

Example:

To obtain $5000 with a fixed-interest investment of $3000 and a yearly interest rate of 6%:

PERIOD(6%, 3000, 5000) returns 8.76669 periods (i.e., years)

See also:

PCF

PERMUT (permutations)

Syntax:

PERMUT(n, k)

Description:

Returns the number of permutations of size **k** in a population of size **n**.

Use this function to find out in how many ways **n** distinct objects can be arranged in groups of **k** elements, without repetition, and with the order being important.

Permutations are similar to combinations (see COMBIN function), except that the *order* of the objects is important.

n is the total number of items. Must be > **k**.

k is the number of items in each permutation. Must be > 0 and < **n**.

n and **k** should be integers; digits right of the decimal point are ignored.

Example:

To calculate how many different three-letter words can be built out of an alphabet with 26 letters:

PERMUT(26, 3) returns 15600

See also:

COMBIN

PHI (PlanMaker 97 compatibility function)

Syntax:

PHI(x)

Description:

Returns the standard normal cumulative distribution function.

Note:

This function was retained only for compatibility with PlanMaker 97. Use of the following Excel-compatible function is recommended instead:

PHI(x) equals NORMDIST(x, 0, 1, FALSE)

See also:

NORMDIST, GAUSS

PI (pi)

Syntax:

PI()

Description:

Returns the mathematical constant π (pi), which expresses the ratio of a circle's circumference (2rπ) to its diameter (2r).

Example:

PI() returns 3.14159265...

PMT (payment)

Syntax:

PMT(Rate, NPer, PV [, FV] [, Type])

Description:

Returns the payment (principal plus interest) in the given period. This function is applicable to loans with periodic constant payments, and a constant interest rate.

Rate is the interest rate (per payment period).

NPer is the total number of payment periods.

PV is the present value.

FV (optional) is the future value. If omitted, it will be set to zero.

Type (optional) is the timing of the payments:

0 or omitted: Payment at the end of each period.

1: Payment at the beginning of each period.

Example:

PMT(6.5%, 10, 1000) returns -139.10

See also:

FV, IPMT, ISPMT, NPER, PV, RATE

POISSON (Poisson distribution)

Syntax:

POISSON(x, Lambda, Cumulative)

Description:

Returns the Poisson distribution.

The Poisson distribution describes the occurrence of *rare* events in a *large* number of independent trials. It can simulate the binomial distribution for small values of *p* (probability) and large values of *n* (number of trials).

X is the value to be evaluated. Must be ≥ 0.

Lambda is the expected (average) value. Must be ≥ 0.

Example:

In a multi-story building, an average of 4 light bulbs become defective per week.

To determine the probability that just 3 light bulbs become defective in one week:

POISSON(3, 4, FALSE) returns 0.195366815 (i.e., about 19.5%)

To determine the probability that *at most* 3 light bulbs become defective in one week:

POISSON(3, 4, TRUE) returns 0.43347 (i.e., about 43.3%)

See also:

BINOMDIST

POWER (power)

Syntax:

POWER(x, y)

Description:

Returns **x** raised to the **y**-th power.

x is the base.

y is the exponent.

Annotation:

The ^ operator does exactly the same: POWER(x, y) is equivalent to x^y.

Example:

POWER(2, 4) equals 2^4, which equals 16

See also:

LOG, ROOTN, section “Arithmetic operators in formulas” (page 398)

PPMT (payment on the principal)

Syntax:

PPMT(Rate, Per, NPer, CV [, FV] [, Type])

Description:

Returns the principal due in the given period of an investment based on periodic constant payments, and a constant interest rate.

Rate is the interest rate (per payment period).

Per is the payment period to be evaluated.

NPer is the total number of payment periods.

PV is the present value.

FV (optional) is the future value. If omitted, it will be set to zero.

Type (optional) is the timing of the payments:

0 or omitted: Payment at the end of each period.

1: Payment at the beginning of each period.

Example:

Loan terms: $100,000 at 10% per year, to be repaid over 72 months with monthly payments at the end of each month.

How much is the principal in the 32nd period (i.e., the 32nd month)?

PPMT(10%/12, 32, 72, 100000) returns -1.318.

Note that all values have to use the same time unit, *months* in this case, since the payments are made *monthly*. Therefore, in the above formula, the yearly interest rate had to be divided by 12 to get the *monthly* interest rate.

See also:

IPMT, ISPMT, CUMPRINC, CUMIPMT, PMT

PROB (probability)

Syntax:

PROB(Values, Probabilities, k1 [, k2])

Description:

Returns the probability that a value is inside the specified interval of values, when the individual probabilities for each value are given.

Values are the given values.

Probabilities are the probabilities associated with these values. All of them have to be in the range 0 to 1. Their sum has to be 1.

Values and **Probabilities** must have the same number of values, otherwise the function returns a #N/A error value.

k1 and **k2** are the bounds of the interval whose cumulated probabilities you want to calculate. If **k2** is omitted, just the probability of **k1** will be returned.

Example:

Cells A1:A3 contain the values 1, 2, 3. Cells B1:B3 contain the probabilities associated with these values: 17%, 33%, 50%.

To calculate the probability that a value is between 2 and 3:

PROB(A1:A3, B1:B3, 2, 3) returns 33% + 50%, which equals 83%

PRODUCT (product)

Syntax:

PRODUCT(Number1, Number2 [, Number3 ...])

Description:

Returns the product of the given numbers.

Number1, **Number2**, etc., are the numbers to be multiplied.

Annotation:

When you use this function with cell references or arrays, text strings and logical values are ignored.

But when you use this function with *fixed* values, both text strings that represent a number and logical values (TRUE=1, FALSE=0) are counted.

Example:

PRODUCT(2, 3, 4) equals 2*3*4, which equals 24

See also:

SUM

PROPER (convert text to upper/lower case)

Syntax:

PROPER(Text)

Description:

Converts all characters in a text string as follows: The first letter of each word is converted to an uppercase letter, all other letters are converted to lowercase letters.

Example:

PROPER("good morning") returns Good Morning

PROPER("Good Morning") returns Good Morning

PROPER("GoOd MoRnInG") returns Good Morning

See also:

UPPER, LOWER

PV (present value)

Syntax:

PV(Rate, NPer, Pmt [, FV] [, Type])

Description:

Returns the present value of an investment based on periodic constant payments, and a constant interest rate.

Rate is the interest rate (per payment period).

NPer is the total number of payment periods.

Pmt is the payment made for each period.

FV (optional) is the future value.

Type (optional) is the timing of the payments:

0 or omitted: Payment at the end of each period.

1: Payment at the beginning of each period.

See also:

FV, IPMT, NPER, NPV, PMT, RATE

QUARTILE (quartiles of a data set)

Syntax:

QUARTILE(Range, n)

Description:

Returns one of the quartiles of a data set.

Range is the cell range or array to be evaluated.

n determines which quartile to return:

0: The minimum

1: The 1st quartile (25th percentile)

2: The 2nd quartile (50th percentile or median)

3: The 3rd quartile (75th percentile)

4: The maximum

If n is < 0 or > 4, a #NUM! error value will be returned.

Example:

If cells A1:A9 contain the values 1, 2, 3, 4, 5, 6, 7, 8, 9:

QUARTILE(A1:A9, 3) is equivalent to PERCENTILE(A1:A9, 0.75), which returns 7

See also:

PERCENTILE, PERCENTRANK, MEDIAN, MODE

QUOTIENT (quotient of a division)

Syntax:

QUOTIENT(x, y)

Description:

Returns the integer part of the division of **x** by **y**.

Example:

QUOTIENT(6, 4) returns 1

See also:

MOD, MODP

RADIANS (convert degrees to radians)

Syntax:

RADIANS(Number)

Description:

Converts degrees to radians.

Example:

RADIANS(180) returns 3.14159...

See also:

DEGREES

RAND (random value)

Syntax:

RAND()

Description:

Returns a random number ≥ 0 and < 1.

A new random number will be generated every time the document is recalculated.

Hint: To manually recalculate a document, use the **Tools** > **Recalculate** command (keyboard shortcut: F9).

Example:

RAND() returns a random number.

See also:

RANDBETWEEN

RANDBETWEEN (random value)

Syntax:

RANDBETWEEN(LowerLimit, UpperLimit)

Description:

Returns an integer random number ≥ **LowerLimit** and ≤ **UpperLimit**.

A new random number will be generated every time the document is recalculated.

