Glossary

To look up a specific word in the Glossary, select a letter and then select the word. To move through the alphabet, use Browse.

To select a letter using the mouse, point to a green letter with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

A   B   C   D   E

F   G   H   I   J

K   L   M   N   O

P   Q   R   S   T

U   V   W   X   Y

Z

A   Glossary Index

To select a definition using the mouse, point to green text with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

abbreviated cell address

absolute reference

active area

active file

active window

add-in

address box

adjustable cell

anchor cell

ANSI (American National Standards Institute)

answer

area graph

argument

argument separator

arithmetic operator

ASCII(American Standard Code for Information Interchange)

@function

attempt

autoexecute macro

axis

axis title

axis-unit exponent

axis-unit name

B   <u>Glossary Index</u>

To select a <u>definition</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

<u>background recalculation</u>

<u>Backsolver</u>

<u>backup file (.BAK and .FMB)</u>

<u>bar graph</u>

<u>binding constraint</u>

<u>blank cell</u>

<u>border</u>

<u>bounding box</u>

<u>branch</u>

<u>byte pointer</u>

C

To select a definition using the mouse, point to green text with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

cancel

Cancel button

cascade menu

cell

cell address

cell contents

cell format

cell pointer

cell reference

character set

check box

circular reference

click

Clipboard

collating sequence

column

column letters

column width

command

command button

compose sequence

concatenate

configuration setting

Confirm button

constraint

contents box

Control menu box

control panel

criteria

criteria range

current cell

current directory

current file

current graph

current selection

current worksheet

D   <u>Glossary Index</u>

To select a <u>definition</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

<u>data label</u>

<u>data point</u>

<u>data range</u>

<u>data series</u>

<u>database</u>

<u>database @function</u>

<u>database table</u>

<u>date @function</u>

<u>Date format</u>

<u>date number</u>

<u>DDE (Dynamic Data Exchange)</u>

<u>debug</u>

<u>default directory</u>

<u>default font</u>

<u>default font set</u>

<u>default page settings</u>

<u>default printer</u>

<u>default setting</u>

<u>defined range name</u>

<u>delimited text file</u>

<u>destination range</u>

<u>dialog box</u>

<u>directory</u>

<u>directory name</u>

<u>dotted box</u>

<u>double-click</u>

<u>draft display mode</u>

<u>drag</u>

<u>drive name</u>

<u>driver</u>

<u>drop-down box</u>

<u>drop shadow</u>

E   <u>Glossary Index</u>

To select a <u>definition</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

<u>edit line</u>

<u>entry</u>

<u>ERR</u>

<u>extension</u>

<u>external database</u>

<u>external database table</u>

F   <u>Glossary Index</u>

To select a <u>definition</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

<u>field</u>

<u>field name</u>

<u>file</u>

<u>file name</u>

<u>file reference</u>

<u>financial @function</u>

<u>flow of control</u>

<u>font</u>

<u>font set</u>

<u>footer</u>

<u>format file</u>

<u>format line</u>

<u>formatting</u>

<u>formatting description</u>

<u>formula</u>

<u>free cell</u>

<u>function key</u>

G   <u>Glossary Index</u>

To select a <u>definition</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

<u>global setting</u>

<u>graph</u>

<u>graph type</u>

<u>Graph window</u>

<u>grid lines</u>

<u>guess value</u>

H   Glossary Index

To select a <u>definition</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

<u>handle</u>

<u>hatch pattern</u>

<u>header</u>

<u>Help</u>

<u>highlight</u>

<u>HLCO graph (high-low-close-open)</u>

<u>horizontal graph</u>

I   <u>Glossary Index</u>

To select a <u>**definition**</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

<u>icon</u>

<u>if-then-else</u>

<u>inconsistent constraint</u>

<u>indicator</u>

<u>information box</u>

<u>initial setting</u>

<u>input cell</u>

<u>input range</u>

<u>input value</u>

<u>insertion point</u>

<u>Install program</u>

<u>iteration</u>

K　　Glossary Index

To select a <u>definition</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

<u>keystroke instruction</u>

<u>keyword</u>

L   <u>Glossary Index</u>

To select a <u>definition</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

<u>label</u>

<u>label alignment</u>

<u>label range</u>

<u>label-prefix character</u>

<u>landscape mode</u>

<u>legend</u>

<u>legend label</u>

<u>LICS (Lotus International Character Set)</u>

<u>line graph</u>

<u>linear scale</u>

<u>link</u>

<u>linked files</u>

<u>list box</u>

<u>literal string</u>

<u>LMBCS (Lotus Multibyte Character Set)</u>

<u>logarithmic scale</u>

<u>logical @function</u>

<u>logical formula</u>

<u>logical operator</u>

<u>long label</u>

<u>long value</u>

<u>loop</u>

M   <u>Glossary Index</u>

To select a <u>definition</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

<u>macro</u>

<u>macro command</u>

<u>macro instruction</u>

<u>main macro</u>

<u>marker</u>

<u>mathematical @function</u>

<u>Maximize button</u>

<u>maximum value</u>

<u>menu bar</u>

<u>menu pointer</u>

<u>Minimize button</u>

<u>minimum value</u>

<u>mixed cell reference</u>

<u>mixed graph</u>

<u>mode</u>

<u>mouse pointer</u>

N

To select a <u>definition</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

<u>NA</u>

<u>named font set</u>

<u>named page settings</u>

<u>named style</u>

<u>nested subroutine</u>

<u>nonblank cell</u>

<u>numeric formula</u>

O   <u>Glossary Index</u>

To select a <u>definition</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

<u>1-2-3 Classic</u>

<u>object</u>

<u>offset number</u>

<u>operator</u>

<u>optimal answer</u>

<u>optimal cell</u>

<u>option button</u>

<u>order of precedence</u>

<u>orientation</u>

<u>output range</u>

P

To select a definition using the mouse, point to green text with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

page settings

panes

path

percent scale

perspective view

pie chart

pitch

plot frame

point

point sizes

pointer-movement keys

portrait mode

preselection

print job

print range

printer driver

printer font

proportional spacing

protect

pulldown menu

R   <u>Glossary Index</u>

To select a <u>definition</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

<u>radian</u>

<u>RAM (random access memory)</u>

<u>range</u>

<u>range address</u>

<u>range name</u>

<u>read</u>

<u>recalculation</u>

<u>recalculation order</u>

<u>recalculation setting</u>

<u>record</u>

<u>relative reference</u>

<u>repeating label</u>

<u>reservation</u>

<u>reset</u>

<u>Restore button</u>

<u>ripple-through effect</u>

<u>row</u>

S

To select a <u>definition</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

<u>2nd y-axis</u>

<u>save</u>

<u>scroll bar</u>

<u>scroll box</u>

<u>scrolling</u>

<u>sealed file</u>

<u>select</u>

<u>selection</u>

<u>setting</u>

<u>SmartIcons</u>

<u>soft font</u>

<u>Solver</u>

<u>sort</u>

<u>source range</u>

<u>special @function</u>

<u>specify</u>

<u>spreadsheet</u>

<u>statistical @function</u>

<u>status indicator</u>

<u>status line</u>

<u>stock market graph</u>

<u>string @function</u>

<u>subdirectory</u>

<u>subroutine</u>

<u>subroutine call</u>

<u>summary worksheet</u>

T

To select a <u>definition</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

U   <u>Glossary Index</u>

To select a <u>definition</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

<u>undefined range name</u>

<u>unused constraint</u>

V   <u>Glossary Index</u>

To select a <u>definition</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

<u>value</u>

<u>variable</u>

<u>vertical graph</u>

W

To select a definition using the mouse, point to green text with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

weight

what-if calculation

wildcard character

window

worksheet

worksheet file

worksheet frame

worksheet letter

Worksheet window

X   <u>Glossary Index</u>

To select a <u>definition</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

<u>x-axis</u>

<u>/X commands</u>

<u>X range</u>

<u>XY (scatter) graph</u>

Y   <u>Glossary Index</u>

To select a <u>**definition**</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

<u>y-axis</u>

abbreviated cell address

A cell address that contains a cell's column letter and row number, but not its worksheet letter. You use an abbreviated cell address to refer to a cell in the current worksheet.

absolute reference

In a formula, a reference to a cell or a range that always refers to the same cell or range when you copy the formula. Use absolute references in formulas when you do not want a cell or range address to change when you copy the formula.

In an absolute cell reference, a $ (dollar sign) precedes the worksheet letter, column letter, and row number ($A:$A$4). In an absolute range name, a $ (dollar sign) precedes the range name ($INTEREST).

For example, if you copy the formula +$A$1*B10 entered in cell C10 to C11 and C12, the formula changes to +$A$1*B11 and +$A$1*B12. The absolute reference ($A$1) does not change.

active area

The area bounded by cell A1 and the lowest and rightmost nonblank cell in the current worksheet. Use END HOME to find this cell. The size of the active area affects the amount of memory a worksheet requires.

active file

An open worksheet file.

active window

The window in which you are working. Only one window can be active at a time.

add-in

A special program, created by Lotus and other software developers, that you can use with 1-2-3 to extend its capabilities.

address box

The left area of the edit line, which indicates the full cell address of the current cell.

adjustable cell

One or more cells that the Solver can change to solve a problem. Adjustable cells must contain numbers and cannot be protected.

anchor cell

The cell at which you begin to highlight a range.

ANSI (American National Standards Institute)

A set of character codes used by Windows. The ANSI character set contains 256 character codes. The first 128 ANSI characters (0-127) are the same as the ASCII character set.

answer

In the Solver, a solution the Solver finds for a problem. An answer can be the optimal answer, the best answer, or a sample answer.

area graph

A line graph in which a different pattern or color fills the area between each plotted line.

argument

Text, a value, location, or condition that you provide for an @function or macro command. For example, in the formula @SUM(A1..A10), the argument is A1..A10. In the macro {BRANCH TOTALS}, the argument is the range name TOTALS.

argument separator

A , (comma), ; (semicolon), or . (period) that separates one argument from another in an @function or macro command, and one range from another in some commands. Commas and semicolons are the initial default argument separators. A ; (semicolon) is always a valid argument separator, but you can set either . (period) or , (comma) as an argument separator using Tools User Setup International.

arithmetic operator

A symbol in a formula that indicates the arithmetic relationship between two values or the type of operation being performed: + (addition), - (subtraction), * (multiplication), / (division), ^ (exponentiation).

ASCII (American Standard Code for Information Interchange)

A standard set of character codes many computers and devices use to create text. LMBCS (Lotus Multibyte Character Set) and ANSI (American National Standards Institute) include the ASCII character set.

@function

A formula built into 1-2-3 to perform a specialized calculation automatically. You can use an @function by itself as a formula, combine it with other @functions and formulas, or use it in a macro.

There are eight categories of @functions: database, date and time, financial, logical, mathematical, special, statistical, and string.

attempt

In the Solver, a result that the Solver finds that does not satisfy one or more constraint formulas.

autoexecute macro

A macro named \0 (backslash zero) that 1-2-3 executes automatically if the Run autoexecute macros option in Tools User Setup is selected when you open a file that contains the \0 macro.

axis

A vertical or horizontal reference line in a graph, usually called x-axis, y-axis, or 2nd y-axis, against which 1-2-3 plots numeric values or adds labels that identify data you are graphing.

axis title

Text that describes the x-axis, y-axis, or 2nd y-axis.

axis-unit exponent

In a graph, the power of ten by which numbers along the axis scale must be multiplied to reflect the values you are graphing.

axis-unit name

In a graph, text that describes the axis scale (for example, Thousands).

background recalculation

A feature that lets you continue working in the worksheet while 1-2-3 recalculates formulas, if Tools User Setup Recalculaton is set to Automatic.

Backsolver

Use Tools Backsolver to make the result of a formula in a cell equal to a value you specify.

backup file (.BAK and .FMB)

A file that 1-2-3 creates when you use File Save As or File Extract To and select Backup to save a file with an existing file name.

For example, the version of SALES.WK3 on disk is renamed SALES.BAK, and the version currently in memory is saved as SALES.WK3. The backup version of the format file (used to store formatting information associated with a worksheet file) is saved as SALES.FMB and the current format file is saved as SALES.FM3.

bar graph

A graph that represents values as a set of bars that are evenly spaced along the x-axis. Each bar represents a value in the range you are graphing.

binding constraint

In the Solver, a constraint formula that is satisfied at its most limiting condition for the current answer. For example, if the constraint formula is +B6>=5, and the Solver adjusts the value in B6 to be 5, the constraint is binding for the answer.

blank cell

A cell that contains no label-prefix character, letters, numbers, or spaces.

border

In a worksheet, the outline you define along one or more edges of a selected cell or range. In a window, the outline of the window, which is highlighted when the window is active. In a graph, the lines around the graph data.

bounding box

A rectangle that outlines each object you add in a Graph window. The bounding box does not print and is visible only when you move an object or change the size or shape of an object in a Graph window.

branch

A transfer of macro control to another macro routine. Unlike subroutine calls, branches do not return control to the original macro.

byte pointer

A place marker that moves by bytes in a text file. 1-2-3 uses the byte pointer in some of the file-manipulation macro commands.

cancel

To abandon a command before completing it.

Cancel button

☒

Appears in the edit line to the left of the contents box when you enter data. Click the Cancel button to cancel an entry and return 1-2-3 to READY mode.
In a dialog box, the Cancel command button closes the dialog box and cancels the command.

cascade menu

A menu that displays additional commands from a pulldown or cascade menu. If an arrowhead follows a command name on a pulldown menu, a cascade menu appears when you choose the command.

cell

The basic unit of a 1-2-3 worksheet. The intersection of a column and a row forms a cell. You enter and store data in a cell.

cell address

The location of a cell, identified by worksheet letter, column letter, and row number; for example, A:A1.

cell contents

The number, label, or formula stored in a cell. You see the cell contents in the edit line when the cell pointer is on the cell.

cell format

The way 1-2-3 displays values on the screen. A number's displayed value may differ from the actual value entered in the cell depending on the cell format. For example, the entry 25.451 may appear as $25.45, 2545%, or 25.4.

cell pointer

The rectangular highlight in the worksheet that marks the current cell.

cell reference

The address or range name of a cell used in a formula. Cell references can be absolute, relative, or mixed.

character set

The set of letters, numbers, and special characters that a program can display, print, and store in files. 1-2-3 for Windows stores characters in the Lotus Multibyte Character Set (LMBCS), but displays and prints characters in the ANSI (American National Standards Institute) character set.

Windows uses the ANSI character set. If Windows cannot represent a LMBCS character, a fallback character will appear.

check box

In a dialog box, the box that turns the associated option on and off. When an X appears in the box, the option is on. When the box is blank, the option is off. When the box is filled, 1-2-3 cannot determine the state of the option for the current selection.

To change the check box for a selected option, click the check box, press the space bar, or press the underlined letter.

circular reference

A formula that refers to itself, either directly or indirectly. For example, a circular reference occurs if you enter the formula +B1+1 in cell B1. When a formula contains a circular reference, 1-2-3 displays CIRC in the status line. To identify the location of the circular reference, choose About 1-2-3 from the Help menu.

click

To press the mouse button and quickly release it.

Clipboard

A temporary storage area used by Windows to copy information from one location to another. 1-2-3 for Windows uses the Clipboard to temporarily store data when you use Edit Cut or Edit Copy. Use Edit Paste to paste the Clipboard contents into the 1-2-3 window or another application in Windows.

collating sequence

The order 1-2-3 uses to arrange entries beginning with letters, numbers, symbols, or blank cells when you sort data using Data Sort. Use Install to change the collating sequence.

column

A vertical block of 8,192 cells in a worksheet. A column is one cell wide and runs the entire length of the worksheet. For example, column B contains cells B1 through B8192. A worksheet contains 256 columns, and each column is identified by a letter or letter combination from A to IV.

column letters

The letters (A-Z, AA-AZ, BA-BZ, and so on through IV) in the worksheet frame that identify a worksheet column. Each worksheet contains 256 columns. The number of characters you can display in a column depends on the font you use.

column width

The number of characters that 1-2-3 can display in a column. The initial column width is 9 characters, but you can assign a column width from 1 to 240 characters.

command

An instruction you give 1-2-3. Commands are listed in menus and appear as buttons in dialog boxes.To complete some commands, you choose commands from menus and select options and enter specific information in dialog boxes.

If an ... (ellipsis) follows the command name, a dialog box appears when you choose the command. If an arrowhead follows the command name, a cascade menu appears when you choose the command.

command button

In a dialog box, an oblong button labeled with a command. The command is carried out when you click the button, press ENTER when the button is selected, or press the key corresponding to the underlined letter in the command name.

compose sequence

A series of keystrokes beginning with ALT+F1 (COMPOSE) that you use to produce a character that is not on your keyboard.

You can use a compose sequence to produce any character in the Lotus Multibyte Character Set (LMBCS). Windows displays and prints characters in the ANSI character set, which includes many characters in the LMBCS character set. If Windows cannot represent a LMBCS character, a fallback character will appear.

concatenate

To join pieces of text using & (ampersand), the text operator, within a text formula. The text formula +"Sales "&"Totals" concatenates the text inside the quotation marks to produce the label Sales Totals.

configuration setting

A setting from Tools User Setup or Window Display Options that 1-2-3 stores in the 1-2-3 configuration file (123W.INI) when you select Update.

Confirm button

☑

Appears in the edit line to the left of the contents box when you enter data. Click the Confirm button to enter data in a cell and return 1-2-3 to READY mode.
In a dialog box, the OK command button confirms the command and closes the dialog box.

constraint

In the Solver, a logical formula each Solver answer must satisfy. Constraint cells can use the following logical operators: >   <   >=   <=   or =. They cannot use <>, #AND#, #NOT#, or #OR#.

contents box

The right area of the edit line, which is the fourth line from the top of the 1-2-3 window. An entry you are typing or editing appears in the contents box until you confirm it or cancel it.

Control menu box

The box located in the left corner of the top line of a window or dialog box. The Control menu displays commands for moving, sizing, and closing the window, and for switching to another Windows application, or to another window in 1-2-3. The Control menu in a dialog box lets you move and close the box.

control panel

The four lines at the top of the 1-2-3 window: the title bar, menu bar, format line, and edit line. The control panel displays the product name, the menu items, the formatting description of the current cell, the current mode, the address of the current cell, and the cell contents.

criteria

Values, labels, formulas, @functions, or logical expressions that you enter in a criteria range. In Data Query, 1-2-3 uses the criteria to select records in a database table.

In database @functions, the argument *criteria* is the address or name of the criteria range.

criteria range

The range in which you enter criteria when you use Data Query or database @functions. The criteria range must contain at least two rows.The first row lists some or all of the field names from a database table; the second and any subsequent rows contain the criteria. The criteria range cannot be a 3-D range.

Criteria are values, labels, formulas, @functions, or logical expressions that you enter in a criteria range to select records with Data Query or perform calculations with database @functions. In database @functions, the argument *criteria* is the address or name of a criteria range.

current cell

The cell in the worksheet that contains the cell pointer. The next selection, entry, or edit affects the current cell. The address of the current cell appears in the address box in the edit line.

current directory

The directory that 1-2-3 automatically uses during a session to save, read, or list files. The current directory is the directory from which you started 1-2-3 or the directory you specified with Tools User Setup.

current file

The file that contains the cell pointer.

current graph

The graph displayed in the active Graph window.

current selection

The highlighted cell, range, or worksheet(s), which the next command will affect. In a graph, the current selection is the object marked by handles or another symbol, which the next command will affect.

current worksheet

The worksheet that contains the cell pointer.

data label

The label you assign to a bar or point in a graph.

data point

The coordinates of a value plotted in a line graph, XY graph, HLCO graph, or mixed graph. Data points are usually connected by line segments and may be marked by a symbol. Use Chart Options Lines to display data points as symbols.

data range

A range of data that is plotted in a graph.

data series

A graphical representation of a data range; for example, a set of bars or a line.

database

One or more database tables. A database table is a collection of related data organized in rows and columns. A 1-2-3 database table consists of records (rows of data) whose parts are identified by labeled fields (columns).

database @function

An @function that scans a database table (or tables), selects records that meet the criteria in a criteria range, and then performs calculations on the selected records.

Database @functions: @DAVG, @DCOUNT, @DGET, @DMAX, @DMIN, @DQUERY, @DSTD, @DSTDS, @DSUM, @DVAR, @DVARS.

database table

A collection of related data organized in rows and columns. A 1-2-3 database table consists of records (rows of data) whose parts are identified by labeled fields (columns). Each field contains one kind of information. For example, in an employee database table that contains the fields Last Name, First Name, and so on, each record contains information about one employee.

date @function

Calculates numbers that correspond to dates between January 1, 1900 (the date number 1), and December 31, 2099 (the date number 73050). To display a date number as the date it represents, select a date format in Range Format or Worksheet Global Settings Format. In the Graph window, choose Chart Axis [X, Y, 2nd Y] Format.

Date @functions: @DATE, @DATEVALUE, @DAY, @DAYS360, @D360, @MONTH, @NOW, @TODAY, @YEAR.

Date format

The way 1-2-3 displays a date number in a worksheet or a graph. A date number is a number from 1 through 73050 that 1-2-3 assigns in sequence to each date from January 1, 1900, through December 31, 2099. Select a date format in Range Format or Worksheet Global Settings Format to display date numbers as dates in the worksheet. In the Graph window, choose Chart Axis [X, Y, 2nd Y] Format.

Date format	Example
Day-month-year	31-Dec-91
Day-month	31-Dec
Month-year	Dec-31
Long Intl Date	12/31/91
Short Intl Date	12/31

date number

A number from 1 through 73050 that 1-2-3 assigns in sequence to each date from January 1, 1900, through December 31, 2099. For example, the date number for July 21, 1991, is 33440. Use date @functions to enter date numbers. You can use date numbers in calculations.

DDE (Dynamic Data Exchange)

Links data between files. Use Edit Link Options to create links between a 1-2-3 worksheet file and a file created with another Windows application that supports DDE.

debug

To locate and correct errors in a macro so it performs correctly.

default directory

The directory that 1-2-3 automatically uses for worksheet files when you start 1-2-3. Initially, 1-2-3 uses the directory you specified in the Install program, but you can specify a different default directory with Tools User Setup.

default font

The font 1-2-3 uses for all data in a worksheet file, except for data in cells you have explicitly formatted with another font. The default font is the first font in the list box in Style Font.

default font set

The group of fonts that is initially available to you when you open a new file. 1-2-3 uses an initial default font set that consists of typefaces in various point sizes; you can, however, change the default font set to include any font that 1-2-3, Windows, or your printer supports.

default page settings

The File Page Setup settings that are initially available when you open a new file.

default printer

The printer 1-2-3 automatically uses for printing when you start 1-2-3.

default setting

A setting that 1-2-3 automatically uses when you open a new file. For example, 1-2-3 has default settings for number format, column width, and label alignment. Use Worksheet Global Settings, Tools User Setup, and Window Display Options to change default settings.

defined range name

A range name associated with a range address.

delimited text file

A file in ASCII format that contains rows of data with delimiters. A delimiter is a comma, space, colon, or semicolon entered between numbers and labels in each row. All labels must be enclosed in quotation marks. For example, "Stolper","Boston",1400,1300,2800 is a line from a delimited text file. Use File Import From Numbers to bring data in a delimited text file into a 1-2-3 worksheet.

destination range

When you use Edit Link Options and Edit Paste Link, the range in a file that receives data from another file.

dialog box

A window that requests information needed to carry out a command. When 1-2-3 displays a dialog box, you must complete it or cancel it before you can go to any other task. When a dialog box component is not available, it is dimmed.

directory

A subdivision of a disk. You can create and name a directory and store related files in it when you save the files on a disk. Doing this makes finding and reading the files easier.

directory name

The name of a subdivision of a disk. In 1-2-3 documentation, a \ (backslash) separates the directory names in a path from each other and from the file name. For example, in C:\FEBRUARY\BUDGET.WK3, the directory name is FEBRUARY, and the file name is BUDGET.WK3.

dotted box

A rectangular, dotted-line outline that indicates the current selection in a dialog box.

double-click

To press and release the mouse button twice, quickly.

draft display mode

In draft display mode, formats and graphs do not appear in the worksheet; however, the format line displays the formatting description of the current cell, and final printed output reflects formatting changes you make. Use Window Display Options to switch between draft and graphic display mode.

drag

To press the mouse button and hold it while moving the mouse.

drive name

The two characters (a letter and a colon) that identify the disk drive. For example, C: is the name of drive C, the hard disk on your computer.

driver

A program that tells 1-2-3 how to communicate with a piece of hardware, such as a printer or monitor, or how to perform a particular task, such as reading data in an external database table.

drop-down box

In a dialog box, a box that shows a single option until you select the scroll arrow to the right of the option; then a list of options drops down. Some drop-down boxes let you enter text in the top box; in others, you must select an option from the list.

drop shadow

A graphic enhancement -- a wide, dark or colored line below and to the right of a range, as if the range were casting a shadow.

edit line

The fourth line from the top of the 1-2-3 window. The edit line is used to display and edit data in one cell. The left area of the edit line is the address box, which indicates the worksheet address of the current cell. The middle area displays the Confirm and Cancel buttons when you are entering data. The right area is the contents box, where you type or edit entries.

entry

Data entered in a cell. Every entry is either a label or a value.

ERR

A special value that either 1-2-3 generates to indicate an error in a formula or you generate with @ERR. ERR can ripple through formulas: any formula that refers to a cell that contains ERR results in ERR, and any other formula that depends on that formula also results in ERR. When you correct the formula that contains ERR, the results of dependent formulas also become correct.

The label ERR is not equivalent to the value ERR.

extension

At the end of a file name, a . (period) followed by up to three characters. When 1-2-3 for Windows creates a worksheet file, it automatically adds the extension .WK3. You can override this extension by entering a different extension when you save the file.

external database

A collection of related information, organized systematically in tables and stored in files that are not 1-2-3 files, such as dBASE IV, Paradox, or SQL Server files.

external database table

A table in an external database that contains a collection of related information. External databases are stored in files that are not 1-2-3 files, such as dBASE IV, Paradox, or SQL Server files.

field

A labeled column in a database table that contains the same kind of information for each record. For example, an employee database table usually contains fields labeled First Name, Last Name, and Employee Number.

field name

A label in the first row of a database table that identifies the contents of a field. For example, an employee database usually contains the field names First Name, Last Name, and Employee Number.

In database @functions, the argument *field* is the field name enclosed in " " (quotation marks); an offset number that indicates the position of the field (column) in the database table; or the address of a cell that contains an offset number or field name in quotation marks.

file

A named collection of data saved on disk. Use File Save or File Save As to save one or more worksheets in a worksheet file. Use File Extract To to save data in a text file in ASCII format.

file name

The name you use when you save or open a file. In 1-2-3 for Windows, a new worksheet file has a default name (FILEXXXX.WK3), where XXXX is a number like 0001, 0002, and so on. You can keep or change this file name. A file name can be up to eight characters long and can contain letters (A through Z), numbers (0 through 9), _ (underscores), and - (hyphens).

file reference

A file name and extension, with or without a path, enclosed in << >> (double angle brackets). Use a file reference in formulas and commands to refer to data in a worksheet file other than the current worksheet file.

financial @function

An @function that uses a complex formula to analyze investments or annuities, determine depreciation, or calculate cash flow or loan values.

Financial @functions: @CTERM, @DDB, @FV, @IRR, @NPV, @PMT, @PV, @RATE, @SLN, @SYD, @TERM, @VDB.

flow of control

The way in which control passes from one set of macro instructions to another during macro execution. Some macro commands that govern the flow of control are {BRANCH}, {DEFINE}, {FOR}, and {RETURN}.

font

A typeface of a particular size, such as Times Roman, 10 point or Dutch, 8 point.

font set

A group of fonts available for use with a worksheet file. The font set is listed in the Style Font dialog box. Use Style Font Replace to change the font set.

footer

A line of text 1-2-3 prints above the bottom margin of each printed page.

format file

A file in which 1-2-3 for Windows and other releases of 1-2-3 store formatting information associated with a worksheet file: .FM3 (for 1-2-3 for Windows and Wysiwyg in 1-2-3 Release 3.1), .FMT (for Impress in 1-2-3 Release 2.3), and .ALL (for Allways in 1-2-3 Release 2.2) are the extensions for format files.

format line

The third line from the top of the 1-2-3 window. On the left, the format line displays the formatting description, which gives information about the selected cell or range. On the right, the format line displays the mode indicator.

formatting

The styles applied to a cell or range, including italics, underlining, drop shadow, shading, and color.

formatting description

An abbreviated description of a format you applied to a cell. The description appears in the format line when the cell is current.

For example, {H20 Bold U3 S1} (C2) U [W15] appears as the description of a cell with the following formats: {row height, 20 points; bold; wide underlining; light shading}; (Currency format, 2 decimal places); unprotected cell in a protected worksheet; [column width, 15 characters].

formula

An entry that calculates data in a worksheet file. 1-2-3 has three types of formulas: numeric, text, and logical. A formula can contain numbers, text, operators, cell and range addresses, range names, @functions, and other formulas. The result of a formula is text (a label) or a value.

free cell

The cell located diagonally opposite the anchor cell when you select a range.

function key

A key beginning with F, such as F1, that performs a special Windows or 1-2-3 function when used alone or in combination with ALT, SHIFT, or CTRL.

global setting

A setting chosen from Worksheet Global Settings, Tools User Setup, or Window Display Options, which 1-2-3 uses for entire worksheets or files.

graph

A pictorial representation of data.

graph type

A graph available in 1-2-3: area, bar, HLCO, line, mixed, pie, and XY. Some graph types are available with 3-D effects.

Graph window

A window that appears when you create a graph with Graph New or view a graph with Graph View. You can use this window to edit and enhance graphs.

grid lines

Lines that run along the rows and columns of your worksheet, enclosing every cell in the window or in a printout. You can also display grid lines in a graph. Use Window Display Options to turn grid lines on and off in a worksheet. Use Chart Borders/Grids to turn grid lines on and off in a graph.

guess value

In the Solver, a new value you specify for an adjustable cell when the Solver needs more information to solve a problem.

handle

One of the small boxes that forms part of the bounding box. Handles show that a graph object is selected.

hatch pattern

The pattern that distinguishes one data range from another in bar and area graphs, and one slice from another in pie charts.

header

A line of text that 1-2-3 prints below the top margin of each printed page.

Help

A series of context-sensitive topics that describe 1-2-3 and appear in the Help window. To get Help with the 1-2-3 feature you are using, press F1 (HELP).

Help for 1-2-3 for Windows contains descriptions of all commands and some information that is not available in printed documentation, such as detailed information about @functions and macro commands, a glossary, and an index to error messages.

highlight

A distinctly colored background on the screen that indicates the current selection. The cell pointer, menu pointer, and indicators are also highlights.

As a verb, highlight means to position the menu pointer on a menu item or the cell pointer on a cell, or to expand the highlight on the worksheet.

HLCO graph (high-low-close-open)

A graph that illustrates stock performance (or any data that fluctuates in evenly defined time periods) by plotting four sources: the high, low, close, and open values.

horizontal graph

A graph with a horizontal y-axis. In a horizontal graph, the usual orientation of the axes is rotated clockwise 90 degrees. You can create a horizontal graph for all graph types except pie.

icon

A small picture that represents an available option, operation, or application (such as a minimized 1-2-3 window). Select an icon to perform specific tasks.

if-then-else

In a macro, conditional processing that directs the flow of control according to whether a specified condition is true or false.

inconsistent constraint

In the Solver, a logical formula that is not satisfied for a Solver attempt.

indicator

A word or icon that provides status information about a program or function key. For example, when 1-2-3 is in READY mode, the word READY appears at the right end of the format line. 1-2-3 displays status indicators in the status line at the bottom of the 1-2-3 window.

information box

A rectangular area in some dialog boxes in which 1-2-3 displays information on an item in a list box. You cannot edit the contents of an information box.

initial setting

A setting 1-2-3 uses the first time you start 1-2-3 for Windows. The initial settings remain as the default settings for 1-2-3 unless you change them.

input cell

A cell in which 1-2-3 temporarily stores values while it performs calculations for creating a what-if table.

input range

The range that contains one or more database tables that 1-2-3 searches when you use Data Query.

In database @functions, the argument *input* is the range that contains the database table(s); *input* can be the address or name of a range that contains the database table(s), or the name of the external database table(s), but it cannot be a 3-D range.

input value

In a what-if table, a number or text that 1-2-3 substitutes in a formula to perform sensitivity analysis or cross-tabulation.

insertion point

A flashing vertical bar in the contents box or a text box that indicates where text that you type will be inserted. As you type, text appears to the left while the insertion point moves to the right.

Install program

The program you use to install and configure 1-2-3 for Windows so 1-2-3 can work with your computer hardware.

iteration

One of a specific number of times 1-2-3 recalculates formulas during a {RECALC} or {RECALCCOL} macro command, when Order of recalculation is set to Rowwise or Columnwise, or when the worksheet contains a circular reference. Use Tools User Setup Recalculation to change the iteration setting.

keystroke instruction

A 1-2-3 macro instruction that represents a key on the keyboard. Keystroke instructions cause 1-2-3 to perform the same actions that pressing keys would perform.

keyword

The first word in a macro command. The keyword tells 1-2-3 what action to perform. In the command {LET TOTAL,HALF1+HALF2}, LET is the keyword, and TOTAL and HALF1+HALF2 are the arguments.

label

Any entry you begin with a letter or label-prefix character.

When you type a letter, 1-2-3 automatically inserts a label-prefix character. To create a label that begins with a number or with + - $ (# @ \ or / , you must first type a label-prefix character, such as an ' (apostrophe), " (quotation mark), or ^ (caret).

1-2-3 does not display the label-prefix character in the cell but does display it in the edit line when you highlight a cell that contains a label.

label alignment

The position of a label in a cell (left-aligned, right-aligned, or centered). To control label alignment, use Style Alignment, Worksheet Global Settings, or type a specific label-prefix character before you type a label.

label range

A range that 1-2-3 uses as the source of data labels or legend labels for a graph.

label-prefix character

The first character in a label entry. It defines the entry as a label and controls how 1-2-3 aligns the label in the cell. Use Style Alignment or Worksheet Global Settings to set the label-prefix character 1-2-3 uses when you type a label. To enter a label that begins with a number or with + - $ (# @ / or \, type one of these label-prefix characters (' ^ ") first.

Label-prefix character	Effect
' (apostrophe)	Left-aligns labels (default)
" (quotation mark)	Right-aligns labels
^ (caret)	Centers labels
\ (backslash)	Repeats one or more characters across a cell
| (vertical bar)	Entered in the first cell of a print range, tells 1-2-3 not to print that row of data

landscape mode

The orientation in which a printer prints across the length of the paper.

legend

In a graph, the explanation of the patterns, symbols, or colors used to represent the data ranges.

legend label

In a graph, text that describes a pattern, symbol, or color for each data range.

LICS (Lotus International Character Set)

The 256 codes (0 through 255) that Symphony and 1-2-3 Release 2 use to display, store, and print characters. LICS codes 32 through 127 are equivalent to ASCII and LMBCS codes 32 through 127.

line graph

A graph in which each line represents a data range and each point on the line represents one value.

linear scale

Equal intervals along the y-axis or the 2nd y-axis. In an XY graph, the x-axis may also have a linear scale.

link

A connection between two files that lets the files share data.

You can link a worksheet file to another Windows application that supports DDE (Dynamic Data Exchange) using Edit Link Options or Edit Paste Link.

To create links between 1-2-3 worksheet files, you can use file references in formulas.

linked files

Any two files that share data either through file references in formulas or DDE links.

list box

A list of choices that appears in a dialog box. If there are more choices than can fit in the visible area of the list box, use the scroll bar or the arrow keys to bring the other choices into view.

literal string

Text, including letters, numbers, punctuation marks, character spaces, and special characters, enclosed in quotation marks and used in text formulas, @functions, and macros. For example, the text formula +"Wendy "&"Clarke" combines two literal strings to display the label Wendy Clarke.

LMBCS (Lotus Multibyte Character Set)

The character set that 1-2-3 Release 3 uses that includes all the characters contained in LICS, ASCII, and most other international character sets. If Windows cannot represent a LMBCS character, a fallback character will appear.

logarithmic scale

Regular intervals along the y-axis or the 2nd y-axis that represent logarithmic changes in the plotted values. In an XY graph, the x-axis may also have a logarithmic scale.

logical @function

An @function that evaluates a Boolean condition -- a condition that is either true (producing the value 1) or false (producing the value 0). Except for @IF, all logical @functions return either 1 or 0; they cannot return any other values, including ERR (error) or NA (not available).

Logical @functions: @FALSE, @IF, @ISAFF, @ISAPP, @ISERR, @ISNA, @ISNUMBER, @ISRANGE, @ISSTRING, @TRUE.

logical formula

A formula that evaluates a condition by using a logical operator or a logical @function. The result of a logical formula is 1 for true or 0 for false. For example, the formula +A2>8 returns 1 (true) when the value in A2 is greater than 8; it returns 0 (false) when the value in A2 is 8 or less.

logical operator

A symbol in a formula that indicates the relationship between two values or defines the criteria in a query. Logical formulas return 1 if true and 0 if false. For example, +A12>500 returns 1 if the value in A12 is greater than 500; otherwise, the formula returns 0.

Logical operators: = (equal to), < (less than), <= (less than or equal to), > (greater than), >= (greater than or equal to), <> (not equal to), #AND# (AND), #NOT# (NOT), #OR# (OR).

long label

A label that exceeds the column width. If the cell to the right is blank, a long label extends into the next column. If the cell to the right is not blank, 1-2-3 displays as much of the label as possible. 1-2-3 stores the entire label in the cell. To see the entire label, widen the column or place the pointer on the cell and view the label in the edit line.

long value

A formatted value that is wider than the cell's column width minus one. For example, in a cell that is nine characters wide and formatted as Currency with two decimal places, 1500 is a long value because $1,500.00 contains nine characters -- one more than the cell's width minus one. Depending on the cell format, 1-2-3 displays a long value in scientific notation or displays *** (asterisks). To display the value, widen the column.

loop

A set of macro instructions that executes repeatedly. You can use the macro commands {FOR} and {BRANCH} to create a loop in a macro.

macro

A set of instructions for automating a 1-2-3 task. Macros include keystroke instructions and macro commands. You can use a macro to enter data or to perform a series of 1-2-3 commands that will format worksheets or files, guide users through specific applications, calculate complex formulas with variable data, extract database records for use in a report, and so on.

macro command

A macro instruction that tells 1-2-3 to perform a built-in programming function. Each macro command consists of a keyword and its arguments (if any), enclosed in braces. {BRANCH TOTALS} is an example of a macro keyword (BRANCH) and its argument (the range name TOTALS).

macro instruction

A keystroke instruction or a macro command in a macro.

main macro

The macro that initiates a subroutine call, branch, or loop.

marker

A symbol at each data point in a line graph or XY graph.

mathematical @function

An @function that performs a mathematical operation, such as calculating square roots, or replaces complex trigonometric calculations. Mathematical @functions use only values, including the special values ERR and NA, and the address or range name of a single cell that contains a value.

Mathematical @functions: @ABS, @ACOS, @ASIN, @ATAN, @ATAN2, @COS, @EXP, @INT, @LN, @LOG, @MOD, @PI, @RAND, @ROUND, @SIN, @SQRT, @TAN.

Maximize button

The button that appears at the far right end of a window title bar. Click this button to expand the window to fill the entire screen, or choose Maximize from the Control menu.

maximum value

In a graph, the highest numeric value for the axis scale. Values that are larger than the maximum value are not displayed in the graph.

menu bar

The second line from the top of the 1-2-3 window. The menu bar displays the main menu for the Worksheet, Graph, or Transcript window, depending on which window is active.

menu pointer

A highlight that marks the current menu item.

Minimize button

The button that appears at the right end of a window title bar. Click this button to reduce the window to an icon, or choose Minimize from the Control menu.

minimum value

In a graph, the lowest numeric value for the axis scale. Values that are smaller than the minimum value are not displayed in the graph.

mixed cell reference

In a formula, a reference to a cell in which one or two parts of the address are absolute; that is, preceded by $ (dollar sign). For example, if you copy the reference +A:$C4, the column letter stays the same while the worksheet letter and row number change.

mixed graph

A graph that includes both lines and bars. A mixed graph can include up to three lines and three sets of bars.

mode

A state in which 1-2-3 performs a particular process. For example, in READY mode, you can enter data or choose commands. In POINT mode, you can select a range by expanding the highlight. The mode indicator, located at the right end of the format line, tells you the current mode.

mouse pointer

The symbol that indicates the location of the mouse on the screen. The pointer is usually shaped like an arrow, but can change depending on the task. For example, when you change the size of a window, the pointer becomes a white two-headed arrow.

NA

A special value that either 1-2-3 or you generate to indicate that a value needed to complete a formula is not available.

NA can ripple through formulas: any formula that refers to a cell that contains NA results in NA (no matter how the value NA is generated) unless the cell contains ERR. (ERR takes precedence over NA.) This ripple-through effect also means that when you provide the previously unavailable value to a formula that contains NA, the results of the dependent formulas also become correct.

The label NA is not equivalent to the value NA.

named font set

A file in which you save a font set so that you can use it with worksheet files. Use Style Font Replace to save and retrieve named font sets. 1-2-3 automatically adds the extension .AF3 to a named font set when you save it.

named page settings

Print options, such as margins, headers, and footers, that you named and saved with File Page Setup Save. 1-2-3 for Windows saves page settings to an .AL3 file. When you save page settings, you can use them again without having to respecify them.

named style

A collection of styles copied from a single cell that you can apply to a range in a file.

nested subroutine

In a macro, a subroutine that is called from within another subroutine. If 1-2-3 encounters a subroutine call while executing a subroutine, it transfers control to the subroutine specified in the subroutine call, performs the instructions there, returns to the first subroutine, finishes the instructions there, and finally returns to the main macro.

nonblank cell

A cell that contains a label-prefix character, letters, numbers, or spaces. A nonblank cell can appear to be blank if it has only a label-prefix character or spaces in it.

numeric formula

A formula that calculates numeric values using one or more of the arithmetic operators + - * / and ^. For example, the numeric formula +H16*2 multiplies the value in cell H16 by 2.

1-2-3 Classic

The command structure and functionality of 1-2-3 Release 3.1, available in 1-2-3 for Windows. 1-2-3 Classic provides keystroke and macro compatibility so you can run macros created in other releases of 1-2-3 in 1-2-3 for Windows.

object

A part of a graph or annotation, such as a shape, a line, an arrow, or text -- anything that you can create, select, or manipulate within a Graph window.

offset number

The number that corresponds to the position of a specified row, column, character, or byte; used in some @functions and macros. The first row, column, character, or byte always has an offset number of 0, the second 1, the third 2, and so on.

In a database @function, the *field* argument can be the offset number for a field in the database table. For example, if the field TOTALS is in the fifth column of the database table, the offset number for that field is 4.

operator

A symbol in a formula that indicates the relationship between two values or the type of operation to be performed. 1-2-3 uses arithmetic, logical, and text operators.

Arithmetic operators
+ (addition), - (subtraction), * (multiplication), / (division), ^ (exponentiation)

Logical operators
= (equal to), < (less than), <= (less than or equal to), > (greater than), >= (greater than or equal to), <> (not equal to), #AND# (AND), #NOT# (NOT), #OR# (OR)

Text operator
& (ampersand)

optimal answer

In the Solver, the answer that contains the mathematical optimum (the highest or lowest value) for the cell you specify as the optimal cell.

optimal cell

In the Solver, the cell for which the Solver is to find the highest or lowest value. The optimal cell may be an adjustable cell or a cell whose formula depends on at least one adjustable cell.

option button

In a dialog box, a round selection button. You can select only one option button in a group of related options.

order of precedence

The order in which 1-2-3 performs operations in a formula. The lower the precedence number, the earlier 1-2-3 performs the operation. Operations with the same precedence number are performed sequentially from left to right. To override the order of precedence, put ( ) (parentheses) around the operations you want 1-2-3 to do first.

1   ^ (exponentiation)
2   - + (negative, positive values)
3   * / (multiplication, division)
4   + - (addition, subtraction)
5   = < <= > >= <> (logical operators)
6   #NOT#   (logical operator)
7   #AND#, #OR#, & (logical and text operators)

orientation

The placement of the y-axis in a graph as either vertical (default) or horizontal, or the placement of a printed range on a page in either portrait mode or landscape mode.

output range

In Data Query, the worksheet range or external database table into which 1-2-3 places records it extracts from one or more database tables.

page settings

The options you specify for printing such as margins, headers, and footers using File Page Setup. You can name and save page settings.

panes

A display of two parts of a worksheet in the same window. Use Window Split to divide a worksheet window into panes, to synchronize or unsynchronize panes, and to clear panes.

path

The root directory and all the subdirectories in which you save a file. In C:\1991\BUDGET.WK3, C:\1991\ is the path for the file BUDGET.WK3.

percent scale

Equal intervals along the y-axis or 2nd y-axis that represent changes in the plotted values as percentages of the sum (100%) of the plotted values.

perspective view

A layered display of three contiguous worksheets from a worksheet file. To create a perspective view, choose Window Split.

pie chart

A graph that compares parts to the whole. In a pie chart, each value is represented as a slice of the pie. The size of each slice corresponds to the percentage of the total that the value represents.

pitch

A measurement of the number of characters printed per inch.

plot frame

The rectangular area in a graph, defined by the axes, where 1-2-3 plots data.

point

To position the mouse pointer. Your next mouse action affects the element you are pointing at.

In reference to fonts, a point is a unit of measurement that determines the height of a character. A point is approximately 1/72 of an inch.

point sizes

The type sizes available for a selected font.

pointer-movement keys

Keys that control the movement of the cell pointer, menu pointer, and insertion point. These keys include UP, DOWN, LEFT, RIGHT, PG UP, PG DN, and HOME and can be combined with CTRL and END to move around active files and worksheets in the same file.

portrait mode

The orientation in which a printer prints across the width of the paper.

preselection

The action of selecting a range before you choose the command that will affect the range. A preselected range remains selected after you complete the command.

print job

Ranges of data, graphs, and/or blank lines that 1-2-3 sends to a printer.

print range

The range of data you want to print. A print range can include text and graphics.

printer driver

A software program that controls how 1-2-3 communicates with your printer. 1-2-3 for Windows uses the printer drivers supplied by Windows.

printer font

A font specific to your printer.

proportional spacing

A way of spacing characters on a line that gives each character in a typeface a different amount of space based on its size. For example, a font that uses proportional spacing gives less space to the letter I than to the letter W.

protect

To prevent changes to a range, worksheet, or file.

pulldown menu

The vertical list of commands that appears when you choose a command from the menu bar.

radian

The unit 1-2-3 uses to measure an angle, equal to approximately 57 degrees, 17 minutes.

RAM (random access memory)

The temporary storage area in which your computer holds both programs and data.

range

A single cell, a block of adjoining cells, or an entire worksheet file. A 2-D range is a range in one worksheet; for example, A:B1..A:B5. A 3-D range spans two or more worksheets; for example, A:B1..B:B5.

range address

The location of a range in a file. A range address consists of the cell addresses of any two diagonally opposite corner cells of the range, separated by two periods; for example, A:A4..M:C20.

range name

A name you create with Range Name Create or Range Name Label Create to identify a range. A range name can be up to 15 characters long. You can use range names in formulas and commands to refer to one cell or a range of cells.

read

To copy a file from disk into memory.

recalculation

Re-evaluation of formulas in active files using the latest cell values.

recalculation order

The order in which 1-2-3 recalculates formulas. The three orders are natural (recalculates all values on which a formula depends before recalculating the formula), columnwise (recalculates by column, starting with A:A1), and rowwise (recalculates by row, starting with A:A1). Natural is the default setting. Use Tools User Setup to change the recalculation order.

recalculation setting

One of two settings, Automatic (the default) or Manual, that determines when 1-2-3 recalculates formulas in the current worksheet file. Automatic recalculates formulas every time you enter a value in a cell referenced by the formulas. Manual recalculates formulas only when you press F9 (CALC) or F8 (TABLE). Use Tools User Setup Recalculation to change the recalculation setting.

record

A one-row collection of information about one item in a database table. The first row of a database table contains field names, which identify the data in records; all other rows contain records.

relative reference

In a formula, a reference to a cell or a range that changes when you copy the formula. A relative reference refers to the location of the data in relation to the formula. A relative reference can be an address or range name.

For example, if the formula +A1+A2 is in cell A4 and you copy this formula to B4, the formula changes to +B1+B2. A1 and A2 are relative references, which means that they refer to the values entered in cells two and three rows above the formula. After you copy the formula, the relative references still refer to the cells two and three rows above the formula.

If you do not want a cell or range address to change when you copy a formula, use an absolute reference.

repeating label

A label that repeats across the entire width of a cell. You create a repeating label with the \ (backslash) label-prefix character. For example, entering \= in a cell 10 characters wide displays = across the width of the cell like this: ==========.

reservation

A guarantee that a user who has changed a file can save the changes to the file on disk.

reset

To clear a setting or restore default settings.

Restore button

The button that appears at the far right of the title bar of a maximized window. Click the Restore button to return the window to its previous size or choose Restore from the Control menu.

ripple-through effect

The condition that occurs when one formula depends on another formula that evaluates to ERR or NA. The dependent formula will also result in ERR or NA. When you correct the formula that evaluates to ERR or provide the unavailable value to the formula that evaluates to NA, the dependent formulas also change.

row

A horizontal block of 256 cells in a worksheet. A row, identified by a row number, is one cell high and runs across the entire width of the worksheet. There are 8,192 rows in a worksheet.

2nd y-axis

A second y-axis you create in a graph, which is used as a reference line marked in regular intervals with numeric values.

save

To copy a file from memory to disk.

scroll bar

The bar that appears at the right and/or bottom of a window or a list box when the contents exceed the size of the window or list box. To scroll within a window or list box, click the scroll arrows, drag the scroll box, or use the navigation keys.

scroll box

The square box in a scroll bar, which you drag with the mouse pointer to make another area of the worksheet   or list box visible.

scrolling

Moving horizontally or vertically through a window or a list box, or moving the cell pointer from one worksheet to another. To scroll within a window or list box, click the scroll arrows, drag the scroll box, or use the navigation keys.

sealed file

A file that was sealed with File Administration Seal File to prevent changes from being made to some of the file's graph, print, range, worksheet, and reservation settings.

select

To highlight or specify cells in a worksheet, records in a database table, commands on a menu, options in a dialog box, or objects in a graph.

selection

The area of cells in a worksheet, records in a database table, or objects in a graph, that the next or current action affects (depending on when you make the selection).

setting

A characteristic of a cell that affects how the contents of a cell appear. For example, format and label alignment are settings. These settings appear as parts of the formatting description in the format line.

SmartIcons

Buttons (icons) in Worksheet and Graph windows that let mouse users select commonly used commands and macros. Click SmartIcons to select them. Choose Tools SmartIcons Customize to change the set of SmartIcons and to create SmartIcons for your own macros.

soft font

A font that you transfer from a file on disk to your printer.

Solver

Analyzes data in a worksheet and shows you a variety of possible solutions to a what-if problem you define. The solutions satisfy constraints, or limits, that you specify.

sort

To arrange data in a range or records in a database table in a particular order, determined by the contents of one or more columns or fields. In 1-2-3, use Data Sort to sort data in ascending (A through Z, 0 through 9) or descending (Z through A, 9 through 0) order. You can select a collating sequence when you install 1-2-3 to control how 1-2-3 sorts labels.

source range

When you use Edit Link Options and Edit Paste Link, the range that supplies data to another file.

special @function

An @function that returns information about cells, ranges, or the operating system; finds the contents of a cell; or marks places where information is missing or incorrect.   Special @functions are particularly useful with macros.

Special @functions: @@, @CELL, @CELLPOINTER, @CHOOSE, @COLS, @COORD,   @ERR, @HLOOKUP, @INDEX, @INFO, @NA, @ROWS, @SHEETS, @SOLVER, @VLOOKUP.

specify

To select from the items in a list box or enter a new item by typing.

spreadsheet

A tool used in financial analysis and modeling that establishes mathematical and logical relationships among numbers and formulas that appear in rows and columns. The 1-2-3 worksheet is an electronic spreadsheet.

statistical @function

An @function that performs calculations on a list of values in a range. Each statistical @function except @SUMPRODUCT has an equivalent database @function, which you can use to calculate values in a field that meet specific criteria. All statistical @functions have the argument *list*.

Statistical @functions: @AVG, @COUNT, @MAX, @MIN, @STD, @STDS, @SUM, @SUMPRODUCT, @VAR, @VARS.

status indicator

An indicator that appears at the bottom of the screen, in the status line, to alert you that 1-2-3 is performing an action or has detected a condition, or that you are using a certain key. For example, CMD tells you that 1-2-3 is running a macro, CIRC tells you that a circular reference exists, and CAPS tells you that you pressed the CAPS LOCK key.

status line

The last line of the 1-2-3 window, which displays the status indicators, the date, and the time.

stock market graph

An HLCO graph, which shows high, low, close, and open values.

string @function

An @function that provides information about text in cells, and performs other operations on text.

String @functions: @CHAR, @CODE, @EXACT, @FIND, @LEFT, @LENGTH, @LOWER, @MID, @N, @PROPER, @REPEAT, @REPLACE, @RIGHT, @S, @STRING, @TRIM, @UPPER, @VALUE.

subdirectory

A subdivision of another directory. In C:\1991\JUNE91\BUDGET.WK3, JUNE91 is a subdirectory of C:\1991.

subroutine

A discrete set of macro instructions executed from the macro. When the main macro calls the subroutine, control passes to the subroutine. After 1-2-3 completes the instructions in the subroutine, control returns to the main macro.

subroutine call

A macro instruction that transfers control to a subroutine and completes it before going on to the next macro instruction.

summary worksheet

A worksheet you create that consolidates related information from other worksheets.

3-D graph

A graph in which the lines, areas, bars, or pie slices are represented as solids, having depth as well as height and width.

3-D range

A range that includes the same cells in two or more contiguous worksheets. The 3-D range A:A1..B:B2 contains the cells A:A1, A:A2, A:B1, A:B2, B:A1, B:A2, B:B1, B:B2.

temporary file (.TMP)

A file 1-2-3 creates to use during the current work session only. 1-2-3 deletes the file when you exit 1-2-3.

text box

A rectangular area in some dialog boxes in which you enter information and edit text required by a command.

text file

A file on disk in ASCII format. Use File Extract To to create a text file in 1-2-3 for Windows. Use File Import From to read data from a text file into 1-2-3.

text formula

A formula that uses text in quotation marks and the text operator & (ampersand) in its calculations. For example, the formula +"Mr."&"Arthur" combines the two words and a space between them to display the label Mr. Arthur.

text operator

The & (ampersand) used to combine (concatenate) text in a text formula. For example, the formula +"Kathy "&"Howard" combines the two words and a space between them to display the label Kathy Howard.

tick marks

In a graph, short lines on the x-axis and y-axis. On the x-axis, tick marks indicate data points, unless the graph is an XY graph. On the y-axis, the 2nd y-axis, and the x-axis of an XY graph, tick marks represent the numeric scale.

tilde (~)

The keyboard character that represents ENTER in macros.

time @function

Calculates numbers that correspond to times between 12:00 midnight (the time number 0.000000) and 11:59:59 PM (the time number 0.999988). Use time @functions to calculate differences between times, sort by times, and compare a range of times to a particular time. To display a time number as the time it represents in a worksheet, use Range Format or Worksheet Global Settings Format. In the Graph window, choose Chart Axis [X, Y, 2nd Y] Format.

Time @functions: @HOUR, @MINUTE, @NOW, @SECOND, @TIME, @TIMEVALUE.

Time format

The way 1-2-3 displays a time number on the screen. Use Range Format or Worksheet Global Settings Format to specify time formats in a worksheet. In the Graph window, choose Chart Axis [X, Y, 2nd Y] Format.

Time format	Example
Hour:minutes:seconds AM/PM	11:59:59 PM
Hour:minutes AM/PM	11:59 PM
Long Intl Time	23:59:59
Short Intl Time	23:59

time number

A decimal from 0.000000 through 0.999988 that 1-2-3 assigns in sequence to each moment in the 24 hours from midnight through 11:59:59. Use a time @function to enter a time number in a worksheet. Use Range Format or Worksheet Global Settings Format to display a time number as the time it represents.

title

Text entered in a row and/or column that remains in view at the top and/or left of the worksheet as you scroll through a worksheet. Use Worksheet Titles to set and clear titles.

In a Graph window, you can create titles for a graph, the x-axis, y-axis, and 2nd y-axis using Chart Headings and Chart Axis.

title bar

The horizontal bar across the top of a window or dialog box.

Transcript window

The window in which you can edit, delete, or play back recorded keystrokes and mouse actions to create macros. The Transcript window holds up to 512 bytes (most characters use one byte). You can paste keystrokes from the Transcript window into a worksheet to create a macro. Choose Tools Macro Show Transcript to open the Transcript window.

Translate utility

The 1-2-3 program that converts files from one file format to another so you can share data between 1-2-3 for Windows and other applications. The Translate utility lists the applications for which translation is available.

typeahead buffer

The buffer in which 1-2-3 stores keystrokes you make during noninteractive parts of a macro.

typeface

The overall design of printed characters. Each typeface has a distinct appearance, and all characters within a typeface share common design characteristics. For example, Swiss and Courier are two typefaces.

undefined range name

A range name that is not assigned to a range. Formulas that contain undefined range names evaluate to ERR.

unused constraint

In the Solver, a constraint the Solver did not need to use to find an answer for the problem. For example, if the constraint formula is +B6>5, and the Solver adjusts the value in B6 to 7, the constraint is unused.

value

An entry that is a number or the result of a formula or an @function. 1-2-3 changes the mode to VALUE if you begin an entry with a number or one of the following symbols: + - @ . (# or $ (or the current currency symbol).

variable

In a formula, a reference to a cell in which different values can be substituted.

vertical graph

A graph in which the y-axis and the 2nd y-axis are plotted vertically. This is the default display for most graphs.

weight

The thickness of a line in a graph object.

what-if calculation

A calculation that uses different values in formulas to determine more than one solution. Solver and Data What-if Tables do what-if calculations.

wildcard character

The * (asterisk) or the ? (question mark) used in file names and criteria.

*   Represents any number of sequential characters

?   Represents a single character

In file names, for example, *.wk3 lists all files with a .wk3 extension; *.wk? lists all files with extensions that begin with .wk such as .wk1 and .wk3. In criteria, B* matches all entries that begin with B. The criteria B??? matches all entries that begin with B and contain three other characters.

window

The area of the screen in which you can view your work. The title bar in the active window is always highlighted. Several windows can be open, but only one window at a time can be active. 1-2-3 for Windows has four types of windows: Worksheet, Graph, Transcript, and Help.

worksheet

The 1-2-3 electronic spreadsheet in which you enter and manipulate spreadsheet data and database tables. Each worksheet contains 256 columns and 8,192 rows.

worksheet file

A 1-2-3 file that is made up of one or more worksheets. A worksheet file can contain up to 256 worksheets. Unless you provide a different extension, 1-2-3 for Windows saves a worksheet file with a .WK3 extension.

worksheet frame

The horizontal bar that contains the column letters (A through IV) and a worksheet letter (A: through IV:) at the top of the 1-2-3 worksheet, and the vertical bar that contains the row numbers (1 through 8192) at the left side of the worksheet. You can use Window Display Options to hide the worksheet frame.

worksheet letter

The letter in the top left corner of the worksheet that identifies each worksheet in a worksheet file. A 1-2-3 worksheet file can contain up to 256 worksheets, with letters from A (for the first worksheet) through IV (for the 256th worksheet). In formulas, the worksheet letter is followed by a colon (A:) to distinguish it from the column letter (A).

Worksheet window

The window in which you view a 1-2-3 worksheet.

x-axis

In a graph, a reference line marked in regular intervals with labels. In an XY graph, the intervals represent numbers.

/X commands

Eight macro commands that 1-2-3 for Windows supports to provide compatibility with prior releases of 1-2-3. Each /X command has a corresponding macro command.

X range

A range that 1-2-3 plots as labels for bar, line, pie, and mixed graphs.

XY (scatter) graph

A graph that shows how values change relative to other values. XY graphs use both a scaled x-axis and a scaled y-axis.

y-axis

In a graph, a reference line marked in regular intervals with numbers.

Help Topic

Green text with a solid underline indicates a cross-reference to another Help topic. When you select a cross-reference, the topic explaining the underlined text replaces the current topic in the Help window.

Press **b** or click Back in the Help icon bar to return to the previous topic, or select a cross-reference to go to that topic.

definition

A definition or an example is displayed in a pop-up box. When you release the mouse button or ENTER, the pop-up box disappears.

hand icon

When the mouse pointer takes this shape, you can select a Help topic or see a definition.

⌨ **Keyboard Index**

Accelerator Keys
Execute commands by using key combinations.

Control Menu Keys
Move, size, and close windows and dialog boxes, and give you access to other windows that are open in the 1-2-3 window, or to other open Windows applications.

Dialog Box Keys
Move and close dialog boxes, and move around and select options in dialog boxes.

Editing Keys
Move around, select, and change the entry in a cell or text box.

File Navigation Keys
Move between active files.

Function Keys
F1 through F10 perform special operations when used alone or combined with ALT and CTRL.

Help Keys
Move, size, and close the Help window, and move around a Help topic.

Online Books Keys
Move, size, and close the Online Books window, and move around an Online Books topic.

Pointer-Movement Keys
Move around the worksheet.

Show Me Player Keys
Play and pause a movie, turn sound on and off, move forward and backward in a movie, and close a movie.

Special Keys
Use of ALT, ALT+ - (hyphen), CTRL+BREAK, CTRL+ a letter, and ESC.

Worksheet Navigation Keys
Move between worksheets in the current file.

Accelerator Keys

Execute commands by using key combinations.

ALT+BACKSPACE
> Reverses the effect of the most recently executed command or action that you can undo. ALT+BACKSPACE is equivalent to <u>Edit Undo</u>.

ALT+F4
> Ends the 1-2-3 session, prompts you to save any unsaved files, and returns you to the Windows Program Manager; this use of ALT+F4 is equivalent to <u>File Exit</u>. You can also use ALT+F4 to close the Help window or a dialog box.

CTRL+INS
> Copies selected data and related formatting from the worksheet to the <u>Clipboard</u>. CTRL+INS is equivalent to <u>Edit Copy</u>.

CTRL+ a letter
> Runs a macro in 1-2-3 for Windows. CTRL+ a letter is equivalent to <u>Tools Macro Run</u>. In 1-2-3 Release 2 and 1-2-3 Release 3, ALT+ a letter runs a macro.

DEL
> Deletes the <u>cell contents</u> of selected cells without using the Clipboard. DEL is equivalent to <u>Edit Clear</u>.

SHIFT+DEL
> Cuts selected data and related formatting from the worksheet to the Clipboard. SHIFT+DEL is equivalent to <u>Edit Cut</u>.

SHIFT+INS
> Copies selected data and related formatting from the Clipboard to the worksheet. SHIFT+INS is equivalent to <u>Edit Paste</u>.

See also:

<u>Keyboard Index</u>

Control Menu Keys

Move, size, and close windows and dialog boxes, and give you access to other windows that are open in the 1-2-3 window, or to other open Windows applications.

ALT+ ESC
Cycles through open Windows applications.

ALT+F4
Closes the 1-2-3 window, prompts you to save any unsaved files, and returns you to the Windows Program Manager; this use of ALT+F4 is equivalent to Close in the Control menu of the 1-2-3 window, and to <u>File Exit</u>. You can also use ALT+F4 to close the Help window or a dialog box.

ALT+ - (hyphen)
Opens the <u>Control menu</u> for the <u>active window</u>.

ALT+ space bar
Opens the Control menu for the 1-2-3 window, the Help window, and dialog boxes.

CTRL+ESC
Displays the Windows Task List, which lets you go to another Windows application. CTRL+ESC is equivalent to Switch To in the Control menu of the 1-2-3 window.

CTRL+F4
Closes the active window and prompts you to save the file if it contains unsaved changes. If the window you close is the only active window, CTRL+F4 closes the window and opens a new window that contains a blank untitled worksheet file. CTRL+F4 is equivalent to Close in the Control menu of a window within the 1-2-3 window, and to <u>File Close</u>.

CTRL+F6
Makes the next open Worksheet, Graph, or Transcript window active. CTRL+F6 is equivalent to Next in the Control menu of a window in the 1-2-3 window.

See also:

<u>Keyboard Index</u>

Dialog Box Keys

Move and close the dialog box, and move around and select options in the dialog box.

ALT+ a letter
> Selects the option or command with the underlined letter that you press.

ALT+F4
> Closes the dialog box without completing the command. This is equivalent to selecting Cancel.

ALT+ space bar
> Opens the Control menu for the dialog box. The Control menu contains commands to move and close the dialog box.

ALT+UP or ALT+DN
> Opens and closes a <u>drop-down box</u>.

END
> Selects the last item in a drop-down box or <u>list box</u>.

ENTER
> Completes the command and closes the dialog box.

ESC
> Closes the dialog box without completing the command. This is equivalent to selecting Cancel.

HOME
> Selects the first item in a drop-down box or list box.

PG UP or PG DN
> Moves to the top or bottom item in the list of items currently visible in a drop-down box or list box, and selects the item.

SHIFT+TAB
> Moves backward to the previous option, from bottom to top and right to left.

TAB
> Moves forward to the next option, from left to right and top to bottom.

UP, DOWN, LEFT, RIGHT
> Move within a group of options.

Using Characters to Select an Item in a Drop-Down Box or List Box

You can press a letter, number, or symbol to select an item in a drop-down box or list box.

To select an item	Press
Beginning with a letter	The letter. For example, to select Inches in the Frame option of Window Display Options, press **i**.
Beginning with a number	The number. For example, to select the Short Intl Date format in Range Format, press **5**.
Beginning with a symbol	The symbol. For example, to select the Comma format in Range Format, press **,** (comma).

When a list box is attached to a <u>text box</u>, you can type a letter to scroll to the first item that begins with that letter.

1. Click the list box or press TAB to enter the list box.

2. Type a letter.

See also:

> <u>Keyboard Index</u>

Editing Keys

You can use the following keys in the <u>contents box</u> and in a <u>text box</u> when 1-2-3 is in EDIT mode. If 1-2-3 is in another mode, press F2 (EDIT) to get into EDIT mode.

Keys to Change an Entry

BACKSPACE
> Erases the highlighted selection or the character to the left of the <u>insertion point</u>.

DEL
> Erases the character to the right of the insertion point or erases the highlighted selection.

ESC
> Erases all characters in the entry. Not available in a text box.

F2 (EDIT)
> Switches 1-2-3 between EDIT and READY, POINT, VALUE, or LABEL mode.

F9 (CALC)
> Converts a formula to its current value when 1-2-3 is in EDIT or VALUE mode. Not available in a text box.

Keys to Move the Insertion Point

CTRL+LEFT or SHIFT+TAB
> In labels, moves the insertion point to the left of the previous word. In values, moves to the beginning of the value. Not available in a text box.

CTRL+RIGHT or TAB
> In labels, moves the insertion point to the left of the next word. In values, moves to the end of the value. Not available in a text box.

END
> Moves the insertion point to the last character in the entry.

HOME
> Moves the insertion point to the first character in the entry.

RIGHT or LEFT
> Moves the insertion point one character to the right or left.

Keys to Select Characters in an Entry

SHIFT+LEFT
> Extends the highlight to the left of the insertion point.

SHIFT+RIGHT
> Extends the highlight to the right of the insertion point.

Keys to Complete Editing in the Contents Box

CTRL+PG UP or CTRL+PG DN
> Completes editing and, if you are using multiple worksheets, moves the <u>cell pointer</u> forward or back one worksheet.

ENTER
> Completes editing and leaves the cell pointer in the current cell.

PG UP or PG DN
> Completes editing and moves the cell pointer up or down the number of rows currently visible in the window.

UP or DOWN
> Completes the entry and moves the cell pointer up or down one cell.

See also:

File Navigation Keys

Move the cell pointer between active files. Only CTRL+F6 cycles through all windows that are open in the 1-2-3 window.

Note The order in which the cell pointer moves between active files, expressed in the terms first, last, next, and previous in the following definitions, depends on

*   Which file is current when you open a file

*   The order in which you open the files

CTRL+END CTRL+PG DN
    Moves the cell pointer to the cell you last highlighted in the previous active file.

CTRL+END CTRL+PG UP
    Moves the cell pointer to the cell you last highlighted in the next active file.

CTRL+END END
    Moves the cell pointer to the cell you last highlighted in the last active file.

CTRL+END HOME
    Moves the cell pointer to the cell you last highlighted in the first active file.

CTRL+F6
    Makes the next open Worksheet, Graph, or Transcript window active. CTRL+F6 is equivalent to Next in the Control menu of a window in the 1-2-3 window.

CTRL+PG DN
    When the cell pointer is in the first worksheet of a file, moves the cell pointer to the cell you last highlighted in the previous active file.

CTRL+PG UP
    When the cell pointer is in the last worksheet in a file, moves the cell pointer to the cell you last highlighted in the next active file.

See also:

    Keyboard Index
    Window Commands

Function Keys

F1 through F10 perform special operations when used alone or combined with ALT and CTRL.

F1 (HELP)
Displays a Help topic.

F2 (EDIT)
Switches 1-2-3 between EDIT and READY, POINT, VALUE, or LABEL mode. In EDIT mode, you can change data in the contents box or in a text box.

F3 (NAME)
Lists names of files, graphs, ranges, @functions, macro key names, and macro commands.

F4
In EDIT, POINT or VALUE mode, changes the cell references in formulas from absolute to mixed to relative.

In READY mode, F4 anchors the cell pointer so you can select a range.

F5 (GOTO)
Moves the cell pointer to a cell, named range, worksheet, or active file. F5 (GOTO) is equivalent to Range Go To.

F6 (PANE)
Moves the cell pointer between panes and between worksheets you display in perspective view.

F7 (QUERY)
Repeats the last Data Query command.

F8 (TABLE)
Repeats the last Data What-if Table command.

F9 (CALC)
In READY mode, recalculates formulas. In EDIT or VALUE mode, converts a formula to its current value.

F10 (MENU)
Activates the menu bar. F10 (MENU) is equivalent to ALT.

ALT+F1 (COMPOSE)
Creates characters in 1-2-3 that you cannot enter directly from your keyboard.

ALT+F2 (STEP)
Turns STEP mode on or off.

ALT+F3 (RUN)
Displays a list of the macros in the active files. ALT+F3 (RUN) is equivalent to Tools Macro Run.

ALT+F6 (ZOOM)
Enlarges the current horizontal, vertical, or perspective pane to the full size of the window or shrinks it to its original size.

ALT+F7 (ADD-IN 1), ALT+F8 (ADD-IN 2), ALT+F9 (ADD-IN 3)
Start an available 1-2-3 add-in assigned to the key.

See also:

Keyboard Index

Pointer-Movement Keys

Move the cell pointer around the worksheet when 1-2-3 is in READY mode. When 1-2-3 is in POINT mode, you can use these keys to move the cell pointer and specify a range in the worksheet.

CTRL+HOME
> Moves the cell pointer to cell A:A1 in the current file. If you hide A:A1 or freeze it with Worksheet Titles, CTRL+HOME moves the cell pointer to the topmost, leftmost cell in the current file.

CTRL+LEFT or BACKTAB (SHIFT+TAB)
> Moves the cell pointer left the number of columns currently visible in the window.

CTRL+RIGHT or TAB
> Moves the cell pointer right the number of columns currently visible in the window.

END+HOME
> Moves the cell pointer to the lower right corner of the worksheet's active area.

END+RIGHT or END+LEFT
> Moves the cell pointer right or left to a cell that contains data and is next to a blank cell.

END+UP or END+DOWN
> Moves the cell pointer up or down to a cell that contains data and is next to a blank cell.

HOME
> Moves the cell pointer to cell A1 in the current worksheet. If you hide A1 or freeze it with Worksheet Titles, HOME moves the cell pointer to the topmost, leftmost cell in the worksheet.

PG UP or PG DN
> Moves the cell pointer up or down the number of rows currently visible in the window.

RIGHT or LEFT
> Moves the cell pointer right or left one column.

UP or DOWN
> Moves the cell pointer up or down one row.

See also:

> Keyboard Index
> Scrolling with the Mouse

Special Keys

ALT
>When 1-2-3 is in READY mode, activates the <u>menu bar</u>. Used with the underlined letter of a command name, ALT chooses the command from a menu.
>
>In a dialog box, ALT+ a letter selects the option or command with the underlined letter you press. ALT also performs special operations when used in combination with the <u>function keys</u>.

ALT+ - (hyphen)
>Opens the <u>Control menu</u> for the <u>active window</u>.

CTRL+BREAK
>Cancels the current 1-2-3 command or operation and returns 1-2-3 to READY mode.

CTRL+ a letter
>Runs a macro in 1-2-3 for Windows. In 1-2-3 Release 2 and 1-2-3 Release 3, ALT + a letter runs a macro.

ESC
>Cancels a dialog box without completing the command, cancels the current entry in the <u>edit line,</u> or returns you to the previous menu.

See also:

<u>Keyboard Index</u>

Worksheet Navigation Keys

Move the cell pointer between worksheets in the current file when 1-2-3 is in READY mode. When 1-2-3 is in POINT mode, you can use these keys to move the cell pointer and specify a range.

CTRL+HOME
> Moves the cell pointer to cell A:A1 in the current file. If you hide A:A1 or freeze it with Worksheet Titles, CTRL+HOME moves the cell pointer to the topmost, leftmost cell in the current file.

CTRL+PG DN
> Moves the cell pointer to the previous worksheet, for example, from worksheet B to worksheet A.

CTRL+PG UP
> Moves the cell pointer to the next worksheet, for example, from worksheet A to worksheet B.

END CTRL+HOME
> Moves the cell pointer to the lower right corner of the current file's active area.

END CTRL+PG DN
> Staying in the same row and column, moves forward through worksheets to the next cell that contains data and is next to a blank cell.

END CTRL+PG UP
> Staying in the same row and column, moves back through worksheets to the next cell that contains data and is next to a blank cell.

See also:

Keyboard Index

F2 (EDIT)

Switches 1-2-3 between EDIT and READY, POINT, VALUE, or LABEL mode. In EDIT mode, you can change data in the <u>contents box</u> or in a <u>text box</u>.

1-2-3 changes to EDIT mode when you

*   Click anywhere in the <u>contents box</u>.

*   Press F2 (EDIT) when you are typing an entry.

*   Press F2 (EDIT) when 1-2-3 is in READY mode.

*   Enter information in a <u>text box</u>.

*   Type an entry that 1-2-3 cannot accept. 1-2-3 places the <u>insertion point</u> at the point where it detects an error.

Use the <u>editing keys</u> to change data when 1-2-3 is in EDIT mode.

See also:

<u>Entering Data</u>
<u>Keyboard Index</u>

F3 (NAME)

Lists range names, active file names, graph names, @functions, or macro commands and key names, depending on what you are doing when you press F3 (NAME).

Listing Range Names or Names of Active Files

Press F3 (NAME) to list range names and names of other active files

*   When you are specifying a range in a <u>text box</u>

*   When you are writing a formula and 1-2-3 is in POINT or VALUE mode

Listing and Entering @Functions

Type @ and press F3 (NAME) to display a list of @functions. When you choose an @function, 1-2-3 enters it in the <u>contents box</u>.

Listing and Entering Macro Commands

Type { (left brace) and press F3 (NAME) to display a list of macro commands and key names. When you choose a macro command, 1-2-3 enters it in the contents box.

Selecting a Name from the List Box

To select a name in the list box, double-click the name in the list box; or press TAB to move to the list box, use UP and DOWN to highlight the name you want, and then press ENTER.

See also:

<u>Function Keys</u>

F4

Has two functions, depending on what mode 1-2-3 is in.

Selecting a Range

When 1-2-3 is in READY mode, F4 anchors the cell pointer so you can select a range using the pointer-movement keys.

Changing References in Formulas

When 1-2-3 is in POINT, VALUE, or EDIT mode, pressing F4 changes the cell references in a formula from absolute to mixed to relative.

When you are creating or editing a formula, press F4 when the insertion point is on or to the right of a reference. 1-2-3 changes the references by entering a $ (dollar sign) in front of the worksheet letter, column letter, row number, or range name.

For example, if you typed the formula +A:C5 and pressed F4 several times, 1-2-3 would change it in the following ways:

+$A:$C$5	Absolute address
+$A:C$5	Mixed address
+$A:$C5	Mixed address
+$A:C5	Mixed address
+A:$C$5	Mixed address
+A:C$5	Mixed address
+A:$C5	Mixed address
+A:C5	Relative address

See also:

Types of Cell and Range References
Function Keys

Types of Cell and Range References

The types of references you use in a formula control what happens to the formula when you copy it to another part of the file.

All cell and range references in a formula are relative unless you change them to mixed or absolute. (A range reference can only be relative or absolute.) To create a mixed or absolute reference in a formula, either type a $ (dollar sign) in the cell reference, or press F4 when you are entering or editing the formula.

Relative reference
Identifies a cell by its position relative to the location of the formula. A relative reference, like A:B2, changes when you copy a formula that contains it.

For example, you enter the formula +A1+A2 in cell A4. A1 and A2 are relative references, which means that they refer to the values entered in cells two and three rows above the formula. When you copy this formula to B4, 1-2-3 changes the formula to +B1+B2, and the relative references still refer to the cells two and three rows above the formula.

Absolute reference
Contains a $ in front of the range name, or worksheet letter, column letter, and row number, for example, $RATE or $A:$B$2. An absolute reference always refers to the same cell or range name when you copy a formula that contains it.

Mixed reference
Contains a $ in front of the worksheet letter, column letter, or row number, for example, A:$B2. When you copy a formula that contains a mixed reference, the part of the reference that contains the $ stays the same and the rest of the reference changes.

See also:

Entering Formulas
F4

F5 (GOTO)

Moves the <u>cell pointer</u> to a specified cell, a named range, another worksheet, or another active file. When you go to another worksheet or file, 1-2-3 moves the cell pointer to the cell you last highlighted in that worksheet or file. F5 (GOTO) is equivalent to <u>Range Go To</u>.

Press F5 (GOTO). The Range Go To dialog box is displayed. Do one of the following:

To go to	Do this
Cell in the current file	Enter the cell address in the Range <u>text box</u> and select OK.
Named range in the current file	Enter the range name in the text box or select the range name from the list box, and then select OK.
Worksheet in the current file	Enter the worksheet letter and a colon in the text box, for example, C:, and select OK.
Another active file	Enter a <u>file reference</u> in the text box or select the file name from the list box, and then select OK. If you enter the name of a file that is not in the <u>current directory</u>, you must also enter the <u>path</u> as part of the file reference.
Range in another active file	Specify a file reference in the text box, followed by the range name or cell address, and then select OK. For example, <<BUDGET.WK3>>A:C5 goes to cell A:C5 in a file named BUDGET.WK3.

See also:

<u>Function Keys</u>

F6 (PANE)

After you create <u>panes</u> or use <u>perspective view</u>, press F6 (PANE) to move the cell pointer between panes or from one worksheet to another in perspective view.

Choose <u>Window Split</u> or use the mouse to divide a worksheet window into two panes. Choose Window Split to turn perspective view on and off.

See also:

<u>Function Keys</u>

F7 (QUERY)

Repeats the last Data Query command you selected when working with a <u>database table.</u>

You can use F7 (QUERY) with the following Data Query commands:

<u>Data Query Delete</u>
Deletes the <u>records</u> in a database table that match the <u>criteria</u> you entered in the <u>criteria range.</u>

<u>Data Query Extract</u>
Copies to the output range records from a database table that match the criteria you entered in the criteria range.

<u>Data Query Find</u>
Locates records in a 1-2-3 database table that match the criteria you entered in the criteria range.

See also:

<u>Data Query</u>
<u>Function Keys</u>

F8 (TABLE)

Repeats the last Data What-if Table command you selected to calculate a what-if table.

You can use F8 (TABLE) with the following Data What-if Table commands:

Data What-if Table 1-Way
Calculates the results of one or more formulas that use one variable.

Data What-if Table 2-Way
Calculates the results of one formula that uses two variables.

Data What-if Table 3-Way
Calculates the results of one formula that uses three variables.

See also:

Data What-if Table
Function Keys

F9 (CALC)

Performs one of two functions, depending on what mode 1-2-3 is in.

Recalculating Formulas in Active Files

When 1-2-3 is in READY mode, F9 (CALC) recalculates formulas in active files.

* When Tools User Setup Recalculation is set to Manual, use F9 (CALC) to recalculate the formulas in active files. 1-2-3 displays the CALC indicator in the status line whenever you change data to remind you to press F9 (CALC) to update formulas.

* When Tools User Setup Recalculation is set to Automatic, 1-2-3 automatically recalculates formulas that are affected by changes to data. Automatic recalculation occurs in the background, so you can continue working while 1-2-3 performs the recalculation.

Note If a worksheet contains formulas that link to data in files on disk, use File Administration Update Links to update those formulas.

Converting a Formula to Its Displayed Value

When 1-2-3 is in EDIT or VALUE mode and the current cell contains a formula, press F9 (CALC) and then press ENTER to convert the formula to its displayed value.

See also:

Function Keys
Tools User Setup Recalculation

ALT+F1 (COMPOSE)

Enters characters in 1-2-3 that you cannot enter directly from the keyboard.

1-2-3 for Windows uses the American National Standards Institute (ANSI) character set to display and print characters and the Lotus Multibyte Character Set (LMBCS) to store characters.

You can enter a LMBCS character in a worksheet either by using @CHAR and the LMBCS code for the character or by using a compose sequence.

Note If Windows cannot represent a LMBCS character, a fallback character will appear. For more information about what characters Windows can represent, see the *Microsoft Windows User's Guide.*

To Use a Compose Sequence

1. Press ALT+F1 (COMPOSE).

2. Enter the appropriate keystrokes.

   For example, to enter the character £ (British pound sterling symbol), press ALT+F1 (COMPOSE) and type L=.

For more information on using ALT+F1 (COMPOSE), see **Appendix B** of the 1-2-3 for Windows *User's Guide.* Appendix B also contains a complete list of LMBCS codes, compose sequences, and the characters you can enter in 1-2-3 using a compose sequence.

See also:

Function Keys

ALT+F6 (ZOOM)

Enlarges the current <u>pane</u> or worksheet in <u>perspective view</u> to the current size of the <u>active window</u>. Press ALT+F6 (ZOOM) again to shrink the pane or worksheet to its original size.

After you press ALT+F6 (ZOOM), 1-2-3 displays the ZOOM indicator in the <u>status line</u>.

Choose <u>Window Split</u> or use the mouse to divide a worksheet window into two panes.

See also:

<u>Function Keys</u>

⌨ Mouse

The mouse can provide a shortcut for many actions because it lets you manipulate objects on the screen without choosing a command.

For example, clicking one of the SmartIcons replaces the whole procedure needed to enter the current date in the worksheet; clicking another of the SmartIcons lets you cycle through all the fonts in the current font set.

Moving objects in a graph may also be easier and quicker using the mouse rather than the keyboard.

Mouse Buttons

1-2-3 for Windows uses the same mouse button -- the left button -- for every mouse action (see the two exceptions that follow). When Help topics mention the mouse button, the left mouse button is intended.

There are two uses for the right mouse button in 1-2-3 for Windows:

* To view the description of one of the SmartIcons, point to the SmartIcon, and then press and hold the right mouse button. The description appears in the title bar of the 1-2-3 window.

* To delete the last drawn line segment created in the Graph window with Draw Line, Draw Arrow, or Draw Polygon, press the right mouse button.

Mouse Instructions

The following table lists the terms you need to know to follow instructions for the mouse.

Term	Means
Click	Press and release the mouse button quickly.
Double-click	Press and release the mouse button twice, quickly.
Drag	Press and hold the mouse button while you move the mouse.
Point	Position the mouse pointer.

Mouse-Pointer Shapes

The mouse pointer is the symbol that indicates the location of the mouse on the screen. To move the mouse pointer, you move the mouse.

The mouse pointer changes shape depending on the task you can perform at the current location of the mouse pointer.

The following example shows some of the mouse-pointer shapes that appear in 1-2-3 for Windows.

Example

   Mouse-Pointer Shapes

Moving Among Windows

To move to another open window, click it; the window you clicked becomes the active window. If the window you want is hidden by other windows, use Window Tile or Window Cascade to make it visible, and then click it.

See also:

   Control Menu
   Keyboard Index
   1-2-3 for Windows Help Contents
   Scrolling with the Mouse

Scrolling with the Mouse

The vertical and horizontal <u>scroll bars</u> let you view information not visible in a window.

The following table decribes how to use the mouse to scroll.

To scroll	Do this
Up	Click the Up scroll arrow
Down	Click the Down scroll arrow
Left	Click the Left scroll arrow
Right	Click the Right scroll arrow
Continuously	Click a scroll arrow and hold down the mouse button
One window up	Click the scroll bar above the scroll box
One window down	Click the scroll bar below the scroll box
One window left	Click the scroll bar to the left of the scroll box
One window right	Click the scroll bar to the right of the scroll box
To the first row*	Drag the <u>scroll box</u> to the top of the scroll bar
To the last row*	Drag the scroll box to the bottom of the scroll bar
To the first column*	Drag the scroll box to the left end of the scroll bar
To the last column*	Drag the scroll box to the right end of the scroll bar

*The terms first and last refer to locations within the <u>active area</u> of the worksheet.