Hint: To manually recalculate a document, use the **Tools** > **Recalculate** command (keyboard shortcut: F9).

Example:

RANDBETWEEN(1, 6) returns a random integer number in the range of 1 through 6, thereby simulating a dice roll.

See also:

RAND

RANK (rank in a data set)

Syntax:

RANK(Number, Range [, Ascending])

Description:

Returns the rank of a number in a data set. The largest number's rank is 1, the 2nd largest number's rank is 2, etc.

Number is the number whose rank you want to determine. If number does not occur in **Range**, a #N/A error value is returned.

Range is a cell range or array containing the given numbers.

Ascending (optional) is a logical value that lets you specify whether to use ascending or descending order:

FALSE or omitted: Use descending order (the *largest* number's rank is 1).

TRUE: Use ascending order (the *smallest* number's rank is 1).

Note:

If **Number** occurs in **Range** more than once, the rank of subsequent numbers is affected as follows: If, for example, 42 occurs twice and has a rank of 10, the next smallest number's rank will be 12 – not 11.

Example:

If the cells A1:A5 contain 4, 2, 6, 5, 9:

RANK(9, A1:A5) returns 1

RANK(2, A1:A5) returns 5

RANK(2, A1:A5, TRUE) returns 1

See also:

SMALL, LARGE, PERCENTILE, PERCENTRANK

RATE (rate per period)

Syntax:

RATE(NPer, Pmt, PV [, FV] [, Type] [, Guess])

Description:

Returns an estimate for the interest rate per period of an annuity.

NPer is the total number of payment periods.

Pmt is the payment made for each period.

PV is the present value.

FV (optional) is the future value (the total value after the last payment). If omitted, it will be set to zero.

Type (optional) is the timing of the payments:

0 or omitted: Payment at the end of each period.

1: Payment at the beginning of each period.

Guess (optional) lets you specify an estimate for the result (see note below).

Note:

The result of this function is calculated using an iterative search technique. If the search does not converge after 20 iterations, a #NUM error value is returned. If this occurs, try altering the **Guess** parameter.

See also:

FV, IPMT, NPER, PMT, PV

REPLACE (replace text in a text string)

Syntax:

REPLACE(Text, Start, Count, NewText)

Description:

Replaces the specified part of a text string with other text.

Text is the given text string.

Start is the position of the first character to be replaced.

Count is the number of characters to be replaced.

NewText is the replacement text.

Example:

REPLACE("aaaaaa", 3, 2, "bb") returns aabbaa

REPLACE("aaaaaa", 3, 4, "bb") returns aabb

REPLACE("cccccc", 3, 2, "dddddddd") returns ccddcc

REPLACE("cccccc", 3, 4, "dddddddd") returns ccdddd

REPLACE("cccccc", 3, 6, "dddddddd") returns ccdddddd

See also:

FIND, SEARCH, MID, SUBSTITUTE

REPT (repeat text string)

Syntax:

REPT(Text, n)

Description:

Repeats the specified text string **n** times.

n should be an integer; digits right of the decimal point are ignored.

Example:

REPT("Text", 3) returns TextTextText

See also:

REPLACE, SUBSTITUTE

RIGHT (right part of a text string)

Syntax:

RIGHT(Text [, n])

Description:

Returns the last **n** characters of **Text**.

If **n** is omitted, only the last character is returned.

Example:

RIGHT("peanut", 3) returns nut

RIGHT("peanut") returns t

See also:

LEFT, MID, REPLACE

ROMAN (Roman numeral)

Syntax:

ROMAN(Number [, Format])

Description:

Converts an Arabic numeral into a Roman numeral (as a text string).

Number is the number to be converted. Must be ≥ 0 and < 4000. **Number** should be an integer; digits right of the decimal point are ignored.

If **Number** equals zero, an empty text string will be returned.

If the optional argument **Format** is used, PlanMaker tries to create a shorter form of the Roman numeral. **Format** can be any integer from 0 (do not shorten) through 4 (shorten as much as possible).

Example:

ROMAN(1999) returns MCMXCIX

ROMAN(1999, 0) returns MCMXCIX as well

ROMAN(1999, 1) returns MLMIL

ROMAN(1999, 2) returns MXMIX

ROMAN(1999, 3) returns MVMIV

ROMAN(1999, 4) returns MIM

ROOTN (n-th root)

Syntax:

ROOTN(Number [, n])

Description:

Returns the **n**-th root of **Number**. If **n** is omitted, the square root is returned.

If **n** is even, **Number** must be ≥ 0.

n should be an integer; digits right of the decimal point are ignored. If **n** is omitted, the square root is returned.

Compatibility note:

This function is *not* supported by Microsoft Excel. If you save a document in Excel format, all calculations using this function will be replaced by their last result as a *fixed* value.

Example:

ROOTN(25) returns 5

ROOTN(-25) returns a #NUM! error value

ROOTN(125, 3) returns 5

ROOTN(-125, 3) returns -5

See also:

SQRT, POWER

ROUND (round)

Syntax:

ROUND(Number, n)

Description:

Rounds **Number** to **n** decimal places.

n is the number of decimal places.

If **n** is omitted, **Number** is rounded to the nearest integer.

If **n** is a negative value, **Number** is rounded to the left of the decimal point. For example, if **n** is -2, **Number** is rounded to the nearest multiple of hundred (see last example).

Example:

ROUND(1.234, 2) returns 1.23

ROUND(1.235, 2) returns 1.24

ROUND(444.222, 0) returns 444

ROUND(444.222, -2) returns 400

See also:

ROUNDDOWN, ROUNDUP, TRUNC, MROUND

ROUNDDOWN (round down)

Syntax:

ROUNDDOWN(Number, n)

Description:

Rounds **Number** down (towards zero) to **n** decimal places.

n is the number of decimal places.

If **n** is omitted, **Number** is rounded to the nearest integer.

If **n** is a negative value, **Number** is rounded to the left of the decimal point. For example, if **n** is -2, **Number** is rounded to the nearest multiple of hundred (see last example).

Example:

ROUNDDOWN(1.234, 2) returns 1.23

ROUNDDOWN(1.235, 2) returns 1.23

ROUNDDOWN(888.999, 0) returns 888

ROUNDDOWN(888.999, -2) returns 800

See also:

ROUNDUP, ROUND, TRUNC

ROUNDUP (round up)

Syntax:

ROUNDUP(Number, n)

Description:

Rounds **Number** up (away from zero) to **n** decimal places.

n is the number of decimal places.

If **n** is omitted, **Number** is rounded to the nearest integer.

If **n** is a negative value, **Number** is rounded to the left of the decimal point. For example, if **n** is -2, **Number** is rounded to the nearest multiple of hundred (see last example).

Example:

ROUNDUP(1.234, 2) returns 1.24

ROUNDUP(1.235, 2) returns 1.24

ROUNDUP(444.222, 0) returns 445

ROUNDUP(444.222, -2) returns 500

See also:

ROUNDDOWN, ROUND, TRUNC

ROW (row number of a reference)

Syntax:

ROW([Reference])

Description:

Returns the row number(s) of a cell reference:

If **Reference** is a single cell, the row number of this cell is returned.

If **Reference** is a range of cells, their row numbers are returned as a vertical array. Note: In this case, the formula has to be entered as an *array formula* (see section "Working with arrays", page 408).

If **Reference** is omitted, the row number of the cell that invokes this function is returned.

Example:

ROW(D2) returns 2

ROW(D2:F4) returns {2;3;4}

ROW() returns 5 when you use this calculation in cell A5

See also:

COLUMN, ROWS

ROWS (number of rows in a range)

Syntax:

ROWS(Range)

Description:

Returns the number of rows in the specified cell range.

Example:

ROWS(A1:D5) returns 5

See also:

ROW, COLUMNS

RSQ (square of Pearson)

Syntax:

RSQ(Range1, Range2)

Description:

Returns the square of Pearson's product moment correlation coefficient *r*.

This coefficient is a measure of the strength of the linear relationship between two data sets. For more information, see PEARSON function.

Range1 is the cell range or array containing the independent values. Empty cells, text and logical values are ignored.

Range2 is the cell range or array containing the dependent values. Empty cells, text and logical values are ignored.

Range1 and **Range2** must have the same number of values, otherwise the function returns a #N/A error value.