See also:

<u>Mouse</u>
<u>Pointer-Movement Keys</u>

Moving a SmartHelp Window

To Move the Help, Show Me Player, or Toggle Window

1. Move the mouse pointer to the title bar at the top of the window.

2. Press the mouse button while moving the mouse to drag the window to a new location.

3. Release the mouse button.

To Move the Help, Show Me Player, or Toggle Window

1. Press ALT+ space bar to open the Control menu for the window.

2. Press M to choose Move.

3. Press UP, DOWN, LEFT, or RIGHT to move the window.

4. Press ENTER.

See also:

Control Menu
Mouse
1-2-3 for Windows Help Contents
Using SmartHelp
Viewing 1-2-3 and Help Together on the Screen

Closing a SmartHelp Window

To Close the Help, Show Me Player, or Toggle Window

1. Move the <u>mouse pointer</u> to the <u>Control menu box</u> in the upper left corner of the window and double-click the mouse button.

To Close the Help, Show Me Player, or Toggle Window

1. Press ALT+F4.

See also:

<u>Control Menu</u>
<u>Mouse</u>
<u>1-2-3 for Windows Help Contents</u>
<u>Using SmartHelp</u>

Closing a Window in 1-2-3

Closing a Worksheet, Graph, or Transcript Window

You can do any of the following to close a Worksheet, Graph, or Transcript window:

* Move the mouse pointer to the Control menu box in the upper left corner of the window and double-click the mouse button.

* Choose Close from the Control menu of the window.

* Choose File Close from the menu bar.

* Press CTRL+F4.

Closing the 1-2-3 Window

You can do any of the following to close the 1-2-3 window:

* Move the mouse pointer to the Control menu box in the upper left corner of the window and double-click the mouse button.

* Choose Close from the Control menu of the 1-2-3 window.

* Choose File Exit from the menu bar.

* Press ALT+F4.

See also:

Control Menu
1-2-3 for Windows Help Contents
Using Help

Exiting and Ending 1-2-3 for Windows

* You can exit -- that is, temporarily leave -- 1-2-3 to use another Windows application without ending the current 1-2-3 session. You can later return to your 1-2-3 session.

* You can permanently end the current 1-2-3 session.

Temporarily Leaving 1-2-3

Save your work before you temporarily leave 1-2-3.

You can use any of the following ways to leave 1-2-3 temporarily.

* Press ALT+ESC to cycle through active Windows applications, including the Windows Program Manager and icons of active applications.

* Choose Switch To from the 1-2-3 window <u>Control menu</u>.

  Select another active Windows application from the Windows Task List.

* Reduce 1-2-3 to an icon by clicking the <u>Minimize button</u> or choosing Minimize from the 1-2-3 window Control menu.

  To enlarge the 1-2-3 icon so you can return to your work, double-click the icon; or press ALT+ESC until the 1-2-3 icon is active, press ALT+ space bar to open the Control menu, and choose Restore.

For more information about switching among applications, consult the *Microsoft Windows User's Guide.*

Ending the 1-2-3 Session

You can use any of the following ways to end the 1-2-3 session.

* Choose <u>File Exit</u>.

* Choose Close from the 1-2-3 window Control menu.

See also:

<u>1-2-3 for Windows Help Contents</u>

Areas of the 1-2-3 Window

When you start 1-2-3 for Windows, the first thing you see is the 1-2-3 window with the application name, 1-2-3 for Windows, in its title bar. The 1-2-3 window contains 1-2-3 and all the Worksheet, Graph, and Transcript windows that you open in order to do your work. (Help appears in its own window.)

You also see a single Worksheet window with the word Untitled in its title bar. The Worksheet window contains a worksheet file, which is the 1-2-3 electronic spreadsheet. You enter and manipulate values, formulas, and text in a worksheet file. The Untitled worksheet file is ready for you to use.

The 1-2-3 window consists of three areas. From top to bottom, the three areas are as follows:

*   Control panel

*   Work area

*   Status line

Control Panel

In the control panel, 1-2-3 displays information about 1-2-3 and the window you're working in. The control panel consists of four lines: the title bar, menu bar, format line, and edit line. You choose commands from the menu bar. You enter data in the edit line.

For more detailed information, see Control Panel.

Work Area

The work area is the area between the control panel and the status line. The work area contains the windows you work in and the icon palette.

1-2-3 opens Worksheet, Graph, and Transcript windows in the work area. You can open multiple windows in the work area and move easily among them; but you can work in only one window at a time.

The icon palette displays SmartIcons. The first time you start 1-2-3 for Windows, the icon palette appears in a fixed location, and it stays there unless you move it or hide it.

To learn how to	Select this
Create a graph	Graph New
Move among open windows	Control Menu or File Navigation Keys or Mouse
Move and hide the icon palette	Tools SmartIcons
Open the Transcript window	Tools Macro Show Transcript
Open worksheet files	File Commands
Use SmartIcons	Using SmartIcons

Status Line

The status line is the last line of the 1-2-3 window. The status line displays the status indicators, the date, and the time.

For descriptions of the status indicators, see Status Indicators. To change the format of the date and time, or to remove them from the status line, see Tools User Setup.

See also:

1-2-3 for Windows Help Contents

Control Panel

In the control panel, 1-2-3 displays information about 1-2-3 and about the <u>active window</u>. The control panel comprises the four lines at the top of the 1-2-3   window. From top to bottom, the four lines are as follows:

*   Title bar

*   Menu bar

*   Format line

*   Edit line

Title Bar

From left to right, the title bar contains the <u>Control menu box</u>, the application name, the <u>Minimize button</u>, and either the <u>Maximize button</u> or <u>Restore button</u>.

When you highlight a command, or when you point to a SmartIcon while holding down the right mouse button, the title bar displays a short description of the command or SmartIcon.

Menu Bar

The menu bar contains the commands for the active window. The commands in the menu bar change depending on whether a <u>Worksheet window</u>, <u>Graph window</u>, or <u>Transcript window</u> is active.

To activate the menu bar, click it, or press ALT or F10 (MENU). For information on choosing a command, see <u>Choosing a 1-2-3 Command</u>.

Format Line

From left to right, the format line displays the <u>formatting description</u> of the current cell, and the current <u>mode</u> indicator.

Edit Line

From left to right, the edit line contains the <u>address box</u> and the <u>contents box</u>. When you are working in the contents box, 1-2-3 displays the <u>Cancel</u> and <u>Confirm</u> buttons to the left of the contents box.

See also:

<u>Entering Data</u>
<u>F2 (EDIT)</u>
<u>Mode Indicator</u>

Choosing a 1-2-3 Command

A command is an instruction you give 1-2-3. Commands are located in the menu bar, which is immediately below the title bar that contains the name of the application: 1-2-3 for Windows.

To Choose a Command

1. Point to the command you want in the menu bar.

2. Click the mouse.

   1-2-3 highlights the command and drops down the <u>pulldown menu</u>.

3. <u>Drag</u> the mouse pointer to the command you want.

4. Release the mouse button.

To Choose a Command

1. Press ALT+F4 to close Help.

2. Press ALT or F10 (MENU).

   1-2-3 highlights File, the first command in the menu bar.

3. Press the underlined letter of the command you want in the menu bar.

   The pulldown menu drops down.

4. Press the underlined letter of the command you want.

Leaving a Menu

* To leave a menu using the mouse, point to some part of the 1-2-3 window other than the menu, and then release the mouse button.

* To leave a menu using the keyboard, press ESC one or more times. You back out of the menu one level at a time until 1-2-3 returns to READY mode.

Commands with an Arrowhead

Some commands in a pulldown menu have an arrowhead after them. When you highlight such a command, another menu, called a <u>cascade menu</u> appears. You can choose commands from a cascade menu the same way that you choose them from a pulldown.

Commands with an Ellipsis

Many commands are followed by . . . (ellipsis). An ellipsis indicates that the command brings up a dialog box.

In a dialog box, you select options, enter information, and identify the data the command affects.

Commands Without an Arrowhead or Ellipsis

Most commands that are followed by neither an arrowhead nor an ellipsis execute immediately.

A few such commands, for example, Range Protect, execute immediately only if you select a <u>range</u> that is larger than one cell before you choose the command. If only one cell is selected, the command brings up a dialog box in which to specify the range.

See also:

<u>Mouse</u>
<u>1-2-3 for Windows Help Contents</u>
<u>Specifying a Range</u>

Mode Indicator

1-2-3 displays the mode indicator at the right end of the <u>format line</u> to tell you what mode or state 1-2-3 is in.

EDIT
> You pressed <u>F2 (EDIT)</u> to edit an <u>entry</u>; you are entering or editing text in a <u>text box</u>; or you made an incorrect entry.

ERROR
> 1-2-3 is displaying an error message. Select Help or press F1 (HELP) to get Help; select OK to clear the error message. See <u>Error Message Index</u> for a list of error messages.

FILES
> You are in 1-2-3 Classic and 1-2-3 is displaying a list of file names.

FIND
> You selected <u>Data Query Find</u> or pressed F7 (QUERY) during a Data Query Find command.

LABEL
> You are entering a <u>label</u>. See <u>LABEL Mode</u> for more information.

MENU
> You clicked the menu bar, or pressed ALT or F10 (MENU); or in a dialog box, the <u>dotted box</u> is in a list box or on a check box, option button, or command button.

POINT
> You are <u>specifying a range</u> before choosing a command, while working in a dialog box, or while entering a formula.

READY
> 1-2-3 is ready for you to enter data or choose a command.

VALUE
> You are entering a <u>value</u>. See <u>VALUE Mode</u> for more information.

WAIT
> 1-2-3 is completing a command or process, such as saving a file.

See also:

> <u>Control Panel</u>

Status Indicators

When you press specific keys and when 1-2-3 performs certain actions, 1-2-3 displays status indicators. All status indicators except RO appear in the status line at the bottom of the 1-2-3 window.

CALC
> You need to recalculate formulas by pressing F9 (CALC), or 1-2-3 is performing background formula recalculation.

CAPS
> You pressed CAPS LOCK so that you can type uppercase letters without using SHIFT.

CIRC
> You entered a formula that contains a circular reference. Choose Help About 1-2-3 to identify the cell that contains the circular reference.

CMD
> 1-2-3 is running a macro.

END
> You pressed END to use it with a pointer-movement key.

FILE
> You pressed CTRL+END to move between files.

GROUP
> The current file is in GROUP mode.

MEM
> The amount of available memory is below 32 KB (kilobytes), or memory is divided into small blocks. See Increasing Available Memory.

NUM
> You pressed NUM LOCK so that you can use the numeric keypad to type numbers.

RO
> The current file has read-only status, which means you cannot save changes to the file unless you get the file reservation. RO appears in the title bar of the Worksheet window, next to the file name.

SCROLL
> You pressed SCROLL LOCK so that UP, DOWN, LEFT, and RIGHT move the worksheet as well as the cell pointer.

SST
> 1-2-3 is running a macro in STEP mode.

STEP
> You pressed ALT+F2 (STEP) and selected Step to run a macro in STEP mode.

ZOOM
> After using Window Split to create panes or a perspective view, you pressed ALT+F6 (ZOOM) for a full-window view of the current pane or worksheet.

See also:

> Areas of the 1-2-3 Window

Entering Data

1-2-3 is ready for you to enter data in the worksheet when you see the READY <u>mode</u> indicator in the upper right section of the 1-2-3 window.

To Enter Data
1. Move the <u>mouse pointer</u> to the cell that you want to receive the data. Click the cell.

   The <u>cell pointer</u> moves to the cell you selected. The cell, the basic unit of the 1-2-3 worksheet, is formed by the intersection of a column and a row.

2. Type your data. A cell can receive up to 512 characters.

   As you type, your data appears in the <u>contents box</u>, and the <u>Cancel</u> and <u>Confirm</u> buttons appear to the left of the contents box.

3. Click the Confirm button to complete the entry.

   1-2-3 clears the contents box and your data appears in the cell you selected in the worksheet.

   If you click the Cancel button, 1-2-3 clears the contents box and nothing appears in the selected cell.

If 1-2-3 beeps when you click the Confirm button, you probably made an error. Edit your entry or press ESC to clear your entry and start over.

To Enter Data
1. Press ALT+F4 to close Help.

2. Use the <u>pointer-movement keys</u> to move the <u>cell pointer</u> to the cell that you want to receive the data.

   The cell, the basic unit of the 1-2-3 worksheet, is formed by the intersection of a column and a row.

3. Type your data. A cell can receive up to 512 characters.

   As you type, your data appears in the <u>contents box</u>.

4. Press ENTER or one of the pointer-movement keys to complete the entry.

   ENTER keeps the cell pointer in the cell that received the data. The pointer-movement keys move the cell pointer one cell.

If 1-2-3 beeps when you press ENTER, you probably made an error. Edit your entry or press ESC to clear your entry and start over.

Classifying Data as a Label or a Value

1-2-3 automatically classifies the data you enter as either a <u>label</u> or a <u>value</u> based on the first character you type. At the same time, 1-2-3 changes the mode indicator to LABEL or VALUE.

If the first character is	The data is a LABEL and
A letter	1-2-3 automatically aligns the data according to the Align labels option set in Worksheet Global Settings.
' (apostrophe)	1-2-3 left-aligns any data you enter after an ' (apostrophe).
" (double quotation mark)	1-2-3 right-aligns any data you enter after a " (double quotation mark).
^ (caret)	1-2-3 centers any data you enter after a ^ (caret).
\ (backslash)	1-2-3 repeats the data you enter to fill the cell.

If the first character is	The data is a VALUE and
A number	1-2-3 automatically right-aligns the data.

$ (or current currency symbol)   1-2-3 automatically right-aligns the data.

Any of the following symbols: 1-2-3 automatically right-aligns the data.

+   (plus sign)

-   (minus sign)

@   (at sign)

.   (period)

((open parenthesis)

(pound sign)

See also:

LABEL Mode

Indicates you are entering a label. 1-2-3 classifies an entry as a label if the first character you type is a letter or a <u>label-prefix character</u>. A label can be up to 512 characters long.

Entering Labels

When you type any letter, 1-2-3 automatically enters the default label-prefix character before the letter. 1-2-3 does not display the label-prefix character in the cell, but does display it in the <u>contents box</u> when you highlight the cell.

Entering Numbers as Labels

You can enter a label that starts with a number (such as a street address, ZIP code, or phone number) or one of the symbols + - @ . (# in two ways:

*   Type the label prefix. For example, entering '8 Pushkin Avenue creates a label because you enter the label-prefix character ' (apostrophe) in front of the number 8.

*   Use <u>Range Format</u> and format a range as Label before you enter data; then 1-2-3 automatically adds a label prefix to all new entries in the range.

Editing Labels

Use the following keys when 1-2-3 is in LABEL mode:

BACKSPACE
Erases the character to the left of the <u>insertion point</u>; after erasing the final character, BACKSPACE cancels the entry and returns 1-2-3 to READY mode.

ENTER
Enters the label in the current cell.

ESC
Cancels the entry and returns 1-2-3 to READY mode.

<u>F2 (EDIT)</u>
Switches between LABEL and EDIT mode. When 1-2-3 is in EDIT mode, you can use all the <u>editing keys</u>.

SHIFT+LEFT
Extends the highlight to the left of the insertion point.

SHIFT+RIGHT
Extends the highlight to the right of the insertion point.

See also:

<u>Accelerator Keys</u>
<u>Entering Data</u>
<u>Long Labels and Values</u>

Long Labels and Values

1-2-3 displays long labels and long values in different ways.

Long Labels

A label can include up to 512 characters. When a label is longer than the cell's column width, 1-2-3 displays as much of the label as it can.

If cells to the right of the label are <u>blank</u>, 1-2-3 displays the label across the blank cells. If cells to the right of the label contain a label-prefix character, data, or spaces, 1-2-3 displays only the part of the label that fits in the cell where it is entered. You can see the entire label, however, in the <u>contents box</u>.

Long Values

A long value is a value that, as displayed, is wider than the cell's column width minus 1. Unlike long labels, 1-2-3 does not let long values overlap into adjacent blank cells, nor does it display only part of the value when adjacent cells contain data.

Depending on how the cell is formatted, 1-2-3 displays the long value in one of the following ways:

*   If the cell is formatted as General and the integer part of the value exceeds the column width, 1-2-3 displays the value in scientific notation. If the cell is too narrow to display the value in scientific notation, 1-2-3 displays *** (asterisks) across the cell.

*   If the cell is formatted as General and the integer part of the value fits within the column width, but some or all of the decimal part doesn't fit, 1-2-3 displays the value rounded.

*   If the cell is formatted as anything other than General, 1-2-3 displays *** (asterisks) across the cell instead of the value.

To display the actual value, either change the cell format with <u>Range Format</u> or widen the column with <u>Worksheet Column Width</u>.

See also:
>   <u>LABEL Mode</u>
>   <u>VALUE Mode</u>

VALUE Mode

Indicates you are entering a value. 1-2-3 classifies an entry as a value if the first character you type is a number (0 through 9) or any one of the characters + - @ . (# or $ (or the current currency symbol).

Besides a <u>number</u>, a value can also be a <u>formula</u>, or an <u>@function</u>.

Editing Values

Use the following keys when 1-2-3 is in VALUE mode:

BACKSPACE
Erases the character to the left of the <u>insertion point</u>; after erasing the final character, BACKSPACE cancels the entry and returns 1-2-3 to READY mode.

ENTER
Enters the value in the current cell.

ESC
Cancels the entry and returns 1-2-3 to READY mode.

<u>F2 (EDIT)</u>
Switches between VALUE and EDIT mode. When 1-2-3 is in EDIT mode, you can use all the <u>editing keys</u>.

<u>F4</u>
Switches a cell or range reference between relative, mixed, and absolute.

<u>F9 (CALC)</u>
Converts a formula to its current value.

SHIFT+LEFT
Extends the highlight to the left of the insertion point.

SHIFT+RIGHT
Extends the highlight to the right of the insertion point.

See also:

<u>Accelerator Keys</u>
<u>Entering Data</u>
<u>Long Labels and Values</u>

Numbers

1-2-3 accepts as an entry the number 0 (zero) and any positive or negative number from 1E-99 to 9.99E+99.

You can type a number with or without thousands separators, for example, 123000 or 123,000.

You can also type a number as a percentage or a fraction, as currency, or in scientific notation. For example, to enter the number 2.75, you can type 275%, 2 3/4, $2.75, or 27.5E-1.

You can control the way 1-2-3 displays numbers by setting the cell format with Worksheet Global Settings Format or Range Format.

See also:

Entering Data
Long Labels and Values
Types of Formulas
VALUE Mode

Types of Formulas

About Cell References (4:10)

A formula is an entry that performs a calculation using numbers, text, other formulas, or the address or range name giving the location of these elements in a worksheet. In 1-2-3, you can enter three types of formulas:

Logical

Compares two or more values using <u>logical operators</u> and produces a result that is either 1 (true) or 0 (false).

For example, +A1>500 returns 1 if the value in cell A1 is greater than 500 and 0 if the value in A1 is less than or equal to 500.

Numeric

Performs calculations with numbers and uses one or more of the <u>arithmetic operators</u>.

For example, +B5*5 multiplies the value in B5 by 5.

Text

Performs calculations with text enclosed in " " (quotation marks) using the <u>text operator</u> & (ampersand).

For example, the formula +"Mr. "&B2 joins Mr.(space) and the label in cell B2.

@Functions

1-2-3 also has built-in formulas, called <u>@functions</u>, that perform calculations automatically.

For example, the @function @SUM(B20..F20) is a formula that calculates the sum of the values entered in the range B20..F20.

See also:

<u>@Function Basics</u>
<u>Entering Formulas</u>
<u>Linking Files with Formulas</u>
<u>Operators</u>

Entering Formulas

A formula is an entry that performs a calculation using numbers, text, other formulas, or the address or range name giving the location of these elements in a worksheet.

A formula can contain up to 512 characters. When you enter a formula in a cell, 1-2-3 displays the formula's result in the cell and the formula itself in the contents box.

Beginning a Formula

For 1-2-3 to recognize an entry as a formula, begin the entry in one of the following ways:

* Begin a formula with a number (0 through 9) or one of the numeric symbols + - @ . (.

   Use $ (dollar sign) only if it is the current currency symbol. Use # (pound sign) only at the beginning of a logical formula.

* Enter + - or (before a cell address, range name, file reference, or text enclosed in " "(quotation marks) when one of these is the first element in a formula.

   For example, +B7/B8, +SALES-EXPENSES, and +"Ms. "&LAST are valid formulas.

* When a formula looks like a date in day-month-year (31-Dec-90), day-month (31-Dec), or a Long Intl Date (for example, 12/31/90) format, begin the formula with +. Otherwise, 1-2-3 enters a date number instead of the formula.

   For example, +30-Nov-95 is a valid formula; but if you enter 30-Nov-95, 1-2-3 enters the date number 35033 in the cell.

Valid Data in a Formula

You can use the following types of data in a formula:

* Numbers, for example, 450

* @Functions, for example, @SUM(A4..A8)

* Cell addresses, for example, A:B32

* Range addresses and range names, for example, A4..A8 and JANSALES

* Text enclosed in " " (quotation marks), for example, "Budget for"

Attaching a Note to a Formula

To include an explanatory note with the formula, type a ; (semicolon) immediately after the formula and then type the note.

The following formula includes an explanatory note:

@SUM(JANSALES)*0.10;commission due on January sales

The note does not appear in the cell with the formula unless the cell is formatted as Text; it appears only in the contents box when the cell pointer is on the cell.

Displaying a Formula, Not Its Result

To display the formula in the worksheet instead of the value it evaluates to, format the cell that contains the formula as Text using Range Format or Worksheet Global Settings Format.

See also:

Operators

 Creating Formulas (1:20)

Operators are used to create formulas.

1-2-3 performs operations in a formula in a certain order, called the order of precedence. Each operator is assigned a precedence number, which is shown in parentheses in the the list below.

1-2-3 performs operations with lower precedence-numbers first. 1-2-3 performs operations with equal precedence from left to right, in the order they appear in the formula.

To override the order of precedence, enclose an operation in ( ) parentheses.

Operator	Operation
^	(1) Exponentiation
+ -	(2) Positive and negative values
* /	(3) Multiplication and division
+ -	(4) Addition and subtraction
= <>	(5) Equal-to and not-equal-to
< >	(5) Less-than and greater-than
>=	(5) Greater-than-or-equal-to
<=	(5) Less-than-or-equal-to
#NOT#	(6) Not condition
#AND#	(7) Both condition 1 and condition 2
#OR#	(7) Either condition 1 or condition 2
&	(7) Join text in " " (quotation marks)

See also

Entering Formulas

Types of Formulas

Help About 1-2-3

Displays the 1-2-3 for Windows release number and copyright notice. When the CIRC indicator is displayed in the status line, Help About 1-2-3 also displays the address of the cell containing a circular reference.

See also:

Help Commands
Entering Formulas
Status Indicators

Hiding Data

Prevents displaying and printing data.

Hiding Data in a Worksheet

Range Format Hidden
Hides data in a range. The data appears in the contents box when the cell pointer is on a hidden cell unless the worksheet is globally protected.

Worksheet Global Settings Format Hidden
Hides all data in a worksheet. The data appears in the contents box when the cell pointer is on a hidden cell.

Worksheet Global Settings Zero Display
Hides zeros in cells in the current worksheet that contain either the number zero or a formula that evaluates to zero.

Worksheet Hide
Hides columns and worksheets.

Hiding a Graph and Data in a Graph

Chart Options Colors (Graph Window)
Hides text and data ranges in a graph.

Setting Up a Colors Range
Explains how to hide slices of a pie chart.

Setting Up a Percent-Labels Range
Explains how to hide the percent labels of a pie chart.

Style Display Options (Graph Window)
Turns off the display of the current graph in the worksheet.

See also:

Protecting Data and Files

Increasing Available Memory

When you are using 1-2-3, there are several factors that affect the amount of memory available for your files. These factors include the other programs in memory, the type of data in your worksheets, and the structure of your worksheet files.

To increase available memory, do one or more of the following:

*   If Edit Undo is on, use <u>Tools User Setup</u> to turn Edit Undo off.

*   Consolidate worksheets and files to make the <u>active area</u> smaller.

*   Close active files and delete data that you no longer need in memory.

*   If you have programs in memory in addition to 1-2-3, end one or more of those programs.

For information on how to use memory efficiently with 1-2-3, see **<u>Appendix C, "Using Memory Efficiently,"</u>** in the *User's Guide.*

Working with Multiple Worksheets in a File

▶ About Multiple Worksheets (3:55)
▶ Managing Multiple Worksheets (3:50)

You can include up to 256 worksheets in a 1-2-3 for Windows worksheet file. With multiple worksheets, you can keep related data together in one file but organize and format data differently in separate worksheets.

For example, you can protect data in one worksheet and leave data unprotected in another worksheet. When you want to manage worksheets in a file as a group instead of individually, you can turn on GROUP mode for the file with Worksheet Global Settings Group Mode. When GROUP mode is turned on, settings and formats you assign to the current worksheet are assigned to all worksheets in the file.

You can also use @functions to perform consolidations and other types of calculations on data in a series of worksheets. For example, you can enter @SUM formulas in one worksheet to consolidate data stored in other worksheets in the file.

Creating Multiple-Sheet Files

To add worksheets to the current file, you use Worksheet Insert. 1-2-3 for Windows assigns each worksheet in the file a letter from A (for the first worksheet) to IV (for the 256th worksheet).

To save the file and all of its worksheets to disk, you use File Save or File Save As.

Note During a 1-2-3 for Windows session, no more than 256 worksheets can be open at one time across all active files.

Moving Around Multiple-Sheet Files

To move the cell pointer between worksheets, you use the worksheet navigation keys.

You can also highlight a range across two or more worksheets in the same file (3-D range). For more information, see Highlighting a Range.

To display three contiguous worksheets in a file in perspective view, you use Window Split. When worksheets are displayed in perspective view, you can move between worksheets by using F6 (PANE), and you can move the previous or next worksheet into view   by pressing CTRL+PG UP or CTRL+PG DN.

See also:

File Commands
Files in 1-2-3 for Windows
Worksheet Commands

Working with Multiple Files

In 1-2-3 for Windows, several worksheet files can be open (active) in different windows at the same time. When multiple files are active, you can perform the following tasks easily and quickly:

* View the contents of several files at the same time.

* Work with data in more than one file.

* Combine data from several files into one file.

* Run a macro located in one file while you work in another file.

* View a graph created in one file while you update the data on which it is based in another file.

* Work in one file and specify a range in another file by highlighting it.

* Work in one file and specify another file by selecting the second file from a list of active files.

* Copy or move data between files.

* Link one active file to another.

You can also link an active 1-2-3 for Windows worksheet file to a file on disk; specify a range in a file on disk; and copy data from an active 1-2-3 file to a file on disk or from a file on disk to an active file.

Managing Multiple Files

To open a worksheet file, you use <u>File Open</u>. 1-2-3 for Windows opens each file in a separate window. You can then arrange and set display options for the open windows by using the <u>Window</u> commands.

To close a file, you use <u>File Close</u>.

Moving Between Active Files

To move the <u>cell pointer</u> from one active file to another, you use the <u>file navigation keys</u>. The file that contains the cell pointer is the current file and is affected by the activities you perform and the commands you choose until you move the cell pointer and make another file current.

Moving Data Between Files

You can find information about accessing data in a file and moving it to another file in the following topics:

* <u>Copying Data in 1-2-3</u>

* <u>Linking Files</u>

* <u>Specifying a File</u>

* <u>Specifying a Range</u>

See also:

<u>File Commands</u>
<u>Files in 1-2-3 for Windows</u>

Working with Excel Version 2.2 Files in 1-2-3 for Windows

You use <u>File Open</u> in 1-2-3 for Windows to open an Excel Version 2.2 worksheet file.

When you open the Excel file, 1-2-3 creates a copy of the file in .WK3 format in memory, associates a <u>format file</u> (.FM3) with the new .WK3 file, and leaves the original Excel file unchanged on disk.

If the Excel file is password-protected, you must remove the password before you can open the file in 1-2-3.

File Name and Directory

When you open an Excel file, 1-2-3 uses the Excel file name to create the 1-2-3 worksheet file name. For example, if you open an Excel file named BUDGET.XLS, 1-2-3 assigns the name BUDGET.WK3 to the new worksheet file.

If the file name already exists, 1-2-3 assigns the next available default file name; for example, FILE0004.WK3.

When you save the file, 1-2-3 -- by default -- saves the 1-2-3 worksheet file in the directory that contains the original Excel file. If this directory is on a write-protected disk, 1-2-3 saves the worksheet file in the 1-2-3 default drive and <u>directory</u>.

You can save the file on another drive or in another directory by using <u>File Save As</u>.

Worksheet Settings and Display Options

The following Excel settings do not translate: a page break with no data below it, window protection, window splits, row and column headings, formula display, zero suppression, grid-line display, grid and heading color.

Row and Column Formats

Excel row heights not supported in 1-2-3 are translated as follows:

Excel row height	In 1-2-3, translates to
0	1
256 through 409	255

Excel column widths not supported in 1-2-3 are translated as follows:

Excel column width	In 1-2-3, translates to
0	Hidden column
240 through 255	240

Numbers from Excel that are larger than 9.99E+99 (the largest number in 1-2-3) and smaller than 1E-99 (the smallest number in 1-2-3) appear as *** (asterisks) when they are translated to the 1-2-3 worksheet file.

Cell and Range Contents and Formats

Excel cell notes do not translate to 1-2-3.

ANSI characters in Excel translate to their <u>LMBCS</u> equivalent in 1-2-3.

Excel remote references (references to cells, cell ranges, values, and fields in other applications) are replaced with the phrase **Untranslatable formula** in the 1-2-3 worksheet file.

Cell coordinates that are located below row 8192 and cell references to locations (range names, print ranges) below row 8192 in an Excel worksheet are placed on sheet B in the 1-2-3 worksheet file.

Excel multiple-selection ranges are not translated.

Excel custom formats translate to the 1-2-3 format that most closely approximates the Excel data type.

Numeric Formats

Excel numeric formats are translated to 1-2-3 formats as follows:

Excel format	1-2-3 format
*n*E+*nn* or *n.nn*E+*nn*	Scientific
$*n,nnn* or $*n,nnn.nn*	Currency
n,nnn or *n,nnn.nn*	, (Comma)
n or *n.nn*	Fixed (up to 15 decimal places are maintained in 1-2-3)

The Excel Hidden format does not translate to 1-2-3.

Colors assigned to Excel numbers are translated as follows:

*   When a color is assigned to negative numbers in an Excel custom format, the color red is assigned to the negative numbers in 1-2-3.

*   The first color in an Excel custom color format is assigned to text, 0 (zero), and numbers (including negative numbers when no color is explicitly assigned to them).

Range Names

The following Excel range names are translated:

*   A range name that has an absolute ($) cell reference (range names in Excel are absolute by default).

*   Range names that do not extend below row 8192 of the Excel worksheet.

Range names that refer to a value or to a formula, rather than to a cell, are not translated. If possible, range names referring to a value or formula will be translated as the value or formula displayed in the Refers to field in the Formula Define Name dialog box.

Links

When a translated Excel worksheet contains a file name in a linking formula, the extension in the file name is changed to .WK3. The link works in 1-2-3 when the file referred to in the formula is also translated to 1-2-3.

Functions and Formulas

When an Excel array formula or data table formula cannot be used in 1-2-3, the phrase **Untranslatable formula** is entered in its place in the 1-2-3 worksheet file.

Excel functions that have no equivalent in 1-2-3 are translated with the **@XL_** prefix. To use these functions, you can write an add-in @ function with the Lotus 1-2-3 for Windows Add-in Development Kit.

Printing

An Excel print area is translated if it is defined as a single range.

Excel formatting codes for <u>header</u> and <u>footer</u> text are translated as follows:

Excel print code	In 1-2-3, translates to

&&	Ampersand (&)
&C	Center text (|Text|)
&D	Current date (@)
&B	Bold (b and end-of-format sequence)
&I	Italics (i and end-of-format sequence)
&L	Left-align text (Text|)
&P	Page number (#)
&R	Right-align text (|Text)

See also:

Worksheet Commands

Linking Files

You can link files so that data in one file can be used to accomplish tasks in the other file.

* You can link two 1-2-3 files with a <u>formula</u> link. To create a formula link, you enter a formula that uses a <u>file reference</u> to identify the file you are linking to.

* You can link a 1-2-3 file and a file in another Windows application with a <u>DDE</u> link. To create a DDE link, you use Edit Paste Link or Edit Link Options Create.

Source and Destination Files

The 1-2-3 file in which you create a link is called the destination file, and the range in which you create the link is called the destination range. The file that supplies data to the destination file is called the source file.

A file can be both a source file and a destination file, receiving data through one link and sending data through another link.

DDE Client and Server Support

In a DDE link, a file can be a source file only when the Windows application to which it belongs supports DDE as a server. Similarly, in a DDE link, a file can be a destination file only when the application to which it belongs supports DDE as a client.

1-2-3 for Windows supports DDE both as a server and a client. Any 1-2-3 file can be a client and a server, receiving data through one DDE link and sending data through another DDE link.

Linking to Open and Closed Files

Before data can be shared or updated through a DDE link, the source and destination files must   both be open. In a formula link, however, one worksheet file can be open and one can be on disk.

See also:

<u>Edit Link Options</u>
<u>Edit Paste Link</u>
<u>Linking Files with DDE</u>
<u>Linking Files with Formulas</u>

Linking Files with Formulas

You can use a <u>formula</u> to link two 1-2-3 worksheet files so that you can use data in one file to accomplish tasks in the other file.

The file that receives data is the destination file. The file that sends data is the source file. Both files can be <u>active</u>, or you can link to a source file on disk.

Note To link to a password-protected file, you must open the file first.

You create the link in the destination file by entering a formula that contains a <u>file reference</u>. The file reference identifies the source file that contains the range of data you want to use. The range in the source file can contain a graph.

When you save the destination file, 1-2-3 links the files.

Example

You are working in a file called COMM.WK3, and you want to calculate the total commissions due on the sales made in the eastern territory of your company. The sales information is in a 1-2-3 worksheet file called EAST.WK3, in a range named TOTALS.

Using COMM.WK3 as the destination file, you create a link by entering the following formula:

@SUM(<<C:\SALES\EAST.WK3>>TOTALS)*A:A15

where A:A15 is the cell that contains the percentage used to calculate commissions and <<C:\SALES\EAST.WK3>> is the file reference for the source file.

After you save COMM.WK3 and 1-2-3 links the files, the formula in COMM.WK3 is updated whenever the data in TOTALS changes.

Including the Path in a File Reference

To ensure that the link to a file works even if you change your <u>current directory</u>, include the file's <u>path</u>, as well as the file name, in the file reference.

If you share files with other users and want the link to work for a file in each of their current directories, do not include the path in a file reference. The links work as long as the current directory is set to the directory where the linked files are located.

Creating a File Reference

You can create a file reference in any of the following ways:

*   Type the file reference in front of the range address or range name. This is the only way to create a formula link to a source file on disk.

*   While entering a formula in the <u>control panel</u>, type an <u>operator</u> -- for example, (+ > or &. Then press a pointer-movement key. When 1-2-3 enters POINT mode, you can <u>highlight the range</u> you want.

    1-2-3 automatically enters the file reference, including the path, in the formula.

*   Use F3 (NAME) to specify a range name.

    For example, your destination file is COMM.WK3 and you are creating a formula that needs the sum of the values in two named ranges, SALES and SALES2, in the file JULY.WK3.

    Type **+** and press F3 (NAME). Specify the file JULY.WK3, and then specify the range name SALES. Then type **+** again, press F3 (NAME), specify JULY.WK3, and then specify SALES2. Press ENTER to complete the formula.

    1-2-3 automatically enters the file reference, including the path, in the formula.

*   Use <<?>> (wildcard file reference) if the data is in a named range and only one active file contains a

range with that name.

If you use a wildcard file reference and then delete the range name that the formula refers to, 1-2-3 treats the range name as an <u>undefined range name</u>.

* Use <<>> (double angle brackets with no space between them: a noname file reference) to create a formula that refers to data in a worksheet you have not yet saved in a file.

For example, the formula +<<>>A:A4*100 multiplies by 100 the value in cell A4 of your first unsaved worksheet. If you then save this worksheet in a file or delete it from memory, the noname reference becomes invalid and the formula evaluates to <u>ERR</u>.

Updating Linked Data

When files are linked through a formula, data in the destination file is updated automatically to reflect the changes in the source file when you open the destination file.

After a file is open, you can update data in the destination file by using <u>File Administration Update Links</u>.

If recalculation is set to Manual in <u>Tools User Setup Recalculation,</u> use File Administration Update Links to recalculate data after you open the file, or press <u>F9 (CALC)</u>.

See also:

<u>Entering Formulas</u>
<u>Linking Files</u>
<u>Linking Files with DDE</u>

Linking Files with DDE

You can create a DDE link between a 1-2-3 file and a file in another Windows application that supports DDE as a server.

The file that receives data is the destination file. The file that sends data is the source file.

You create a DDE link by using Edit Paste Link or Edit Link Options Create. You change, delete, or deactivate a DDE link, with Edit Link Options commands.

Creating a DDE Link

To create a link to another Windows application, you must specify the application, the file (or other topic) in the application, and the data item in the file that you want to link to. You can also specify the format in which you want data transferred from the source file, and whether you want data updated in the destination range automatically or manually.

The source file can be an active file or a file on disk. The link is in effect as soon as you create it, but the destination range can be updated with data from the source file only when the destination file and the source file are active.

Updating Linked Data

When files are linked through DDE and the update mode is set to Automatic, data in the destination file is updated automatically when the destination file and the source file are open and data in the source file changes. If the destination file is closed when data in the source file changes, the destination file is updated the next time both files are open.

When the update mode is set to Manual, you must use Edit Link Options Update to update data in the destination file.

See also:

Entering Formulas
Linking Files
Linking Files with Formulas

Deleting a 1-2-3 for Windows File

To delete a 1-2-3 for Windows file, you must be in the Windows Program Manager or at the DOS prompt.

To Delete a File from the Windows Program Manager

1. Make the Main window the <u>active window</u>.

2. Select File Manager.

    The Directory Tree window becomes active.

3. Select the <u>drive name</u> of the disk that contains the file to delete.

4. Select the <u>directory</u> that contains the file.

    A window displaying the <u>subdirectories</u> and files in the directory becomes active. If the file is in a subdirectory, select the subdirectory.

5. Select the file to delete.

6. Choose File Delete.

    The Delete dialog box is displayed.

7. Select Delete to remove the selected file, or enter another file name to remove a different file.

    The File Manager dialog box is displayed and asks you to confirm the deletion.

8. Select Yes to delete the file.

To Delete a File from the DOS Prompt

1. Change to the drive and directory that contains the file to delete.

2. Type **del** <filename.ext>.

3. Press ENTER.

See also:

   <u>File Commands</u>
   <u>1-2-3 for Windows Help Contents</u>

1-2-3 for Windows Help Contents

Getting Started

Areas of the 1-2-3 Window

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Selecting a Help Topic

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the left mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

Viewing a Definition

To view the <u>definition</u> of a term using the mouse, point to green text with a dotted underline. When the mouse pointer changes to a <u>hand icon</u>, press and hold the left mouse button. Using the keyboard, press TAB until the definition is highlighted, and then press and hold ENTER.

The definition appears in a pop-up box and stays visible until you release the mouse button or ENTER.

F1 (HELP)

When you are not in the Help window, you can press F1 (HELP) to open the Help window and get Help on what you are doing in 1-2-3.

Note When the Help window is the <u>active window</u>, pressing F1 closes 1-2-3 for Windows Help and opens How to Use Help. When the Online Books window is the active window, pressing F1 closes Online Books and opens How to Use Online Books.

How Do I?

To look up a specific task in How Do I? select a letter and then select a Help topic. To move through the alphabet, use Browse.

To select a letter using the mouse, point to a green letter with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the letter is highlighted, and then press ENTER.