Example:

If A1:A3 contains the values 2, 5, 3 and B1:B3 contains 2, 7, 4:

RSQ(A1:A3, B1:B3) returns 0.99436

See also:

PEARSON

SEARCH (search for text)

Syntax:

SEARCH(Text, SearchedText [, StartPos])

Description:

Returns the position of the text string **SearchedText** within the text string **Text.**

StartPos (optional) lets you specify the position (= character) at which to start the search. If omitted, the search starts at the first character.

The SEARCH function is not case-sensitive, i.e., it will *not* distinguish between uppercase and lowercase letters. To perform a case-sensitive search, use the FIND function instead.

Example:

SEARCH("a", "Banana") returns 2

SEARCH("A", "Banana") returns 2

SEARCH("a", "Banana", 3) returns 4

SEARCH("x", "Banana") returns a #VALUE! error value, since "x" does not occur in "Banana".

See also:

FIND, EXACT, SUBSTITUTE

SECOND (second)

Syntax:

SECOND(Time)

Description:

Returns the seconds of a time value.

Example:

SECOND("12:34:56 AM") returns 56

See also:

HOUR, MINUTE, MILLISECONDS

SERIESSUM (sum of a power series)

Syntax:

SERIESSUM(x, n, m, Coefficients)

Description:

Returns a power series based on the following formula:

SERIESSUM(x,n,m,a) =

a1*x^n + a2*x^(n+m) + a3*x^(n+2m) + a4*x^(n+3m) + ...

x is the base.

n is the exponent for the first element in the series.

m is the increment for **n**.

Coefficients is a one-dimensional cell range or array containing the coefficients that the series elements will be multiplied by.

The number of coefficients also determines the number of elements the power series will consist of. For example, if 10 coefficients are given, the series will consist of 10 elements.

Example:

SERIESSUM(2, 2, 1, {1; 2; 3; 4; 5}) returns 516

See also:

POWER

SHEETNAME (name of a worksheet)

Syntax:

SHEETNAME([n])

Description:

Returns the name of a worksheet.

n is the number of the worksheet whose name you want to determine. The first worksheet in the workbook is number 1, the second is number 2, etc. If **n** is omitted, the current worksheet is used.

Compatibility note:

This function is *not* supported by Microsoft Excel. If you save a document in Excel format, all calculations using this function will be replaced by their last result as a *fixed* value.

Example:

If a document contains four worksheets named “Spring”, “Summer”, “Autumn”, and “Winter” (in this order), and “Autumn” is the current worksheet:

SHEETNAME() returns Autumn

SHEETNAME(1) returns Spring

See also:

FILENAME, SHEETNUMBER

SHEETNUMBER (index of a worksheet)

Syntax:

SHEETNUMBER([SheetName])

Description:

Returns the index of a worksheet in the current document. The first worksheet in a document returns 1, the second sheet returns 2, etc.

If the optional argument **SheetName** is given, the index of the worksheet with the specified name is returned. Otherwise, the index of the current worksheet is returned.

Note:

This function is *not* supported by Microsoft Excel. If you save a document in Excel format, all calculations using this function will be replaced by their last result as a *fixed* value.

Example:

SHEETNUMBER() returns 3 for the third worksheet in a document.

See also:

FILENAME, SHEETNAME

SIGN (sign of a number)

Syntax:

SIGN(Number)

Description:

Returns a value representing the sign of a number:

1, if **Number** is positive,

-1, if **Number** is negative,

0, if **Number** is zero.

Example:

SIGN(-5) returns -1

See also:

ABS, NEG

SIN (sine)

Syntax:

SIN(Number)

Description:

Returns the sine of **Number**.

Example:

SIN(PI()/2) returns 1

SIN(RADIANS(90)) returns 1

See also:

ASIN

SINH (hyperbolic sine)

Syntax:

SINH(Number)

Description:

Returns the hyperbolic sine of **Number**.

Example:

SINH(0.45) returns 0.4653

See also:

ASINH

SKEW (skewness of a distribution)

Syntax:

SKEW(Number1, Number2, Number3 [, Number4 ...])

or

SKEW(Range1, Range2 [, Range3 ...])

Description:

Returns the skewness of a probability distribution.

The skewness is a measure of the asymmetry of a distribution.

If the skewness is zero, the distribution is symmetric. If it is positive, the positive tail is larger; if negative, the negative tail is larger.

Number1, **Number2**, etc., are the values to be evaluated. Empty cells, text strings, and logical values are ignored.

At least three values have to be given, otherwise the function returns a #DIV/0! error value.

Example:

Measuring the height of several test persons led to the following results: 1 x 1.60m, 2 x 1.65m, 4 x 1.70m, 2 x 1.75m, and 1x1.80m.

To calculate the skewness of this distribution, use the following formula:

SKEW(1.60, 1.65, 1.65, 1.70, 1.70, 1.70, 1.70, 1.75, 1.75, 1.80) returns 4.66562E-15.

See also:

INTERCEPT, FORECAST, KURT, NORMDIST

SLN (straight-line depreciation)

Syntax:

SLN(Cost, Salvage, Life)

Description:

Returns the depreciation per period of an asset, using the straight-line depreciation method.

Cost = Initial cost of asset

Salvage = Salvage value (value at the end of the depreciation)

Life = Life of asset (in number of periods)

Example:

Asset parameters: initial cost = 6000, salvage value = 3000, life = 5 years

SLN(6000, 3000, 5) returns 600 (per year)

See also:

SYD, DDB

SLOPE (slope of a linear trend)

Syntax:

SLOPE(y_values, x_values)

Description:

Returns the slope of a best-fit line for the given values. The slope of a line is the value the y value grows when the x value is raised by 1.

A *best-fit line* is the result of a *linear regression*, a statistical technique that adapts a line to a set of data points (for example, the results of a series of measurements).

y_values are the known y values.

x_values are the known x values.

Example:

The resistance of a temperature-sensitive resistor has been measured at several temperatures.

Cells A1:A4 contain the temperatures measured: 8, 20, 25, 28

Cells B1:B4 contain the resistances measured: 261, 508, 608, 680

The following calculation returns the slope of a best-fit line based on these values:

SLOPE(B1:B4, A1:A4) returns 20.76799

See also:

INTERCEPT, FORECAST

SMALL (k-th smallest number)

Syntax:

SMALL(Range, k)

Description:

Returns the **k**-th smallest value in a data set.

Range is the range of data to be evaluated.

k determines which number to return. If k=1, the smallest value will be returned; if k=2, the second smallest value will be returned, etc.

k must not be smaller than 1 or greater than the total number of values in **Range**. Otherwise, the function returns a #NUM! error value.

Example:

If the cells A1:A5 are filled with the numbers 4, 2, 6, 5, and 9:

SMALL(A1:A5, 1) returns 2

SMALL(A1:A5, 2) returns 4

SMALL(A1:A5, 3) returns 5

etc.

See also:

LARGE, MIN, PERCENTILE, PERCENTRANK, RANK

SORTM (sort)

Syntax:

SORTM(Range, Key [, Mode] [, Columnwise] [, Column])

Description:

Returns an array containing the values of the given cell range, sorted by one or more sort keys.

Range is the cell range or array containing the data to be sorted.

Key is a two-row cell range or array containing the sort key(s):

Its first row must contain the relative row numbers of the rows to be sorted by. If, for example, you enter {1,3}, the cell range is sorted by the first and by the third row of **Range**.

Its second row (optional) can contain logical values that specify the sort order:

FALSE or omitted: Ascending order

TRUE: Descending order

For example, if you use {1,3; true,false} as the sort key, the cell range is sorted by the first row in *descending* order and by the third row in *ascending* order.

Mode (optional) is a logical value that lets you specify if PlanMaker should distinguish between uppercase and lowercase letters:

FALSE or omitted: Ignore case of letters

TRUE: Distinguish between uppercase and lowercase letters, i.e., place text strings starting with a lowercase letter above text strings starting with an uppercase letter.

Columnwise (optional) is a logical value that lets you specify if the data should be sorted row-wise or column-wise:

FALSE or omitted: Sort row-wise

TRUE: Sort column-wise

Column (optional) is the number of the column to be returned:

If omitted, *all* columns are returned.

If set to *n*, only the *n*-th column is returned.

Note:

Formulas using this function have to be entered as an *array formula* (see section "Working with arrays", page 408).

Compatibility note:

This function is *not* supported by Microsoft Excel. If you save a document in Excel format, all calculations using this function will be replaced by their last result as a *fixed* value.

Example:

SORTM({4;2;3}, {1}) returns {2;3;4}

SORTM({4;2;3}, {1;TRUE}) returns {4;3;2} (descending order)

See also:

SORTV, section "Sorting cells" (page 85)

SORTV (sort)

Syntax:

SORTV(Range [, Descending] [, Mode] [, Data])

Description:

Returns a vector containing the values of the given one-dimensional cell range, in sorted order.

Note:

Unlike the SORTM function, SORTV is applicable to *one*-dimensional cell ranges (vectors) only.

Range is the cell range or array containing the data to be sorted. It must be a vector (a range of either just *one* row or *one* column).

Descending (optional) lets you specify the sort order:

FALSE or omitted: Ascending order

TRUE: Descending order

Mode (optional) is a logical value that lets you specify if PlanMaker should distinguish between uppercase and lowercase letters:

FALSE or omitted: Ignore case of letters

TRUE: Distinguish between uppercase and lowercase letters, i.e., place text strings starting with a lowercase letter above text strings starting with an uppercase letter.

Data (optional) is the cell range or array containing the values to be returned. **Data** must be of exactly the same size as **Range**.

If it is omitted, the data in **Range** is returned.

If it set to another cell range, the data from this cell range will be returned – in the same order as **Range** (after it was sorted).

Example: If you have created a table with the names and grades of students, you can set **Range** to the cell range with their grades, but set **Data** to the cell range with their names. The result will be a list of their names, sorted by grade.

Note:

Formulas using this function have to be entered as an *array formula* (see section "Working with arrays", page 408).

Compatibility note:

This function is *not* supported by Microsoft Excel. If you save a document in Excel format, all calculations using this function will be replaced by their last result as a *fixed* value.

Example:

SORTV({4;2;3}) returns {2;3;4}

SORTV({4;2;3}, TRUE) returns {4;3;2}

SORTV({4,2,3}) returns {2,3,4}

See also:

SORTM, section “Sorting cells” (page 85)

SQRT (square root)

Syntax:

SQRT(Number)

Description:

Returns the square root of a number.

Number must be ≥ 0.

Example:

SQRT(25) returns 5

SQRT(-25) returns a #NUM! error value

See also:

POWER, ROOTN

SQRTPI (square root of x*Pi)

Syntax:

SQRTPI(Number)

Description:

Returns the square root of (**Number** * pi).

Number must be ≥ 0.

Example:

SQRTPI(42) equals SQRT(42*PI()), which is 11.48681381

See also:

PI, ROOTN, SQRT

STANDARDIZE (standardized value)

Syntax:

STANDARDIZE(x, Mean, StdDev)

Description:

Returns the normalized value of **x** for a distribution given by mean and standard deviation.

x is the value to be normalized.

Mean is the arithmetic mean of the distribution.

StdDev is the standard deviation of the distribution.

Example:

STANDARDIZE(5, 4, 1.25) returns 0.8

See also:

AVERAGE, STDEV, NORMDIST, NORMSDIST

STDEV (standard deviation of a sample)

Syntax:

STDEV(Number1, Number2 [, Number3 ...])

Description:

Estimates the standard deviation of a population based on a sample.

Number1, **Number2**, etc., are single values, cell ranges, or arrays containing the values to be evaluated.

Empty cells, text strings, and logical values are ignored.

Annotation:

The standard deviation is calculated using the “unbiased” or “n-1” method.

Example:

STDEV(2, 2, 3, 4, 1) returns 1.14018

See also:

STDEVP, VAR

STDEVA (standard deviation of a sample)

Syntax:

STDEVA(Value1, Value2 [, Value3 ...])

Description:

Estimates the standard deviation of a population based on a sample, including logical values and text.

Value1, **Value2**, etc., are single values, cell ranges, or arrays containing the values to be evaluated.

Empty cells are ignored.

Note:

Unlike the STDEV function, STDEV**A** also evaluates logical values and text:

FALSE evaluates as 0.

TRUE evaluates as 1.

Text evaluates as 0.

Annotation:

The standard deviation is calculated using the “unbiased” or “n-1” method.

Example:

STDEVA(2, 2, 3, 4, 1) returns 1.14018

See also:

STDEV

STDEVP (standard deviation of entire population)

Syntax:

STDEVP(Number1, Number2 [, Number3 ...])

Description:

Returns the standard deviation of an entire population.

Number1, **Number2**, etc., are single values, cell ranges, or arrays containing the values to be evaluated. Please note that *all* values of the *entire* population have to

be given. To calculate the standard deviation of a sample, use the STDEV function instead.

Empty cells, text strings, and logical values are ignored.

Annotation:

The standard deviation is calculated using the “biased” or “n” method.

Example:

STDEVP(2, 2, 3, 4, 1) returns 1.0198

See also:

STDEV, VARP

STDEVPA (standard deviation of entire population)

Syntax:

STDEVPA(Value1, Value2 [, Value3 ...])

Description:

Returns the standard deviation of an entire population, including logical values and text.

Value1, **Value2**, etc., are single values, cell ranges, or arrays containing the values to be evaluated. Please note that *all* values of the *entire* population have to be given. To calculate the standard deviation of a sample, use the STDEVA function instead.

Empty cells are ignored.

Note:

Unlike the STDEVP function, STDEVP**A** also evaluates logical values and text:

FALSE evaluates as 0.

TRUE evaluates as 1.

Text evaluates as 0.

Annotation:

The standard deviation is calculated using the “biased” or “n” method.

Example:

STDEVPA(2, 2, 3, 4, 1) returns 1.0198

See also:

STDEVP

STEYX (standard error of a linear regression)

Syntax:

STEYX(y_values, x_values)

Description:

Returns the standard error of a linear regression.

y_values are the known y values.

x_values are the known x values.

Example:

The resistance of a temperature-sensitive resistor has been measured at several temperatures.

Cells A1:A4 contain the temperatures measured: 8, 20, 25, 28

Cells B1:B4 contain the resistances measured: 261, 508, 608, 680

The following calculation returns the standard error of the resistances predicted by linear regression:

STEYX(B1:B4, A1:A4) returns 4.97351

See also:

INTERCEPT, SLOPE, FORECAST

SUBSTITUTE (replace text in a text string)

Syntax:

SUBSTITUTE(Text, OldText, NewText [, n])

Description:

Searches for **OldText** in a text string. If found, **OldText** will be replaced by **NewText**.

Text is the text string in which you want to replace text.

OldText is the text to be replaced. Note: This function is case-sensitive, i.e. it distinguishes between uppercase and lowercase letters.

NewText is the replacement text.

n (optional) lets you specify which occurrence of **OldText** to replace. If omitted, all occurrences will be replaced.

Example:

SUBSTITUTE("aabbaabb", "aa", "xx") returns xxbbxxbb

SUBSTITUTE("aabbaabb", "aa", "xx", 2) returns aabbxxbb

SUBSTITUTE("aabbaabb", "AA", "xx") returns aabbaabb

See also:

FIND, SEARCH, REPLACE

SUBTOTAL (subtotal, ignoring filters)

Syntax:

SUBTOTAL(Function, Range1 [, Range2 ...])

Description:

Applies one of the arithmetic functions listed below to the specified cell range(s), *ignoring* all cells that are *filtered*.

Annotation: When you apply arithmetic functions to cells that are filtered by the **Table > Filter** command, filtered cells are included in the calculation as well, unless the SUBTOTAL function is used, in which case filtered cells are ignored.

Range1, **Range2**, etc., are the cell ranges you want to evaluate.

Function is a number that specifies which arithmetic function will be applied:

1:	AVERAGE	(arithmetic mean)
2:	COUNT	(number of cells filled with numbers)
3:	COUNTA	(number of cells not empty)
4:	MAX	(maximum)
5:	MIN	(minimum)
6:	PRODUCT	(product)
7:	STDEV	(standard deviation of a sample)
8:	STDEVP	(standard deviation of entire population)
9:	SUM	(sum)
10:	VAR	(variance of a sample)
11:	VARP	(variance of entire population)

If **Function** is, for example, set to 9, SUBTOTAL returns the sum of the specified cells.

Example:

SUBTOTAL(9, A1:E6) returns the sum of A1:E6, ignoring all cells filtered by the **Table > Filter** command.

See also:

Section “Filtering cells by their contents” (page 89)

SUM (Sum)

Syntax:

SUM(Number1, Number2 [, Number3 ...])

Description:

Returns the sum of the given numbers.

Number1, **Number2**, etc., are single values, cell ranges, or arrays containing the values to be summed.