A B C D E

F G H I J

K L M N O

P Q R S T

U V W X Y

Z

A How Do I? Index

To select a Help topic using the mouse, point to green text with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

Add a border to a graph
    -- see Chart Borders/Grids (Graph Window)

Add a border to a range
    -- see Style Border

Add a column, row or worksheet
    -- see Worksheet Insert

Add decimals or dollar signs to data
    -- see Range Format

Add a drop shadow to a range
    -- see Style Border

Add graph enhancements
    -- see Chart Commands (Graph Window)

    -- see Draw Commands (Graph Window)

Add a graph to a worksheet
    -- see Graph Add to Sheet

Add a graphic to a range
    -- see Range Annotate

Add a header or footer
    -- see Specifying Header and Footer Text

Add a note to a formula
    -- see Entering Formulas

Add a note to a graph
    -- see Chart Headings (Graph Window)

Add a note to a Help or Online Books topic
    -- see Edit Annotate (Help and Online Books Windows)

Add numbers
    -- see @SUM

Add shading to a range
    -- see Style Shading

Add SmartIcons
    -- see Tools SmartIcons Customize

Align labels in a range or worksheet
    -- see Style Alignment

    -- see Worksheet Global Settings Align Labels

Anchor the cell pointer
    -- see F4

Arrange data
    -- see Data Sort

Arrange graph objects
    -- see Layout Commands (Graph Window)

-- see <u>Rearrange Commands (Graph Window)</u>

Arrange records in a database
-- see <u>Data Sort</u>

Arrange windows
-- see <u>Window Commands</u>

Average numbers
-- see <u>@AVG</u>

B   How Do I? Index

To select a Help topic using the mouse, point to green text with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

Back up work
   -- see File Save As Backup

Beep on error
   -- see Tools User Setup

Bold data
   -- see Style Font

Bookmark a Help or Online Books topic
   -- see Bookmark Define (Help and Online Books Windows)

Border a graph
   -- see Chart Borders/Grids (Graph Window)

Border a print job
   -- see File Page Setup Borders

Border a range
   -- see Style Border

C   <u>How Do I? Index</u>

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

Cancel the last action or command
    -- see <u>Edit Undo</u>

Center labels
    -- see <u>Style Alignment</u>

    -- see <u>Worksheet Global Settings Align Labels</u>

Change the appearance of data
    -- see <u>Range Format</u>

    -- see <u>Style Font</u>

Change a column of long labels into several columns of data
    -- see <u>Data Parse</u>

Change column width
    -- see <u>Worksheet Column Width</u>

Change a font
    -- see <u>Fonts in 1-2-3 for Windows</u>

Change formulas to values
    -- see <u>Edit Quick Copy</u>

    -- see <u>F9 (CALC)</u>

Change global default settings
    -- see <u>Tools User Setup</u>

    -- see <u>Window Display Options</u>

    -- see <u>Worksheet Global Settings</u>

Change graph type
    -- see <u>Chart Type (Graph Window)</u>

Change label alignment
    -- see <u>Style Alignment</u>

Change print settings
    -- see <u>File Page Setup</u>

Change row height
    -- see <u>Worksheet Row Height</u>

Change the size of a graph range
    -- see <u>Graph Size</u>

Change the sort order
    --see <u>Sort Order (Collating Sequences)</u>

Change the window display
    -- see <u>Control Menu</u>

    -- see <u>Window Commands</u>

Choose a command
    -- see <u>Choosing a 1-2-3 Command</u>

    -- see <u>For Upgraders: 1-2-3 Classic</u>

Choose a printer
    -- see File Printer Setup

Clear cell contents
    -- see Edit Clear

Clear types of data and formatting
    -- see Edit Clear Special

Close an active file
    -- see File Close

Close a window
    -- see Closing a Window in 1-2-3

Color data, parts of a worksheet or a graph
    -- see Colors in 1-2-3 for Windows

Combine two worksheet files
    -- see File Combine From

Compose a LMBCS character
    -- see ALT+F1 (COMPOSE)

Connect to an external database
    -- see Data Connect to External

Copy data
    -- see Copying Data in 1-2-3

Copy a graph
    -- see Copying Data in 1-2-3

Copy a graph from a file on disk to the current file
    -- see Graph Import

Copy a Help or Online Books topic
    -- see Edit Copy (Help and Online Books Windows)

Copy link information from the Clipboard to a worksheet
    -- see Edit Paste Link

Correct a mistake
    -- see Editing Keys

    -- see Edit Undo

Create characters not on the keyboard
    -- see ALT+F1 (COMPOSE)

Create a database
    -- see Creating a 1-2-3 Database Table

Create database criteria
    -- see Creating the Criteria Range

Create a frequency distribution of values in a range
    -- see Data Distribution

Create a graph
    -- see Creating Graphs

Create a link
    -- see Linking Files

    -- see Linking Files with DDE

D   <u>How Do I? Index</u>

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

Debug a macro
  -- see <u>Debugging a Macro</u>

Delete a column, row or worksheet
  -- see <u>Worksheet Delete</u>

Delete data
  -- see <u>Edit Clear</u>

  -- see <u>Edit Cut</u>

  -- see <u>Editing Keys</u>

Delete a file
  -- see <u>Deleting a 1-2-3 for Windows File</u>

Delete a graph
  -- see <u>Graph Name Delete</u>

Delete a link between worksheet files
  -- see <u>Edit Link Options Delete</u>

Delete a page break
  -- see <u>Worksheet Page Break</u>

Delete a range name
  -- see <u>Range Name Delete</u>

Delete a record from a database
  -- see <u>Data Query Delete</u>

Delete types of data and formatting
  -- see <u>Edit Clear Special</u>

Display data, parts of a worksheet or a graph in color
  -- see <u>Colors in 1-2-3 for Windows</u>

Display a graph
  -- see <u>Graph View</u>

Display Help
  -- see <u>Using Help</u>

Display Help and 1-2-3 together
  -- see <u>Viewing 1-2-3 and Help Together on the Screen</u>

Display a hidden column or worksheet
  -- see <u>Worksheet Unhide</u>

Display a list of open windows
  -- see <u>Window (Window Name)</u>

  -- see <u>Window More Windows</u>

Display negative values in red
  -- see <u>Style Color</u>

Display 1-2-3 Classic
  -- see <u>For Upgraders: 1-2-3 Classic</u>

Display three worksheets in a file at once

-- see <u>Window Split</u>

Display windows one on top of another
-- see <u>Window Cascade</u>

Display windows side by side
-- see <u>Window Tile</u>

Draw a drop shadow
-- see <u>Style Border</u>

Draw a graph object
-- see <u>Draw Commands (Graph Window)</u>

Draw a graphic in a range
-- see <u>Range Annotate</u>

Draw lines around a range
-- see <u>Style Border</u>

E

To select a Help topic using the mouse, point to green text with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

Edit data
    -- see Editing Keys

    -- see F2 (EDIT)

Edit a graph
    -- see Edit Commands (Graph Window)

Edit a macro in the Transcript window
    -- see Using the Transcript Window

Edit records in a database
    -- see Data Query Modify

End 1-2-3
    -- see Exiting and Ending 1-2-3 for Windows

Enter an @function
    -- see Writing an @Function

Enter characters not on the keyboard
    -- see ALT+F1 (COMPOSE)

Enter data
    -- see Entering Data

Enter a date
    -- see @DATE

    -- see Date Formats

Enter a formula
    -- see Entering Formulas

Enter a macro
    -- see Writing a Macro

Enter a sequence of values in a range
    -- see Data Fill

Enter a time
    -- see Time Formats

Erase data
    -- see Edit Clear

    -- see Editing Keys

Erase a file on disk
    -- see Deleting a 1-2-3 for Windows File

Erase types of data and formatting
    -- see Edit Clear Special

Exit Help or Online Books
    -- see File Exit (Help and Online Books Windows)

Exit 1-2-3
    -- see Exiting and Ending 1-2-3 for Windows

Explode a pie slice

-- see <u>Setting Up a Colors Range</u>

Extract data to a file on disk
    -- see <u>File Extract To</u>

Extract records from a database
    -- see <u>Data Query Extract</u>

F   How Do I? Index

To select a Help topic using the mouse, point to green text with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

Fill a range with numbers or dates
    -- see Data Fill

Find a circular reference
    -- see Help About 1-2-3

Find a movie
    -- see Movie Guide

Find an online book topic
    -- see Using Online Books

Find data
    -- see Edit Find

Find Help and Online Books information
    -- see Using Search

Find maximum and minimum values
    -- see @MAX

    -- see @MIN

Find records in a database
    -- see Data Query Find

Fix a macro
    -- see Debugging a Macro

Fix a mistake in a worksheet
    -- see Edit Undo

    -- see F2 (EDIT)

Format a range of data
    -- see Range Format

Freeze a column or row as a title
    -- see Worksheet Titles

G   How Do I? Index

To select a Help topic using the mouse, point to green text with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

Get a file reservation
     -- see Reserving a File

Go to another Windows application
     -- see Control Menu Keys

Go to a specified range
     -- see F5 (GOTO)

     -- see Range Go To

Graph data
     -- see Creating Graphs

Group worksheets
     -- see Worksheet Global Settings Group Mode

H   How Do I? Index

To select a Help topic using the mouse, point to green text with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

Hide a column or worksheet
    -- see Worksheet Hide

Hide data
    -- see Hiding Data

Hide a graph in the worksheet
    -- see Style Display Options (Graph Window)

Hide grid lines
    -- see Window Display Options Options

Hide the icon palette
    -- see Tools SmartIcons

Hide percent labels in a pie chart
    -- see Setting Up a Percent-Labels Range

Hide a pie slice
    -- see Setting Up a Colors Range

Hide text and data ranges in a graph
    -- see Chart Options Colors (Graph Window)

Hide the Show Me Player Toggle
    -- see Toggling Between a Movie and a 1-2-3 Window

Hide the worksheet frame
    -- see Window Display Options Frame

Hide zeros in a worksheet
    -- see Worksheet Global Settings Zero Display

Highlight a range
    -- see Highlighting a Range

I How Do I? Index

To select a Help topic using the mouse, point to green text with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

Import data from a text file
　　-- see File Import From

Import a graph from a file on disk
　　-- see Graph Import

Increase available memory
　　-- see Increasing Available Memory

Insert a column, row or worksheet
　　-- see Worksheet Insert

Insert data from the Clipboard
　　-- see Edit Paste

Insert a page break
　　-- see Worksheet Page Break

Invert a matrix
　　-- see Data Matrix Invert

Italicize data
　　-- see Style Font

J   <u>How Do I? Index</u>

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

Join database tables
     -- see <u>Querying Multiple Database Tables</u>

Join text in a formula
     -- see <u>Types of Formulas</u>

Justify a column of labels
     -- see <u>Range Justify</u>

K   <u>How Do I? Index</u>

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

Keep a title in view
    -- see <u>Worksheet Titles</u>

L   How Do I? Index

To select a Help topic using the mouse, point to green text with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

Leave Help or Online Books
    -- see File Exit (Help and Online Books Windows)

Leave 1-2-3
    -- see Exiting and Ending 1-2-3 for Windows

Link files
    -- see Linking Files

    -- see Linking Files with DDE

    -- see Linking Files with Formulas

List @functions
    -- see @Function Index

List file information
    -- see File Administration PasteTable

List graphs in a file
    -- see Graph Name Paste Table

List information about an external database
    -- see Data External Options Paste Fields

List macro commands
    -- see Macro Command Index

List range names
    -- see Range Name Paste Table

Load an add-in
    -- see Tools Add-in Load

M

To select a Help topic using the mouse, point to green text with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

Maximize a window
    -- see Control Menu

Minimize a window
    -- see Control Menu

Move to another Windows application
    -- see Control Menu

Move around a dialog box
    -- see Dialog Box Keys

Move around a window or worksheet
    -- see F5 (GOTO)

    -- see Pointer-Movement Keys

    -- see Scrolling with the Mouse

Move between active files
    -- see F5 (GOTO)

    -- see File Navigation Keys

Move between a movie and a 1-2-3 window
    -- see Toggling Between a Movie and a 1-2-3 Window

Move between worksheet panes
    -- see F6 (PANE)

Move between worksheets in a file
    -- see F5 (GOTO)

    -- see Worksheet Navigation Keys

Move data
    -- see Edit Move Cells

Move a SmartHelp window
    -- see Moving a SmartHelp Window

Move to the next window
    -- see Control Menu

Move SmartIcons
    -- see Tools SmartIcons

Move to a specified graph range
    -- see Graph Go To

Move to a specified range
    -- see F5 (GOTO)

    -- see Range Go To

Move a window
    -- see Control Menu

Multiply matrixes
    -- see Data Matrix Multiply

N

To select a Help topic using the mouse, point to green text with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

Name a cell format
    -- see Style Name

Name a file
    -- see Naming a 1-2-3 File

Name a font set
    -- see Style Font Replace Save

Name a graph
    -- see Graph New

Name a macro
    -- see Naming a Macro

Name page settings
    -- see File Page Setup Save

Name a range
    -- see Range Name Create

O   How Do I? Index

To select a Help topic using the mouse, point to green text with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

Open the Graph window
    -- see Graph New

    -- see Graph View

Open the Help window
    -- see Using Help

Open the 1-2-3 Classic window
    -- see For Upgraders: 1-2-3 Classic

Open the Transcript window
    -- see Tools Macro Show Transcript

Open a worksheet file
    -- see File Open

Open an online book
    -- see Using Online Books

Order books
    -- see Using Online Books

Organize a database table
    -- see Creating a 1-2-3 Database Table

Outline a graph
    -- see Chart Border/Grids (Graph Window)

Outline a range
    -- see Style Border

P   How Do I? Index

To select a Help topic using the mouse, point to green text with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

Parse data
     -- see Data Parse

Paste Clipboard data to a worksheet
     -- see Edit Paste

Paste link information from the Clipboard to a worksheet
     -- see Edit Paste Link

Play a movie
     -- see Playing a Show Me Movie

Play the Guided Tour
     -- see Taking the Guided Tour

Predict values using regression analysis
     -- see Data Regression

Preview the print range
     -- see File Preview

Print data
     -- see Printing Data

Print a graph
     -- see Printing Data

Print grid lines or worksheet frame
     -- see File Page Setup Options

Print a Help or Online Books topic
     -- see File Print Topic (Help and Online Books Windows)

Protect data
     -- see Protecting Data and Files

Q   How Do I? Index

To select a Help topic using the mouse, point to green text with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

Query a database table
    -- see Data Query

Query multiple database tables
    -- see Querying Multiple Database Tables

Quit Help or Online Books
    -- see File Exit (Help and Online Books Windows)

Quit 1-2-3
    -- see Exiting and Ending 1-2-3 for Windows

R   <u>How Do I? Index</u>

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

Read a text file into a worksheet
     -- see <u>File Import From</u>

Read a worksheet file into memory
     -- see <u>File Open</u>

Recalculate linked formulas
     -- see <u>File Administration Update Links</u>

Recalculate a worksheet
     -- see <u>F9 (CALC)</u>

Record keystrokes
     -- see <u>Using the Transcript Window</u>

Redisplay a hidden column or worksheet
     -- see <u>Worksheet Unhide</u>

Redisplay hidden data
     -- see <u>Hiding Data</u>

Release a file reservation
     -- see <u>Reserving a File</u>

Remove an active file from memory
     -- see <u>File Close</u>

Remove an add-in
     -- see <u>Tools Add-in Remove</u>

Remove a column, row, or worksheet
     -- see <u>Worksheet Delete</u>

Remove data
     -- see <u>Edit Clear</u>

     -- see <u>Edit Cut</u>

     -- see <u>Editing Keys</u>

Remove grid lines
     -- see <u>Window Display Options Options</u>

Remove a page break
     -- see <u>Worksheet Page Break</u>

Remove protection
     -- see <u>Range Unprotect</u>

     -- see <u>Worksheet Global Settings Protection</u>

Remove SmartIcons
     -- see <u>Tools SmartIcons Customize</u>

Remove the worksheet frame
     -- see <u>Window Display Options Frame</u>

Replace data
     -- see <u>Edit Find</u>

Replace a font

-- see <u>Style Font Replace</u>

Reserve a file
-- see <u>Reserving a File</u>

Restore a window
-- see <u>Control Menu</u>

Retrieve a file
-- see <u>File Open</u>

Reverse the last action or command
-- see <u>Edit Undo</u>

Round numbers
-- see <u>@ROUND</u>

Run a macro
-- see <u>Running a Macro</u>

Run a movie
-- see <u>Playing a Show Me Movie</u>

Run the Guided Tour
-- see <u>Taking the Guided Tour</u>

S

To select a Help topic using the mouse, point to green text with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

Save data
    -- see File Save

    -- see File Save As

Save data in Release 2 format
    -- see Saving Files in 1-2-3 Release 2 (.WK1) Format

Save a macro
    -- see Saving a Macro

Save page settings
    -- see File Page Setup Save

Save part of a worksheet file
    -- see File Extract To

Seal a worksheet file
    -- see File Administration Seal File

Search for data
    -- see Edit Find

Search for a Help or Online Books topic
    -- see Using Search

Search for records in a database
    -- see Data Query Find

See a movie
    -- see Playing a Show Me Movie

See three worksheets at once
    -- see Window Split

Select a command
    -- see Choosing a 1-2-3 Command

    -- see For Upgraders: 1-2-3 Classic

Select a graph object
    -- see Selecting Objects in the Graph Window

Select a movie
    -- see Movie Guide

    -- see Playing a Show Me Movie

Select options in a dialog box
    -- see Dialog Box Keys

Share files on a network
    -- see File Administration Network Reserve

Size a graph
    -- see Graph Size

    -- see Window Commands (Graph Window)

Size a graph object
    -- see Rearrange Adjust Size (Graph Window)

-- see <u>File New</u>

Stop a macro
   -- see <u>Running a Macro</u>

Switch from a movie to a 1-2-3 window
   -- see <u>Toggling Between a Movie and a 1-2-3 Window</u>

Switch to another Windows application
   -- see <u>Control Menu</u>

T   How Do I? Index

To select a Help topic using the mouse, point to green text with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

Take the Guided Tour
    -- see Taking the Guided Tour

Test a macro
    -- see Debugging a Macro

Toggle between a movie and a 1-2-3 window
    -- see Toggling Between a Movie and a 1-2-3 Window

Total numbers
    -- see @SUM

Transpose a range of data
    -- see Range Transpose

Turn the beep on or off
    -- see Tools User Setup

Turn Undo on or off
    -- see Tools User Setup

U   <u>How Do I? Index</u>

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

Underline data
    -- see <u>Style Font</u>

Undo a command or action
    -- see <u>Edit Undo</u>

Unhide a column, row or worksheet
    -- see <u>Worksheet Unhide</u>

Unhide data
    -- see <u>Hiding Data</u>

Unprotect a range of data
    -- see <u>Range Unprotect</u>

Update graphs in a file
    -- see <u>Graph Refresh</u>

Update a link between worksheet files
    -- see <u>Edit Link Options Update</u>

V How Do I? Index

To select a Help topic using the mouse, point to green text with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

View a graph
    -- see Graph View

View Help
    -- see Using Help

View Help and 1-2-3 together
    -- see Viewing 1-2-3 and Help Together on the Screen

View a hidden column or worksheet
    -- see Worksheet Unhide

View a list of open windows
    -- see Window (Window Name)

    -- see Window More Windows

View a movie
    -- see Playing a Show Me Movie

View open windows one on top of another
    -- see Window Cascade

View open windows side by side
    -- see Window Tile

View three worksheets in a file at once
    -- see Window Split

W   <u>How Do I? Index</u>

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

Widen a column
    -- see <u>Worksheet Column Width</u>

Write an @function
    -- see <u>Writing an @Function</u>

Write database criteria
    -- see <u>Creating the Criteria Range</u>

Write a formula
    -- see <u>Entering Formulas</u>

Write a macro
    -- see <u>Writing a Macro</u>

Z   <u>How Do I? Index</u>

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon,</u> click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

Zoom cell display
    -- see <u>Window Display Options Zoom</u>

Zoom a window pane
    -- see <u>ALT+F6 (ZOOM)</u>

1-2-3 Main Menu (Worksheet Window)

File
Organizes, maintains, moves data between, and prints files.

Edit
Copies and moves data from a worksheet file to another open file or application; establishes links between a worksheet file and other applications; and undoes commands and actions.

Worksheet
Controls the display and organization of worksheets, and controls global worksheet settings.

Range
Manipulates ranges of data.

Graph
Creates, defines, and displays graphs.

Data
Analyzes and manipulates data in worksheets, 1-2-3 database tables, and external databases.

Style
Controls the appearance of data on screen and in print.

Tools
Controls global settings; manipulates the icon palette and SmartIcons; and lets you use add-ins, macros, and tools for what-if calculations.

Window
Controls the display of the Worksheet window, and controls the placement of windows that are open in the 1-2-3 window.

Help
Provides access to broad categories of 1-2-3 for Windows Help topics.

File Commands

Organize, maintain, move data between, and print files.

New
Creates a new blank worksheet file on disk and places it in a window.

Open
Reads a worksheet file into memory and places it in a window.

Close
Closes the active window.

Save
Saves the current worksheet file on disk.

Save As
Saves a worksheet file with a name you specify, or saves all modified files on disk; assigns a password to files.

Combine From
Incorporates data from a worksheet file on disk into the current file.

Import From
Reads data from a text file on disk into the current worksheet.

Extract To
Extracts a range of data from an active file and saves it in a worksheet or text file on disk.

Administration
Controls reservations for worksheet files, seals worksheet files, recalculates linked formulas, and creates a table of file information.

Preview
Displays the print range as 1-2-3 will format it for printing.

Page Setup
Specifies the layout for a printed page; specifies header and footer text; and lets you create, save, and retrieve named page settings.

Print
Prints a range or ranges of data; specifies pages and number of copies.

Printer Setup
Specifies the printer destination and modifies printer settings.

Exit
Ends the 1-2-3 session.

See also:

    File Password Protection
    Protecting Data and Files
    Reserving a File

Edit Commands

Copy and move data from a worksheet file to another open file or application; manage links between a worksheet file and other applications; and undo commands and actions in a worksheet file.

Undo
Reverses the effect of the most recently executed command or action.

Cut
Deletes data from the worksheet and places it on the Clipboard.

Copy
Copies data from the worksheet to the Clipboard.

Paste
Copies the contents of the Clipboard to the worksheet.

Clear
Deletes cell contents from the worksheet without using the Clipboard.

Clear Special
Deletes selected types of data (cell contents, cell format, formatting, or graph) from a range without using the Clipboard.

Paste Link
Uses link information on the Clipboard to create a link between the current worksheet file and the file referred to on the Clipboard.

Link Options
Creates, deletes, edits, and updates dynamic links between worksheet files and files created with another Windows application.

Find
Finds or replaces specified characters in labels and formulas in a range.

Move Cells
Transfers data to another range in the same worksheet file, without using the Clipboard.

Quick Copy
Copies data to a range in the same worksheet file or a different worksheet file, without using the Clipboard.

Worksheet Commands

Control the display and organization of worksheets, and control the global worksheet settings.

Global Settings
Control global settings for the current worksheet.

Insert
Inserts one or more blank columns, rows, or worksheets.

Delete
Deletes one or more columns, rows, or worksheets in the active file, closing up the space left by the deletion.

Hide
Hides columns or worksheets to prevent display and printing of data.

Unhide
Redisplays columns or worksheets hidden with Worksheet Hide.

Column Width
Sets the width of one or more columns in the worksheet, or resets columns to the global column width.

Row Height
Sets the height of one or more rows in the worksheet, or resets rows to the default row height for the current global font.

Titles
Freezes or unfreezes rows and columns at the top and/or left edges of the worksheet.

Page Break
Inserts or removes horizontal and vertical page breaks in printed worksheets.

Range Commands

Manipulate ranges of data.

Format
Sets the display of data in a range.

Name
Creates, deletes, and undefines range names, and creates a table of defined range names.

Justify
Rearranges a column of labels to fit within a specified width.

Protect
Prevents changes to unprotected cells in a range when the worksheet is globally protected.

Unprotect
Allows changes to cells in a range when the worksheet is globally protected.

Transpose
Copies a range of data, transposing the layout of the data and converting any formulas to their current values.

Annotate
Adds objects to a range in a worksheet.

Go To
Moves the cell pointer to a specified range.

See also:

Highlighting a Range
Range Basics
Specifying a Range

Graph Commands

Create, define, and display graphs.

New
Creates and names a graph based on a range of data in the current worksheet.

View
Displays a graph in the Graph window.

Add to Sheet
Adds a graph to the current worksheet.

Name
Deletes graphs and lists all graphs in a file.

Import
Copies a graph from a .PIC file or a .CGM file on disk to the current file.

Size
Resizes a graph added to the current worksheet by resizing the range the graph occupies.

Refresh
Updates all graphs in the current file to reflect recalculation of graph data ranges.

Go To
Moves the cell pointer to the range that contains the graph you specify.

See also:

Creating Graphs
Graph Window Commands

Data Commands

Analyze and manipulate data in worksheets, 1-2-3 database tables, and external databases.

<u>Fill</u>
Enters a sequence of values in a range.

<u>Sort</u>
Arranges data in a range or records in a database table in the order you specify.

<u>What-if Table</u>
Creates a table that shows how the results of formulas vary when you change the values used in the formulas.

<u>Distribution</u>
Creates a frequency distribution of the values in a range.

<u>Matrix</u>
Inverts or multiplies matrixes formed by rows and columns of data.

<u>Regression</u>
Performs multiple linear regression analysis to determine the relationships of up to 75 independent variables to a dependent variable.

<u>Parse</u>
Converts a single column of long labels into one or more columns of data.

<u>Query</u>
Finds, copies, deletes, calculates, or changes specific records in a database table.

<u>Connect to External</u>
Establishes a connection between 1-2-3 and an external database table.

<u>External Options</u>
Lists the fields in an external table, sends a command to an external database, creates a table in an external database, and ends the connection to an external table.

Style Commands

Control the appearance of data on screen and in print.

Font
Applies fonts and text attributes to a range; updates and restores the the default font set for a worksheet file; and saves and retrieves named font sets.

Alignment
Aligns labels in a range either within a cell or across columns.

Border
Draws horizontal and vertical lines along the edges of cells, outlines around cells and ranges, and drop shadows around ranges.

Color
Displays and prints ranges in color, and displays negative values in red.

Shading
Adds light, dark, or solid shading to a range.

Name
Defines the format of a cell as a named style.

Style (Named Style)
Formats a range with a style you defined with Style Name.

Tools Commands

Control global settings; use add-ins, macros, and tools for what-if calculations.

Backsolver
Finds a value for one cell that makes the result of a formula equal to a value you specify.

Solver
Finds answers for what-if problems in worksheet models.

SmartIcons
Positions and hides the icon palette, adds and removes SmartIcons, and creates custom SmartIcons.

User Setup
Changes settings that affect the display and behavior of 1-2-3 for Windows.

Macro
Starts macros; starts STEP mode and opens the Macro Trace window so you can debug a macro; and opens the Transcript window, which records and plays back keystrokes and mouse actions.

Add-in
Reads add-ins into memory and removes add-ins from memory.

Window Commands

Control the display of the Worksheet window, and control the placement of windows that are open in the 1-2-3 window.

Split
Divides a Worksheet window horizontally or vertically into two panes, or displays three contiguous worksheets in perspective view.

Display Options
Controls display settings for the current 1-2-3 session.

Tile
Sizes open windows and places them side by side in the 1-2-3 window.

Cascade
Sizes open windows and arranges them in the 1-2-3 window so they appear one on top of the other, with just the title bars showing.

(Window Name)
Lists up to nine open windows and displays a check mark next to the active window.

More Windows
Lists all windows that are open in the 1-2-3 window when more than nine windows are open.

Help Commands

Provide access to broad categories of 1-2-3 for Windows Help topics.

Contents
Displays categories of Help topics, including commands, terms, tasks, and error messages. You can get to any part of the 1-2-3 Help system from Help Contents.

Using SmartHelp
Provides information about how to use 1-2-3 SmartHelp.

Movie Guide
Displays a list of all Show Me movies available in 1-2-3 for Windows.

Online Books
Displays a list of all online books available in 1-2-3 for Windows.

Guided Tour
Starts playing the Guided Tour for 1-2-3 for Windows.

About 1-2-3
Displays the release number and copyright notice of 1-2-3 for Windows. When the status line displays CIRC, About 1-2-3 gives the cell address of a cell containing a circular reference.

About SmartHelpDisplays the release number and copyright notice for Multimedia SmartHelp.

See also:

Help Buttons
Help and Online Books Window Commands
Online Books Buttons

Control Menu

The 1-2-3 window, the Worksheet, Graph, Transcript, and SmartHelp (that is, Help, Online Books, Show Me Player, and Toggle) windows, and all dialog boxes have a Control menu.

The commands of the Control menu let you move, size, and close the window, and switch to another Windows application or to another window in 1-2-3. The Control menu in a dialog box lets you close and move the dialog box.

Displaying a Control Menu

You display a Control menu by opening the <u>Control menu box</u>. With a mouse, click the Control menu box to display the Control menu. The following table explains how to display a Control menu using the keyboard:

Control menu for	Displays when you press
1-2-3 window	ALT+ space bar
Worksheet window	ALT+ - (hyphen)
Graph window	ALT+ - (hyphen)
Transcript window	ALT+ - (hyphen)
SmartHelp window	ALT+ space bar
Dialog box	ALT+ space bar

The list of commands in a Control menu varies slightly, depending on the window. The only commands in the Control menu of a dialog box are Close and Move.

Close
Closes the window.

* With a mouse, double-clicking the Control menu box is equivalent to choosing Close.

* In the 1-2-3 or Help window, Close is equivalent to File Exit.

* In the Worksheet, Graph, or Transcript window, Close is equivalent to File Close.

* In a dialog box, Close is equivalent to Cancel.

Hide Toggle/Show Toggle
In the Show Me Player window, lets you hide and unhide the Toggle.

Maximize
Enlarges a window to its maximum size.

* With a mouse, clicking the <u>Maximize button</u> is equivalent to choosing Maximize.

* When you maximize the 1-2-3 or Help window, it fills the whole screen.

* When you maximize a Worksheet, Graph, or Transcript window, it fills the whole work area of the 1-2-3 window.

Minimize
Reduces the window to an icon. When a window is an icon, it is still open and can also be active.

With a mouse, clicking the <u>Minimize button</u> is equivalent to choosing Minimize.

Move
Repositions the window or dialog box. When you choose Move, the mouse pointer changes to a four-headed arrow and a gray frame appears around the window or dialog box. Use the <u>pointer-movement keys</u> to move the window or dialog box. Press ENTER to complete the move.

With a mouse, pointing to the title bar of the window or dialog box and <u>dragging</u> it to a new position is equivalent to choosing Move.

Next
Makes the next open Worksheet, Graph, or Transcript window the <u>active window.</u>

With a mouse, clicking a window makes it active

Restore
Returns a minimized or maximized window to its previous size and position.

* With a mouse, clicking the <u>Restore button</u> is equivalent to choosing Restore when the window is maximized. Double-clicking the icon is equivalent to choosing Restore when the window in minimized.

* To restore a minimized 1-2-3 or Help window, press ALT+ESC repeatedly until the icon is selected, and then press ALT+ space bar to display the Control menu. Choose Restore.

* To restore a minimized Worksheet, Graph, or Transcript window, press CTRL+F6 repeatedly until the icon is selected, and then press ALT+ - (hyphen) to display the Control menu. Choose Restore.

Size
Adjusts the dimensions of the window. When you choose Size, the mouse pointer changes to a four-headed arrow and a gray frame appears around the window. Use the <u>pointer-movement keys</u> to size the window. Press ENTER when the window reaches the size you want.

With the mouse, dragging the window border is equivalent to choosing Size.

Switch To
Lets you switch to another application by using the Windows Task List.

See also:

    <u>Control Menu Keys</u>

Files in 1-2-3 for Windows

To select a Help topic using the mouse, point to green text with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

Deleting a 1-2-3 for Windows File

File Commands

File Navigation Keys

File Password Protection

Linking Files

Naming a 1-2-3 File

Protecting Data and Files

Reserving a File

Printing Data

Specifying a File

Working with Multiple Files

Working with Multiple Worksheets in a File

Colors in 1-2-3 for Windows

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

To change the palette of colors used in the worksheets and graphs of all <u>active files</u>
    -- see <u>Window Display Options Palette</u>

Colors in a Worksheet

To assign colors to parts of a worksheet
    -- see <u>Window Display Options Colors</u>

To assign colors to ranges
    -- see <u>Style Color</u>

    -- see <u>Style Shading</u>

Colors in a Graph

To assign colors to each value in a data range of a graph
    -- see <u>Chart Options Advanced Styles (Graph Window)</u>

To assign colors to objects in a graph
    -- see <u>Style Color (Graph Window)</u>

To assign colors to parts of a graph
    -- see <u>Chart Options Colors (Graph Window)</u>

To assign colors to slices of a pie chart
    -- see <u>Setting Up a Colors Range</u>

Lines and Borders in 1-2-3 for Windows

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

Lines and Borders in a Worksheet

To change the display of the worksheet frame, or turn it off
    -- see <u>Window Display Options Frame</u>

To draw a drop shadow to a range
    -- see <u>Style Border</u>

To draw lines or an outline around a range
    -- see <u>Style Border</u>

To turn grid lines on or off in the worksheet
    -- see <u>Window Display Options Options</u>

To underline text in a cell
    -- see <u>Style Font</u>

Lines and Borders in a Graph

To add borders or grid lines to a graph
    -- see <u>Chart Borders/Grids (Graph Window)</u>

To control the appearance of lines and outlines in the Graph window
    -- see <u>Style Lines (Graph Window)</u>

To draw arrows in the Graph window
    -- see <u>Draw Arrow (Graph Window)</u>

To draw lines in the Graph window
    -- see <u>Draw Line (Graph Window)</u>

To set the display of lines representing data ranges
    -- see <u>Chart Options Lines (Graph Window)</u>

Fonts in 1-2-3 for Windows

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

To change the font set used in the worksheets and graphs of a file
    -- see <u>Style Font Replace</u>

Fonts in a Worksheet

To apply bold, italics, or underlining
    -- see <u>Style Font</u>

To apply a font to a range
    -- see <u>Style Font</u>

To create a named font set
    -- see <u>Style Font Replace Save</u>

To make the current font set the default font set
    -- see <u>Style Font Replace</u>

To replace a font in the current font set
    -- see <u>Style Font Replace</u>

To use a named font set
    -- see <u>Style Font Replace Retrieve</u>

Fonts in a Graph

To apply a font to text in a graph
    -- see <u>Chart Options Fonts (Graph Window)</u>

To apply a font to text in a graph created with Draw Text
    -- see <u>Style Font (Graph Window)</u>

To change the size of text in a graph
    -- see <u>Style Font (Graph Window)</u>

DDE in 1-2-3 for Windows

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

<u>Dynamic Data Exchange Macro Commands Category</u>

<u>Edit Link Options</u>

<u>Edit Paste Link</u>

<u>Link Macro Commands Category</u>

<u>Linking Files with DDE</u>

Should've ported.   Gee.

Movie Guide

Click a title to play a movie.

▶ =conceptual   ▶ =procedural

Calculating
▶ About Calculations (2:30)
▶ About Cell References (4:10)
▶ Creating Formulas (1:20)
▶ Using @Functions to Calculate (1:25)

Columns & Rows
▶ Changing Column Width (1:45)
▶ Changing Row Height (1:55)
▶ Freezing Rows and Columns (1:45)

Copying
▶ About Copying (3:00)
▶ Copying a Range of Data (1:20)

Deleting
▶ About Deleting (2:25)

Files
▶ Creating a New File (0:50)
▶ Opening an Existing File (0:45)

Graphing
▶ About Graphing (4:15)
▶ About Choosing Graph Types (5:00)
▶ Creating a Graph (1:55)
▶ Graphing Nonadjacent Ranges (1:55)
▶ Graphing Rows of Data (1:55)
▶ Printing a Graph (2:35)

Moving
▶ About Moving (2:40)
▶ Moving a Range of Data (1:10)

Printing
▶ About Printing (2:55)
▶ About Printing a Large Range (3:20)
▶ Printing Data (1:25)
▶ Printing Headers and Footers (1:45)
▶ Printing Several Ranges (1:55)

Saving
▶ About Saving (3:30)
▶ Saving Worksheets (1:30)

Setting Formats
▶ About the Appearance of Data (3:25)
▶ About Date and Time (5:15)
▶ Formatting a Range of Numbers (1:50)

SmartIcons
▶ About SmartIcons (2:35)
▶ Changing the SmartIcon Palette (1:20)

Styling

About Styling (4:30)
Aligning Labels (1:50)
Changing Font Sets (1:30)

3-D Ranges

About Multiple Worksheets (3:55)
Managing Multiple Worksheets (3:50)

Using SmartHelp

SmartHelp is a combination of text, sound, pictures, and movies that you can use to learn about 1-2-3 features and activities. SmartHelp consists of the Guided Tour, online Help, Show Me movies, and Online Books.

Guided Tour
Explains and demonstrates 1-2-3 features and lets you work with some of these features in interactive Try It activities. You access the Guided Tour from the 1-2-3 for Windows Help menu or by selecting the Guided Tour desktop icon.

The Tour provides information about 1-2-3 basics, compatibility of 1-2-3 for Windows with other versions of 1-2-3, hot features, and SmartHelp.

Online Help
Provides information about all aspects of 1-2-3 for Windows and lets you select and view Show Me movies related to 1-2-3 activities. You access online Help anywhere in 1-2-3 for Windows by pressing F1 (HELP) or by choosing Help from the 1-2-3 for Windows main menu.

You can keep Help visible while you work in 1-2-3.

Show Me Movies
Describe what you can do with 1-2-3 and explain how to do it. Conceptual movies introduce and discuss 1-2-3 features. Procedural movies give step-by-step instructions for performing tasks.

Show Me movies are part of the online Help system. You access them by selecting a movie icon in a Help topic that contains movie icons, by selecting the Movie Guide topic from 1-2-3 for Windows Help Contents, by selecting the Movie icon from the SmartIcon bar, or by choosing Help from the 1-2-3 for Windows main menu and then choosing Movie Guide.

While you are playing a Show Me movie, you can stop the movie to do some work in 1-2-3 and then continue playing the movie.

Online Books
Contains the complete set of Lotus 1-2-3 for Windows documentation: *User's Guide*, *Solver Guide*, *Quick Start for 1-2-3 Upgraders*, *DataLens Drivers for 1-2-3*, and *Adobe Type Manager User Guide*.

You can access Online Books by selecting the Online Books desktop icon, by choosing Help from the 1-2-3 for Windows main menu and then choosing Online Books, or -- if you are already in the Help system -- by selecting Books in the Help window button bar.

You can keep a book open while you work in 1-2-3.

See also:

> Playing a Show Me Movie
> SmartHelp Troubleshooting
> Taking the Guided Tour
> Using Help
> Using Online Books

Help About SmartHelp

Displays the release number and copyright notice of Multimedia SmartHelp.

See also:

Help Commands

SmartHelpTroubleshooting

Because multimedia is an emerging technology, new combinations of hardware and software can present a wide variety of potential configuration problems. Here are some tips on system configuration issues that you'll want to check if you have any problem running 1-2-3 for Windows.

Note: 1-2-3 for Windows with Multimedia SmartHelp requires at least 4MB of RAM.

Sound Problems

If this happens:	Make sure that:	And try this:
No sound	A sound board is installed. A speaker is plugged in to the sound board and is turned on. The volume is set to a comfortable level at the board and at the speaker.	Select the Sound option from the Windows Control Panel. If the Test button is gray, and you have a sound card installed, there is an address or interrupt conflict with your sound card or the sound drivers are not properly installed. Check the sound card documentation for information about the I/O address and the interrupt vector. Make respective changes to the system .INI file, run Windows, and check the sound again.
Sound is broken and animations are very slow	At least 4MB of RAM is available on your computer.	To free up memory, save and close worksheets you are not using, close some Windows applications, or upgrade to Windows 3.1, which has better memory management.
Sound plays in a Show Me movie but not in other Windows applications		Quit the Show Me movie before you switch to another application. Otherwise, the other application may not be able to play any sound.
Everything stops while sound is playing		Turn sound off. Your sound driver is not designed to play sound along with animations.

Other Problems

If this happens:	Make sure that:	And try this:
CDROM doesn't show as a drive in Windows	The CD-ROM drive is: * Plugged into a power source * Plugged into the PC * Turned on The CD-ROM disc is in the	Check connections. Turn the CD-ROM drive on before you turn the PC on. Try another disc in the drive.

drive print side up and -- if appropriate -- is in the caddy.

MSCDEX is installed.

Improving Performance

To improve system performance:

* Add more extended memory to your system.

* Run 1-2-3 for Windows without the SmartDrive device driver that Windows may have installed on your system, or cut down the size of any RAM drive you have set up.

   To disable SmartDrive, remove the DEVICE=SMARTDRV.SYS line from your CONFIG.SYS file. For more information, see the Windows documentation.

* Set up a permanent Windows SwapFile on your hard drive (if you are running on a 386).

   Normally, Windows creates its own temporary SwapFile, but if your hard disk is full or fragmented, this temporary file occasionally become unavailable. Make this SwapFile at least 2048 Kb.

* Use a 16-color driver for your display, even if you have a 256-color card, when running on a 20 MHz or slower system.

   To change the display driver, run the Microsoft Windows Setup program from DOS or Windows and select the standard VGA driver.

* Defragment (clean up) your hard disk by running a disk defragmentation program (available in some third-party utility and disk optimization programs).

See also:

Show Me Player Controls
Taking the Guided Tour
Using SmartHelp

Playing a Show Me Movie

Show Me movies describe what you can do with 1-2-3 and explain how to do it. Conceptual movies introduce and discuss 1-2-3 features. Procedural movies give step-by-step instructions for performing tasks.

These movies are part of the 1-2-3 for Windows Help system. You can access movies from Help topics that contain movie icons. You can also access a movie by selecting the Movie icon from the SmartIcon bar or by choosing Help from the 1-2-3 for Windows main menu and then choosing Movie Guide. If you are already in Help, select Movie Guide from 1-2-3 for Windows Contents.

You can control a movie while it's playing. You can turn sound off and captions on. You can stop a movie at any point and replay all or part of it. And you can stop a movie, go to a 1-2-3 worksheet, graph, or other window to perform a task, and then return to the movie.

Selecting a Movie

To play a Show Me movie, select the movie from a Help topic that contains the movie icon or select the movie from the Movie Guide. You can select the movie icon or the movie title.

When you select the movie, the Show Me Player opens and begins playing the movie.

Viewing a Movie

You can skip to another part of a movie, replay a section as many times as you like, and view captions instead of listening to the narration.

To go to another part of the movie, click Go To in the Player control panel and, from the list of movie sections, select a section to play. Or use the Slider, Skip, and other Player controls to move around the movie, turn sound off and captions on, and close the movie.

You can also use HOME, END, and other keyboard keys to move around in a movie.

Stopping a Movie to Work in a 1-2-3 Window

When you want to stop playing a movie and work in a worksheet, graph, or other 1-2-3 window select the Toggle, which is displayed on the screen near the Player, or press T on the keyboard. To return to the movie, select the Toggle again.

See also:

> Show Me Player Controls
> Show Me Player Keys
> Toggling Between a Movie and a 1-2-3 Window

Toggling Between a Movie and a 1-2-3 Window

You can stop playing a Show Me movie to do some work in a 1-2-3 window, and then continue playing the movie, in one of two ways:

*   Click the Toggle or press T to go to the active 1-2-3 window; click the Toggle again to return to the movie.

*   Click the 1-2-3 window you want to work in; click the Player to return to the movie.

You can also stop playing a movie and go to another Windows application by clicking the application window. To return to the movie, click the Player.

Controlling the Toggle

By default, the Toggle is active when you play a movie. To deactivate the Toggle, choose Hide Toggle in the Player Control menu.

To reactivate the Toggle, choose Show Toggle.

See also:

Playing a Show Me Movie

Show Me Player Controls

The following controls are available in the Show Me Player.

Slider

The slider indicates the current position in a movie. You can use the slider to move to another point in the movie while the movie is playing or paused.

To move to another point in the movie, click the slider or drag the slider thumb.

Play/Pause

Click Play/Pause to play or stop playing a movie.

Skip

Click the Skip backward button to move backward to the last concept or step in a movie.

Click the Skip forward button to move forward to the next concept or step in a movie.

Begin/End

When you hold down SHIFT, Begin replaces the Skip backward button in the control panel, and End replaces the Skip forward button. Click Begin to go to the beginning of a movie; click End to go to the end of a movie.

Go To

Click Go To to display a list of movie sections and select a section to play.

Sound

Click Sound to turn sound on and off. When sound is off, captions display at the bottom of the movie.

Close

Click Close to close the movie and exit the Show Me Player.

See also:

Playing a Movie
Show Me Player Keys

Show Me Player Keys

You can use the following keys to play and pause a movie, turn sound on and off, move forward and backward in a movie, and close a movie.

Space bar
Plays or pauses the movie.

T
Toggles from the Show Me Player to the 1-2-3 window.

HOME or SHIFT+LEFT
Moves to the beginning of a movie.

END or SHIFT+RIGHT
Moves to the end of a movie.

LEFT
Skips backward to the last concept or step in a movie.

RIGHT
Skips forward to the next concept or step in a movie.

PG UP
Moves to the beginning of the current section of a movie.

PG DN
Moves to the next section of a movie.

G
Displays a list of movie sections.

S
Turns sound off and on.

UP
When the list of movie sections is displayed, moves up through items in the list.

DOWN
When the list of movie sections is displayed, moves down through items in the list.

ENTER
When the list of movie sections is displayed, plays the selected section of a movie.

ESC
Closes the Show Me Player or, when the list of movie sections is displayed, closes the list.

See also:

Playing a Movie
Show Me Player Controls

Using Online Books

Online Books is the complete set of Lotus 1-2-3 for Windows documentation presented online. The Online Books set contains the following manuals:

User's Guide
Describes how to use 1-2-3 for Windows and includes step-by-step instructions for 1-2-3 activities.

Solver Guide
Explains how to use the Solver to solve what-if problems in your worksheets and describes the sample applications included with 1-2-3 for Windows.