If you use this function with *cell references*, text strings and logical values occurring in the referenced cells are ignored.

If you use this function with *fixed values* that you typed in directly, text strings and logical values evaluate as follows:

FALSE evaluates as 0.

TRUE evaluates as 1.

Text representations of numbers (for example, "42") evaluate like numbers.

See examples below.

Example:

SUM(1, 2, 3, 4) equals 10

If the cells A1:A4 contains the values 1, 2, 3, and 4:

SUM(A1:A4) equals 10

Please note:

If the cells A1:A3 contain 1, "2", and TRUE:

SUM(A1:A3) returns 1, since the text string and the logical value are ignored. They are counted only if they were typed in *directly*:

SUM(1, "2", TRUE) returns 1+2+1, which is 4

Hint 1:

The SUM function can also be inserted using the Sum symbol in the Edit toolbar.

Hint 2:

Another practical helper is the **AutoSum** icon in the standard toolbar:

If you click it in a cell directly below a group of cells containing numbers, it will insert the SUM function for this cell range there.

If you first select a range of cells containing numbers, it will insert sum of this cell range directly below the selected cells.

You can use this icon with several other functions as well. When you click on the arrow to the right of this icon, a dropdown list containing all available functions will open (for example, Count, Product, Average, etc.). Select the desired function and proceed as described above.

See also:

PRODUCT, SUMPRODUCT

SUMIF (sum if condition is true)

Syntax:

SUMIF(Range, Criterion [, SumRange])

Description:

Returns the sum of those values in a cell range that fulfill the specified criterion.

Range is the cell range to be evaluated.

Criterion is the criterion that the values in **Range** have to fulfill to be included.

Use numbers or text (like "42" or "bolts") to sum all cells that contain that value.

Use conditions (like ">10" or "<=5") to sum all cells that match the specified condition (see examples below).

Note: Criteria always have to be surrounded by double quotation marks (").

SumRange (optional) lets you specify the cell range containing the values to be summed. If omitted, the values in **Range** will be summed.

Example:

If the cells A1:A5 contain the values 1, 2, 3, 2, 1:

SUMIF(A1:A5, "2") returns 2+2, which is 4

SUMIF(A1:A5, ">=2") returns 2+3+2, which is 7

See also:

AVERAGEIF, AVERAGEIFS, COUNTIF, COUNTIFS, SUM, SUMIFS

SUMIFS (sum if conditions are true)

Syntax:

SUMIFS(SumRange, Range1, Criterion1 [, Range2, Criterion2 ...])

Description:

Returns the sum of those values in a cell range that fulfill *all* of the specified criteria.

This function is similar to the SUMIF function, but allows you to specify more than just one range/criterion to be searched.

Apart from that, the order of the parameters is different: In SUMIF, **SumRange** is the last parameter – in SUMIFS, it is the first.

SumRange is the cell range containing the values to be summed.

Range1 is the first cell range to be checked for the specified criterion. This range must have the same dimensions as **SumRange**.

Criterion1 is the criterion that the values in **Range1** have to fulfill to be included.

Use numbers or text (like "42" or "bolts") to obtain the sum of all cells that contain that value.

Use conditions (like ">10" or "<=5") to obtain the sum of all cells that match the specified condition (see examples below).

Note: Criteria always have to be surrounded by double quotation marks (").

Unlike the SUMIF function, SUMIFS allows you to specify more than just one cell range and criterion to be checked. If you do so, only occurrences where *all* criteria are fulfilled are included in the calculation of the sum.

Compatibility note:

This function is *not* supported by the **.xls** file format (used in Microsoft Excel 2003 and earlier). If you save a document in this format, all calculations using this function will be replaced by their last result as a *fixed* value.

Accordingly, if you use this function, you should not save your document in the "Microsoft Excel 97-2003 (.xls)" file format, but choose one of the following formats instead:

- "PlanMaker document (.pmd)"
- or: "Microsoft Excel 2007-2010 (.xlsx)"

Example:

AVERAGEIFS(A1:A10, C1:C10, ">1", C1:C10, "<2")

This formula returns the sum of only those cells in the cell range A1:A10 where the corresponding cell in the range C1:C10 is greater than 1 and less than 2.

See also:

AVERAGEIF, AVERAGEIFS, COUNTIF, COUNTIFS, SUM, SUMIF

SUMPRODUCT (sum of products)

Syntax:

SUMPRODUCT(Range1, Range2 [, Range3 ...])

Description:

Multiplies the corresponding elements of two or more arrays, and returns the sum of these products.

Range1, **Range2**, etc., are cell ranges or arrays containing the values to be evaluated.

All ranges must have the same dimensions (height and width). If not, the function returns a #N/A error value.

Empty cells, text strings, and logical values evaluate as zero.

Example:

If A1:A3 contains the values 1, 2, 3, and B1:B3 contains 20, 30, 40:

SUMPRODUCT(A1:A3, B1:B3) equals 1*20 + 2*30 + 3*40, which is 200.

See also:

SUM

SUMSQ (sum of squares)

Syntax:

SUMSQ(Number1, Number2 [, Number3 ...])

Description:

Returns the sum of the squares of the given numbers.

Example:

SUMSQ(1, 2, 3) equal 1^2 + 2^2 + 3^2, which is 14.

See also:

SUM

SUMX2MY2 (sum of x^2 - y^2)

Syntax:

SUMX2MY2(Range1, Range2)

Description:

Returns the sum of the difference of squares of corresponding values in two arrays.

The equation for this function is:

SUMX2MY2 = ∑(x^2 - y^2)

Range1 and **Range2** are cell ranges or arrays containing the values to be evaluated.

Both ranges must have the same dimensions (height and width). If not, the function returns a #N/A error value.

Pairs of values where at least one value is an empty cell or a non-numerical value (text string or logical value) are ignored.

Example:

If A1:A3 contains the values 9, 4, 7, and B1:B3 contains 1, 0, 5:

SUMX2MY2(A1:A3, B1:B3) equals (9^2) - (1^2) + (4^2) - (0^2) + (7^2) - (5^2), which is 120.

See also:

SUM, SUMPRODUCT, SUMX2PY2, SUMXMY2, SUMSQ

SUMX2PY2 (sum of x^2 + y^2)

Syntax:

SUMX2PY2(Range1, Range2)

Description:

Returns the sum of the sum of squares of corresponding values in two arrays.

The equation for this function is:

SUMX2PY2 = ∑(x^2 + y^2)

Range1 and **Range2** are cell ranges or arrays containing the values to be evaluated.

Both ranges must have the same dimensions (height and width). If not, the function returns a #N/A error value.

Pairs of values where at least one value is an empty cell or a non-numerical value (text string or logical value) are ignored.

Example:

If A1:A3 contains the values 9, 4, 7, and B1:B3 contains 1, 0, 5:

SUMX2PY2(A1:A3, B1:B3) equals (9^2) + (1^2) + (4^2) + (0^2) + (7^2) + (5^2), which is 172.

See also:

SUM, SUMPRODUCT, SUMX2MY2, SUMXMY2, SUMSQ

SUMXMY2 (sum of (x - y)^2)

Syntax:

SUMXMY2(Range1, Range2)

Description:

Returns the sum of squares of differences of corresponding values in two arrays.

The equation for this function is:

SUMXMY2 = ∑(x - y)^2

Range1 and **Range2** are cell ranges or arrays containing the values to be evaluated.

Both ranges must have the same dimensions (height and width). If not, the function returns a #N/A error value.

Pairs of values where at least one value is an empty cell or a non-numerical value (text string or logical value) are ignored.

Example:

If A1:A3 contains the values 9, 4, 7, and B1:B3 contains 1, 0, 5:

SUMXMY2(A1:A3, B1:B3) equals (9-1)^2 + (4-0)^2 + (7-5)^2, which is 84.

See also:

SUM, SUMPRODUCT, SUMX2MY2, SUMX2PY2, SUMSQ

SYD (sum-of-years' digits depreciation)

Syntax:

SYD(Cost, Salvage, Life, Per)

Description:

Returns the depreciation of an asset for the specified period, using the sum-of-years' digits method.

Cost = Initial cost of asset

Salvage = Salvage value (value at the end of the depreciation)

Life = Life of asset (in number of periods)

Per = Period to evaluate (in the same time unit as **Life**)

Example:

Asset parameters: initial cost = 200000, salvage value = 10000, life = 10 years

SYD(200000, 10000, 10, 1) returns 34545.45 (depreciation in year 1)

See also:

DDB, SLN

T (convert value into text string)

Syntax:

T(Value)

Description:

Converts a value to a text string.