Quick Start for 1-2-3 Upgraders
Provides information designed to help users upgrade quickly from a previous release of 1-2-3 to 1-2-3 for Windows.

DataLens Drivers for 1-2-3
Describes what DataLens is, provides information about the three drivers included with 1-2-3 for Windows, and tells you how to use the drivers with 1-2-3.

Adobe Type Manager User Guide
Explains how to install and run the Adobe Type Manager -- Windows Version on your personal computer.

Accessing Online Books, Opening a Book, and Using the Tables of Contents

You can access Online Books by selecting the Online Books desktop icon or by choosing Help from the 1-2-3 for Windows main menu and then choosing Online Books. If you are in 1-2-3 for Windows Help, access Online Books by selecting Books in the Help window button bar.

1-2-3 displays a list of Online Books.

To open a book, select it from the list. 1-2-3 displays the main table of contents for the book; this table of contents lists the chapters in the book. Select the chapter you want to go to.

1-2-3 then displays the first page of the chapter; this page contains an overview of the chapter and a chapter table of contents, which lists the main topics in the chapter. If the main topics contain subtopics, a Subtopics + button is displayed at the top of the page; you can press this button to display the subtopics.

To go to a main topic or a subtopic, select it from the chapter table of contents.

To display the book table of contents at any time, press Contents in the window button bar.

Using Search to Find Information in a Book

You can also find and go to information in a book by using Online Books Search. Press Search in the window button bar to display an alphabetized index of keywords for the currently open book. Select a keyword and, when Online Books displays a list of topics for the keyword, select the topic to go to.

Browsing in a Chapter

To browse backward and forward through topics in a chapter, use the << Topics >> buttons. Browsing lets you view topics in the order of their appearance in a chapter.

Finding Related Information in Another Book or in 1-2-3 for Windows Help

When information related to a topic is available in another book, a cross-reference to the other book appears in purple text. When related information is available in online Help, the cross-reference to Help appears in green text. To access the related topic, select the colored cross-reference.

To return to the topic from which you selected the cross-reference, select Back in the Online Books or Help window button bar.

Printing a Book Topic

You can print the book topic currently displayed in Online Books by choosing File Print Topic from the command menu in the Online Books window. To print another topic, select the topic and choose File Print Topic again.

Ordering Books

To order printed 1-2-3 for Windows books, use the book coupon included in your CD-ROM package.

See also:

Help and Online Books Window Commands
Online Books Buttons
Online Books Keys

Online Books Buttons

Online Books has buttons that you can use to move around in a book and locate and access topics. These buttons are located in the button bar of the Online Books window and in the topic area at the top of an Online Books page.

Button Bar

Online Books has six buttons, located in the button bar, that let you move around easily in Online Books. If a feature is not available, its button is dimmed.

To choose a button, <u>click</u> it or press the underlined letter in the button name.

Contents
Lists the chapters in the current book.

Search
Lists all the keywords (index entries) for the current book. By typing or selecting a keyword, you can search for and go to a specific topic in the book.

Back
Displays the last topic you viewed in Online Books or Help. You can move back one topic at a time in the order you viewed each topic until you return to the first topic you viewed. Then the button is dimmed. The record of which topics you have viewed is erased each time you minimize or close the Online Books window.

History
Displays the last 40 Help and Online Books topics selected during the Windows session. The record of which topics you have selected is erased each time you minimize or close the Online Books window.

To view a topic listed in History, double-click the topic.

Books
Displays the list of online books. You can open a book by selecting it from this list.

1-2-3 Help
Displays 1-2-3 for Windows Help Contents.

Topic Area of the Book Page

Online Books also has buttons in the topic area at the top of a page. These buttons let you control the level of detail in a chapter table of contents and let you browse through topics in a chapter.

Subtopics +/-
Shows or hide subtopics in a table of contents page.

Subtopics + appears at the top of a chapter table of contents page when topics contain subtopics. Click Subtopics + to display the subtopics.

Subtopics - appears when table of contents topics and subtopics are displayed. Click Subtopics - to hide subtopics and view main topics only.

<< Topics >>
Browses through topics in a chapter. << Topics >> appears on all pages of a book except table of contents pages.

Click << to browse backward through topics in the chapter.

Click >> to browse forward through topics in the chapter.

See also:

<u>Help and Online Books Window Commands</u>
<u>Online Books Keys</u>
<u>Using Search</u>

Online Books Keys

The following is a list of the keys you can use in 1-2-3 for Windows Online Books.

ALT+F4
Closes the Online Books window, saves any <u>annotations</u> or <u>bookmarks</u> you created, and saves the current size and position of the Online Books window.

ALT+ space bar
Opens the Control menu for the Online Books window.

CTRL+END
Scrolls to the end of the Online Books topic.

CTRL+HOME
Scrolls to the beginning of the Online Books topic.

CTRL+INS
Copies an Online Books topic onto the <u>Clipboard</u> so you can paste it into a worksheet file or another Windows application.

F1 (HELP)
Closes Online Books and opens How to Use Online Books.

See also:

<u>Online Books Buttons</u>
<u>Help and Online Books Window Commands</u>
<u>Using Online Books</u>

Taking the Guided Tour

The Guided Tour is an animated, narrated introduction to 1-2-3 for Windows with Multimedia SmartHelp. The Tour explains and demonstrates 1-2-3 features and lets you work with some of these features in interactive Try It activities. If you watched every topic, it would take about 50 minutes.

Accessing the Guided Tour

You can access the Guided Tour from the 1-2-3 for Windows Help menu or from the Guided Tour desktop icon.

Viewing and Controlling the Guided Tour

The Guided Tour is divided into sections that you play and control through the Guided Tour control panel.

1-2-3 Basics
Explains what 1-2-3 does, describes basic 1-2-3 features, and provides other information to help a new user get started in 1-2-3 for Windows. 1-2-3 Basics contains Try It activities.

Compatibility
Provides information designed to help users switch quickly and easily from another version of 1-2-3 to 1-2-3 for Windows.

Hot Features
Introduces Solver, DataLens, SmartIcons, Graphing, and other special features of 1-2-3 for Windows.

Multimedia
Explains how to use Show Me movies and Online Books. Multimedia   contains Try It activities.

You can also get helpful information about using the control panel by pressing Help; you can toggle sound and bubble text on and off by pressing Sound On/Off; and you can pause, skip back or ahead, and quit the Tour by using other buttons in the panel.

See also:

Using SmartHelp

Data Distribution

Creates a frequency distribution of the values in a range.

A frequency distribution counts the number of values in a specified range (the values range) that fall within specified numeric intervals (the bin range). The numbers you enter in the bin range are the intervals that determine the frequency distribution.

Use Data Distribution to identify patterns and trends in a range of data.

1. Decide on a column for the bin range. The bin range is the range in a single worksheet in which you enter the intervals, or bins.The column to the right of the bin range must be blank.

2. Enter the intervals for the bin range in ascending order. Do not include labels or blank cells in the bin range.

3. Select the range that contains the values to analyze (the values range).

4. Choose Data Distribution.

5. To change the range displayed in the Values <u>text box</u>, specify a new range.

6. Specify the bin range in the Bin text box.

7. Select OK.

1-2-3 enters the frequency distribution in the column to the right of the bin range. The numbers in the column to the right of the bin range represent how many entries in the values range are less than or equal to the adjacent value in the bin range. The last number in this column is the number of values that exceed the largest bin value. 1-2-3 ignores blank cells and labels in the values range.

Example

For example, suppose you entered a list of sales for the month of June in a worksheet and you want to see how the sales are distributed. You can use Data Distribution with the following bin range (F2..F5) to determine how many sales fall within the defined intervals.

When you specify the values range (containing the sales data) and the bin range (F2..F5), 1-2-3 enters the results next to the bin range in column G. The results might look like this:

```
A: -- F ----------- G -------
1   Sales      Number
2   2000          1
3   3000          6
4   4000          4
5   5000          2
6                    1
```

The numbers in column G (the frequency distribution) indicate how many sales are less than or equal to the numbers in column F (the bin range). In this example, the values range contains one sale less than or equal to $2,000, six sales between $2,000 and $3,000, four sales between $3,000 and $4,000, 2 sales between $4,000 and $5,000, and 1 sale over $5,000.

See also:

<u>Data Commands</u>

Data Fill

Enters a sequence of numbers, dates, times, or percentages in a range.

1. Select the range you want to fill.

    Caution 1-2-3 writes over any existing data in the fill range, so make sure the range does not contain data you need.

2. Choose Data Fill.

3. To change the range displayed in the Fill range text box, specify a new range.

4. Enter numbers, dates, times, formulas, range names, or cell addresses for the start, step, and stop values.

    Start
    Specifies the first value 1-2-3 enters in the fill range.

    Step
    Specifies the increment between each of the values in the range.

    Stop
    Specifies the limit of the sequence. If you specify a negative step value, you must specify a stop value that is less than the start value.

5. Select OK.

1-2-3 fills the cells in the range from top to bottom in a column and from left to right. If you specify a multiple-sheet fill range, 1-2-3 fills the first worksheet in the range, continues the sequence on the second worksheet, and so on until 1-2-3 reaches the stop value or the end of the range.

Using Date and Time Start and Stop Values

Enter dates or times as start or stop values using any 1-2-3 Date or Time format except Short International (D5). For example, 11-May-88 and 10:30 AM are valid start and stop values.

Note When entering a time for a stop value, specify a time slightly greater than the desired last value by an amount less than the step value.

Using Date Step Values

Enter a number followed by the letter d, w, m, q, or y to specify an increment of days, weeks, months, quarters, or years. For example, enter 6w to specify a step value of 6 weeks.

Using Time Step Values

Enter a number followed by s, min, or h to specify an increment of seconds, minutes, or hours. For example, enter 10min to specify a step value of 10 minutes.

See also:

Data Commands
Data Fill Notes

Data Fill Notes

*   You can   use the contents of a range as a start, step, or stop value. Type + (plus sign) or - (minus sign) in the text box and specify the range. For example, if cell B2 contains the number 30 and you enter +B2 for the start value, 1-2-3 will fill the range beginning with the number 30.

*   You can specify an @function as a start, step, or stop value. For example, to enter a series of dates starting with today's date, type @today as the start value.

*   You can format the fill range before you use Data Fill to enter dates or times. Use Range Format and choose Automatic. Choose Data Fill and enter a date or time in the Start text box. When you select OK, 1-2-3 fills the range with date or time numbers formatted to match the date or time you entered as the start value.

    For example, if you format A1..A10 with Range Format Automatic, choose Data Fill, specify   A1..A10 as the fill range, and enter 5/6/91 as the start value, 1-2-3 fills the range with dates in the format month/day/year.

See also:

Data Commands
Data Fill

Data Matrix

Inverts or multiplies matrices formed by rows and columns of entries.

Invert
Creates the inverse of a square matrix.

Multiply
Multiplies the columns of one matrix by the rows of a second matrix and creates a third matrix that contains the results of the multiplication.

See also:

Data Commands

Data Matrix Invert

Creates the inverse of a square matrix.

Note Matrix inversion algorithms by their nature propagate small errors. Inverting an ill-conditioned matrix (a matrix that contains numbers differing widely in magnitude) may result in large errors.

1. Select the matrix range you want to invert.

    The matrix range must have the same number of columns as rows and can contain up to 80 columns and 80 rows.

2. Choose Data Matrix Invert.

3. To change the range displayed in the From range <u>text box</u>, specify a new range.

4. Specify the range for the inverted matrix in the To range text box.

    Specify either the entire range or only the first cell.

    Caution 1-2-3 writes over any existing data in the To range, so make sure the range does not contain data you need.

5. Select OK.

Using 3-D Ranges with Data Matrix Invert

If you specified a <u>3-D range</u> to invert, 1-2-3 inverts the matrix in the first worksheet of the range and enters the results in the first worksheet in the To range; inverts the matrix in the second worksheet of the range and enters the results in the second worksheet in the To range; and so on.

For example, if you specify A:A1..C:D4 as the From range and A:A10 as the To range, 1-2-3 inverts A:A1..A:D4 and enters the results beginning in A:A10; inverts B:A1..B:D4 and enters the results beginning in B:A10, and inverts C:A1..C:D4 and enters the results beginning in C:A10.

See also:

<u>Data Commands</u>

Data Matrix Multiply

Multiplies the columns of one matrix with the rows of a second matrix and creates a third matrix that contains the results of the multiplication.

The number of columns in the first matrix must equal the number of rows in the second matrix, and the matrix can contain up to 80 columns and 80 rows.

1. Choose Data Matrix Multiply.

2. Specify the first matrix in the First matrix text box.

3. Specify the second matrix in the Second matrix text box.

4. Specify the range where you want 1-2-3 to enter the results in the Output matrix text box.

   Specify either the entire range or only the first cell.

   Caution 1-2-3 writes over any existing data in the Output matrix range, so make sure the range does not contain data you need.

5. Select OK.

1-2-3 creates a matrix that contains the number of rows in the first matrix and the number of columns in the second matrix.

Using 3-D Ranges with Data Matrix Multiply

If you specified a 3-D range to multiply, 1-2-3 multiplies the first and second matrixes in the first worksheet together and enters the results in the first worksheet in the output matrix range; multiplies the first and second matrixes in the second worksheet together and enters the results in the second worksheet in the output matrix range, and so on.

See also:

Data Commands
Solving Simultaneous Equations

Solving Simultaneous Equations

You can use Data Matrix Invert and Data Matrix Multiply to solve simultaneous equations in 1-2-3. For example, use the following procedure to solve these equations:

$$3x + 7y = 17$$

$$7x - 3y = 1$$

1. Create two matrixes -- one that corresponds to the x and y coefficients in your equations (the numbers 3 and 7 in both equations above), and one that corresponds to the constants (17 and 1 in the equations above).

   In this example, the first matrix is in A4..B5 and the second matrix is in D4..D5.

   ```
   A: ----- A ---------------- B ---------- C ----------- D --------
   1       3x + 7y = 17
   2       7x - 3y = 1
   3
   4          3                7                      17
   5          7               -3                       1
   6
   ```

2. Select   A4..B5 as the matrix range you want to invert.

3. Choose Data Matrix Invert.

4. Specify A8 as the range for the inverted matrix.

5. Select OK.

   1-2-3 performs a matrix inversion and enters the results in A8..B9.

   ```
   A: ----- A ---------------- B ------------ C --------- D ---------
   1       3x + 7y = 17
   2       7x - 3y = 1
   3
   4          3                7                    17
   5          7               -3                     1
   6
   7
   8    0.051724    0.12069
   9     0.12069   -0.05127
   10
   ```

6. Choose Data Matrix Multiply.

7. Specify the inverted matrix (A8..B9) as the first matrix.

8. Specify D4..D5 as the second matrix.

9. Specify D8 as the range where you want 1-2-3 to enter the results.

10. Select OK.

    The result of the matrix multiplication in D8..D9 is the solution to the equations: x = 1 and y = 2.

    ```
    A: ----- A ---------------- B ------------ C --------- D ---------
    1       3x + 7y = 17
    2       7x - 3y = 1
    3
    4          3                7                    17
    5          7               -3                     1
    6
    7
    8    0.051724    0.12069                    1
    9     0.12069   -0.05127                    2
    10
    ```

See also:

Data Parse

Converts long labels from an imported text file into separate columns of data of one or more types (values, dates, times, and labels).

When you import data with File Import From Text, 1-2-3 enters the data as long labels in one column of the worksheet. You can view or print imported data, but you cannot calculate with the numbers.

Use Data Parse to enter data in long labels into separate worksheet columns.

1. Select the Input column, the range that contains the long labels you want to parse.

2. Choose Data Parse.

   Note If the first cell of the input range already contains a format line when you choose Data Parse, this format line will appear in the Format line text box. You can edit this format line in the Format line text box. 1-2-3 will overwrite the existing format line with the one you edited when you select OK. 1-2-3 creates only one Format line for each Input range.

3. To change the range displayed in the Input column text box, specify a new range.

4. Select Create.

   1-2-3 enters the format line in the Format line text box and displays up to five lines of long labels below it. The symbols in the format line reflect the type of data and the width of each block of data in the first cell of the Input column.

5. Use the scroll bar below the text box to scroll horizontally and compare the format line to the data. If the format line does not accurately represent the type of data or length of entries in a data block located in the lines below it, edit the format line.

6. In the Output range text box, specify the range in which you want 1-2-3 to enter the parsed data. Specify either the entire range or only the first cell.

   Caution 1-2-3 writes over any existing data in the Output range, so make sure the range does not contain data you need.

7. Select OK.

1-2-3 inserts a row, enters the format line in the worksheet above the Input column, and enters the parsed data in the Output range. If 1-2-3 cannot parse an entry using the format specified, 1-2-3 parses the entry as a label.

To Clear the Input and Output Range Settings

1. Choose Data Parse.

2. Select Reset.

See also:

Data Commands
Format Line (Data Parse)

Format Line (Data Parse)

The format line tells 1-2-3 how to parse, or separate, data and enter it in a worksheet.

When 1-2-3 creates the format line for Data Parse, it enters a symbol in the format line for each data block in the first line of the Input range.

The format line begins with a | (vertical bar) <u>label-prefix character</u>, and can contain the following symbols:

L   Represents the beginning of a label block.

V   Represents the begining of a value block.

D   Represents the beginning of a date block.

T   Represents the beginning of a time block.

S   Tells 1-2-3 to ignore the data block below the S when it parses the data. You enter this symbol when you edit a format line.

>   Represents any character in a data block after the first character.

*   Represents a blank space that can become part of a data block if that block requires extra characters.

Example

The format line below divides a long label into two labels and a date. The format line has a sufficient number of undefined spaces (> and *) to accommodate the width of data entered in the rows below the format line.

1-2-3 creates the format line in the Format line text box. You can edit the format line if it does not accurately represent the type of data or length of entries in a data block.

```
L>>>>>*L>>>>>***D>>>>>>
 Smith   Arthur  5/23/89
 Aubry   Lisa  4/12/87
 Howard   Janet  2/6/84
 Mosley   Liz  6/7/90
 McAfee   Kathy   11/3/88
```

1-2-3 enters the parsed data in separate columns in the Ouput range.

```
A: ---- A ------------- B ------------ C -----
11    Smith        Arthur      32651
12    Aubry        Lisa        31879
13    Howard     Janet       30718
14    Mosley       Liz          33031
15    McAfee,    Kathy       32450
```

Note When 1-2-3 parses dates, it enters <u>date numbers</u> in the worksheet. Use <u>Range Format</u> to display the dates in a date format.

See also:

> <u>Data Commands</u>
> <u>Data Parse</u>
> <u>Editing a Format Line (Data Parse)</u>

Editing a Format Line (Data Parse)

You can edit the format line before you parse the data if the format line does not accurately represent the type of data or length of entries in a data block

1. After you have created a format line in the Data Parse dialog box, select the Format line <u>text box</u>.

2. Use the mouse or the <u>editing keys</u> to move the insertion point to the part of the format line you want to change.

   * To change a symbol for a data block, delete the symbol and enter a new one. For example, to change a value to a label, change the V to an L.

   * To increase the width of a data block (for example, to parse entries that may be longer than the entry immediately below the format line), enter > or * symbols.

   * To join data blocks, delete the intervening letter symbols and enter extra > or * symbols to match the length of the joined data blocks.

3. Select OK to parse the data using the format line you edited.

See also:

<u>Data Commands</u>
<u>Data Parse</u>
<u>Format Line (Data Parse)</u>

Data Query

Finds, copies, deletes, calculates, or changes specific records in a <u>database table</u>.

You must create and specify an input range and a criteria range before you use Data Query commands. You must also create and specify an output range if you want to extract records from a database table.

For an overview of Help available for Data Query, see <u>Data Query Help Overview</u>.

<u>Input range</u>
Specifies the range that contains a database table. With Data Query Extract, you can specify more than one database table.

<u>Criteria range</u>
Specifies the range that contains the criteria used to select records from the database table.

<u>Output range</u>
Specifies the range where you want 1-2-3 to copy the selected records or perform calculations on them.

<u>Find</u>
Searches a 1-2-3 database table for specific records.

<u>Delete</u>
Removes selected records from a 1-2-3 database table or external table.

<u>Extract</u>
Copies specific records or only unique records from one or more database tables to a 1-2-3 worksheet or to an external table.

<u>Modify</u>
Copies records from a 1-2-3 database table or external table, allowing you to change and replace records or insert new records in the table.

<u>Reset</u>
Clears the settings for the input, criteria, and output ranges in the current file.

See also:

<u>Data Commands</u>
<u>Data Query Basics</u>
<u>Performing Database Calculations</u>

Data Query Help Overview

This overview lists all Help topics related to Data Query.

General Information

Use Data Query commands to find, copy, delete, calculate, or change specific records in a database table.

Data Query Basics
Querying Multiple Database Tables
Performing Database Calculations
Aggregate Columns
Computed Columns
Example: Aggregate Column
Example: Computed Column

The Input Range

The input range specifies the range that contains a database table.

Creating a 1-2-3 Database Table
Specifying the Input Range
The Input Range and Multiple Tables
Example: 1-2-3 Database Table
Example: Two Database Tables

The Criteria Range

The criteria range specifies the range that contains criteria used to select records from the database table.

Creating the Criteria Range
Label Criteria,
Formula Criteria
Multiple Criteria
Value Criteria
The Criteria Range and Multiple Tables
Example: Formula   Criteria
Example: Label Criteria
Example: Value Criteria
Example: Join Formula Criteria

The Output Range

The output range specifies the range where you want 1-2-3 to copy the selected records or perform calculations on them.

Creating the Output range
The Output Range and Multiple Tables
Example: Calculating Data in the Output Range

Data Query Find
Searches a 1-2-3 database table for specific records.

Data Query Delete
Removes selected records from a 1-2-3 database table or external table.

Data Query Extract
Copies specific records or only unique records from one or more database tables to a 1-2-3 worksheet or to an external table.

Data Query Modify
Copies records from a 1-2-3 database table or external table, allowing you to change and replace records or insert new records in the table.

Data Query Modify Extract
Data Query Modify Insert
Data Query Modify Replace

Data Query Reset
Clears the settings for the input, criteria, and output ranges in the current file.

See also:

Data Commands
Data Query Basics
Performing Database Calculations

Data Query Basics

Use Data Query commands to find, copy, delete, calculate, or change specific records in a <u>database table</u>.

Example

    <u>1-2-3 Database Table</u>

Definitions

A database table consists of <u>records</u> and <u>fields</u>. A database table may be located in a 1-2-3 worksheet or an <u>external database</u>.

All Data Query commands require an <u>input range</u> and most require a <u>criteria range</u>. To copy or modify records, you must also create an <u>output range</u>. Once you have set up and specified these ranges, you can use Data Query commands to locate or change database information.

For example, suppose you have a sales database table that contains information listed by salesperson, month, account, and the amount of each sale. You can use Data Query commands to identify sales greater than $2,000, all sales made by each person, or all sales made to each account.

Note When you use Data Query, if your file contains a range name that matches a field name in the database table and you use the field name in a criteria formula, you may get unexpected results. When 1-2-3 calculates a criteria formula, it uses data from a named range before the field name. Therefore, you should avoid using range names that match field names in criteria formulas.

See also:

    <u>Data Commands</u>
    <u>Data Query</u>
    <u>Data Query Help Overview</u>
    <u>Performing Database Calculations</u>

Creating a 1-2-3 Database Table

After you create a <u>database table</u>, you can use it as the <u>input range</u> for Data Query commands.

Example

    <u>1-2-3 Database Table</u>

1. Before you create a database table in a worksheet, you may want to name the fields and plan the organization of the table on paper.

2. In a blank area of a worksheet, enter the <u>field names</u> in the first row of the database table. Each field name must be unique within a database table.

3. Enter data for each <u>record</u> in the rows below the field names. The entries in each field should be all labels or all values. Use consistent   formats and capitalization when you enter data in each field.

   Note Use a <u>date @function</u> to enter dates in a database table if you want to sort and query the table by dates.

4. (Optional) Use <u>Range Name Create</u> to name the 1-2-3 database table, but do not use a range name that matches a field name in the table. The row that contains the field names must be part of the named range. Naming a table makes referring to it easier when you specify different ranges for Data Query.

See also:

    <u>Data Commands</u>
    <u>Data Query</u>
    <u>Specifying the Input Range</u>

Specifying the Input Range

When you use Data Query, you must indicate where the <u>database table</u> is located. The input range must contain the entire database table, including the row that contains the field names.

1. Choose Data Query.

2. Specify the database table in the Input range <u>text box</u>.

   If the table is in the current file, enter the address or range name of the table.

   If the table is not in the current file, enter the file name before the table name in the format *<<filename>>table.*

   For example, <<ACCOUNTS.WK3>>NORTH specifies a table named NORTH in a file named ACCOUNTS.WK3.

To specify an <u>external database table</u>, you must first use <u>Data Connect to External</u> to establish a connection to the external table and assign a range name to the table. Then you can specify the input range as the range name you assigned to the external table.

Note You can specify more than one database table as the input range when you use Data Query Extract. For more information, see <u>Querying Multiple Database Tables</u>.

See also:

<u>Creating a 1-2-3 Database Table</u>
<u>Data Commands</u>
<u>Data Query</u>

Example: 1-2-3 Database Table

The following information is organized as a 1-2-3 database table. The database table is in A:A1..A:D8; the range name for the table   is Q2SALES. Row 1 contains the field names and rows 2 to 8 contain the records.

```
A ---- A ------------ B ------------ C ------------------ D ------
1    Name           Month      Account            Sales   <-- field names
2    Kaplan         April        Theater Inc       1950
3    Mintz          April        Dance Corp      1800
4    Morse          May          Art Etc               2100   <-- record
5    Smith          May          Photo Show      1850
6    Mintz          June         Dance Corp      1750
7    Kaplan         June        Theater Inc      2200
8    Morse          June         Art Etc               2050
```

Creating the Criteria Range

The criteria range includes field names from the database table and criteria. The criteria, entered in one or more rows under the field headings in the criteria range, tell 1-2-3 which records to select from the database table when you use Data Query.

For example, suppose you were using a database table containing sales records and you wanted to identify all sales greater than $2,000. If you entered the criteria +Sales>2000 under Sales in the criteria range, 1-2-3 would select all records where the sales is greater than $2,000.

1. Identify a blank range large enough to contain all the criteria you want to include.

2. In the first row of the criteria range, copy all the field names, or only those field names you plan to use with criteria. Field names in the criteria range must be identical in spelling and capitalization to those in the database table.

3. Enter criteria in one or more rows under the field names. If you do not enter any criteria, 1-2-3 selects all records when you use Data Query.

   Note If you specify more than one database table as the input range, you must enter a special type of formula called a join formula in the criteria range. For more information, see Querying Multiple Database Tables.

4. (Optional) Use Range Name Create to name the criteria range. Use a range name that does not match a field name in the database table.

After you create a criteria range, you can use it with any Data Query command.

Types of Criteria

Label criteria
Select records that contain label entries in a specific field.

Value criteria
Select records that contain value entries in a specific field.

Formula criteria
Select records that contain label, value, or date entries in a specific field.

Multiple criteria
Select records that meet more than one condition.

Note Some formula criteria will evaluate to ERR when you enter them in the worksheet; however, they are still valid for a Data Query operations. Use Range Format Text to display the formula criteria instead of ERR.

See also:

Data Commands
Data Query

Label Criteria

Label criteria select records that contain label entries in a specific field.

Note By default, 1-2-3 does not distinguish between uppercase and lowercase letters. For example, the label SMITH matches the entries Smith and smith. To make 1-2-3 case-sensitive, for Data Query, use the Install program and change the collating sequence to ASCII.

Example

Label Criteria

Matching an Exact Label

Enter a label exactly as it appears in the database table, or enter a label prefix (' " or ^) and = (equal sign) before the label.

For example, enter Boston or '=Boston in the criteria range to match all entries that are Boston.

Matching Similar Labels

Use wildcard characters to match similar labels.

For example, enter Q? in the criteria range to match all two-character entries beginning with Q such as Q1, Q2, Q3, and Q4. Enter A* to match all entries beginning with A.

Matching a Specific Condition

Enter a label prefix (' " or ^) and one of the logical operators before a label.

For example, enter '>Howard to match all entries that come after Howard in alphabetical order.

Matching All Labels Except a Specific One

Precede a label with ~ (tilde) to match all label entries except that one. Precede a label with '<> (not equal to) to match all entries, except that one,   including blank cells and values.

For example, enter ~Mosley to match all label entries that are not Mosley.   Enter '<>Boston to match all entries that are not Boston.

Combining Symbols

You can combine symbols.

For example, enter ~B* to match all label entries that do not begin with B. Enter '<>B* to match all entries, including blank cells and values, that do not begin with B.

See also:

Creating the Criteria Range
Data Commands
Data Query
Formula Criteria
Multiple Criteria
Value Criteria

Example: Label Criteria

The input range is A1..D5. If the criteria range is G1..G2, 1-2-3 selects all records with Kaplan entered under Name.

	A	B	C	D
1	Name	Month	Account	Sales
2	Kaplan	May	Theater Inc	1950
3	Mintz	May	Dance Corp	1800
4	Morse	June	Art Etc	2100
5	Smith	June	Photo Show	1850

	G	H
1	Name	
2	Kaplan	

Value Criteria

Value criteria select records that contain value entries in a specific field.

Example

Value Criteria

Matching the Exact Value

Enter a number exactly as it appears in the database table, or enter a label prefix (' " or ^) and = (equal sign) before the value.

For example, enter 25000 or '=25000 to match all values that are 25000.

Matching a Specific Condition

Enter a label prefix (' " or ^) and one of the logical operators before a value.

For example, enter '<=1800 to match all values that are less than or equal to 1800. Enter '>1800 to match all values greater than 1800.

Matching a Date Value

When a field contains date entries, enter a label prefix (' " or ^), one of the logical operators, and a date.

For example, enter '>2/6/84 to match dates after February 6, 1984.

See also:

Creating the Criteria Range
Data Commands
Data Query
Formula Criteria
Label Criteria
Multiple Criteria

Example: Value Criteria

The input range is A1..D5. If the criteria range is G1..G2, 1-2-3 selects records with Sales equal to 2100.

A ---- A ------------ B ------------- C ---------------- D ------

	Name	Month	Account	Sales
1	Name	Month	Account	Sales
2	Kaplan	May	Theater Inc	1950
3	Mintz	May	Dance Corp	1800
4	Morse	June	Art Etc	2100
5	Smith	June	Photo Show	1850

-------- G -----------

	Sales
1	Sales
2	2100

Formula Criteria

Formula criteria select records that contain label, value, or date entries in a specific field.

A formula criteria consists of at least four parts:

*   A + (plus sign)

*   The field name or the cell address of the first cell in the field you want to query

*   A logical operator

*   A value, label, or date, or a reference to a cell containing one

When you write formula criteria, use relative cell references or range names to refer to values, labels, or dates in the input range. Use absolute references or field names to refer to data outside the input range.

Note Some formula criteria will evaluate to ERR when you enter them in the worksheet; however, they are still valid. Use Range Format Text to display the formula criteria instead of ERR.

Example

Formula   Criteria

Matching Label Entries

Enter a label enclosed in " (quotation marks) in a formula criteria.

For example, enter +City="Boston" to match entries in a field named City that are Boston.

Matching Value Entries in the Database Table

Enter values as they appear in the database table.

For example, enter +E2>500 to match values in column E that are greater than 500.

Enter +Sales>1800#AND#Sales<2100 to match entries in a field named Sales that are values between 1800 and 2100.

Enter +Sales>Cost to match values in Sales when the Sales entry is greater than Cost for the same record.

Matching Entries Outside the Database Table

Use absolute references to match entries outside of the database table.

For example, enter +Totals<=$D$25 to match entries in a field named Totals that are less than or equal to the value in cell D25.

Matching Date Entries

Enter a date @function in the formula criteria.

For example, enter +Date<=@today to match entries where the date is on or before today's date.

Enter +DOH>@date(91,1,1) to match entries where the date is after January 1, 1991.

Enter +Date>@date(91,9,30)#AND#Date<@date(91,11,1) to match entries that fall between September 30, 1991, and November 1, 1991. This criteria matches all date entries for the month of October, 1991.

As a shortcut, you can also match date entries by entering a label prefix (' " or ^), one of the logical operators, and a date. For example, enter '<6/1/90 to match dates before June 1, 1990.

See also:

Creating the Criteria Range
Data Commands

Example: Formula Criteria

The input range is A1..D5. If the criteria range is G23..G24, 1-2-3 selects all records with Sales greater than 1900.

```
A ---- A ------------ B ------------- C ---------------- D ------
1    Name          Month      Account          Sales
2    Kaplan        May            Theater Inc      1950
3    Mintz          May             Dance Corp     1800
4    Morse         June          Art Etc              2100
5    Smith          June            Photo Show     1850

---------- G   ----------- H ---------
23     Sales
24    +D2>1900
```

Multiple Criteria

You can enter criteria in the criteria range in one or more rows and fields to select records that meet more than one condition. For example, you might want to see records for sales in May that were greater than $2,000, or you might want to see sales records for May and June.

Example

   1-2-3 Database Table

Meeting All Conditions (#AND#)

Enter criteria in the same row under different fields to select records in which all conditions are true. For example, the following criteria select only records in which the Month is May and the Sales value is greater than 2000.

```
--------- A -------------- B ----------
26    Month          Sales
27    May               +Sales>2000
```

Meeting at Least One Condition (#OR#)

Enter criteria in two or more rows in different fields to select records in which at least one of two or more conditions is true. For example, the following criteria select records in which the Month is May or the Sales value is greater than 2000.

```
--------- A -------------- B ----------
22    Month          Sales
23    May
24                       +Sales>2000
```

Meeting Different Conditions in the Same Field (#OR#)

Enter criteria in the same field in separate rows to select records in which one of the conditions is true. For example, the following criteria select all records in which entries for the Month are May or June.

```
--------- A ------------ B ----------
29    Month
30    May
31    June
```

Using Logical Operators #AND#, #NOT#, or #OR#

Use logical operators in criteria to create compound conditions. A compound condition restricts matching entries to a specific range. For example, the following criterion select records in which Sales is a value greater than 1500 but less than 2200.

```
------------ A ----------------- B --------------- C -----
29      Sales
30      +SALES>1500#AND#SALES<2200
```

See also:

   Creating the Criteria Range
   Data Commands
   Data Query
   Formula Criteria
   Label Criteria
   Value Criteria

Creating the Output Range

The output range specifies where 1-2-3 will copy records from the <u>database table(s)</u> when you use Data Query [Extract or Modify]. It also specifies the records 1-2-3 will insert into a database table when you use Data Query Modify Insert. The top row of the output range can contain <u>field names</u> or formulas that calculate data as 1-2-3 enters it into the output range.

1. Choose an area in the current file that does not overlap the input or criteria ranges and has enough blank rows to hold all the records that 1-2-3 will copy.

2. In the top row of the output range, enter field names or formulas.

    Field names tell 1-2-3 which entries to copy from the database table(s) to the output range. Formulas tell 1-2-3 to perform calculations in the output range on data copied from the database table(s).

After you set up the output range, use <u>Data Query</u> to specify where the output range is located. The output range can be in a 1-2-3 worksheet or an <u>external database table</u>.To use an external table for the output range you must first connect to the table you want to use. See <u>Data Connect to External</u>.

Using Field Names

Enter some or all of the field names from the database table in the first row of the output range. 1-2-3 copies data from a field in the database table to the output range only if the field name is in the output range.

Field names in the output range should be identical in spelling and capitalization to those in the database table. You can enter the field names in the output range in any order.

Using Formulas

Enter formulas in the output range to produce two kinds of   results, <u>computed</u> and <u>aggregate</u> columns. 1-2-3 uses these formulas to perform different calculations on data from the selected database table and then enters the results in the output range.

See also:

<u>Data Commands</u>
<u>Data Query</u>

Performing Database Calculations

1-2-3 offers several methods for performing calculations on data from a <u>database table</u>.

In the following example, a 1-2-3 database table shows company sales by salesperson, month of sale, account, and dollar amount for each sale.

Example

   <u>1-2-3 Database Table</u>

1-2-3 can perform the following calculations with data from this database table:

*   Sum the sales by person or month or both.

*   Count the sales by person or month or both.

*   Average the sales by person or month or both.

*   Identify the largest (maximum) or smallest (minimum) sale for each person or month.

*   Multiply each sale times a commission rate.

You can use one of the following methods to perform calculations on data in a database table.

Using Statistical @Functions

Use <u>statistical @functions</u> to calculate data using all the values in a field. For example, use @SUM to total all the values in the field named Sales.

Using Database @Functions

Use <u>database @functions</u> to select and calculate only those values in a field that meet specific <u>criteria</u> you enter in the <u>criteria range</u>.

For example, use @DSUM to total the sales for a specific person by entering a name from the database table in the criteria range. To total sales for four people, you could enter four @DSUM formulas and create four criteria ranges or use Data Query Extract to create an aggregate column.

Using Data Query Extract

Use <u>Data Query Extract</u> to create aggregate or computed columns.

To create an aggregate column, enter a <u>statistical @function</u> in the <u>output range</u>. For example, you create an <u>aggregate column</u> to sum the sales for all people by entering Name in the criteria range and @SUM in the output range.

To create a computed column, enter a formula in the output range. For example, you can create a <u>computed column</u> to multiply the sales times a commission rate.

When you use Data Query Extract with formulas in the output range, 1-2-3 performs calculations on data it copies from a database table and enters the results in the output range.

For more information, see <u>aggregate columns</u> and <u>computed columns</u>.

Using Data What-if Tables

Use a <u>Data what-if table</u> to perform one or more calculations on one or more fields in a database table. Data what-if tables use <u>database @functions</u> to calculate data based on criteria you enter in the criteria range.

For example, you can use a <u>1-way what-if table</u> to sum, count, or average all sales for all names in the database table, or you can use a <u>2-way what-if table</u> to sum sales for each person by month.

Note Using Data Query Extract to create aggregate columns is quicker and more efficient than using Data What-if Table with database @functions for analyzing data in database tables.

See also:

Computed Columns

A computed column is a column in the <u>output range</u> where 1-2-3 calculates values for a group of records during Data Query Extract. You create a computed column by entering a formula in the output range. The formula can refer to other fields in the output range and can include most @functions.

Use computed columns to extract and calculate data quickly from a database table.

Example

<u>Computed Column</u>

For example, suppose you have a database that tracks sales transactions. You can use a computed column to calculate each sales commission automatically each time you generate a sales report. The formula +Sales*.07 in the output range multiplies values entered in Sales by 7%.

You can use any type of @function except @@, @CELL, @COLS, @HLOOKUP, @INDEX, @INFO, @IRR, @N, @NPV, @ROWS, @S, @SHEETS, @STD, @STDS, @VAR, @VARS, @VLOOKUP, and the <u>database @functions</u> in computed columns.

See also:

<u>Aggregate Columns</u>
<u>Data Query Extract</u>
<u>Performing Database Calculations</u>
<u>Entering Formulas</u>

Example: Computed Column

The input range is A1..C5. The criteria range is E1..E2, and the output range is K1..L1. When you use Data Query Extract, the formula +Sales*0.07 creates a computed column in the output range by multiplying entries in Sales by 7%.

```
A: ----- A ---------- B ------------- C ----------- D -------- E -----
1      Name          Month          Sales                  Name
2      Mintz         May             2800
3      Smith         May             2100
4      Smith         June            1400.
5      Mintz         June            1500.

A:----- K -------------------- L ---------------
1      Name          +Sales*0.07
2      Mintz                 196.00
3      Smith                 147.00
4      Smith                  98.00
5      Mintz                 105.00
```

Aggregate Columns

An aggregate column is a column in the output range where 1-2-3 calculates (cross-tabulates) data from a database table during Data Query Extract. You create an aggregate column by entering a <u>statistical @function</u> in the output range.

Use aggregate columns to extract and calculate data quickly from a database table.

Example

    <u>Aggregate Column</u>

For example, suppose a database table shows company sales by salesperson, month of sale, account, and dollar amount for each sale. You want to see total sales for each person.

Enter Name in the criteria range and Name and @sum(Sales) in the output range. When you use Data Query Extract, 1-2-3 will sum the sales for each person in the output range.

Note Using <u>Data Query Extract</u> to create aggregate columns is quicker and more efficient than using <u>Data What-if Table</u> with database @functions for analyzing data in database tables.

See also:

    <u>Computed Columns</u>
    <u>Data Query Extract</u>
    <u>Performing Database Calculations</u>
    <u>Statistical @Functions</u>

Example: Aggregate Column

The input range is A1..C6. The criteria range is E1..E2, and the output range is K1..L1. When you use Data Query Extract, the formula @sum(Sales) in the output range totals the sales for each name in the database table.

```
A: ----- A ----------- B -------------- C ---------- D --------- E -----
1      Name           Month          Sales                    Name
2      Mintz          May             2800
3      Smith           May             2100
4      Smith           June            1400
5      Mintz          June            1500
6      Smith           June            1600

A:----- K ------------------- L -----------
1      Name              @sum(Sales)
2      Mintz                  4300.00
3      Smith                  5100.00
```

Querying Multiple Database Tables

You can specify more than one database table as the input range   with Data Query Extract. When you specify more than one table, you can

*   Join fields from two or more tables to create a new database table

*   Calculate data entered in fields in different database tables

For example, you can multiply sales information in a field in one table by commission rates in another table to create a new table that lists names and the amount of commission earned by each person.

To use more than one database table with Data Query, you must follow some specific rules when you create and specify the input, criteria, and output ranges. Follow the guidelines in the topics listed below to learn how to set up and specify these ranges for multiple tables:

The Input Range and Multiple Tables
The Criteria Range and Multiple Tables
The Output Range and Multiple Tables

Note 1-2-3 can join information from database tables that contain a common field. However, 1-2-3 cannot create a union between two database tables that have no fields in common.

See also:

    Data Commands
    Data Query

The Input Range and Multiple Tables

You can specify more than one <u>database table</u> as the <u>input range</u>   with <u>Data Query Extract</u>. When you specify more than one table, you can

*   Join fields from two or more tables to create a new database table

*   Calculate data entered in fields in different database tables

Note 1-2-3 can join information from database tables that contain a common field. However, 1-2-3 cannot create a union between two database tables that have no fields in common.

To use more than one <u>database table</u> as the <u>input range</u>, the tables must meet these conditons:

*   The tables must have at least one common field that contains similar entries, but the field names can be different.

*   If you want to join two or more database tables, one database table may contain duplicate entries in the common field. The common fields in the other table(s) should not contain duplicate entries.

Example

    <u>Two Database Tables</u>

For example, the SALES database table contains three fields: the items, the month the sale was made, and the number of items ordered. In the SALES table, each item is listed many times, once for each sale.

The PRICE database table contains two fields: the items and the price for each item. In the PRICE table, each item is listed only once. Although both tables contain a common field listing items, entries for items in PRICE table contain no duplicates.

To Specify the Input Range

1.   Choose Data Query.

2.   Specify two or more database tables in the Input range <u>text box</u>.

    Enter the range names of all database tables separated by commas. The database tables can be in open files or in files on disk.

    To specify an <u>external database table</u>, you must first use <u>Data Connect to External</u> to establish a connection to the external table and assign a range name to the table. Then you can specify the input range as the range name you assigned to the external table.

    For example, if TABLE1 and TABLE2 are in the current file, enter the table names using the format *table1,table2*.

    If the tables are in different files, use the format *<<file1.wk3>>table1,<<file2.wk3>>table2*.

    Note Use the current <u>argument separator</u> for macros and @functions between table names. The default is a comma. For more information, see <u>Tools User Setup International</u>.

See also:

    <u>Data Commands</u>
    <u>Data Query</u>

The Criteria Range and Multiple Tables

If you specify more than one underline database table as the input range with Data Query Extract, you must create a criteria range that contains a join formula. The join formula tells 1-2-3 where the common data is located in both database tables.

Example

Two Database Tables
Join Formula Criteria

1. Enter one of the tables' names and the name of the field they have in common, separated by a . (period), in the first row of the cirteria range. For example, SALES.Item tells 1-2-3 that the table named SALES contains a field named Item.

2. Enter a join formula in the second row of the criteria range.

   A join formula has the format +*table1.field1=table2.field2.*

   table1 and *table2* are range names for two database tables you specified in the input range.

   field1 and *field2* are the names of fields that contain similar entries in both tables.

   When you use a join formula,

   * Enter field names exactly as they appear in the database tables.

   * The field names do not have to match, but the two fields must contain the same type of data.

   * Entries in one field must match entries in the other field, and one field should not contain duplicate entries.

   For example, the join formula +SALES.Item=PRICE.Item_Name tells 1-2-3 that the fields named Item and Item_Name are located in different tables but contain similar data. Each entry in PRICE.Item_Name is listed only once but may be listed many times in SALES.Item.

Note 1-2-3 can join information from database tables that contain a common field. However, 1-2-3 cannot create a union between two database tables that have no fields in common.

See also:

Data Commands
Data Query

Example: Two Database Tables

These two database tables can be joined because each has a field that contains similar data. Each item is listed only once in PRICE.Item_Name but may be listed many times in SALES.Item.

SALES Table

A: ---- A ----------------- B ---------------- C ----		
1	Month	Item	Orders
2	Jan	monitors	30
3	Jan	computers	35
4	Feb	disk drives	25
5	Feb	monitors	15
6	Feb	computers	20
7	Mar	disk drives	10
8	Mar	computers	15

PRICE Table

B: ----- A ----------------------------- B ----		
1	Item_Name	Unitprice
2	computer	3000.00
3	monitor	250.00
4	disk drive	150.00

Example: Join Formula Criteria

The input range is two database tables named SALES and PRICE. Each database has a field that contains the names of items for sale.

The first row of the criteria range (A1) contains a label, which identifies one of the fields you want to join. You need to enter only one of the fields in the first row of the criteria range. The join formula (A2) tells 1-2-3 that the fields named Item and Item_Name in two database tables (SALES and PRICE) contain the same type of data.

```
C: ---------- A ------------------------- B ------
1         PRICE.Item_Name
2         +SALES.Item=PRICE.Item_Name
```

The Output Range and Multiple Tables

You can specify more than one <u>database table</u> as the <u>input range</u>   with <u>Data Query Extract</u>. When you specify more than one database table, you can use the output range to

* Join fields from two or more tables to create a new database table

* Calculate data entered in fields in different database tables

You must specify more than one database table as the <u>input range</u> and enter a <u>join formula</u> in the <u>criteria range</u>. Then use the following guidelines to set up an output range.

Note 1-2-3 can join information from database tables that contain a common field. However, 1-2-3 cannot create a union between two database tables that have no fields in common.

Joining Fields

For each field you want to copy into the output range, enter the table name and the field name separated by a . (period) in the first row of the output range.

For example, the output range (A1..B1) contains the names of two tables (SALES and INVENTORY) and two fields (Item and Code).

```
C: -------- A ---------------------------- B ----------------
1     SALES.Item     INVENTORY.Code
2
3
```

When 1-2-3 completes the Data Query Extract, it enters data from both database tables in the output range.

Calculating Data

You can use formulas in the output range with Data Query Extract to produce two kinds of   results, <u>computed</u> and <u>aggregate</u> columns. In both cases, 1-2-3 uses a formula to perform calculations on data from database tables and enters the results in the output range.

The formulas must contain table and field names separated by a . (period) so 1-2-3 can locate the data to use. Enter the formula in the first row of the output range.

For example, the formula +SALES.Order*PRICE.Unitprice in the output range multiplies values in the field named Order by values in the field named Unitprice from two different tables.

Example

   <u>Calculating Data in the Output Range</u>

See also:

   <u>Data Commands</u>
   <u>Data Query</u>
   <u>The Criteria Range and Multiple Tables</u>
   <u>The Input Range and Multiple Tables</u>

Example: Calculating Data in the Output Range

The output range, A1..B8, shows the results of Data Query Extract using two database tables with a computed column.

Column A contains entries from a field named Item in the PRICE table. Column B is a computed column that multiplies the orders for each item in the SALES table by the item's unitprice in the PRICE table.

```
D:---------- A --------------------------------------- B ------------------
1        PRICE.Item_Name      +SALES.Order*PRICE.Unitprice
2        computers                                  105000
3        computers                                   60000
4        computers                                   45000
5        disk drives                                  3750
6        disk drives                                  1500
7        monitors                                     7500
8        monitors                                     2500
```

Data Query Delete

Deletes underlined records from a underlined database table that meet the underlined criteria in the criteria range, and removes the blank rows from the table.

Before you use this command to delete records, you may want to check that the criteria selects the correct records. To check the criteria, use Data Query Find with a 1-2-3 database table; use Data Query Extract with an external database table.

Before you use Data Query Delete, you must create an input range and a criteria range.

1. Choose Data Query.

2. In the Input range text box, specify one database table.

    To specify an external database table, you must first use Data Connect to External to establish a connection to the external table and assign a range name to the table. Then you can specify the input range as the range name you assigned to the external table.

3. In the Criteria range text box, specify the criteria range.

    Note If there are no criteria under any field names, 1-2-3 selects all records.

4. Select Delete.

    1-2-3 displays a message box before it deletes any records.

    Select Delete to delete all the records in the input range that meet the criteria.

    Select Cancel to cancel the command and return to the Data Query dialog box.

See also:

Creating a 1-2-3 Database Table
Creating the Criteria Range
Data Commands
Data Query

Data Query Delete (Delete/Cancel)

Cancels or completes Data Query Delete.

1. Select one of the following options:

    Delete
    Deletes all records in the database table that match the criteria in the criteria range.

    Cancel
    Redisplays the Data Query dialog box without deleting any records.

See also:

Data Commands
Data Query
Data Query Delete

Data Query Extract

Performs the following tasks using data from one or more <u>database tables</u>:

*   Copies to the output range all <u>records</u> that meet the <u>criteria</u> you specified in the criteria range

*   Performs calculations on data extracted from one or more database tables using formulas entered in the output range

*   Extracts only unique records from a database table

1-2-3 can join <u>fields</u> from two or more database tables if the databases contain at least one field with common data. However, 1-2-3 cannot create a union between two database tables that have no fields in common.

Setting Up

Before you use Data Query Extract, you must create an <u>input range</u>, a <u>criteria range</u>, and an <u>output range</u>. The way you set up the criteria and ouput ranges controls the results of Data Query Extract.

For more information, see <u>Creating the Criteria Range</u> and <u>Creating the Output Range</u>.

To Extract Data

1. Choose Data Query.

2. In the Input range <u>text box</u>, specify the database table(s).

    To work with more than one database table, enter all database table names in the input range text box separated by commas. For more information, see <u>The Input Range and Multiple Tables</u>.

    To specify an <u>external database table</u>, you must first use <u>Data Connect to External</u> to establish a connection to the external table and assign a range name to the table. Then you can specify the input range as the range name you assigned to the external table.

3. In the Criteria range text box, specify the criteria range.

    To work with more than one database table, the criteria range must contain a join formula. For more information on joining database tables, see <u>The Criterial Range and Multiple Tables</u>.

    Note If there are no criteria under any field names, 1-2-3 extracts all records.

4. In the Output range text box, specify the output range.

    Either specify just the first row of the output range or a range large enough to hold all the extracted data.

    Caution If you specify one row as the output range, 1-2-3 erases all data in the worksheet below that row before it completes Data Query.

    If you specify an output range larger than one row, 1-2-3 copies the selected records to that range without erasing the area below the range. 1-2-3 displays a message if you specify an output range that is too small to hold all the extracted records.

5. Select Extract.

Extracting Unique Records

Unique records are records that contain no duplicate entries. To extract unique records, select the Extract unique only <u>check box</u> before you select Extract.

When you extract unique records, the results depend on how you set up the output range.

*   If you enter all of the field names from the database table(s) in the output range, 1-2-3 will extract all unique records.

*   If you enter only one field name from the database table(s) in the output range, 1-2-3 will extract a list

of unique entries from that field. For example, you could enter the field name City from an employee database in the output range to extract a list of cities from a database table.

Results of Data Query Extract

If the input and output ranges are in a 1-2-3 file, 1-2-3 copies records to the output range with the same formats the records had in the input range. If a field in the input range contains formulas, 1-2-3 converts the formulas to values in the output range.

If the input range is an <u>external database table</u> and the output range is in a 1-2-3 worksheet, 1-2-3 formats cells containing dates and times with <u>Date</u> and <u>Time</u> formats.

If the output range is an external table, the database driver formats the records using formats that the external table supports.

Calculating Extracted Data

If the output range contains formulas instead of field names when you extract data, 1-2-3 creates <u>computed</u> or <u>aggregate</u> columns. In these columns, 1-2-3 peforms calculations on the data and then enters the results in the output range.

See also:

<u>Creating a 1-2-3 Database Table</u>
<u>Data Commands</u>
<u>Data Query</u>
<u>Querying Multiple Database Tables</u>

Data Query Find

Locates <u>records</u> in a 1-2-3 <u>database table</u> that meet the <u>criteria</u> in the criteria range. The file that contains the database table must be open.

Use Data Query Find to locate and edit records in a 1-2-3 database table and to test the criteria you specified before you use Data Query Extract or Data Query Delete.

Before you use Data Query Find, you must create an <u>input range</u> and a <u>criteria range</u>.

1. Choose Data Query.

2. In the Input range <u>text box</u>, specify one 1-2-3 database table.

3. In the Criteria range text box, specify the criteria range.

    Note If there are no criteria under any field names, 1-2-3 selects all records.

4. Select Find.

The <u>mode</u> indicator changes to FIND and 1-2-3 highlights the first record that meets the criteria.

Viewing and Editing Selected Records

When 1-2-3 is in FIND mode, use the following keys to move between records and edit entries in different fields.

DOWN, UP
    Highlights a record that matches the criteria.

ESC, ENTER
    Ends Data Query Find and returns 1-2-3 to the Data Query dialog box.

F2 (EDIT)
    Puts 1-2-3 in EDIT mode so you can edit data in the highlighted record.

F7 (QUERY)
    When you are in FIND mode, pressing F7 (QUERY) ends Data Query Find, leaves the cell pointer in the highlighted record, and redisplays the Data Query dialog box. Pressing F7 (QUERY) again repeats Data Query Find.

HOME, END
    Highlights the first or last record in the database table that matches the criteria.

LEFT, RIGHT
    Moves between fields within the highlighted record and displays the cell contents in the edit line so you can change it.

To Edit Records in FIND Mode

1. Press UP or DOWN to highlight a record.

2. Press LEFT and RIGHT to display the entry you want to edit in the edit line.

3. Type a new entry or use the standard <u>editing keys</u> to edit the current entry.

4. Press UP, DOWN, or ENTER to complete editing and return 1-2-3 to FIND mode.

5. Press ESC or ENTER to end FIND and return to the Data Query dialog box.

See also:

<u>Creating a 1-2-3 Database Table</u>
<u>Creating the Criteria Range</u>
<u>Data Commands</u>
<u>Data Query</u>

Data Query Modify

Changes records in or adds records to a <u>database table</u>. The database table must be in either an open 1-2-3 file or an <u>external database table</u>.

Note With some external databases, using Data Query Modify Extract locks the database until you use Data Query Modify Replace or Data Query Modify Finish to complete the procedure.

<u>Extract</u>
Copies to the output range the records in the database table that meet the criteria in the criteria range. Unlike Data Query Extract, this command remembers the location in the database table of the extracted records. Use this command with Data Query Modify Replace to extract records from database table, edit them, and put them back into the table.

<u>Replace</u>
Used after Data Query Modify Extract, replaces the original records in the database table with copies of the records you edited in the output range.

<u>Insert</u>
Adds new records you entered in the output range to the bottom of the database table.

Finish
Use Data Query Modify Finish if you used Data Query Modify Extract and decided not to replace records in the database table. You cannot use Data Query Modify Replace after you use Data Query Modify Finish.

See also:

<u>Creating a 1-2-3 Database Table</u>
<u>Creating the Criteria RangeCreating the Output Range</u>
<u>Data CommandsData Query</u>

Data Query Modify Extract

Copies records in an open 1-2-3 <u>database table</u> or an <u>external database table</u> to the output range so you can edit the records and then replace them in the database table. Unlike Data Query Extract, this command remembers the location of the records in the database table.

Use this command with Data Query Modify Replace to extract records from a database table, edit them, and put them back in the table at their original locations.

Setting Up

Before you use Data Query Modify Extract, you must create an <u>input range</u>, a <u>criteria range</u>, and an <u>output range</u>.

Once you specify these ranges, do not change them before you use Data Query Modify Replace. 1-2-3 cannot replace records properly if you change the input, criteria, or output ranges, or if you use another Data Query command before you use Data Query Modify Replace.

Caution To avoid writing over formulas in the database table, do not use names of fields that contain formulas in the output range. Data Query Modify Extract copies the results of formulas or @functions to the output range, not the actual formulas or @functions.

To Extract Data

1. Choose Data Query.

2. In the Input range <u>text box</u>, specify one database table.

    To specify an <u>external database table</u>, you must first use <u>Data Connect to External</u> to establish a connection to the external table and assign a range name to the table. Then you can specify the input range as the range name you assigned to the external table.

3. In the Criteria range text box, specify the criteria range.

    Note If there are no criteria under any field names, 1-2-3 selects all records.

4. In the Output range text box, specify the output range.

    Either specify just the first row of the output range or a range large enough to hold all the extracted data.

    Caution If you specify one row as the output range, 1-2-3 erases all data in the worksheet below that row before it completes Data Query.

    If you specify an output range larger than one row, 1-2-3 copies the selected records to that range without erasing the area below the range. 1-2-3 displays a message if you specify an output range that is too small to hold all the extracted records.

5. Select Modify to display the Data Query Modify dialog box.

6. Select Extract.

    1-2-3 extracts the records and closes the Data Query Modify dialog box.

7. Select Cancel to close the Data Query dialog box.

1-2-3 copies records to the output range so you can edit them. Change the records in the output range as necessary, and then use <u>Data Query Modify Replace</u> to replace the original records in the database table with the edited ones.

See also:

<u>Creating a 1-2-3 Database Table</u>
<u>Creating the Criteria Range</u>
<u>Creating the Output Range</u>
<u>Data Commands</u>

<u>Data Query</u>

Data Query Modify Insert

Adds new records from the output range to the bottom of a <u>database table</u> you specified as the input range. The database table must be in either an open 1-2-3 file or an <u>external database table</u>.

Setting Up

Before you can use Data Query Modify Insert, you must create an <u>output range</u>.

Caution Do not create the output range below the input range. When 1-2-3 adds the new records, it expands the input range and will write over existing data.

The first row of the output range must contain field names that match those in the database table in the input range. In the remaining rows, enter the records you want to add to the database table.

Note If you include formulas in the output range, 1-2-3 will not copy them to the database table. When you use Data Query Modify Insert, 1-2-3 copies only the displayed values to the database table, not the actual formulas.

To Insert Data

1. Choose Data Query.

2. In the Input range <u>text box</u>, specify one database table.

    To specify an <u>external database table</u>, you must first use <u>Data Connect to External</u> to establish a connection to the external table and assign a range name to the table. Then you can specify the input range as the range name you assigned to the external table.

3. In the Output range text box, specify the output range.

    Make sure that the output range includes the field names and all the records you want to add to the database table.

4. Select Modify to display the Data Query Modify dialog box.

5. Select Insert.

    1-2-3 inserts the records and closes the Data Query Modify dialog box.

6. Select Cancel to close the Data Query dialog box.

1-2-3 copies the records from the output range to the database table, adding the new records to the bottom of the database table. 1-2-3 also expands the input range to include the new records.

See also:

<u>Creating a 1-2-3 Database Table</u>
<u>Creating the Output Range</u>
<u>Data CommandsData Query</u>

Data Query Modify Replace

Replaces the original records in an open 1-2-3 <u>database table</u> or an <u>external database table</u> with edited records from the output range. Use Data Query Modify Replace after you edited records you extracted with <u>Data Query Modify Extract</u>.

After you use Data Query Modify Extract, do not change the input, criteria, or output ranges or use another Data Query command before you use Data Query Modify Replace. 1-2-3 cannot replace records properly if you change the the specified ranges.

Caution To avoid writing over formulas in the database table, do not replace data in fields that contain formulas. 1-2-3 copies only the values, not the formulas, when you use Data Query Modify Replace.

1. Choose Data Query.

2. Select Modify to display the Data Query Modify dialog box.

3. Select Replace.

   1-2-3 copies records from the output range to the database table and closes the Data Query Modify dialog box.

4. Select Cancel to close the Data Query dialog box.

See also:

> <u>Creating a 1-2-3 Database Table</u>
> <u>Creating the Criteria Range</u>
> <u>Creating the Output Range</u>
> <u>Data CommandsData Query</u>

Data Query Reset

Clears the settings for the input, criteria, and output ranges in the current file.

1. Make sure the <u>cell pointer</u> is in the file containing the settings you want to clear.

2. Choose Data Query Reset.

See also:

<u>Data Commands</u>
<u>Data Query</u>

Data Regression

Performs multiple linear regression analysis.

Data Regression produces statistics that describe the association between two or more sets of data. This command also calculates the slope of the line that best illustrates the data. If there is a high association or correlation between sets of data, these statistics can be used to predict future trends.

Use Data Regression to analyze financial, marketing, or research data.

1. Choose Data Regression.

2. Specify the X -range, the independent variables.

    The X-range can contain up to 75 columns, each of which represents an independent variable. The columns must be adjacent to one another. The X-range must contain the same number of rows as the Y-range.

3. Specify the Y-range, the set of values for the dependent variable.

    The Y-range must be in a single column and must contain the same number of rows as the X-range.

4. (Optional) Under Y-intercept, select one of the following options to determine whether 1-2-3 calculates the y-axis intercept or uses zero as the intercept.

    Compute
    Causes 1-2-3 to calculate the y-axis intercept.

    Set to zero
    Causes 1-2-3 to use zero as the y-axis intercept. Do not select Set to zero unless your data is such that if all the independent variables equaled zero, the dependent variable would also equal zero.

5. Specify the output range, the range in which 1-2-3 places the results of the regression analysis. You can specify either the entire range or only the first cell in the range.

    Caution 1-2-3 writes over any existing data in the output range, so make sure the range does not contain data you need.

6. Select OK.

Results of Data Regression

1-2-3 enters the following statistics in the output range:

Constant
   The y-axis intercept.

Degrees of freedom
   The number of observations, minus the number of independent variables, minus 1 (calculated intercept); or the number of observations, minus the number of independent variables (zero intercept).

Number of observations
   The number of rows of data in the X and Y ranges.

R^2 value
   The reliability of the regression. Values closer to 1 indicate a stronger correlation.

   Note If 1-2-3 displays a value less than zero, you specified a zero intercept when it was not appropriate to do so. Use Data Regression Intercept Compute and select OK to recalculate the regression and adjust this value accordingly.

Standard error of the x coefficients
   The standard error of each of the x coefficients.

Standard error of the y estimate
   The standard error of the estimated y value.

X coefficients
  The slope for each independent variable.

See also:

Data Sort

Arranges the data in a range in the order you specify. For example, use Data Sort to alphabetize the records in a database table or entries in a column.

1. Select the range you want to sort.

   Note If you are sorting records in a database table, include all the records in the range but do not include the field names.

2. Choose Data Sort.

3. To change the range displayed in the Data range text box, specify a new range.

4. In the Primary key text box, specify one cell in the column by which you want to sort data.

   For example, if you want to sort records by last names, specify one cell in the column that contains last names.

5. Under Primary key, select ascending or descending sort order:

   Ascending
   (sorts A - Z, and smallest to largest values)

   Descending
   (sorts Z - A, and largest to smallest values)

6. (Optional) If two or more records have the same entry for the primary sort key, specify a secondary sort key. Select Secondary key and repeat steps 4 and 5.

   For example, if the Last_Name field is the primary sort key, select the First_Name field as the secondary sort key. 1-2-3 sorts records with the same last name by the first name.

7. (Optional) Select Extra keys to sort by more than two columns. You can specify up to 253 extra sort keys.

8. Select OK.

1-2-3 sorts the data in ascending or descending order.

The order in which 1-2-3 sorts different types of labels is determined by the collating sequence specified when you installed 1-2-3. For more information on collating sequences, see Sort Order (Collating Sequences).

Restoring Data to the Original Order

Before you sort the data, use Worksheet Insert to insert a column next to the data. Then use Data Fill to enter numbers in sequential order in the column next to your data.

When you sort the data, include the column of numbers in the range you want to sort. After you use Data Sort, you can put the data back in its original order by using Data Sort again and specifying the column of numbers as the primary sort key.

To Clear All Sort Ranges and Keys

1. Choose Data Sort.

2. Select Reset.

See also:

Changing the Sort Keys
Data Commands

Data Sort Extra Keys

Specifies up to 253 additional sort keys after the primary and secondary sort keys, or changes the settings for an extra sort key.

To Specify Extra Sort Keys

1. Choose Data Sort.

2. After you specify the Primary and Secondary sort keys, select Extra keys.

   If you have already specified extra sort keys, 1-2-3 displays a list in the Key list box.

3. 1-2-3 displays a number for the next available sort key. Next to the number in the Key range text box, specify one cell in a column by which you want to sort data.

4. Under Sort Direction, select ascending or descending sort order:

   Ascending
   (sorts A - Z, and smallest to largest values)

   Descending
   (sorts Z - A, and largest to smallest values)

5. Select Accept to add the sort key to the list.

   1-2-3 adds the sort key to the list box and enters A or D after the cell address to indicate the sort direction (ascending or descending).

6. (Optional) Repeat steps 3, 4, and 5 for each sort key you want to specify.

7. Select OK.

1-2-3 returns to the Data Sort dialog box.

To Clear Extra Sort Keys

Note To clear all sort keys, choose Data Sort and select Reset.

1. Choose Data Sort.

2. Select Extra keys.

3. Specify the number of the extra sort key you want to clear. For example, if you have six extra sort keys and you want to remove the sixth key, select 6.

4. Specify the cell address that matches the preceding extra sort key. For example, if you are removing the sixth extra sort key, specify the same cell you defined for the fifth extra sort key.

5. Specify the sort order you specified for the preceding extra sort key. For example, if you are removing the sixth extra sort key and the sort order for the fifth extra sort key is ascending, specify ascending sort order.

6. Select Accept.

7. Select OK to return to the Data Sort dialog box.

1-2-3 ignores duplicate sort keys when you sort data.

See also:

Changing the Sort Keys
Data Commands

Changing the Sort Keys

To Change the Primary or Secondary Sort Key

1. Choose Data Sort.

2. Select Primary key or Secondary key.

3. Specify a cell in a different column to sort by in the Primary or Secondary key <u>text box</u>.

4. Specify the sort order (ascending or descending) for the sort key.

5. Select OK to sort the range.

To Change Extra Sort Keys

1. Choose Data Sort.

2. Select Extra keys.

3. Select the key you want to change from the <u>list box</u>.

    1-2-3 displays the range for that sort key in the Key range <u>text box</u>.

4. In the Key range text box specify a cell in a different column.

5. Specify the sort order (ascending or descending).

6. Select Accept

7. Repeat steps 3 through 6 for each extra sort key you want to change.

8. Select OK to return to the Data Sort dialog box.

See also:

<u>Data Commands</u>
<u>Data SortData Sort Extra keys</u>

Sort Order (Collating Sequences)

The collating sequence determines the order in which 1-2-3 sorts different types of labels when you use Data Sort.

1-2-3 has three collating sequences:

ASCII
Numbers First
Numbers Last

1-2-3 uses the Numbers First collating sequence if you do not select a different one when you install 1-2-3. If you want to change the collating sequence, use the 1-2-3 Install program.

See also:

Data Commands
Data Sort

ASCII Collating Sequence

ASCII sorts data in ascending order in the following way when you use Data Sort. If you use descending order, the sequence shown here is reversed.

1. Blank cells

2. Labels -- all characters evaluated in LMBCS code order

3. Values in numerical order

See also:

Numbers First
Numbers Last
Sort Order

Numbers First Collating Sequence

Numbers First sorts data in ascending order in the following way when you use Data Sort. If you use descending order, the sequence shown here is reversed.

1. Blank cells

2. Labels beginning with a space

3. Labels beginning with numbers in numerical order

4. Labels beginning with letters in alphabetical order, lowercase letters before uppercase

5. Labels beginning with other characters in <u>LMBCS</u> code order

6. Values in numerical order

1-2-3 ignores apostrophes and hyphens when these characters appear in entries. For example, 1-2-3 places Olden before O'Leary.

See also:

<u>ASCII</u>
<u>Numbers Last</u>
<u>Sort Order</u>

Numbers Last Collating Sequence

Numbers Last sorts data in ascending order in the following way when you use Data Sort. If you use descending order, the sequence shown here is reversed.

1. Blank cells

2. Labels beginning with a space

3. Labels beginning with letters in alphabetical order, lowercase letters before uppercase

4. Labels beginning with numbers in numerical order

5. Labels beginning with other characters in <u>LMBCS</u> code order

6. Values in numerical order

1-2-3 ignores apostrophes and hyphens when these characters appear in entries. For example, 1-2-3 places Olden before O'Leary.

See also:

<u>ASCII</u>
<u>Numbers First</u>
<u>Sort Order</u>

Data What-if Table

Calculates one or more <u>formulas</u> many times, each time substituting different values in the formula(s). 1-2-3 enters one value in the what-if table for each solution to the formula.

The type of what-if table you create depends on the data you want to analyze and number of   formulas and <u>variables</u> you want to use.

<u>1-Way</u>
Substitutes values for one variable in one or more formulas.

<u>2-Way</u>
Substitutes values for two variables in one formula.

<u>3-Way</u>
Substitutes values for three variables in one formula.

<u>Reset</u>
Clears the ranges and input-cell settings for all what-if tables in the current file.

Uses

With each what-if table (1-way, 2-way, or 3-way), you can perform two kinds of data analysis, sensitivity analysis (using worksheet data) and cross-tabulation (using data in a database table).

Sensitivity Analysis

1-2-3 substitutes different values in one or more formulas, and calculates multiple solutions to a problem. For example, you can use a what-if table to calculate different monthly payments on a loan by changing the values of the principal, interest rate, and/or term.

Cross-Tabulation

1-2-3 substitutes different values in one or more <u>database @functions</u> to analyze data in a <u>database table</u>. For example, using a sales database table, you can use a what-if table to total, average, or count sales by person, region, or date.

Note 1-2-3 for Windows offers two other ways to analyze both simple and complex what-if problems in a worksheet. <u>Backsolver</u> calculates one formula to produce a given value by changing one of the values in the formula. <u>Solver</u> analyzes data in a worksheet and shows you a variety of possible solutions to a problem you define.

See also:

<u>Data Commands</u>
<u>Performing Database Calculations</u>
<u>What-if Table Basics</u>

Data What-if Table Basics

A what-if problem can be question that requires the analysis of one or more variables to arrive at an answer. For example, if you use a what-if table to calculate the effects of different interest rates on a loan,   you can find the answer to the question, what will the monthly payments be if the interest rate is 12% or 12.5%?

You can also find answers to questions based on data in database tables. For example, in a sales database table, you might want to know the total sales for each person or the total sales by month.

1-2-3 creates a what-if table by calculating one or more <u>formulas</u> many times, each time substituting different values in the formula(s). 1-2-3 enters one value in the what-if table for each solution to the formula. 1-2-3 can create 1-way, 2-way, and 3-way what-if tables, depending on the number of <u>variables</u> you want to use.

Before 1-2-3 can calculate the results of a what-if table, you need to set up the table in the worksheet. A what-if table has four basic parts: formula(s), input cell(s), input values, and the table range.

Formula(s)

1-2-3 use formulas to create what-if tables. 1-2-3 creates the table by substituting input values in the formula. The type and location of formulas depends on the type of what-if table you create.

Input Cell(s)

1-2-3 uses input cells to temporarily store input values while it performs calculations for a what-if table. You need to define one input cell for each variable in a formula. A 1-way table has one variable and one input cell, a 2-way table has two variables and two input cells, and a 3-way table has three variables and three input cells. The input cell(s) can be any cells in a worksheet as long as they are located outside of the range you define as the table range.

Input Values

1-2-3 replaces the variables in the formula(s) with the input values you supply. Input values can be numbers or <u>labels</u>. Input values are always located in the table range.

Table Range

1-2-3 uses the table range to display the results of a what-if table. The table range always contains the input values. Depending on the type of what-if table you create, this range may also contain the formula(s).

Using Formulas in What-if Tables

*   Formulas in a what-if table can contain <u>values</u>, <u>labels</u>, cell addresses, or range names.

*   Formulas in a what-if table evaluate to 0 or ERR if the input cell is blank. This will not affect the results of the what-if table. To display the actual formula instead of 0 or ERR, format the formula cell with Range Format Text.

*   If you use <u>logical formulas</u> in what-if tables, all the resulting values will equal 0 or 1 because logical formulas always produce the value 0 or 1.

Graphing Results of What-if Tables

You can create an XY graph using information from a what-if table.

*   For a 1-way table, use the values in the first column as the X range; use other columns in the result area of the table as the A - F data ranges. Do not include the formulas in any of the graph ranges.

*   For a 2-way table, use the values in either the first column or the top row as the X range; use other columns or rows in the results area of the table as the A - F data ranges. Do not include the formula in any of the graph ranges.

*   For a 3-way table, use the values in the first column, the top row, or the top left cell of the table range in each worksheet as the X range; use other columns, rows, or <u>3-D ranges</u> in the results area of the what-if table as the A - F ranges.

Note 1-2-3 for Windows offers two other ways to analyze both simple and complex what-if problems in a worksheet. <u>Backsolver</u> calculates one formula to produce a given value by changing one of the values in the formula. <u>Solver</u> analyzes data in a worksheet and shows you a variety of possible solutions to a problem you define.

See also:

<u>About Graph Types</u>

<u>Data Commands</u>

<u>Data What-If Table</u>

<u>Performing Database Calculations</u>

Data What-if Table 1-Way

Substitutes values for one variable in one or more formulas and enters the results in a table.

You can use a what-if table to perform two kinds of data analysis, sensitivity analysis and cross-tabulation.

1-Way Sensitivity Analysis

Use Data What-if Table 1-Way to calculate a 1-way table by substituting one set of values in one or more formulas when all the formulas share the same variable. For example, you can calculate three formulas, 5+X, 6+X, and 7+X, in a 1-way table by using the same set of values for X.

1- Way Cross-Tabulation

Use Data What-if Table 1-Way to calculate a 1-way table by substituting one set of values from a database table in one or more database @functions. For example, you can use @DSUM, @DAVG, and @DCOUNT in a 1-way table to perform different calculations on data in one field.

Note Using Data Query Extract to create aggregate columns is quicker and more efficient than using Data What-if Table for cross-tabulating data in database tables.

Example

    1-Way Sensitivity Analysis
    1-Way Cross-Tabulation

See also:

    Aggregate Columns
    Data Commands
    Database @Functions
    Data What-if Table

1-Way Sensitivity Analysis

Use Data What-if Table 1-Way to calculate a 1-way table by substituting one set of values in one or more formulas.

Before you can calculate a 1-way table, you must set up the table range by entering formulas and <u>input values</u> in the worksheet.

Example

<u>Setting Up a 1-Way Table</u>
<u>1-Way Sensitivity Analysis</u>

To Set Up a 1-Way Table

1. Decide on a location for the table range.

2. Label one cell outside the table range as the <u>input cell</u> to make it easy to locate. The input cell can be any cell in a worksheet as long as it is located outside of the table range.

3. Set up the table range.

    a. Enter one or more formulas in the first row of the table range. Make sure each formula refers to the input cell. For example, if the input cell is B1, the formula must contain a reference to B1.

        The input cell always represents the input values you enter in the first column of the table range.

    b. In the first column of the table range, beginning in the second cell, enter the input values you want 1-2-3 to use in the formula(s). Leave the cell in the upper left corner of the table blank.

To Calculate a 1-Way Table

1. Choose Data What-if Table 1-Way.

2. Specify the table range in the Table range <u>text box</u>.

    Include only the the formulas and input values in the table range. Do not include the input cells.

3. Specify the <u>input cell</u> in the Input cell text box.

4. Select OK.

1-2-3 calculates the 1-way table by substituting the input values in the input cell, one at a time. 1-2-3 calculates the formula with each value and enters the results in the table range.

See also:

<u>Data Commands</u>
<u>Data What-if Table</u>

Example: Setting Up a 1-Way Table

The table range is A3..C6. The input cell is B1. The input values are in A4..A6. The formulas are in B3..C3. The top left corner cell of the table range (A3) is blank.

```
A: ------ A ------------- B ----------- C ----------- D ---------
1     Input cell -->
2
3     blank              formula      formula
4     value
5     value
6     value
```

Example: 1-Way Sensitivity Analysis

Use Data What-if Table 1-Way with @PMT to calculate the monthly payments on a 30 year loan at 12% interest with different loan amounts.

The table range is A3..B7. The @PMT formula (in B3) refers to the input cell (B1). The input values (the loan amounts) are in A4..A7.

```
A: ----- A ---------------------------- B ------------------
1      Loan   -->                  [input]
2
3                        @PMT(B1, .12/12,30*12)
4    $100,000                        1028.61
5    $110,000                        1131.47
6    $120,000                        1234.34
7    $130,000                        1337.20
```

The results in B4..B7 show the monthly payments on the loan. For example, the monthly payment on a $120,000 loan for 30 years at 12% interest is $1,234.34.

1-Way Cross-Tabulation

Use Data What-if Table 1-Way to calculate a 1-way table by substituting one set of values from a database table in one or more database @functions.

Before you can calculate a 1-way table, you must set up the table range by entering one or more database @functions and the input values.

Note Using Data Query Extract to create aggregate columns is quicker and more efficient than using what-if tables for cross-tabulating data in database tables.

Example

1-Way Cross-Tabulation

To Set Up a 1-Way Table

1. Identify the database table you want to use.

2. Decide on a location for the 1-way table range.

3. Set up the criteria range by copying one field name from the database table to a blank row. Label the cell below the field name as the input cell.

4. Set up the table range separate from the criteria range.

   a. Enter one or more database @functions in the first row of the table range.

      The database @function must refer to the database table as the input range, a field name enclosed in " " (quotation marks) for the values you want to calculate, and the criteria range (two rows deep).

      To use an external database table, specify the range name of the external table as the input range in the database @function.

   b. In the first column of the table range, beginning in the second cell, enter the input values you want 1-2-3 to use in the formula(s).

      The input values are labels or values from the fields you used in the criteria range. For example, if the criteria range contains a field called Name, the input values must be entries from the database under Name.

      Leave the cell in the upper left corner of the table range blank.

To Calculate a 1-Way Table

1. Choose Data What-if Table 1-Way.

2. Specify the table range in the Table range text box.

   Include only the the formulas and input values in the table range. Do not include the criteria range.

3. Specify the input cell in the Input cell text box.

   The input cell must be located below the field name in the criteria range.

4. Select OK.

1-2-3 calculates the 1-way table by substituting the input values in the input cell, one at a time. 1-2-3 then calculates the formula with each value and enters the results in the table range.

See also:

Aggregate Columns
Data Commands
Data What-If Table
Database @Functions

Example: 1-Way Cross-Tabulation

Use Data What-if Table 1-Way with @DSUM to sum the sales for Smith and Mintz from the database table named Q2SALES in A1..C6.

```
A: ---- A ----------- B ------------- C -------- D ---------- E -----
1      Name         Month        Sales              Name
2      Mintz        May          2800             [input]
3      Smith        May           2100
4      Smith        June          1400
5      Mintz        June         1500
6.     Smith        June         1600
```

The 1-way table is in K1..L3. The @DSUM formula in L1 refers to the database table (Q2SALES), a field (Sales) in the database table, and the criteria range (E1..E2). The input cell is E2.

```
A:---- - K --------------------------------- L ---------------------
1                    @DSUM(Q2SALES,"Sales",E1..E2)
2      Mintz                               4300
3      Smith                               5100
```

Data What-if Table 2-Way

Substitutes values for two variables in one formula and enters the results in a table.

You can use a what-if table to perform two kinds of data analysis, sensitivity analysis and cross-tabulation.

2-Way Sensitivity Analysis

Use Data What-if Table 2-Way to calculate a 2-way table by substituting two different sets of values in one formula. For example, a 2-way table calculates a formula like   5+X+Y by substituting different values for X and Y.

2-Way Cross-Tabulation

Use Data What-if Table 2-Way to calculate a 2-way table by substituting two different sets of values from a database table in one database @function. For example, using @DSUM in a 2-way table, you can sum values for two fields in a database table.

Note Using Data Query Extract to create aggregate columns is quicker and more efficient than using Data What-if Tables for cross-tabulating data in database tables.

Example

  2-Way Sensitivity Analysis
  2-Way Cross-Tabulation

See also:

  Aggregate Columns
  Data Commands
  Data What-If Table
  Database @Functions

2-Way Sensitivity Analysis

Use Data What-if Table 2-Way to calculate a 2-way table by substituting two different sets of values in one formula   Before you can calculate a 2-way table, you must set up the table range by entering a formula and two sets of input values in the worksheet.

Example

Setting Up a 2-Way Table
2-Way Sensitivity Analysis

To Set Up a 2-Way Table

1. Decide on a location for the table range.

2. Label two cells outside the table range as the input cells to make them easy to locate. The input cells can be any cells in a worksheet as long as they are located outside of the table range.

3. Set up the table range.

    a. Enter the formula in the upper left corner cell of the table range. The formula must refer to both input cells.

    b. In the column under the formula, enter the input values associated with input cell 1.

    c. In the cells to the right of the formula, enter the input values associated with input cell 2.

To Calculate a 2-Way Table

1. Choose Data What-if Table 2-Way.

2. Specify the table range in the Table range text box.

    Include only the the formulas and input values in the table range. Do not include the input cells.

3. Specify input cell 1 in the Input cell 1 text box.

    Input cell 1 always represents the input values you entered in the first column of the table range.

4. Specify input cell 2 in the Input cell 2 text box.

    Input cell 2 always represents the input values you entered in the first row of the table range.

5. Select OK.

1-2-3 calculates the 2-way table by substituting pairs of input values in the input cells. 1-2-3 then calculates the formula with each pair of values and enters the results in the table range.

See also:

Data Commands
Data What-If Table

Example: Setting Up a 2-Way Table

This 2-way table uses a formula in cell A4 to calculate two sets of values.

The table range is A4..D7. Input cell 1 is B1 and input cell 2 is B2. The formula must contain references to the two input cells.

When 1-2-3 calculates the 2-way table, it substitutes values from A5..A7 in input cell 1 and the values from B4..D4 in input cell 2 and enters the results in the table range.

```
A: ------- A ------------ B ---------- C ------------ D ---------
1      Input cell 1-->
2      Input cell 2-->
3
4        formula          value        value        value
5        value
6        value
7        value
```

Example: 2-Way Sensitivity Analysis

Use Data What-if Table 2-Way with @PMT to calculate the monthly payments on a 30-year loan with different loan amounts and interest rates.

The table range is A4..C8. The @PMT formula (in A4) refers to the input cells (B1 and B2). The input values (loan amounts and interests rates) are in A5..A8 and B4..C4. 1-2-3 calculates the 2-way table by substituting pairs of input values in the formula.

```
A: ---------- A --------------------------------- B -------------------- C -----
1       Loan       -->                    [input 1]
2       Interest   -->                    [input 2]
3
4  @PMT(B1,B2/12,30*12)       12.0%            12.5%
5       $100,000                   1028.61       1067.26
6       $110,000                   1131.47       1173.98
7       $120,000                   1234.34       1280.71
8       $130,000                   1337.20       1387.44
```

The result of each calculation is located at the intersection of a column and row. For example, the monthly payment on a $120,000 loan for 30 years at 12.5% interest is $1,280.71.

2-Way Cross-Tabulation

Use Data What-if Table 2-Way to calculate a 2-way table by substituting two different sets of values from a database table in one database @function.

Before you can calculate a 2-way table, you must set up the table range by entering a database @function and two sets of input values in the worksheet.

Note Using Data Query Extract to create aggregate columns is quicker and more efficient than using what-if tables for cross-tabulating data in database tables.

Example

2-Way Cross-Tabulation

To Set Up a 2-Way Table

1. Identify the database table you want to use.

2. Decide on a location for the 2-way table range.

3. Set up the criteria range by copying two field names from the database table to a blank row. Label the cells below the field names as the input cells.

4. Set up the table range separate from the criteria range.

    a. Enter one database @function in the upper left corner of the table range.

       The database @function must refer to the database table as the input range, a field name enclosed in " " (quotation marks) for the values you want to calculate, and the criteria range (two rows deep).

       To use an external database table, specify the range name of the external table as the input range in the database @function.

    b. In the column under the database @function, enter the input values.The input values are labels or values from a field in the database table.

       For example, if the criteria range contains a field called Name, the input values must be entries from the database table under Name.

    c. In the cells to the right of the database @function, enter the input values from another field in the database table.

       For example, if the criteria range contains a field named Month, the input values must be entries from the database table under Month.

To Calculate a 2-Way Table

1. Choose Data What-if Table 2-Way.

2. Specify the table range in the Table range text box.

    Do not include the criteria range in the table range.

3. Specify input cell 1 in the Input cell 1 text box.

    Input cell 1 must be located in the criteria range below a field name. The entries in the first column of the table range must be from this field in the database table.

4. Specify input cell 2 in the Input cell 2 text box.

    Input cell 2 must be located in the criteria range below a different field name. The entries in the first row of the table range must be from this field in the database table.

5. Select OK.

1-2-3 calculates the 2-way table by substituting pairs of input values in the input cells. 1-2-3 then

calculates the formula with each pair of values and enters the results in the table range.