Value is the value to be converted. If **Value** is not a text string, an empty text string is returned.

Note:

This function was retained only for compatibility with older spreadsheet applications. It is no longer commonly used, as current spreadsheet applications (including PlanMaker) automatically convert values into text strings, where necessary.

Example:

T("Text") returns Text

T("42") returns 42

T(42) returns an empty text string

T(TRUE) returns an empty text string

See also:

N, VALUE, TEXT

TAN (tangent)

Syntax:

TAN(Number)

Description:

Returns the tangent of **Number**.

Example:

TAN(PI()/4) returns 1

TAN(RADIANS(45)) returns 1

See also:

ATAN

TANH (hyperbolic tangent)

Syntax:

TANH(Number)

Description:

Returns the hyperbolic tangent of **Number**.

Example:

TANH(0.45) returns 0.4219

See also:

ATANH

TDIST (t-distribution)

Syntax:

TDIST(X, DegreesFreedom, Tails)

Description:

Returns the probability of the Student's t-distribution.

X is the value to be evaluated. Must be ≥ 0.

DegreesFreedom is the number of degrees of freedom. Must be ≥ 1.

Tails is the number of distribution tails:

1: One-tailed distribution

2: Two-tailed distribution

See also:

TINV, TTEST

TEXT (convert number into text string)

Syntax:

TEXT(Number, Format)

Description:

Converts a number to a text string in the specified number format.

Number is the number to convert.

Format is a text string specifying the desired format. It has to be built like a format string for user-defined number formats (see section "Structure of a user-defined format", page 134).

Annotation:

To change the format of numbers *without* having to convert them to a text string, choose the **Format > Cell** command and select the desired number format.

Example:

TEXT(2.715, "0.00 ""USD""") returns 2.72 USD (as a text string)

See also:

VALUE, T, N

TIME (create time)

Syntax:

TIME(Hour, Minute, Second)

Description:

Returns a serial date value based on the specified **Hour**, **Minute**, and **Second**.

Example:

TIME(0, 20, 0) returns 0.01389, the serial date value for the corresponding time. PlanMaker automatically applies the number format “Date/Time” to it (e.g., 00:20:00 is displayed).

See also:

TIMEVALUE, DATE, DATEVALUE

TIMEDIFF (time difference)

Syntax:

TIMEDIFF(StartTime, EndTime)

Description:

Returns the time elapsed between two time values.

StartTime is the start time.

EndTime is the end time.

Both can be either time values or date values including a time. Please note that in the latter case, both **StartTime** and **EndTime** have to include a date, otherwise a #VALUE! error value is returned.

Note:

Compared to simply subtracting time values, this function has the following advantage when **EndTime** is *smaller* than **StartTime**: An employee starts his shift, for example, at 10:00 pm and leaves at 6:00 am. If calculating his hours of work by subtracting 10:00 pm from 6:00 am, the result would be -16 hours. If the TIME-DIFF function is used, the correct result (8 hours) will be returned.

Compatibility note:

This function is *not* supported by Microsoft Excel. If you save a document in Excel format, all calculations using this function will be replaced by their last result as a *fixed* value.

Example:

TIMEDIFF("8:00 AM", "4:00 PM") returns 8:00

TIMEDIFF("10:00 PM", "6:00 AM") returns 8:00

TIMEDIFF("10/01/2012 10:00 PM", "10/02/2012 6:00 AM") returns 8:00

See also:

TIME, TIMEVALUE

TIMEVALUE (convert text into time)

Syntax:

TIMEVALUE(Text)

Description:

Converts text representing a date to a serial time value.

Note:

This function was retained only for compatibility with older spreadsheet applications. It is no longer commonly used, as current spreadsheet applications (including PlanMaker) automatically convert values into date/time values, where necessary.

Example:

TIMEVALUE("10:30:00 am") returns 0.4375.

See also:

DATEVALUE, DATE, TIME

TINV (percentiles of the t-distribution)

Syntax:

TINV(Probability, DegreesFreedom)

Description:

Returns the inverse of the Student's t-distribution function (i.e., percentiles of this distribution).

Probability is the two-tailed probability to be evaluated. Must be in the range 0 to 1.

DegreesFreedom is the number of degrees of freedom. Must be ≥ 1.

Note:

The result of this function is calculated using an iterative search technique. If the search does not converge after 100 iterations, a #N/A error value is returned.

See also:

TTEST, TDIST

TODAY (current date)

Syntax:

TODAY()

Description:

Returns the current date (without time).

Note:

The result is a serial date number. PlanMaker automatically formats it in date format so that it will be displayed as a date. To select a different date format, use the **Format > Cell** command.

See also:

NOW

TRANSPOSE (transposed matrix)

Syntax:

TRANSPOSE(Array)

Description:

Returns the transpose of a matrix, i.e., swaps its columns with its rows. When you transpose, for example, a 2x4 matrix, the result is a 4x2 matrix.

Array is the cell range or array containing the matrix to be evaluated. The matrix must contain numeric values only.

Note:

Formulas using this function have to be entered as an *array formula* (see section "Working with arrays", page 408).

Important: Please note that the range you have to select before entering the formula must have the correct *dimensions*. If the matrix consists of **x** rows and **y** columns, the resulting range must have **y** rows and **x** columns.

Example:

TRANSPOSE({1,2,3;4,5,6}) returns {1,4;2,5;3,6}

See also:

Section "Working with arrays" (page 408), MDETERM, MINVERSE, MMULT, MSOLVE

TREND (values of a linear regression)

Syntax:

TREND(y_values [, x_values] [, New_x_values] [, Constant])

Description:

Returns the values of a linear regression.

Linear regression is a statistical technique that adapts a line (called “trend line” or “best-fit line”) to a set of data points (for example, the results of a series of measurements).

The TREND function returns an array with the y values of a trend line calculated from the given y values and x values.

y_values are the known y values.

x_values (optional) are the known x values. If omitted, the values 1, 2, 3, ... will be used.

New_x_values (optional) are the x values for which you want to determine the corresponding y values on the curve. If omitted, the values in **x_values** will be used.

Constant (optional) is a logical value that lets you specify if the constant b (the y-intercept point) should be calculated automatically or forced to equal zero:

TRUE or omitted: b will be calculated from the given data.

FALSE: b is forced to equal 0 (zero); the m values are adjusted accordingly.

Note:

Formulas using this function have to be entered as an *array formula* (see section “Working with arrays”, page 408).

Example:

The resistance of a temperature-sensitive resistor has been measured at several temperatures.

Cells A1:A4 contain the temperatures measured: 8, 20, 25, 28

Cells B1:B4 contain the resistances measured: 261, 508, 608, 680

The following calculation returns an array with the y coordinates of a best-fit line calculated from these values:

TREND(B1:B4, A1:A4)

See also:

LINEST, LOGEST, GROWTH

TRIM (remove spaces from text)

Syntax:

TRIM(Text)

Description:

Removes all spaces from the beginning and the end of the specified text string.

Example:

TRIM(" Text ") returns Text

See also:

CLEAN

TRIMMEAN (mean ignoring marginal values)

Syntax:

TRIMMEAN(Area, Percentage)

Description:

Returns the mean of the values in the *middle* of a data set (by excluding the specified percentage of top and bottom values).

For example, TRIMMEAN(A1:A42, 10%) averages the middle 90% of the data points in A1:A42.

Area is the cell range or array to evaluate.

Percentage is the percentage of values to be excluded.

If, for example, 100 values are given and **Percentage** is set to 10%, 10 values will be excluded: 5 from the bottom and 5 from the top.

Note: For symmetry, the number of excluded values will automatically be rounded down to a multiple of 2. For example, if 30 values are given and **Percentage** is set to 10%, only 2 values will be excluded instead of 3.

Example:

Cells A1:A10 contain the following values:

43, 45, 42, **0**, 44, 45, 42, **1234**, 40, 41

As you can see, two values are exceptionally low/high (e.g., because of a measuring error): 0 and 1234. Thus, using the AVERAGE function would return an unusable result:

AVERAGE(A1:A10) returns 159.2

If using TRIMMEAN instead, the top and bottom values are ignored:

TRIMMEAN(A1:A10, 20%) returns 42.75

In this case, 20% of the values (i.e., 2 values) were excluded: 0 at the bottom and 1234 at the top.

See also:

AVERAGE, GEOMEAN, HARMEAN

TRUE (logical value TRUE)

Syntax:

TRUE()

Description:

Returns the logical value TRUE.

See also:

FALSE

TRUNC (truncate a number)

Syntax:

TRUNC(Number [, n])

Description:

Returns the given number truncated to **n** digits after the decimal point.

n (optional) is the number of decimal places.

If **n** is omitted, **Number** is truncated to an integer.

If **n** is a negative value, **Number** is truncated to the left of the decimal point. For example, if **n** is -2, **Number** is truncated to the nearest multiple of hundred (see last example).

Example:

TRUNC(5.779) returns 5

TRUNC(5.779, 2) returns 5.77

TRUNC(1234, -2) returns 1200

See also:

ROUNDDOWN, ROUNDUP, DECIMALS, ROUND

TTEST (t-test)

Syntax:

TTEST(Array1, Array2, Tails, Type)

Description:

Returns the result of a Student's t-test.

The t-Test is typically used to test the difference of the means of two samples.

Array1 and **Array2** are the two arrays to be evaluated.

Tails is the number of distribution tails:

1: One-tailed distribution

2: Two-tailed distribution

Type is the type of t-test:

1: dependent samples ("paired")

2: independent samples, equal variances ("homoscedastic")

3: independent samples, different variances ("heteroscedastic")

See also:

TINV, TDIST

TYPE (type of a value)

Syntax:

TYPE(Value)

Description:

Returns the type of the specified value.

The result is one the following numbers:

Value is a ...	Result
Number or empty cell	1
Text string	2
Logical value	4

Error value	16
Array	64

Example:

TYPE(42) returns 1

If A1 contains the text string "Text":

TYPE(A1) returns 2

See also:

ERROR.TYPE

UPPER (convert text to upper case)

Syntax:

UPPER(Text)

Description:

Converts all characters in a text string to upper case letters.

Example:

UPPER("PlanMaker") returns PLANMAKER

See also:

PROPER, LOWER

USERFIELD (user field)

Syntax:

USERFIELD(FieldName)

Description:

Returns the content of one of the fields with user data (name, address, etc.) entered in PlanMaker's preferences dialog.

Note: To change the content of these fields, choose **Tools > Options**, switch to the **General** property sheet, and then click on **User (Home)** or **User (Business)** (see also section "Preferences, General property sheet", page 349).

FieldName is the name of the field to be returned (see table below).

Uppercase and lowercase letters can be mixed. Please note that, if entered directly, **FieldName** has to be surrounded by double quotation marks (").

FieldName can be one of the following text strings:

User (Home)	Field name
First name	Home.First name
Last name	Home.Last name
Initials	Home.Initials
Address	Home.Street
State, ZIP	Home.ZIP
City	Home.City
Phone 1	Home.Phone1
Phone 2	Home.Phone2
Fax	Home.Fax
E-mail	Home.E-mail
Web site	Home.Website

User (Business)	Field name
First name	Business.First name
Last Name	Business.Last name
Initials	Business.Initials
Company	Business.Company
Department	Business.Department
Address	Business.Street
State, ZIP	Business.ZIP
City	Business.City
Phone 1	Business.Phone1

Phone 2	Business.Phone2
Fax	Business.Fax
E-mail	Business.E-mail
Web site	Business.Website

Compatibility note:

This function is *not* supported by Microsoft Excel. If you save a document in Excel format, all calculations using this function will be replaced by their last result as a *fixed* value.

Example:

USERFIELD("Business.Website") returns www.softmaker.com

See also:

FILENAME, SHEETNAME

VALUE (convert text into a number)

Syntax:

VALUE(Text)

Description:

Converts a text string representing a number into a number.

Text is the text string to convert. It must contain the text representation of a number, otherwise a #VALUE! error value is returned.

Note:

This function was retained only for compatibility with older spreadsheet applications. It is no longer commonly used, as current spreadsheet applications (including PlanMaker) automatically convert text strings into numbers, where necessary.

Example:

VALUE("42") returns 42

VALUE("42 DM") returns 42, since "DM" is a valid currency unit.

VALUE("42 bolts") returns a #VALUE! error value.

VALUE("TRUE") returns 1

VALUE("09/25/2008") returns 39716, the serial date value for the date 09/25/2008.

See also:

TEXT, T, N

VAR (variance of a sample)

Syntax:

VAR(Number1, Number2 [, Number3 ...])

Description:

Estimates the variance of a population based on a sample.

Number1, **Number2**, etc., are single values, cell ranges, or arrays containing the values to be evaluated.

Empty cells, text strings, and logical values are ignored.

Example:

VAR(2, 2, 3, 4, 1) returns 1.3

See also:

VARA, VARP, STDEV, STDEVP

VARA (variance of a sample)

Syntax:

VARA(Value1, Value2 [, Value3 ...])

Description:

Estimates the variance of a population based on a sample, including logical values and text.

Value1, **Value2**, etc., are single values, cell ranges, or arrays containing the values to be evaluated.

Empty cells are ignored.

Note:

Unlike the VAR function, VAR**A** also evaluates logical values and text:

FALSE evaluates as 0.

TRUE evaluates as 1.

Text evaluates as 0.

Example:

VARA(2, 2, 3, 4, 1) returns 1.3

See also:

VAR

VARP (variance of entire population)

Syntax:

VARP(Number1, Number2 [, Number3 ...])

Description:

Returns the variance of an entire population.

Number1, **Number2**, etc., are single values, cell ranges, or arrays containing the values to be evaluated. Please note that *all* values of the *entire* population have to be given. To calculate the variance of a sample, use the VAR function instead.

Empty cells, text strings, and logical values are ignored.

Example:

VARP(2, 2, 3, 4, 1) returns 1.04

See also:

VAR, STDEV, STDEVP

VARPA (variance of entire population)

Syntax:

VARPA(Value1, Value2 [, Value3 ...])

Description:

Returns the variance of an entire population, including logical values and text.

Value1, **Value2**, etc., are single values, cell ranges, or arrays containing the values to be evaluated. Please note that *all* values of the *entire* population have to be given. To calculate the variance of a sample, use the VARA function instead.

Empty cells are ignored.

Note:

Unlike the VARP function, VARP**A** also evaluates logical values and text:

FALSE evaluates as 0.

TRUE evaluates as 1.

Text evaluates as 0.

Example:

VARPA(2, 2, 3, 4, 1) returns 1.04

See also:

VARP

VLOOKUP (look up column-wise)

Syntax:

VLOOKUP(Crit, Range, n [, Sorted])

Description:

Scans the first column of **Range** for the given value. If found, the function returns the content of the cell located in the same row and **n**-th column of **Range**.

If no exact match is found, the next smallest value will be taken. If no smaller value exists, a #N/A error value is returned.

Note: VLOOKUP can search vertically only. To search horizontally, use HLOOKUP instead.

Crit is the value to be searched for (case insensitive).

Range is the cell range or array to be evaluated. Its first column should contain the values to be scanned.

n is the relative column number in **Range** from which a value will be returned.

If **n** is less than 1, a #VALUE! error value is returned. If **n** is greater than the total number of columns in **Range**, a #REF! error value is returned.

Sorted is a logical value determining whether the values in the first column of **Range** are in sorted order:

TRUE or omitted: Values have to be sorted in ascending order.

FALSE: Values do not have to be sorted.

See also:

HLOOKUP, INDEX, MATCH

WEEKDAY (weekday)

Syntax:

WEEKDAY(Date [, Mode])

Description:

Returns the day of the week of a date as a number.

Date is the date to be evaluated.

Mode (optional) lets you change the type of values to be returned:

1 or omitted: Numbers from 1 (Sunday) to 7 (Saturday) are returned.

2: Numbers from 1 (Monday) to 7 (Sunday) are returned.

3: Numbers from 0 (Monday) to 6 (Sunday) are returned.

Example:

WEEKDAY("09/25/1966") returns 1 (i.e., Sunday)

WEEKDAY("09/25/1966", 2) returns 7 (i.e., Sunday)

See also:

YEAR, ISOWEEK, WEEKNUM, MONTH, DAY

WEEKNUM (number of week)

Syntax:

WEEKNUM(Date [, WeekStartsOn])

Description:

Returns the week number of a date.

Date is the date to be evaluated.