See also:

Example: 2-Way Cross-Tabulation

Use Data What-if Table 2-Way with @DSUM to sum the sales for Smith and Mintz for May and June from a database table named Q2SALES (in A1..C6).

```
A: --- A ---------- B ------------ C --------- D -------- E ----------- F -----
1     Name          Month        Sales              Name      Month
2     Mintz         May          2800          [input1]  [input2]
3     Smith         May           2100
4     Smith         June          1400
5     Mintz         June          1500
6.    Smith         June          1600
```

This 2-way table is in K1..M3. The @DSUM formula in K1 refers to the database table (Q2SALES), a field (Sales) in the database table, and the criteria range (E1..F2). The input cells are E2 and F2.

```
A:--------------------------- K   --------------------------------- L -------- M ------
1     @DSUM(Q2SALES,"Sales",E1..F2)    May      June
2      Mintz                                     2800      1500
3      Smith                                     2100      3000
```

Data What-if Table 3-Way

Substitutes values for three variables in one formula and enters the results in a table. A 3-way table is similar to a 2-way table except you enter the formula outside the table range and you use more than one worksheet for the table range.

You can use a what-if table to perform two kinds of data analysis, sensitivity analysis and cross-tabulation.

3-Way Sensitivity Analysis

Use Data What-if Table 3-Way to calculate a 3-way table by substituting three different sets of values in one formula. For example, a 3-way table calculates a formula like X+Y+Z by substituting different values for X, Y, and Z.

3-Way Cross-Tabulation

Use Data What-if Table 3-Way to calculate a 3-way table by substituting three different sets of values from a database table in one database @function. For example, using @DSUM in a 3-way table, you can sum sales entered in a database table by name, month, and account.

Note Using Data Query Extract to create aggregate columns is quicker and more efficient than using Data What-if Tables for cross-tabulating data in database tables.

Example:

> 3-Way Sensitivity Analysis
> 3-Way Cross-Tabulation

See also:

> Aggregate Columns
> Data Commands
> Data What-If Table
> Database @Functions

3-Way Sensitivity Analysis

Use Data What-if Table 3-Way to calculate a 3-way table by substituting three different sets of values in one formula. A 3-way table extends across two or more worksheets.

Before you calculate a 3-way table, you must set up a 3-D table range by entering one formula and three sets of input values in two or more worksheets. The number of worksheets you use depends on the number of input values you use for the third variable.

Example

    3-Way Sensitivity Analysis

To Set Up a 3-Way Table

1. Decide on locations for the table range in contiguous worksheets. The table range will span two or more worksheets depending on the number of input values you use for the third variable.

2. Label three cells outside the table range as the input cells to make them easy to locate. The input cells can be any cells in a worksheet as long as they are located outside of the table range.

3. In a cell outside of the table range, enter the formula you want to analyze. The formula must refer to all three input cells.

4. Enter input values in the table range.

    a. In the first column of the table range in the first worksheet, enter the values related to input cell 1. 1-2-3 will use these values in the formula for input cell 1. Copy these values to all worksheets in the table range.

    b. In the first row of the table range in the first worksheet, enter the values related to input cell 2. 1-2-3 will use these values in the formula for input cell 2. Copy these values to all worksheets in the table range.

    c. In the upper left corner cell of the table range in each worksheet, enter different values related to input cell 3. 1-2-3 will use these values in the formula for input cell 3. The number of input values for this variable determines the number of worksheets you will need for the table range.

To Calculate a 3-Way Table

1. Choose Data What-if Table 3-Way.

2. Specify the table range in the Table range text box.

    Do not include the formula or input cells in the table range.

3. Specify the cell that contains the formula for the 3-way table in the Formula cell text box.

4. Specify input cell 1 in the Input cell 1 text box.

    Input cell 1 always represents the input values you entered in the first column of the table range.

5. Specify input cell 2 in the Input cell 2 text box.

    Input cell 2 always represents the input values you entered in the first row of the table range.

6. Specify input cell 3 in the Input cell 3 text box.

    Input cell 3 always represents the input values you entered in the upper left corner of the table range.

7. Select OK.

1-2-3 calculates the 3-way table by substituting values from the first column, top row, and upper left cell in the input cells. 1-2-3 then calculates the formula using each set of values and enters the result of each calculation at the intersection of the appropriate rows and columns in the table range.

See also:

<u>Data Commands</u>
<u>Data What-If Table</u>

Example: 3-Way Sensitivity Analysis

Use Data What-if Table 3-Way with @PMT to calculate the monthly payments on a loan with three variables, the loan amount, the interest rate, and the term.

Sheet A contains the three input cells (B1, B2, B3) and the @PMT formula (B5). Sheets B, C, and D contain the table range (B:A2..D:C6) with the input values. The input values in the first column (loan amounts) and row (interest rates) are the same in each worksheet. The input values in the upper left corner cell of the table range (term of the loan) are different in each sheet.

Sheet A:

```
A: -------- A ---------------------- B -------------- C ----
1     Loan              -->     [input 1]
2     Interest          -->     [input 2]
3     Term (years)   -->    [input 3]
4
5     Formula   --> @PMT(B1,B2/12,B3*12)
```

Sheet B:

```
B: ---------- A --------------------- B ---------------- C -----
1
2                     15            12.0%          12.5%
3     $100,000           1200.17         1232.52
4     $110,000           1320.18         1355.77
5     $120,000           1440.20         1479.03
6     $130,000           1560.22         1602.28
```

Sheet C:

```
C: ---------- A --------------------- B ---------------- C -----
1
2                     20            12.0%          12.5%
3     $100,000           1101.09         1136.14
4     $110,000           1211.19         1249.75
5     $120,000           1321.30         1363.37
6     $130,000           1431.41         1476.98
```

Sheet D:

```
D: ---------- A --------------------- B ---------------- C -----
1
2                     30            12.0%          12.5%
3     $100,000           1028.61         1067.26
4     $110,000           1131.47         1173.98
5     $120,000           1234.34         1280.71
6     $130,000           1337.20         1387.44
```

1-2-3 calculates the 3-way table by substituting three sets of input values in the formula and entering the results in the table. For example, the monthly payment on a 20-year loan of $120,000 at 12% interest is $1,321.30.

See also:

Data Commands
Data What-If Table

3-Way Cross-Tabulation

Use Data What-if Table 3-Way to calculate a 3-way table by substituting three sets of values from a database table in one database @function. A 3-way table extends across two or more worksheets.

A 3-way table is similar to a 2-way table except you enter the formula outside the table range, you use three input cells in the criteria range, and you use two or more worksheets for the table range.The number of worksheets you use depends on the number of input values you use for the third variable.

Before you can calculate a 3-way table, you must set up a criteria range, enter a database @function, and set up the table range with three sets of input values.

Example

3-Way Cross-Tabulation

To Set Up a 3-Way Table

1. Identify the database table you want to use.

2. Decide on locations for the 3-way table range in contiguous worksheets. The table range will span two or more worksheets depending on the number of input values you use for the third variable.

3. Set up the criteria range by copying three field names from the database table to a blank row. Label the cells below the field names as the input cells.

4. In a cell outside the table range and the criteria range, enter a database @function.

   The database @function must refer to the database table as the input range, a field name enclosed in " " (quotation marks) for the values you want to calculate, and the criteria range (two rows deep).

   To use an external database table, specify the range name of the external table as the input range in the database @function.

5. Set up the table range.

   Enter input values in the table range. The input values are labels or values from fields in the database table.

   a. In the first column of the table range in the first worksheet, enter the values related to input cell 1. Copy these values to all worksheets in the table range.

   b. In the first row of the table range in the first worksheet, enter the values related to input cell 2. Copy these values to all worksheets in the table range.

   c. In the upper left corner cell of the table range in each worksheet, enter different values related to input cell 3. The number of input values for this third variable determines the number of worksheets you need for the table range.

To Calculate a 3-Way Table

1. Choose Data What-if Table 3-Way.

2. Specify the table range in the Table range text box.

   Do not include the formula or criteria range in the table range.

3. Specify the cell that contains the formula for the 3-way table in the Formula cell text box.

4. Specify input cell 1 in the Input cell 1 text box.

   Input cell 1 must be located in the criteria range below a field name. The entries in the first column of the table range must be from this field in the database table.

5. Specify input cell 2 in the Input cell 2 text box.

   Input cell 2 must be located in the criteria range below a field name. The entries in the first row of the table range must be from this field in the database table.

6. Specify input cell 3 in the Input cell 3 text box.

   Input cell 3 must be located in the criteria range below a field name. The entries in the upper left corner of the table range must be from this field in the database table.

7. Select OK.

1-2-3 calculates the 3-way table by substituting values in the first column, top row, and upper left cell in the input cells. 1-2-3 then calculates the formula using each set of values and enters the result of each calculation at the intersection of the appropriate rows and columns in the table range.

See also:

Aggregate Columns
Data Commands
Database @Functions
Data What-If Table

Example: 3-Way Cross-Tabulation

Use Data What-if Table 3-Way with @DSUM to sum the sales for Smith and Mintz for May and June for three different accounts in a database table.

Sheet A contains the database table named Q2SALES (A:A1..A:D9), the criteria range (A:J1..A:L2), and the @DSUM formula (A:K4). The three input cells are in the criteria range.

The 3-way table range in Sheets B, C, and D (B:A2..D:C4) contains the input values. The input values in the first row and column are the same in each worksheet. The input values in the upper left corner cell of the table range are different in each sheet.

Sheet A:

A:---- A ------------- B ------------ C ------------- D ------------
1	Name	Month	Sales	Accounts
2	Mintz	May	2200	Art Etc
3	Mintz	May	1400	Dance Corp
4	Smith	May	2100	Photo Show
5	Mintz	May	1200	Photo Show
6	Mintz	June	1450	Art Etc
7	Smith	June	1400	Dance Corp
8.	Smith	June	2400	Photo Show
9	Mintz	June	1700	Dance Corp

A:------ J --------------- K ------------------ L ---------
1	Name	Month	Accounts
2	[i**nput 1**]	[**input 2**]	[**input 3**]
3			
4	Formula -->@dsum(Q2SALES,"SALES",**A:J1..A:L2**)		
5			

Sheet B:

B: ----- A ---------------------- B ---------- C ------------
1			
2	**Art Etc**	**May**	**June**
3	**Mintz**	2200	1450
4	**Smith**	0	0

Sheet C:

C: ----- A ---------------------- B ---------- C --------------
1			
2	**Dance Corp**	**May**	**June**
3	**Mintz**	1400	1700
4	**Smith**	0	1400

Sheet D:

D: ----- A ---------------------- B ---------- C --------------
1			
2	**Photo Show**	**May**	**June**
3	**Mintz**	1200	0
4	**Smith**	2100	2400

1-2-3 calculates this 3-way table by substituting three input values in the criteria range and entering the results in the table range. Each sheet sums sales for a different account for Mintz and Smith in May and June. The results are at the intersection of a column and a row. For example, in sheet D, sales June sales to Photo Show for Smith were $2,400.

See also:

Data What-if Table Reset

Clears the settings for the table range and input cell ranges for all what-if tables in the current file.

1. Make sure the <u>cell pointer</u> is in the file containing the table and input cells settings you want to clear.

2. Choose Data What-if Table Reset.

See also:

<u>Data Commands</u>
<u>Data What-If Table</u>

Data Connect to External

Establishes a connection to an <u>external database table</u> so you can use the table with other 1-2-3 commands.

1-2-3 uses DataLens drivers to connect to external database tables. DataLens drivers are programs that allow 1-2-3 to read data from and send data to an external database. Use the 1-2-3 Install program to install the DataLens drivers that come with 1-2-3 for Windows.

Note Depending on the DataLens driver you select and how it is configured, 1-2-3 may prompt you for a driver or database user ID and password when you connect to an external database. If so, enter the user ID and password in the appropriate text boxes and select OK. If you are connecting to a driver and are prompted for a user ID and password but do not need one to connect to the driver, select OK.

1. Choose Data Connect to External.

   If you know the names of the driver, the external database, and the external table, you can combine steps 2 through 4 by entering all of these names, separated by spaces in the <u>text box</u>. For example, enter DBASE_IV C:\123W\SAMPLE EMPLOYEE to use the dBASE IV driver, a database named C:\123W\SAMPLE, and a table named EMPLOYEE.

2. Specify the driver you want to use and select Connect.

   If the <u>list box</u> does not display the name of a driver you want to use, you need to use the Install program to install the driver.

   After you connect to the driver, the prompt above the text box changes to Connect to database.

3. Specify the external database you want to use and select Connect.

   If 1-2-3 can locate the external databases, it will display the names in the list box. If 1-2-3 does not display the name of the external database you want to use, type it in the text box.

   To display the database names in the list box automatically, you can add a database record to the registration file, LOTUS.BCF. For more information on this file, see the **appendix for your driver** in *DataLens Drivers for 1-2-3*.

   After you connect to the external database, the prompt above the text box changes to Connect to table.

4. Specify the external database table you want to use and select Connect.

   After you connect to the external table, the prompt above the text box changes to Enter range name for table.

5. Specify a range name for the table and select Connect.

   The range name is the name you use in 1-2-3 to refer to this table in Data Query commands, Data External Options commands, and database @functions.

   1-2-3 displays the table name as the default range name. If you already used that range name in the current worksheet, 1-2-3 displays ???? (question marks). You can type a new name of up to 15 characters in the text box.

   After you enter the range name, the prompt above the text box changes to Connect to table.

6. (Optional) To connect to another table in the same database, repeat steps 4 and 5. To connect to a table in a different database, select (Show Databases) in the list box, and repeat steps 3 through 5.

7. Select OK.

After 1-2-3 is connected to the external table, you can use <u>Data Query</u> commands and <u>database @functions</u> to analyze, add to, or change data in the table.

Note The 1-2-3 Classic menu contains additional commmands for using 1-2-3 with external database tables. For   more complete information on using 1-2-3 with external databases, see *__DataLens Drivers for 1-2-3__*.

See also:

Data External Basics

The Data External commands use DataLens drivers to exchange data between an <u>external database table</u> and a 1-2-3 worksheet file. DataLens drivers are programs that 1-2-3 uses when reading data from and sending data to an external database table.

To use an external database table with 1-2-3, you must have a database driver for the external database. Use the 1-2-3 Install program to install DataLens drivers that come with 1-2-3 for Windows. The external table can be on a personal computer, a network server, a corporate mainframe, or a CD-ROM.

When you use Data Connect to External and Data External Options, 1-2-3 lists database drivers that you have installed and external databases located in the default worksheet directory. 1-2-3 also lists drivers and external databases entered in the registration file, LOTUS.BCF. For more information on this file, see the **<u>appendix for your driver</u>** in *DataLens Drivers for 1-2-3*.

Connecting to an External Database

To use an external database table with 1-2-3, you must first connect to the external database using <u>Data Connect to External</u>. 1-2-3 needs the following information:

*   The DataLens driver name

*   The external database name

*   The name of the table within the external database

*   The range name you want to use to refer to the external table

Using an External DatabaseTable

Once you have established a connection between 1-2-3 and the external table, you can use 1-2-3 commands to complete different tasks, depending on the specific features of the DataLens driver you are using.

<u>Data External Options</u>

>   Creates an external table
>   Disconnects from an external table
>   Lists information about fields in an external table
>   Sends a command to an external database

<u>Data Query Delete</u>

>   Deletes records

<u>Data Query Extract</u>

>   Copies records to a 1-2-3 worksheet
>   Joins data copied from two or more database tables
>   Performs calculations on extracted data

<u>Data Query Modify</u>

>   Inserts new records
>   Updates records

<u>Database @functions</u>

>   Perform statistical analysis on data

Note The <u>1-2-3 Classic</u> menu contains additional commmands for using 1-2-3 with external database tables. For more information on using 1-2-3 with external databases, see ***<u>DataLens Drivers for 1-2-3</u>***.

See also:

>   <u>Data Commands</u>

Data External Options

After you have used Data Connect to External to connect 1-2-3 to an external database table, use these commands to perform the following tasks:

Paste Fields
Lists information about the fields in an external database table.

Send Command
Sends a command to an external database.

Create Table
Creates a new table in an external database.

Disconnect
Ends the connection to an external table.

Note The 1-2-3 Classic menu contains additional commmands for using 1-2-3 with external database tables. For complete information on using 1-2-3 with external databases, see ***DataLens Drivers for 1-2-3***.

See also:

Data Commands
Data External Basics

Data External Options Paste Fields

Lists information about the fields in an external database table to which 1-2-3 is connected. This information defines the kind of data contained in the external table and includes the field names, data types, and field widths.

You can use this information to set up criteria and output ranges for Data Query operations and to create a new external table.

1. If you have not already done so, use Data Connect to External to connect to the external table.

2. Chose Data External Options Paste Fields.

3. In the Table name text box, specify a table name.

   The list box contains the range names you gave to all connected external tables.

4. In the Range text box, specify the range in which you want 1-2-3 to place the field information. You need to specify only the first cell of the range.

   Caution The field information is six columns wide and contains one row more than the number of fields in the table. 1-2-3 writes over any existing data in this range, so make sure the range does not contain data you need.

5. Select OK.

1-2-3 enters the field information in the specified range. An NA in a column to the right of a field name indicates that information of a particular type -- for example, a field description -- is not available for that particular field.

See also:

Data Commands
Data External Basics

Data External Options Send Command

Sends a command to an external database.

Depending on the driver you are using, you may be able to send driver-specific commands directly to the DataLens driver or external database. For specific   information about the commands you can send, see **"Sending driver-specific commands to the driver"** in Chapter 5 of *DataLens Drivers for 1-2-3*.

1. If you have not already done so, use Data Connect to External to connect to an external table in the database to which you want to send a command.

2. Select Data External Options.

3. Select Send Command.

    1-2-3 displays names of database drivers in the list box.

4. In the Connect to driver text box, specify the driver name and select Connect.

5. In the Connect to database text box, specify the name of the database to which 1-2-3 is already connected.

6. In the Command string text box, enter the command you want to send.

7. Select OK.

See also:

Data Commands
Data External Basics

Data External Options Create Table

Sets up the structure for a new table in an external database.

In order to create an external table, 1-2-3 needs a table definition that provides some specific information about the content and structure of the new table. The table definition is a six-column range of data that contains the field names, field widths, data types, and other information about the database table you want to create.

To learn how to use a model to create an external table, see Using a Model to Create an External Table. This procedure creates a table definition in a 1-2-3 worksheet and creates a new external table.

To learn how to modify an existing table definition to create a new table, see **"Creating external tables"** in Chapter 5 of *DataLens Drivers for 1-2-3*.

See also:

Data Commands
Data External Basics

Using a Model to Create an External Table

You can use a 1-2-3 database table or an external database table as a model for creating a new external table.

Note Depending on the DataLens driver you select and how it is configured, 1-2-3 may prompt you for a driver or database user ID and password when you connect to an external database. If so, enter the user ID and password in the appropriate text boxes and select OK. If you are connecting to a driver and are prompted for a user ID and password but do not need one to connect to the driver, select OK.

1. If you want to use a 1-2-3 database table as a model, open the file that contains the database table or enter a new database table in the worksheet. To use an external table as a model, use Data Connect to External to connect to the external table.

2. Choose Data External Options Create Table.

    If you know the names of the driver, the external database, and the external table, you can combine steps 3 through 5 by entering all of these names, separated by spaces, in the text box. For example, enter DBASE_IV C:\123W\WORK BUDGET to use the dBASE IV driver to create a new table named BUDGET in an external database named C:\123W\WORK.

3. Specify the driver you want to use and select Connect.

    After you connect to the driver, the prompt above the text box changes to Connect to database.

4. Specify the external database you want to use and select Connect.

    If 1-2-3 can locate the external databases, it will display the names in the list box. If 1-2-3 does not display the name of the external database you want to use, type it in the text box.

    To display the database names in the list box automatically, you can add a database record to the registration file, LOTUS.BCF. For more information on this file, see the **appendix for your driver** in *DataLens Drivers for 1-2-3*.

    After you connect to the external database, the prompt above the text box changes to Connect to table.

5. In the text box, type a name for the new table and select Connect.

    After you enter the new name, the prompt above the text box changes to Enter name for table.

6. In the text box, type a range name for the new table and press Connect.

    The range name is the name you use in 1-2-3 to refer to this table in Data Query commands, Data External Options commands, and database @functions.

    1-2-3 displays the table name as the default range name. If you already used that range name in the current worksheet, 1-2-3 displays ???? (question marks). You can type a new name of up to 15 characters in the text box.

7. (Optional) Specify a table creation string, if one is supported or required by your DataLens driver.

    A table creation string specifies additional information about the table. For example, the Paradox driver lets you use a table creation string to specify a sort order for the table.

8. Specify the model range in the Model range text box.

    If you are using a 1-2-3 database table as a model, the model range is the range that contains that table. If you are using an external table as a model, the model range is the range name you gave the external table when you connected to it.

9. Specify the output range in the Output range text box.

    The output range is the range in the current worksheet in which the driver creates the table definition. You can enter the entire range or just the first cell of the range.

    Caution The table definition is six columns wide and contains one row more than the number of

fields in the table. 1-2-3 writes over any existing data in this range, so make sure the range does not contain data you need.

10. Select OK.

1-2-3 creates the table definition in the current file and a new external table in the external database. To add records to the new table, use <u>Data Query Modify Insert</u>.

See also:

<u>Data Commands</u>
<u>Data External Basics</u>

Table Definition

The table definition sends information to the driver about how to set up the external table. Each column in a table definition corresponds to a column generated when you use Data External Options Paste Fields.

Example

Table Definition

A table definition is a six-column range that contains the following information describing an external table:

Column 1 -- Field Names
Name the fields as you want them to appear in the external table.

Column 2 -- Data Types
Identify the type of data in a field.

Column 3 -- Field Widths
Specify the widths of fields. Many data types have a fixed field width and ignore the field width in the table definition.

Column 4 -- Field Labels
Specifiy an alternate version of a field name.

Column 5 -- Field Descriptions
Describe the contents of a field.

Column 6 -- Field creation strings
Use a field creation string with the SQL Server driver to specify whether a field allows null entries; use a field creation string with the dBASE IV driver to specify the number of decimal places in a float field. You do not use field creation strings with the Paradox driver.

Note Although columns 4 and 5 must be present in the table definition, the dBASE IV, Paradox, and SQL Server drivers ignore entries in these columns when you create a new table. For information about creating a table definition with a specific driver, see the **chapter about your driver** in *DataLens Drivers for 1-2-3*.

See also:

Data Commands

Data External Basics

Data External Options Create Table

Example: Table Definition

A table definition for a dBASE IV table:

```
A: ----- A ---------------- B ------------- C --------- D ------- E ------- F ---
1    EMPID          Numeric        5,0         NA        NA        NA
2    LAST           Characters      12     NA        NA        NA
3    FIRST          Characters      12     NA        NA        NA
4    DOH             Date                   8      NA        NA        NA
5    SALARIED    Logical                 1      NA        NA        NA
6    DEPTNUM    Numeric        5,0         NA        NA        NA
7
```

Each row in the table definition gives information about one field. For example, the field named LAST is a character field that has a width of 12.

Data External Options Disconnect

Disconnects an external table, ending all data exchange between 1-2-3 and the external table. After you use this command, any data queries or database @functions that refer to the table may result in errors. 1-2-3 will not update these queries or @functions until you connect to the table again using Data Connect to External.

1. Choose Data External Options Disconnect.

2. Specify the range name of the external database table you want to stop using.

1-2-3 disconnects from the database table you specified.

See also:

Data Commands

Data External Password

Depending on the DataLens driver you select and how it is configured, 1-2-3 may prompt you for a driver or database user ID and password when you connect to an external database.

If so, enter the user ID and password in the appropriate text boxes and select OK.

If you are connecting to a driver and are prompted for a user ID and password but do not need one to connect to the driver, select OK.

See also:

Data Connect to External
Data External Basics
Data External Options Create Table

Edit Undo

Reverses the effects of the most recently executed, undoable command or action.

Edit Undo is off when you install 1-2-3. To enable Edit Undo, use <u>Tools User Setup</u>.

1. Choose Edit Undo, or press ALT+BACKSPACE.

You cannot undo the following:

* A previous use of Edit Undo or ALT+BACKSPACE

* Printer activity

* Cell-pointer movement caused by pressing a <u>pointer-movement key</u>

* F5 (GOTO)

* F6 (PANE)

* Formula recalculation caused by pressing F9 (CALC) or using File Administration Update Links

* Changes to data and settings in inactive worksheets

* Changes to files on disk

For more information about the activities you can perform with Edit Undo and about the effect of Edit Undo on memory, see <u>Using Edit Undo</u>.

See also:

<u>Edit Commands</u>

Using Edit Undo

You can reverse the effects of the last undoable command or action you performed in 1-2-3, restoring whatever worksheet data and settings existed before you performed the activity, by using Edit Undo (ALT+BACKSPACE).

When Edit Undo is enabled and you perform an activity that can be undone, 1-2-3 creates an undo history -- a temporary backup copy of all data and settings affected by the activity -- so you can restore your work to its previous state.

For example, if you accidentally write over a complicated formula by entering a number in the same cell as the formula, you can use Edit Undo immediately after you enter the number to erase the number and restore the formula in the cell. Or if you use Edit Clear and mistakenly delete data from a range, you can use Edit Undo to replace the data in the range.

Enabling Edit Undo

Edit Undo is off when you install 1-2-3. To enable Edit Undo, use Tools User Setup.

Undoing Edit Undo

Edit Undo is not a toggle key. Using Edit Undo twice in a row does not restore the changes you undid the first time you used it.

Undoing Selections in a Dialog Box

You cannot undo any dialog box selections when a dialog box is open.

You must complete all the dialog box selections before you use Edit Undo. Edit Undo then resets all the selections you specified in the dialog box, not just the final change.

For example, if you choose Range Name Delete, delete two range names, undefine one range name, select OK to close the Range Name Delete dialog box, and then choose Edit Undo, 1-2-3 undoes the deletions and the undefine.

Undoing a Macro

If you use Edit Undo after running a macro that changes worksheet data and settings, 1-2-3 restores the data and settings to the state they were in before the macro ran, regardless of how many changes the macro made.

Undoing Commands That Use the Clipboard

When you undo Edit Cut, data that was cut from the worksheet is restored; when you undo Edit Paste, data pasted into the worksheet is removed. Data stored on the Clipboard, however, is not removed or restored.

When you undo Edit Paste Link, data brought into the worksheet through the link is removed from the worksheet, but the link is not undone.

Using Edit Undo After Actions That Do Not Change Data or Settings

If you use Edit Undo after an action that makes no changes to worksheet data or settings -- for example, after File Extract To or after a macro that moves the cell pointer -- 1-2-3 undoes the effects of the last activity that changed worksheet data or settings.

For example, if you use File New to open two new windows in 1-2-3, choose Window Tile to display all windows side by side, click on the newest window to make it current, and then choose Edit Undo, 1-2-3 closes the last-opened window and leaves the remaining windows tiled, and the window that was current before you opened the new windows becomes the active window again.

Using Edit Undo After ESC or CTRL+BREAK

The effect of using Edit Undo after you press ᴇꜱᴄ or ᴄᴛʀʟ+ʙʀᴇᴀᴋ to escape a command or macro depends on whether the command or macro changed any worksheet data or settings before you escaped. If it did, 1-2-3 undoes the changes. If it did not, 1-2-3 undoes the latest undoable command or action.

Effects of Edit Undo on Available Memory

If 1-2-3 runs out of available memory during an activity, 1-2-3 displays a message indicating that memory is full and erases the current undo history. Edit Undo remains enabled, but you cannot use it to cancel an activity you performed before the message was displayed.

When 1-2-3 runs out of available memory during an activity for which it creates an undo history, try disabling Edit Undo with Tools User Setup. Disabling Edit Undo increases the amount of memory available to 1-2-3 as it performs the activity. For other ways to increase available memory, see Increasing Available Memory.

See also:

Edit Commands
Edit Undo

Edit Cut

About Deleting (2:25)
About Moving (2:40)
Moving a Range of Data (1:10)

Cuts data (text, values, formulas, <u>cell format</u>, and graphs) and related <u>formatting</u> from the worksheet to the <u>Clipboard</u>. The cut data remains on the Clipboard until you use Edit Copy or Edit Cut again in 1-2-3 for Windows or in another Windows application.

1. Select the range to cut.

2. Choose Edit Cut, or press SHIFT+DEL.

Use <u>Edit Paste</u> to insert cut data in a worksheet file or in another Windows application.

Use <u>Edit Move Cells</u> to move data within a worksheet without using the Clipboard.

To delete data from the worksheet without moving it to the Clipboard, use <u>Edit Clear</u> or <u>Edit Clear Special</u>.

Cutting a Multi-Cell Range

When you cut a multi-cell range, 1-2-3 cuts everything that is fully enclosed in the range, including graphs and any text, values, formulas, cell format, and formatting that are underneath a graph, whether the graph is transparent (set to let worksheet data that is underneath the graph show through) or opaque (set to hide worksheet data that is underneath).

If only part of a graph is in the selected multi-cell range, 1-2-3 does not cut the graph.

Cutting a Single-Cell Range

When you cut a single-cell range that contains part of a graph, 1-2-3 cuts the topmost graph and the data that is underneath the graph whether the graph is transparent or opaque.

See also:

<u>Copying Data in 1-2-3</u>
<u>Edit Commands</u>
<u>Edit Copy</u>
<u>Style Display Options (Graph Window)</u>

Edit Copy

Copies data (text, values, formulas, <u>cell format</u>, and graphs) and related <u>formatting</u> from the worksheet to the <u>Clipboard</u>. The copied data remains on the Clipboard until you use Edit Cut or Edit Copy again in 1-2-3 for Windows or in another Windows application.

1. Select the range to copy.

2. Choose Edit Copy, or press CTRL+INS.

Use <u>Edit Paste</u> to insert copied data in a worksheet file or in another Windows application.

Use <u>Edit Quick Copy</u> to copy data without using the Clipboard.

To copy the contents of entire files, large sections of data, or data from a <u>text file</u> to a worksheet file, use <u>File Combine From</u>, <u>File Extract To</u>, and <u>File Import From</u>, respectively.

Copying a Multi-Cell Range

When you copy a multi-cell range, 1-2-3 copies everything that is fully enclosed in the range, including graphs and any text, values, formulas, cell format, and formatting that are underneath a graph, whether the graph is transparent (set to let worksheet data that is underneath the graph show through) or opaque (set to hide worksheet data that is underneath).

If only part of a graph is in the selected multi-cell range, 1-2-3 does not copy the graph.

Copying a Single-Cell Range

When you copy a single-cell range that contains part of a graph, 1-2-3 copies the topmost graph and the data that is underneath the graph whether the graph is transparent or opaque.

See also:

<u>Copying Data in 1-2-3</u>
<u>Edit Commands</u>
<u>Edit Cut</u>
<u>Style Display Options (Graph Window)</u>

Copying Data in 1-2-3

 About Copying (3:00)

In 1-2-3, you can copy a range of data to the <u>Clipboard</u> or directly to another range in the same file or in a different 1-2-3 file.

To copy a range of data to the Clipboard, you use <u>Edit Copy</u>. 1-2-3 copies the <u>cell format</u>, protection status, contents (including text, values, formulas, and graphs), and related <u>formatting</u> of each cell in the range.

To copy a range of data to another range, you use <u>Edit Quick Copy</u>. By default, 1-2-3 copies cell format, protection status, contents, and related formatting, but you can indicate that you want 1-2-3 to copy formatting only or convert formulas to values and copy the values.

Copying Text and Values

When you copy text and values, 1-2-3 makes exact duplicates of them.

Copying Formulas in the Same File

When you copy a formula in the same file, 1-2-3 adjusts <u>relative references</u> to reflect the new location of the formula. For example, when you copy the formula +B1+B2 from B4 to C4, 1-2-3 changes the formula in C4 to +C1+C2.

1-2-3 does not adjust <u>absolute references</u>, and 1-2-3 adjusts only the relative part of <u>mixed references</u>.

Copying Formulas to Another File

When you copy a formula that contains a relative, mixed, or absolute range address to another file, the range address refers to the range in the new file.

For example, when you include the formula @SUM(A1..B5) in JULY.WK3, the formula uses data from the specified range in JULY.WK3. When you copy the formula to SUMMARY.WK3, the formula uses data from the specified range in SUMMARY.WK3.

However, if you copy a formula that contains an absolute range name, 1-2-3 links the two files.

For example, if you copy the formula @SUM($TOTALS) from JULY.WK3 to SUMMARY.WK3, 1-2-3 automatically adds the path and file name to the formula. That is, if JULY.WK3 is in a directory named BUDGET on drive C, 1-2-3 copies the formula to SUMMARY.WK3 as

@SUM(<<C:\BUDGET\JULY.WK3>>$TOTALS).

For more information, see <u>Types of Cell and Range References</u>.

Copying Formulas with 3-D Ranges

Copying a formula with <u>3-D ranges</u> to a file that contains fewer worksheets than are in the 3-D ranges may produce unexpected results. For example, if you copy @SUM(A:A1..D:A5) to a file that contains one worksheet, the copied formula will refer to data in worksheet A only.

Copying Graphs

When you copy a graph from one range to another in a worksheet, 1-2-3 adds the graph to the second range and assigns the name GRAPH*n* (where *n* is the next available number) to the new copy of the graph. For example, if the original graph is MYGRAPH and 1-2-3 hasn't created any graph names for the worksheet, 1-2-3 names the first copy GRAPH1, the next copy GRAPH2, and so on. 1-2-3 does not link the copied graph to the original graph.

When you copy a graph from one worksheet file to another, 1-2-3 creates a new graph for the second worksheet file, adds the graph, assigns the name GRAPH*n* to the copy, and assigns the same data ranges to the new graph. 1-2-3 does not link the copied graph to the original graph.

If the graph you copy contains cell references, the references remain unchanged. For example, if you

specify the graph subtitle by entering \a1 in the Subtitle <u>text box</u> of the <u>Chart Headings (Graph window)</u> dialog box, and you copy the graph to another range in the same worksheet, 1-2-3 also uses data in cell a1 for the subtitle of the second graph. If you copy the graph to another worksheet file, 1-2-3 continues to use data in cell a1 of the original worksheet file for the subtitle of the copied graph.

1-2-3 copies drawings and other objects that are attached to a graph when it copies the graph. To copy objects within graphs or from one graph to another, use the <u>Edit commands</u> in the Graph window.

See also:

<u>Edit Copy</u>
<u>Edit Paste</u>
<u>Edit Quick Copy</u>

Edit Paste

About Cell References (4:10)

About Cell References (4:10)

About Cell References (4:10)

About Cell References (4:10)

Copies data and related <u>formatting</u> from the <u>Clipboard</u> into the current worksheet file, starting at a cell you select. You cannot paste data into protected cells.

1. Select the range in which to paste the Clipboard data.

    You need to select only the top left cell of the range.

2. Choose Edit Paste, or press SHIFT+INS.

Caution 1-2-3 writes over any existing data when it pastes data from the Clipboard into the range, so make sure the range does not contain data you need.

If the source and destination files are worksheet files, 1-2-3 adjusts <u>relative</u> and <u>mixed cell references</u>. 1-2-3 does not adjust <u>absolute references</u>.

Pasting Data and Graphs in a Worksheet

When the destination range is a single cell, 1-2-3 uses the cell as an anchor cell and pastes the contents of the Clipboard in its original size and layout.

When the Clipboard contains data and the destination range is larger than the contents of the Clipboard, 1-2-3 uses the top left cell of the destination range as the anchor cell and pastes the contents of the Clipboard in its original size and layout. When the Clipboard contains a single cell, row, or column of data and the destination range is larger than the Clipboard contents, 1-2-3 replicates the Clipboard contents to fill the destination range.

When the Clipboard contains a graph, bitmap, or link to a .CGM or .PIC file and the destination range is a multi-cell range, 1-2-3 resizes the graph or   bitmap or the contents of the .CGM or .PIC file to fit the range.

When the destination range is smaller than the contents of the Clipboard, 1-2-3 clips the contents of the Clipboard at the bottom and right. Clipping affects text, values, and formulas differently from graphs:

*   1-2-3 does not copy text, values, and formulas that are in cells that do not fit into the destination range.

*   1-2-3 resizes a graph that only partially fits into the destination range.

Example

> <u>Pasted Data</u>

See also:

> <u>Copying Data in 1-2-3</u>
> <u>Edit Commands</u>
> <u>Edit Copy</u>
> <u>Edit Cut</u>

Example: Pasted Data

The following range contains four columns and four rows of data. The top left cells contain a graph represented by h, and the bottom right cells contain a graph represented by c. The numbered cells contain text, values, or formulas.

h	h	1	1
h	h	1	1
1	1	c	c
1	1	c	c

If you paste this range into a destination range that contains three columns and three rows, 1-2-3 clips the bottom and right cells that contain text, values, and formulas and resizes the graph at the bottom right to fit into a single cell.

h	h	1
h	h	1
1	1	c

Edit Clear

About Deleting (2:25)

Deletes <u>cell contents</u> from the worksheet without using the <u>Clipboard</u>. Edit Clear does not clear protected cells or change their format and does not affect the contents of the Clipboard.

1. Select the range to delete.

    If the range includes a graph or part of a graph, 1-2-3 will delete the contents of cells that are underneath the graph, but not the graph itself.

2. Choose Edit Clear, or press DEL.

To restore the data to the same location, use <u>Edit Undo</u>.

Use <u>Edit Clear Special</u> to delete selected types of data (cell contents, <u>cell format</u>, or graphs) or related <u>formatting</u> from a range.

See also:

<u>Edit Commands</u>
<u>Edit Cut</u>

Edit Clear Special

About Cell References (4:10)

Deletes selected types of data (cell contents, cell format, or graphs) or related formatting from a range without moving it to the Clipboard. Edit Clear Special does not clear protected cells or change their format and does not affect the contents of the Clipboard.

1. Select the range containing the data or formatting you want to delete from the worksheet.

2. Choose Edit Clear Special.

3. Select the check box of one or more of the following options:

   Cell contents
   Deletes the contents of all cells in the selected range but leaves the range format intact.

   Number format
   Deletes cell formats created with Range Format for the selected range and resets the cell format to the default set for the worksheet with Worksheet Global Settings Format.

   Style
   Deletes all formatting done with the Style commands (except left, center, and right label alignment) for the selected range; returns the font settings to the default font set for the worksheet file with Style Font; and returns the color settings to the defaults set for the worksheet window with Window Display Options.

   Graph
   Deletes a graph from the selected range, but does not delete the graph from memory or from disk, and does not affect the data on which the graph is based.

4. To change the range displayed in the Range text box, specify a new range.

5. Select OK.

To restore the data to the same location, use Edit Undo.

Use Edit Clear to delete only the cell contents from the cells in a range.

See also:

Edit Commands
Edit Cut

Edit Paste Link

Using link information on the Clipboard, creates a link between the current worksheet file and the file referred to on the Clipboard.

Edit Paste Link is available only when the Clipboard contains link information for a valid source file -- that is, a file created with another Windows application that supports DDE as a server.

1. Select the range in which to paste the DDE-supplied data.

    Caution When the destination range is not big enough to hold the incoming data, 1-2-3 clips the incoming data that does not fit into the destination range and resizes a graph that only partially fits into the destination range.

2. Choose Edit Paste Link.

When you copy data from a valid source file to the Clipboard, the link (including, for example, the application name, topic name, and item name) is stored on the Clipboard. When you choose Edit Paste Link, 1-2-3 links the current worksheet file to the source file from which you copied the data.

Depending on the DDE format supported by the source file, 1-2-3 initially creates this new link with the update mode set to Automatic or to Manual. When the update mode is Automatic, 1-2-3 updates the link automatically whenever the source file changes. When the update mode is Manual, you must update the link by using Edit Link Options Update.

To change a link created with Edit Paste Link, use the Edit Link Options commands.

See also:

Edit Commands
Linking Files

Edit Link Options

Creates and maintains a DDE link between the current worksheet file and a file created with another Windows application that supports DDE as a server.

Create
Creates a link and specifies an update mode for the link.

Edit
Changes a link or the update mode of a link.

Update
Updates a manual link or reactivates and updates a deactivated link.

Deactivate
Deactivates a link.

Delete
Deletes a link.

See also:

Edit Commands
Linking Files

Edit Link Options Create

Creates a link between the current worksheet file and a file created with another Windows application that supports DDE as a server. Edit Link Options Create also specifies an update mode for the link.

1. Select the range to link to (the destination range).

    Caution When the destination range is not big enough to hold the incoming data, 1-2-3 clips the incoming data that does not fit into the destination range and resizes a graph that only partially fits into the destination range.

2. Choose Edit Link Options.

    In the Edit Link Options dialog box, 1-2-3 displays the link names of all links associated with the current worksheet file and -- in the Format information boxes -- information about the currently selected link.

3. Select Create.

    The Edit Link Options Create dialog box is displayed.

4. To change the default link name displayed in the Link name text box, enter a new link name (see conventions below).

    If you do not enter a new name, 1-2-3 assigns the default name to the link. The first default link name is LINK1, the next default link name is LINK2, and so on.

5. In the Application text box, specify the application to link to (the source application).

    The list box under the Application text box contains a list of active Windows applications. You can specify an active application, or you can enter the name of an inactive application.

6. In the Topic name text box, specify the source file to link to.

    When there is information on the Clipboard about a file in an application that supports DDE as a server, 1-2-3 displays the file name in the Topic name text box. If you do not specify another worksheet or file, 1-2-3 links the current worksheet file to the file displayed in the text box.

7. In the Item name text box, specify the source item to link to. This is the data item in the source file that you want transferred through the link to the destination range.

8. In the Format name text box, specify a format for the transferred data. If you do not specify a format, 1-2-3 transfers data in TEXT format.

9. Under Update mode, select one of the following options:

    Automatic
    Updates data in the destination range each time the source item is updated.

    Manual
    Updates data in the destination range only when you choose Edit Link Options Update.

    Note If the source file does not support the requested mode, data is updated in the mode supported by the source file.

10. To change the destination range displayed in the Range text box, specify another range.

11. Select OK.

Link Name Conventions

Link names can be up to 15 characters long. 1-2-3 does not distinguish between uppercase and lowercase letters in link names.

Do not start a link name with ! (exclamation point), and do not include spaces, commas, semicolons, periods, or any of the following characters in a link name:

| + | * | - | / | & | > | < | @ | # | { | ? |

Do not create names that look like cell addresses, such as P12 or EX100, or names that begin with numbers, such as 20DEC. Do not use @function names, key names, or macro command keywords as link names.

See also:

Edit Commands
Edit Link Options
Edit Paste Link
Linking Files
Sample DDE Macros (See Example 3)

Edit Link Options Edit

Changes a <u>DDE</u> link by changing the source application, topic, item, or format, or the link update mode.

1. Choose Edit Link Options.

    In the Edit Link Options dialog box, 1-2-3 displays the link names of all links associated with the current worksheet file and -- in the Format <u>information boxes</u> -- information about the currently selected link.

2. In the Links <u>text box</u>, specify the link to edit.

3. Select Edit.

    The Edit Link Options Edit dialog box is displayed.

4. To change the source application, specify another application in the Application text box. The application you specify must support DDE as a server.

    The <u>list box</u> under the Application text box contains a list of active Windows applications. You can specify an active application, or you can enter the name of an inactive application.