WeekStartsOn (optional) lets you specify on which day a week begins:

1 or omitted: Week begins on Sunday.

2: Week begins on Monday.

Example:

On Sunday, the 4th of January, 2004:

WEEKNUM("01/04/2004", 1) returns 2

WEEKNUM("01/04/2004", 2) returns 1

See also:

ISOWEEK, YEAR, MONTH, DAY, WEEKDAY

WEIBULL (Weibull distribution)

Syntax:

WEIBULL(x, Alpha, Beta, Cumulative)

Description:

Returns the Weibull distribution function.

x is the value to be evaluated. Must be ≥ 0.

Alpha is a shape parameter of the function. It has to be greater than zero. Note: If Alpha = 1, the Weibull distribution equals an exponential distribution with Lambda = 1/**Beta**.

Beta is the scale parameter of the function. It has to be greater than zero.

The logical value **Cumulative** lets you specify which type of function will be returned:

FALSE: The probability density function is returned.

TRUE: The cumulative distribution function is returned.

Example:

WEIBULL(42, 2, 100, TRUE) returns 0.16172

WEIBULL(42, 2, 100, FALSE) returns 0.00704

See also:

EXPONDIST, POISSON

WORKDAY (date after x workdays)

Syntax:

WORKDAY(StartDate, Days [, Holidays])

Description:

Returns the date that is the specified number of workdays before/after **StartDate**.

This function counts workdays only, Saturdays and Sundays are skipped. Optionally, you can specify a list of holidays to be skipped as well (see **Holidays** parameter).

StartDate is the start date.

Days is the number of workdays. A positive value will return a date in the future, a negative value will return a date in the past.

Holidays (optional) is a cell range or an array containing a list of dates to be skipped (e.g., holidays).

Example:

WORKDAY("6/7/2004", 10) returns 6/21/2004.

See also:

HOLIDAY, NETWORKDAYS

XIRR (internal rate of return)

Syntax:

XIRR(Values, Dates [, Guess])

Description:

Returns an estimate for the internal rate of return of an investment with *irregular* cash flows.

The calculation is based on the cash flows specified in the **Values** argument. Payments have to be entered as negative values, incomes as positive values. The date of each cash flow has to be specified using the **Dates** argument.

Values is a cell range or array containing the cash flows. At least one payment and one income have to be given.

Dates is a cell range or array containing the dates for each cash flow specified in **Values**.

Guess (optional) lets you specify an estimate for the result (see note below).

Note:

The result of this function is calculated using an iterative search technique. If the search does not converge after 20 iterations, a #NUM error value is returned. If this occurs, try altering the **Guess** parameter.

See also:

IRR, NPV, MIRR, RATE, XNPV

XNPV (net present value)

Syntax:

XNPV(Rate, Values, Dates)

Description:

Returns the net present value of an investment with *irregular* cash flows.

The calculation is based on the cash flows specified in the **Values** argument. Payments have to be entered as negative values, incomes as positive values. The date of each cash flow has to be specified using the **Dates** argument.

Rate is the discount rate to apply to the cash flows.

Values is a cell range or array containing the cash flows. At least one payment and one income have to be given.

Dates is a cell range or array containing the dates for each cash flow specified in **Values**.

See also:

NPV, XIRR

XOR (logical XOR function)

Syntax:

XOR(Value1, Value2 [, Value3 ...])

Description:

XOR ("exclusive or") returns the logical value TRUE if an *odd* number of the arguments is TRUE, otherwise it returns FALSE.

Compatibility note:

This function is *not* supported by Microsoft Excel. If you save a document in Excel format, all calculations using this function will be replaced by their last result as a *fixed* value.

Example:

XOR(TRUE, TRUE) returns FALSE

XOR(TRUE, FALSE) returns TRUE

XOR(FALSE, TRUE) returns TRUE

XOR(FALSE, FALSE) returns FALSE

See also:

OR, AND, NOT

YEAR (year of a date)

Syntax:

YEAR(Date)

Description:

Returns the year of a date.

Example:

YEAR("09/25/2012") returns 2012

See also:

ISOWEEK, WEEKNUM, MONTH, DAY, WEEKDAY

ZTEST (z-test)

Syntax:

ZTEST(Area, x [, Sigma])

Description:

Returns the one-tailed probability of a z-test.

Area is the cell range or array containing the values **x** will be tested against.

x is the value to be tested.

Sigma (optional) is the standard deviation of the entire population (if known). If omitted, the standard deviation of the given sample (i.e., the values in **Area**) is used.

See also:

STANDARDIZE, NORMDIST, NORMSDIST

Keyboard shortcuts

The following pages provide tables for the most frequently used keyboard shortcuts in PlanMaker:

- **Keyboard shortcuts for editing spreadsheets**
- **Keyboard shortcuts for menu commands**

> ***Hint:*** If you want to customize PlanMaker's keyboard shortcuts, use the **Tools > Customize > Keyboard Mappings** command (see section "Customizing keyboard shortcuts", page 384).

Keyboard shortcuts for editing spreadsheets

Command	Keyboard shortcut
Move to the next cell	← / → / ↑ / ↓
Move to the next *filled* cell	Ctrl + ← / → / ↑ / ↓
Move to the previous page	Page ↑
Move to the next page	Page ↓
Move to the first cell in the current column	Ctrl Page ↑
Move to the last cell in the current column	Ctrl Page ↓
Move to the first cell in the current row	Home
Move to the last *filled* cell in the current row	End
Move to the first cell in the worksheet (A1)	Ctrl Home
Move to the last *filled* cell in the worksheet	Ctrl End
Move to the previous worksheet	Ctrl ⇧ Tab
Move to the next worksheet	Ctrl Tab
Move to the next circular reference	⇧ F5
Move to the next error	Ctrl F3

Command	Keyboard shortcut
Copy cell above	Ctrl , (comma)
Copy value from cell above	Ctrl ⇧ , (comma)
Enter an array formula	Ctrl ⇧ ↵
Select current array formula	Ctrl 7
Select current conditional formatting	Ctrl 6
Open a selection list with the cell contents directly above or below a cell	Alt ⇧ ↓
Switch between AUTO and TEXT input mode (see section "Status bar", page 31)	Ctrl Shift⇧ F4

Keyboard shortcuts for menu commands

Command	Keyboard shortcut
File > New	Ctrl N
File > Open	Ctrl O
File > Close	Ctrl W or Ctrl F4
File > Save	Ctrl S
File > File Manager	F12
File > Print	Ctrl P
File > Exit	Ctrl Q or Alt F4
Edit > Undo	Ctrl Z
Edit > Redo	Ctrl Y
Edit > Repeat	Ctrl Shift⇧ Y
Edit > Cut	Ctrl X
Edit > Copy	Ctrl C

Command	Keyboard shortcut
Edit > Paste	Ctrl V
Edit > Paste Special	Ctrl ⇧ V
Edit > Select All	Ctrl A
Edit > Search	Ctrl F
Edit > Replace	Ctrl H
Edit > Search again	F3
Edit > Go to	Ctrl G or F5
View > Full Screen	F6
Format > Cell	Ctrl 1
Number format: Number	Ctrl ⇧ 1
Number format: Scientific	Ctrl ⇧ 2
Number format: Currency	Ctrl ⇧ 4
Number format: Percentage	Ctrl ⇧ 5
Format > Character	Ctrl 2
Format > Standard	Ctrl Space
Select font (in the Formatting toolbar)	Ctrl D
Boldface on/off	Ctrl B or Ctrl ⇧ F
Italics on/off	Ctrl I or Ctrl ⇧ K
Underlining on/off	Ctrl ⇧ U
Superscript	Ctrl ⇧ Num+
Subscript	Ctrl ⇧ Num-
Remove super- or subscript	Ctrl ⇧ Num*
Alignment: default	Ctrl T
Alignment: left	Ctrl L

Command	Keyboard shortcut
Alignment: right	Ctrl R
Alignment: centered	Ctrl E
Alignment: justified	Ctrl J
Insert > Function	F7
Insert > Comment	⇧ F2
Insert current date	Ctrl .
Insert current time	Ctrl ⇧ .
Hide current row	Ctrl 9
Show current row	Ctrl ⇧ 9
Hide current column	Ctrl 0
Show current column	Ctrl ⇧ 0
Table > Insert Cells	Ctrl +
Table > Delete Cells	Ctrl -
Tools > Recalculate	F9
Recalculate the current worksheet only	Shift⇧ F9
Tools > Update Charts	F8

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