5. To change the source file, specify another file in the Topic name text box.

6. To change the data item in the source file whose data is transferred to the destination range, specify another item in the Item name text box.

7. To change the format for the transferred data, specify another format in the Format name text box.

8. To change the update mode, select one of the following options under Update mode:

    Automatic
    Updates data in the destination range each time the source item is updated.

    Manual
    Updates data in the destination range only when you choose <u>Edit Link Options Update</u>.

9. To change the destination range displayed in the Range text box, specify another range.

10. Select OK.

See also:

<u>Edit Commands</u>
<u>Edit Link Options</u>
<u>Edit Paste Link</u>
<u>Linking Files</u>

Edit Link Options Update

Updates a <u>DDE</u> link when the link update mode is Manual, or activates and updates a link deactivated with <u>Edit Link Options Deactivate</u>. When you choose Edit Link Options Update, 1-2-3 updates the destination range with current information from the source file.

1. Choose Edit Link Options.

    In the Edit Link Options dialog box, 1-2-3 displays the link names of all links associated with the current worksheet file and -- in the Format <u>information boxes</u> -- information about the currently selected link.

2. In the Links <u>text box</u>, specify the link to update.

3. Select Update.

See also:

<u>Edit Commands</u>
<u>Edit Link Options</u>
<u>Edit Paste Link</u>
<u>Linking Files</u>

Edit Link Options Deactivate

Deactivates a link, but leaves the link intact. When a link is inactive, 1-2-3 does not update values in the destination range.

1. Choose Edit Link Options.

   In the Edit Link Options dialog box, 1-2-3 displays the link names of all links associated with the current worksheet file and -- in the Format <u>information boxes</u> -- information about the currently selected link.

2. In the Links <u>text box</u>, specify the link to deactivate.

3. Select Deactivate.

To reactivate and update values in the link's destination range, use <u>Edit Link Options Update</u>.

See also:

<u>Edit Commands</u>
<u>Edit Link Options</u>
<u>Linking Files</u>

Edit Link Options Delete

Deletes a link, but leaves the values obtained through the link in the destination range.

1. Choose Edit Link Options.

    In the Edit Link Options dialog box, 1-2-3 displays the link names of all links associated with the current worksheet file and -- in the Format <u>information boxes</u> -- information about the currently selected link.

2. In the Links <u>text box</u>, specify the link to delete.

3. Select Delete.

See also:

<u>Edit Commands</u>
<u>Edit Link Options</u>
<u>Linking Files</u>

Edit Find

Finds or replaces specified characters in labels, formulas, or both in a range. 1-2-3 searches for the characters in cells formatted as Hidden, but not in columns or worksheets hidden with Worksheet Hide.

To Find Specified Characters

1. Select the range you want to search.

2. Choose Edit Find.

3. In the Search for <u>text box</u>, enter the characters you want to find. You can specify up to 512 characters.

4. Under Action, select Find.

5. Under Search through, select one of the following options:

   Labels
   Searches for the characters only in <u>labels</u>.

   Formulas
   Searches for the characters only in <u>formulas</u>.

   Both
   Searches for the characters in formulas and labels.

6. To change the range displayed in the Range text box, specify a new range.

7. Select Find Next.

   1-2-3 highlights the first occurrence of the search characters.

8. To find the next occurrence of the search characters, select Find Next again.

9. To stop the search and return 1-2-3 to READY mode, select Cancel.

When 1-2-3 cannot find another occurrence of the search characters, 1-2-3 displays a message. Select Help to display information about the message, or select OK to return to READY mode.

To Replace Specified Characters

1. Select the range you want to search.

2. Choose Edit Find.

3. In the Search for text box, enter the characters you want to find. You can specify up to 512 characters.

4. Under Action, select Replace with; then enter the replacement characters in the Replace with text box. You can specify up to 512 characters.

5. Under Search through, select one of the following options:

   Labels
   Searches for the characters only in labels.

   Formulas
   Searches for the characters only in formulas.

   Both
   Searches for the characters in formulas and labels.

6. To change the range displayed in the Range text box, specify a new range.

7. (Optional) To highlight the first occurrence of the search characters before you start replacing the characters, select Find Next.

8. Select one of the following:

Replace
Replaces the highlighted characters with the replacement characters and highlights the next occurrence of the characters.

Replace All
Replaces, but does not display, all remaining occurrences of the search characters with the replacement characters.

9. If you selected Replace in step 8 and want to replace the next highlighted occurrence of the search characters, select Replace again.

   If you don't want to replace a highlighted occurrence of the search characters, but move to another occurrence, select Find Next.

10. To stop the search and return 1-2-3 to READY mode, select Cancel.

When 1-2-3 cannot find another occurrence of the search characters, 1-2-3 displays a message. Select Help to display information about the message, or select OK to return to READY mode.

See also:

Edit Commands
Worksheet Hide

Edit Move Cells

 About Moving (2:40)

Transfers a range of data, including <u>cell formats</u>, protection status, and <u>formatting</u>, to another range in the same file; optionally, moves only formatting.
Edit Move Cells does not use the <u>Clipboard</u>.

1. Select the range to move.

2. Choose Edit Move Cells.

3. To change the range displayed in the From <u>text box</u>, specify a new range.

4. In the To text box, specify the range you want to move to. You need to specify only the first cell in the To range.

   Caution 1-2-3 writes over existing data in the To range, so make sure the range does not contain data you need. Moving data into or out of the first or last cell of a range that is named or referred to in a formula changes the range definition.

5. (Optional) To move only formatting, select the Styles only <u>check box</u>.

6. Select OK.

Use <u>Edit Cut</u> to move data to the Clipboard and <u>Edit Paste</u> to copy data from the Clipboard to the current worksheet.

See also:

<u>Edit Commands</u>

Edit Quick Copy

About Cell References (4:10)

Copies a range of data, including <u>cell formats</u>, protection status, and <u>formatting</u>, to a range in the same file or to a range in a different file; optionally, copies values instead of formulas, copies only formatting, or copies only values and formatting.
Edit Quick Copy does not use the <u>Clipboard</u>.
Note If you want to copy values instead of formulas and the CALC indicator appears in the <u>status line</u>, press F9 (CALC) to update the values before you use Edit Quick Copy. If there are linked formulas in the range you want to copy, you also need to use <u>File Administration Update Links</u> to update the values.

1. Select the range to copy.

2. Choose Edit Quick Copy.

3. To change the range displayed in the From <u>text box</u>, specify a new range.

4. In the To text box, specify the range you want to copy to.

    You need to select only the top left cell of the range.

    Caution 1-2-3 writes over existing data in the To range, so make sure the range does not contain data you need.

5. (Optional) To copy only formatting, select the Styles only <u>check box</u>.

6. (Optional) To copy values instead of formulas, select the Convert to values check box.

7. Select OK.

Use <u>Edit Copy</u> to copy data to the Clipboard and <u>Edit Paste</u> to copy data from the Clipboard to the current worksheet.

Copying Data

When the destination range is a single cell, 1-2-3 uses the cell as an anchor cell and copies the data from the source range in its original size and layout.

When the source range is a single cell, row, or column of data and the destination range is larger than the source range, 1-2-3 replicates the source-range contents to fill the destination range.

See also:

<u>Copying Data in 1-2-3</u>
<u>Edit Commands</u>

File New

 Creating a New File (0:50)

Creates a new worksheet file on disk and in memory, associates a format file (.FM3) with the worksheet file, places the new worksheet file in a window, makes the window current, and displays a blank worksheet with the cell pointer in cell A1.

Caution If you want to keep a copy of the new worksheet file on disk, you must save the new file before you close it or end the session.

1. Choose File New.

1-2-3 supplies a default file name for the current path when you select OK. The first default worksheet file name is FILE0001.WK3, the next default worksheet file name is FILE0002.WK3, and so on. 1-2-3 also assigns the default name and the .FM3 file extension to the format file associated with the worksheet file (for example, FILE0002.FM3). To assign another name (and, optionally, a password) to the worksheet file when you save it, use File Save As.

To save the file without changing the default file name, use File Save.

See also:

   File Commands
   Naming a 1-2-3 File

File Open

Opening an Existing File (0:45)

Reads a worksheet file and its associated <u>format file</u> (.FM3) on disk into memory, places the worksheet file in a window, makes the window current, and moves the <u>cell pointer</u> to the cell it was in when you last saved the file.
You can also use File Open to open an Excel Version 2.2 worksheet or macro sheet file in 1-2-3 for Windows.

1. Choose File Open.

2. Specify the name of the file you want to open.

   You can edit the file name in the File name <u>text box</u>, or you can use the Files and Directories <u>list boxes</u> and the Drives <u>drop-down box</u> to select the file you want. For more information about using these boxes, see <u>Specifying a File</u>.

3. Select OK.

If, in step 2, you specified the name of a file that is password protected, 1-2-3 asks you to enter the password.

If someone else is using the file and has the file <u>reservation</u>, 1-2-3 asks whether you want to open the file with read-only access.

Opening a File Created with 1-2-3 Release 1A or Symphony

When you open a file created with 1-2-3 Release 1A (.WKS) or Symphony (.WRK or .WR1), 1-2-3 creates a copy of the file in .WK3 format in memory and leaves the original file unchanged on disk. When you save the file, 1-2-3 saves the data in .WK3 file format.

Opening a File Containing Linked Formulas

When you open a file, 1-2-3 automatically updates formulas that are linked to other files. If <u>Tools User Setup Recalculation</u> is set to Manual, 1-2-3 displays the CALC indicator after you open the file. Press F9 (CALC) to display updated values for linked formulas in the current file.

See also:

<u>File Commands</u>
<u>File Open (OK/Cancel)</u>
<u>File Open (Password)</u>
<u>File Password Protection</u>
<u>Saving Files in 1-2-3 Release 2 (.WK1) Format</u>
<u>Working with Excel Version 2.2 Files in 1-2-3 for Windows</u>
<u>Working with Multiple Files</u>

File Open (Password)

Prompts you for the password required to open a file.

1. Enter the password in the Password <u>text box</u>.

2. Select OK.

See also:

<u>File Commands</u>
<u>File Open</u>
<u>File Password Protection</u>

File Open (OK/Cancel)

Indicates that the file you tried to open is already open and reserved by another user, and asks whether you want to open the file with read-only access.

Note If you open the file, 1-2-3 displays the RO (read-only) indicator in the <u>title bar</u> next to the file name. You cannot save changes to the file using the same file name since you do not have the reservation.

1. Select one of the following options:

    OK
    Opens the file with read-only access.

    Cancel
    Does not open the file.

To make changes to the file, use <u>File Administration Network Reserve</u> to try to get the reservation, or try to use the file again later when the reservation may be available. You can also make changes to your read-only copy of the file and use <u>File Save As</u> to save the changed file with another name.

See also:

<u>File Commands</u>
<u>File Open</u>

File Close

Closes the current worksheet file and its associated <u>format file</u> (.FM3) and moves the cell pointer to the next open file. When you close a file, 1-2-3 removes the file from memory but does not delete the file from disk. To delete a file from disk, use the Windows File Manager.

1. Make sure that the <u>cell pointer</u> is in the file you want to close and that you save the changes you want to make to the file.

2. Choose File Close.

3. If 1-2-3 indicates that the file changed and asks whether you want to save the changes, select one of the following options:

   Yes
   Saves the changes and closes the file.

   No
   Closes the file without saving the changes.

   Cancel
   Does not close the file.

Closing the Only Open File

If only one file is open and you choose File Close, 1-2-3 closes the file and displays a blank untitled worksheet.

See also:

<u>Closing a Window in 1-2-3</u>
<u>Deleting a 1-2-3 for Windows File</u>
<u>Exiting and Ending 1-2-3 for Windows</u>
<u>File Commands</u>
<u>Working with Multiple Files</u>

File Save

About Saving (3:30)
Saving Worksheets (1:30)

Saves the current worksheet file and its associated <u>format file</u> (.FM3) on disk. If you are saving a new file, 1-2-3 uses the default <u>file name</u> as the name of the worksheet file on disk and the default file name with the .FM3 file extension as the name of   the associated format file. If you are saving an existing file, 1-2-3 updates the contents of the file on disk.

1. Make sure the <u>cell pointer</u> is in the file you want to save.

2. Choose File Save.

Save your files frequently so you have a recent copy on disk if there is a power failure.

Use <u>File Save As</u> to assign a different file name to a worksheet file and save it on disk; to assign, change, or delete a password for a file; or to save all modified open files simultaneously.

See also:

<u>File Commands</u>

File Save As

About Cell References (4:10)

About Cell References (4:10)

Saves a worksheet file on disk with the name you specify; saves the associated format file (.FM3); optionally, assigns a password to the worksheet file; or saves all modified active files on disk.

1-2-3 for Windows saves your files with the .WK3 extension unless you specify a different extension. 1-2-3 saves the formatting in a file with the .FM3 extension. When you open the .WK3 file, 1-2-3 automatically opens the .FM3 file associated with it.

If you want to save a file in 1-2-3 Release 2 (.WK1) format, see Saving Files in 1-2-3 Release 2 (.WK1) Format before you use File Save As.

To Save a Worksheet File with a New File Name

1. Make sure the cell pointer is in the file you want to save.

2. Choose File Save As.

    1-2-3 displays the current file name in the File name text box.

3. Specify a new name in the File name text box.

    You can edit the file name in the File name text box, or you can use the Files and Directories list boxes and the Drives drop-down box to select the file you want. For more information about using these boxes, see Specifying a File.

4. (Optional) To assign a password to the file, select the Password protect check box.

5. Select OK.

If, in step 3, you specify a file name that already exists, 1-2-3 asks whether you want to cancel saving the new file, replace the data in the existing file with the data in the new file, or create a backup of the existing file before replacing data in it.

If you select the Password protect check box, 1-2-3 prompts for the password.

To Save All Modified Files

1. Choose File Save As.

2. Select Save All.

Note You cannot assign passwords when you select Save All.

Deleting and Changing a Password

When a file is password protected, the Password protect check box contains an X. To remove password protection, you select the Password protect check box to erase the X and delete the password.

To change a password, you delete the password as described above, choose File Save As again, and select the Password protect check box. You then specify the new password when 1-2-3 prompts you for it.

See also:

File Commands
File Password Protection
File Save As (Replace/Backup/Cancel)
File Save As (Password Protect)
Naming a 1-2-3 File

File Save As (Password Protect)

About Saving (3:30)

Assigns a password to the current file.

1. Enter a password in the Password <u>text box</u>.

   You can enter a password that contains up to 15 characters, and you can use uppercase and lowercase letters. 1-2-3 is case-sensitive for passwords, so you must remember the exact combination of uppercase and lowercase letters you use when you create the password.

   Caution Remember your password. If you forget the password, you cannot open or combine data from the file.

2. Enter the same password again in the Verify text box.

3. Select OK.

Note 1-2-3 does not assign the password to the <u>format file</u> (.FM3) associated with the worksheet file.

See also:

<u>File Commands</u>
<u>File Password Protection</u>
<u>File Save As</u>

File Save As (Replace/Backup/Cancel)

About Cell References (4:10)

Cancels or completes the File Save As command for each file you are updating on disk.

1. Select one of the following options:

   Replace
   Writes over the file on disk with a copy of the current file.

   Backup
   Assigns the extension .BAK to the worksheet file on disk, assigns the extension .FMB to the format file associated with the worksheet file, and saves the worksheet and format files (with their existing file names) to disk.

   Cancel
   Returns 1-2-3 to READY mode without updating any file on disk.

2. Select OK.

Caution When you select Replace, 1-2-3 erases the file on disk before it saves the current version of the file. If 1-2-3 displays a message indicating that the disk is full, save the current file on another disk.

See also:

File Commands
File Save As

Saving Files in 1-2-3 Release 2 (.WK1) Format

 About Cell References (4:10)

To save a 1-2-3 for Windows file in Release 2 (.WK1) format, specify .WK1 as the <u>extension</u> when you save the file. You cannot save a file as a .WK1 file, however, if the file is <u>sealed</u> or if it contains more than one worksheet. To save these files in .WK1 format, you must do the following:

* If the 1-2-3 for Windows file contains more than one worksheet, use the <u>Translate utility</u> to convert the file to .WK1 format.

* If the 1-2-3 for Windows file is sealed, unseal it with <u>File Administration Seal File</u> before you try to save it.

Effects of Saving a 1-2-3 for Windows File as a Release 2 (.WK1) File

* <u>Labels</u> that contain more than 240 characters (the limit for labels in a .WK1 file) are truncated after the 240th character.

* <u>Formulas</u> that contain more than 240 characters are saved in their entirety. However, if you try to edit such a formula in Release 2, Release 2 truncates the formula after the 240th character.

* <u>@Functions</u> that are not available in Release 2 and @functions with <u>arguments</u> that are not available in Release 2 are treated as <u>add-in</u> @functions: they are saved as @?, with a list of arguments (if the original formula had arguments) following the ?. Cells that contain these @functions evaluate to <u>NA</u>. If you read a file that contains these @functions back into 1-2-3 for Windows, the original @functions are restored.

   Before you use Release 2 to read a .WK1 file that contains @functions saved as @?, you must remove from memory any add-in programs you use with Release 2. In addition, if you save the file in Release 2 and read the file in 1-2-3 for Windows, 1-2-3 for Windows will no longer evaluate the @functions correctly.

* If the file contains formulas linked to other files, the links are converted to @@("<<*filename*>>*range*").

* Formulas that contain undefined range names evaluate to <u>ERR</u>.

* Formula annotations are lost.

* Any settings created with 1-2-3 for Windows features that do not exist in Release 2 are lost entirely. When you save the file, 1-2-3 for Windows displays a message that warns you of possible data loss. If you do not want to lose the information permanently, save the file as a 1-2-3 for Windows file.

* Formats that do not exist in Release 2 are changed to default Release 2 formats.

* <u>Formatting</u> is saved in a <u>format file</u> with an .FMT file extension.

See also:

<u>File Commands</u>

File Combine From

Managing Multiple Worksheets (3:50)

Incorporates data and cell formats (but not <u>formatting</u>) from a worksheet file on disk into the <u>current file</u>. File Combine From does not affect column widths, worksheet settings, or range names in the current file. File Combine From changes data in the current file beginning at the <u>current cell</u>; as a precaution, save the file before using this command.

Combining formulas with <u>3-D ranges</u> into a file that contains fewer worksheets than are in the 3-D ranges may produce unexpected results.

1. Select the cell at which you want 1-2-3 to start combining data.

2. Choose File Combine From.

3. In the File name text box, specify the name of the file on disk to combine data from.

   You can edit the file name in the File name <u>text box</u>, or you can use the Files and Directories <u>list boxes</u> and the Drives <u>drop-down box</u> to select the file you want. For more information about using these boxes, see <u>Specifying a File</u>.

4. Under Action, select one of the following options:

   Copy
   Copies specified data from a worksheet file on disk to the current file, beginning at the current cell.

   Note Blank cells from the worksheet file on disk will not replace corresponding cells in the current file.

   Add
   Adds numeric data from a worksheet file on disk to values or blank cells in the current file, beginning at the current cell.

   Add adds numeric data to other numeric data only; when the incoming value will overlay a label or formula in the current file, 1-2-3 discards the incoming value and retains the label or formula.

   Do not use Add to add date or time numbers because the results will not be meaningful.

   Subtract
   Subtracts numeric data in a worksheet file on disk from numbers or blank cells in the current file, beginning at the current cell.

   Subtract subtracts numeric data from other numeric data only; when the incoming value will overlay a label or formula in the current file, 1-2-3 discards the incoming value and retains the label or formula.

   Do not use Subtract to subtract date or time numbers because the results will not be meaningful. If you subtract a positive number from a blank cell, the result is a negative number because a blank cell evaluates to zero.

5. Under Source, select one of the following options:

   Entire file
   Combines all data from a file on disk.

   Range
   Combines a range of data from a file on disk.

6. If you select Range, specify a range name or address for the file on disk in the Range text box.

7. Select OK.

If, in step 3, you specify the name of a file on disk that is password protected, 1-2-3 asks you to enter the password.

See also:

<u>File Password Protection</u>

File Combine From (Password)

Prompts you for the password required to access data in the file on disk.

1. Enter the password in the Password <u>text box</u>.

2. Select OK.

See also:

<u>File Combine From</u>
<u>File Commands</u>
<u>File Password Protection</u>

File Import From

Reads data from a <u>text file</u> or <u>delimited text file</u> on disk into the current worksheet, beginning at the current cell.

<u>File Import From Text</u>
Imports text and numbers from a text file that is not delimited, and enters each line of data as a <u>long label</u> in one cell in the worksheet.

<u>File Import From Numbers</u>
From a delimited text file, imports text and numbers and enters them in separate cells in the worksheet; from a text file that is not delimited, imports only numbers.

<u>File Import From Styles</u>
Imports the <u>named styles</u>, <u>font set</u>, or graphics from a 1-2-3 (.FM3), Impress (.FMT), or Allways (.ALL) <u>format file</u> on disk to the current file.

See also:

<u>File Commands</u>

File Import From Text

Imports each line of data from a <u>text file</u> as a <u>long label</u> and enters it in one cell in the worksheet. 1-2-3 enters each successive line of data in the same column below the cell pointer. If a line of text is longer than 512 characters, 1-2-3 truncates the line. Use File Import From Text to import both text and numbers from a text file that is not <u>delimited</u>.

Caution Save the current file before using File Import From Text.

1. Move the <u>cell pointer</u> to an area of the worksheet large enough to hold all of the imported data.

2. Choose File Import From Text.

3. Specify the name of the text file to import data from.

   You can edit the file name in the File name <u>text box</u>, or you can use the Files and Directories <u>list boxes</u> and the Drives <u>drop-down box</u> to select the file you want. For more information about using these boxes, see <u>Specifying a File</u>.

4. Select OK.

1-2-3 imports data from a text file as text or as text and numbers, depending on the contents of the text file you select.

Note Numbers in a text file can contain decimal points but cannot contain commas because commas act as delimiters.

To reorganize the long labels of imported data into separate cells, use <u>Data Parse</u>.

See also:

<u>File Commands</u>
<u>File Import From</u>

File Import From Numbers

Imports text and numbers from a <u>delimited text file</u> and enters them in separate cells in the worksheet. If a line of text or numbers is longer than 512 characters, 1-2-3 truncates the line.

When a <u>text file</u> is not delimited, File Import From Numbers imports only numbers.

Caution Save the current file before using File Import From Numbers.

1. Move the <u>cell pointer</u> to an area of the worksheet large enough to hold all of the imported data.

2. Choose File Import From Numbers.

3. Specify the name of the text file to import data from.

   You can edit the file name in the File name <u>text box</u>, or you can use the Files and Directories <u>list boxes</u> and the Drives <u>drop-down box</u> to select the file you want. For more information about using these boxes, see <u>Specifying a File</u>.

4. Select OK.

Note Numbers in a text file can contain decimal points but cannot contain commas because commas act as delimiters.

See also:

<u>File Commands</u>
<u>File Import From</u>

File Import From Styles

Imports the <u>named styles</u>, <u>font set</u>, or graphics from a 1-2-3 (.FM3), Impress (.FMT), or Allways (.ALL) <u>format file</u> on disk to the current file.

Caution Save the current file before using File Import From Styles.

1. Make sure the <u>cell pointer</u> is in the file you want to import styles to.

2. Choose File Import From Styles.

3. Specify the name of the format file to import data from.

    You can edit the file name in the File name <u>text box</u>, or you can use the Files and Directories <u>list boxes</u> and the Drives <u>drop-down box</u> to select the file you want. For more information about using these boxes, see <u>Specifying a File</u>.

4. Under Import, select one of the following options:

    All
    Replaces all formats, fonts, named styles, and graphics in the current file with those from a format file on disk.

    Named styles
    Replaces named styles in the current file with the named styles from a format file on disk.

    Fonts
    Replaces the font set in the current file with the font set from a format file on disk.

    Graphics
    Copies graphics, including their positions in the worksheet and all enhancements added with Graph commands, from a format file on disk to the current file (but does not delete graphics in the current file).

5. Select OK.

The formats you import appear in exactly the same locations in the current file as they appear in the file you import from. If the two files are not identically organized, formats may appear in unexpected places. Use <u>Edit Move Cells</u> to transfer formats to the correct cells.

When you import graphs, 1-2-3 imports only their positions in the worksheet and enhancements made with Graph commands, not the graphs themselves.

See also:

<u>File Commands</u>
<u>File Import From</u>

File Extract To

Extracts a range of data from the current file and saves it in a <u>text file</u> on disk; or extracts a range of data, including <u>formulas</u> or their <u>values</u>, and saves it in a worksheet file on disk. File Extract To also copies to the file on disk all settings associated with the source file's worksheets, but does not copy <u>formatting</u>.

If the file to which the data is extracted does not exist, 1-2-3 creates the file on disk and saves the extracted data in it.

1. Select the range to extract data from.

2. Choose File Extract To.

3. In the File name text box, specify the file to extract data to.

   You can edit the file name in the File name <u>text box</u>, or you can use the Files and Directories <u>list boxes</u> and the Drives <u>drop-down box</u> to select the file you want. For more information about using these boxes, see <u>Specifying a File</u>.

4. To change the range displayed in the Range text box, specify a new range to extract data from.

5. Under Save as, select one of the following options:

   Formulas
   Extracts data, including formulas and all worksheet settings, to the new file.

   Values
   Converts formulas into values and extracts data, including only labels and values and all worksheet settings, to the new file.

   Text
   Extracts data to a text file.

6. Select OK.

If, in step 3, you specified a file name that already exists, 1-2-3 asks whether you want to cancel extracting data to the file, replace data already in the file with the extracted data, or create a backup of the file before replacing data in it.

Note If you specify the name of a text file (.PRN) that already exists, 1-2-3 replaces the data in the file on disk with the extracted data when you select either Replace or Backup.

To assign a password to a worksheet file, use <u>File Save As</u>.

Restrictions on Files

* You cannot create a 1-2-3 Release 2 (.WK1) file by extracting data from a .WK3 file if the .WK3 file contains more than one worksheet. For more information, see <u>Saving Files in 1-2-3 Release 2 (.WK1) Format</u>.

* You cannot extract data from a file <u>sealed</u> with <u>File Administration Seal File</u>.

* If you want to extract data to an active file for which you have the <u>reservation</u>, use <u>File Administration Network Reserve</u> to release the reservation before you use File Extract To.

Extracting Formulas or Their Values

* If you extract formulas, be sure to extract all the data that is referred to by the formulas. If you extract data in a named range, be sure to extract the entire named range.

* Extracting formulas with <u>3-D ranges</u> to a file that contains fewer worksheets than are in the 3-D ranges may produce unexpected results.

* If you want to extract formula values and the CALC indicator appears in the <u>status line</u>, press F9 (CALC) to update formulas before you use File Extract To.

* If any formulas are linked to other files, use <u>File Administration Update Links</u> before you use File

Extract To.

Extracting Data to a Text File

*   You cannot extract a graph to a text file. If the range of data you extract contains a graph, 1-2-3 leaves blank lines in the text file where the graph would have appeared.

*   1-2-3 uses the column width set in <u>Worksheet Global Settings</u> or in <u>Worksheet Column Width</u> to determine how much data in each column of the specified range is extracted.

    For example, if 9 is the column width set for the worksheet and a 12-character label is displayed in column A of the specified range, 1-2-3 extracts only the first nine characters of the label to the text file.

    Similarly, if 9 is the column width and the 12-character label entered in column A is displayed as seven characters in column A and five characters extending into column B, 1-2-3 extracts the first nine characters of the label -- the seven characters displayed in column A and the first two characters extending into column B.

See also:

<u>File Commands</u>
<u>File Extract To (Replace/Backup/Cancel)</u>
<u>Naming a 1-2-3 File</u>

File Extract To (Replace/Backup/Cancel)

Cancels or completes the File Extract To command when the file you are extracting data to already exists on disk.

1. Select one of the following options:

   Replace
   Replaces the data in the file on disk with the extracted data.

   Backup
   Renames the file on disk with the extension .BAK and replaces the data in the original file on disk with the extracted data.

   Note If you specify the name of a text file (.PRN) and select Backup, 1-2-3 replaces the data in the file on disk with the extracted data rather than creating a backup version of the file.

   Cancel
   Returns 1-2-3 to READY mode without updating the file on disk.

2. Select OK.

Caution When you select Replace, 1-2-3 erases the file you are replacing on disk before it saves the extracted data in the file. If 1-2-3 displays a message indicating that the disk is full, save the file on another disk.

See also:

   File Commands
   File Extract To

File Administration

Controls <u>reservations</u> for sharing worksheet files; seals some settings in worksheet files; recalculates all formulas in <u>active files</u>; and creates a table of information about files.

<u>Network Reserve</u>
Gets and releases the current file reservation and changes the reservation setting. Use this command when you share worksheet files on a network or in another multi-user environment.

<u>Seal File</u>
Prevents changes to the file reservation status and to some Graph, Range, Style, and Worksheet settings.

<u>Update Links</u>
Recalculates formulas in active files that refer to data in other active files or to data in files on disk.

<u>Paste Table</u>
Creates a table of information in the current worksheet about active files or about files linked to the current file.

See also:

<u>File Commands</u>

File Administration Network Reserve

Gets and releases the current file <u>reservation</u> and turns automatic reservation on and off for the file. Use this command when you share a file on a network or in another multi-user environment and need to control how a user gets the file reservation.

To Get the Reservation

1. Choose File Administration Network Reserve.

2. Under File reservation, select Get.

3. Select OK.

This gets the reservation for the current file if it is available and no one saved the file since you read it into memory. When you get the reservation, you are the only person who can save changes to the file.

To Release the Reservation

Before you release the reservation, be sure you use File Save if you want to save changes you made to the file.

1. Choose File Administration Network Reserve.

2. Under File reservation, select Release.

3. Select OK.

To Turn Automatic Reservation On and Off

When automatic reservation is turned on for a file, the first user who reads the file into memory gets the file reservation. No one else can get the reservation until the first user releases it.

The file reservation is automatically released when the user closes the file.

1. Choose File Administration Network Reserve.

2. Select the Get reservation automatically <u>check box</u>.

3. Select OK.

To save the automatic reservation setting, use <u>File Save</u>.

To seal the automatic reservation setting so no one can change it, use <u>File Administration Seal File</u>.

See also:

<u>File Administration</u>
<u>File Commands</u>
<u>File Open</u>
<u>Reserving a File</u>

Reserving a File

A 1-2-3 file can be reserved so that only one person can save changes to the file even though several people may have the file open at the same time.

When you have the file reservation, you are the only user allowed to save changes to the file. Other users can open the file at the same time you are using it, but 1-2-3 does not let them save the file as long as you have the reservation.

When you try to open a file that is reserved by someone else, 1-2-3 asks whether you want to open the file with read-only access. If you open the file, 1-2-3 displays the RO (read-only) indicator in the title bar next to the file name. You can use the file, but you cannot save changes to the file with its current name. To save the changes, you must save the file under a different name with File Save As.

After you open a file with read-only access, you can try to get the file reservation by using File Administration Network Reserve. If no one else has the reservation and no one saved the file since you read it into memory, you can get the file reservation. If someone saved the file since you read it into memory, you need to open the file again to get the reservation for the most up-to-date version.

Getting the File Reservation

The file reservation setting determines how a user gets the file reservation. The reservation setting can be automatic or manual and is controlled through File Administration Network Reserve. The setting can also be sealed through File Administration Seal File so that no one can change it.

*   When the setting is automatic, the first person to read the file into memory gets the file reservation.

*   When the setting is manual, no one automatically gets the reservation. To get the reservation, you must use File Administration Network Reserve while the file is current.

1-2-3 determines whether the file reservation is available before reading the file into memory and takes different actions depending on what the file reservation setting is and whether the reservation is available:

*   If the reservation setting is automatic and the reservation is available, 1-2-3 reads the file into memory with its reservation.

*   If the reservation setting is automatic but the reservation is not available, 1-2-3 displays a prompt asking if you want to read the file into memory without a reservation. If you do, 1-2-3 reads the file into memory with read-only access.

*   If the reservation setting is manual, 1-2-3 reads the file into memory without the reservation regardless of its reservation status. You can then use File Administration Network Reserve while the file is current to try to get the reservation.

Releasing the File Reservation

1-2-3 releases the file reservation when you do any of the following:

*   Use File Administration Network Reserve to manually release the reservation.

*   Close the file.

*   End the 1-2-3 session.

Events Affecting File Reservation

*   If a power outage or server failure temporarily severs your connection to the file server, some network software may reconnect you to the file automatically. 1-2-3 may not display the RO (read-only) indicator, even though you may have lost the reservation. To see if you still have the reservation, try to use File Save.

*   A network user can assign a file read-only status with the operating system ATTRIB command, or a file can be in a read-only network directory. Operating system and network commands take

precedence over the 1-2-3 reservation status. For example, you cannot get the reservation of a file that has been given read-only status through the operating system ATTRIB command, even if no other user has the reservation.

See also:

File Commands
File Open
File Save As
Naming a 1-2-3 File

File Administration Seal File

Seals and unseals the current file or just the file <u>reservation</u> setting, and password protects the seal.

When you seal a file, you cannot change the file reservation setting, and you cannot change some Graph, Range, Style, and Worksheet settings.

1. Choose File Administration Seal File.

2. Under Limit changes to, select one of the following options:

    File and network reservation status
    Seals the current file and the file reservation setting.

    Reservation status only
    Seals only the reservation setting for the current file.

    Disable all restrictions
    Unseals the current file and the file reservation setting.

3. Select OK.

If, in step 2, you select File and network reservation status or Reservation status only, 1-2-3 prompts you to supply a password for the seal.

If you select Disable all restrictions, 1-2-3 prompts you for the password associated with the seal.

Changing the Seal Password

To change a seal password, you disable all restrictions as described above, choose File Administration Seal File again, and select File and network reservation status or Reservation status only. You then specify the new password when 1-2-3 prompts you for it.

Effects of Sealing a File

When you seal a file, you cannot use the following commands to change the file:

*   File Administration Network Reserve Get reservation automatically

*   Graph Name Delete

*   Graph New

*   Range [Format, Protect, Unprotect]

*   Range Name [Create, Delete, Label Create]

*   Style Alignment

*   Worksheet [Column Width, Hide, Unhide]

*   Worksheet Global Settings

See also:

<u>File Administration</u>
<u>File Administration Seal File (Password Disable)</u>
<u>File Administration Seal File (Password Protect)</u>
<u>File Commands</u>
<u>File Password Protection</u>

File Administration Seal File (Password Protect)

Assigns a password to the file seal.

1. Enter a password in the Password <u>text box</u>.

   You can enter a password that contains up to 15 characters, and you can use uppercase and lowercase letters. 1-2-3 is case-sensitive for passwords, so you must remember the exact combination of uppercase and lowercase letters you use when you create the password.

   Caution Remember your password. If you forget the password, you cannot seal and unseal the file or its reservation setting.

2. Enter the same password again in the Verify text box.

3. Select OK.

Password protecting the seal is different from password protecting the file. To password protect the file, use <u>File Save As</u>.

See also:

> <u>File Administration Seal File</u>
> <u>File Commands</u>
> <u>File Password Protection</u>

File Administration Seal File (Password Disable)

Prompts you for the password required to unseal the current file and the file <u>reservation</u> setting.

1. Enter the password in the Password <u>text box</u>.

2. Select OK.

1-2-3 disables all restrictions on the file.

See also:

<u>File Administration Seal File</u>
<u>File Commands</u>
<u>File Password Protection</u>

File Administration Update Links

Recalculates formulas in <u>active files</u> that refer to data in other active files or to data in files on disk. When you open a 1-2-3 for Windows file that contains formulas linked to other files, 1-2-3 automatically updates the formulas.

Use File Administration Update Links to update linked formulas during a 1-2-3 session.

1. Choose File Administration Update Links.

If <u>Tools User Setup Recalculation</u> is set to Manual, 1-2-3 does not update links but displays the CALC indicator after you select File Administration Update Links. Press F9 (CALC) to update the linked formulas in the current file.

See also:

> <u>File Administration</u>
> <u>File Commands</u>
> <u>File Open</u>
> <u>Linking Files with Formulas</u>

File Administration Paste Table

Creates a table of information about <u>active files</u> or files <u>linked</u> to the current file.

1. Select the range to contain the table of file information.

   Caution 1-2-3 writes over any existing data in the range, so make sure the range does not contain data you need.

   The table occupies as many rows as the number of files you are listing plus one blank row. Tables of linked files occupy four columns. Tables of active files occupy seven columns.

2. Choose File Administration Paste Table.

3. To change the range displayed in the Range <u>text box</u>, specify a new range.

4. Select one of the following options:

   Active files
   Creates a table of all active worksheet files and lists the following information: file name; date and time the file was last saved; size, in bytes, of the file on disk; number of worksheets in the worksheet file that contain data; modification status (1 if you have modified the active file; 0 if you have not); and file <u>reservation</u> status (1 if you have the file's reservation; 0 if you do not).

   Linked files
   Creates a table of all files that are linked by formulas to the current file and, for each linked file, lists the following information: file name (including the <u>path</u>); date and time the file was last saved; and size, in bytes, of the file on disk.

5. Select OK.

See also:

<u>File Administration</u>
<u>File Commands</u>
<u>Linking Files</u>

File Preview

About Printing (2:55)
About Printing a Large Range (3:20)

Displays the print range as 1-2-3 will format it for printing.

1. Select a range to preview.

2. Choose File Preview.

3. To change the range displayed In the Range(s) text box, specify a new range to preview. To preview multiple ranges, specify the ranges in the Range(s) text box.

    *   To specify multiple ranges, enter range addresses or range names, separated by argument separators.

        For example, specify D:D1..F12,SUMMARY,A:A1..C:B5 to preview the range D1..F12 from worksheet D, then the range SUMMARY from the current worksheet, and then the 3-D range A:A1..C:B5.

    *   If the print range contains a long label, include in the print range the cells the long label overlaps.

        For example, to print a long label entered in A1 that overlaps B1 and C1, be sure to include cells A1, B1, and C1 in the print range.

4. (Optional) To change page settings, select Page Setup.

5. (Optional) Under Pages, specify the pages to preview:

    From page
    Enter a number from 1 through 9999 to specify the page number of the first page.

    To
    Enter a number from 1 through 9999 to specify the page number of the last page.

6. (Optional) Under Pages, in the Starting page number text box, enter a number from 1 through 9999 to specify the page number to assign to the first page in the print range.

7. Select OK.

1-2-3 displays the first page on the Preview screen. A solid line outlines the margin settings. 1-2-3 also displays layout enhancements such as footers and page numbers.

Displaying Pages

To display the next page, press PG DN. To display the previous page, press PG UP.

While you are previewing a worksheet, you can enlarge and reduce the display using the keys listed in the following table.

Press	To
+ (plus sign)	Enlarge the size of the contents of the preview screen. You can press + (plus sign) up to 5 times to continue enlarging the screen.
- (minus sign)	Reduce the size of the contents of the preview screen. Press - (minus sign) once for each time you press + (plus sign); if you press + two times, and then press - once, the display is still enlarged.
* (asterisk)	Reduce the contents of the preview screen to the original size.
LEFT, RIGHT, UP, DOWN	Move within the enlarged preview screen.

To redisplay the worksheet, press ESC. To finish previewing the last page and redisplay the worksheet,

press any key. When 1-2-3 redisplays the worksheet, a dotted gray line outlines the print range in the worksheet.

See also:

File Page Setup
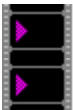
About Cell References (4:10)

About Cell References (4:10)

Sets the layout for a printed page and supplies header and footer text.

Header
Creates the header, which is printed at the top of each page.

Footer
Creates the footer, which is printed at the bottom of each page.

Margins
Sets margins for the printed page.

Borders
Specifies the columns of worksheet data to print at the left of every page and print range and the rows of worksheet data to print at the top of every page and above every print range.

Compression
Compresses a print range so printed data is smaller and more data fits on a printed page, or expands a print range so printed data is larger and less data fits on a printed page.

Options
Prints a range with or without the worksheet frame and with or without the worksheet grid lines.

Orientation
Determines whether 1-2-3 prints in portrait mode or landscape mode, if landscape mode is available for your printer.

Update
Makes the current Header, Footer, Margins, Borders, Options, and Orientation settings the default page settings for all pages printed from the file.

Restore
Replaces the currently selected Header, Footer, Margins, Borders, Options, and Orientation settings with the default page settings for the file.

Save
Saves the current page settings as named page settings in a file on disk.

Retrieve
Retrieves named page settings from a file on disk and makes them the page settings for the current file.

See also:

File Commands

File Page Setup Header/Footer

Creates the header and footer for a print range.

1-2-3 leaves two blank lines (measured in the current print font) between the header and the printed data and between the printed data and the footer.

1. Choose File Page Setup.

2. Enter header text in the Header text box, footer text in the Footer text box.

   For information about creating and aligning header and footer text, see Specifying Header and Footer Text.

3. Select OK.

Default Settings

* To make current page settings the default page settings, select File Page Setup Update.

* To replace the currently selected page settings with the default page settings, select File Page Setup Restore.

* If you do not specify File Page Setup Update or Restore, the selected settings are in effect until you change them again or you end the current 1-2-3 session.

Named Settings

* To save the current page settings as named page settings, select File Page Setup Save.

* To make named page settings the current page settings, select File Page Setup Retrieve.

See also:

File Commands
File Page Setup
File Print

Specifying Header and Footer Text

You can enter up to 512 bytes (most characters and symbols are one byte) for <u>header</u> text and for <u>footer</u> text, but 1-2-3 will not print any characters that extend beyond the right margin of the printed page.

You can enter special characters to include a page number, the current date, or cell contents in the header and footer text, and to align header and footer text.

1-2-3 leaves two blank lines (measured in the current print font) between the header and the printed data and between the printed data and the footer.

Including a Page Number, Date, and Cell Contents

To include a page number, the current date, or the contents of a cell in a header or footer, you enter the following symbols in the header or footer text:

\# (pound sign)
> Enter # to include a page number on every printed page. 1-2-3 numbers the pages in the print range consecutively, starting with the number you specify in File Print.

@ (at sign)
> Enter @ to include the current date on every printed page. 1-2-3 uses the date supplied by your computer's internal clock. The format of the date is always day-month-year.

\ (backslash)
> Enter \ followed by a cell address or range name to include the contents of a cell that the address or range name refers to. For example, \C:B1 includes the contents of cell C:B1 in the header or footer.
>
> If you specify a range as the address, 1-2-3 uses the contents of the first cell of the range only.
>
> When you use \ followed by a cell address or range name to specify header or footer text, you cannot enter any other symbols, numbers, or letters as part of the header or footer. The \ followed by a cell address or range name must be used by itself.

Aligning Header and Footer Text

To left-align, right-align, or center header or footer text, use | (vertical bar). The | (vertical bar) may appear as either a split or solid vertical bar on your keyboard and screen.

To	Position the vertical bar
Left-align text	Text|
Right-align text	||Text
Center text	|Text|

Examples

> <u>Sample Header</u>
> <u>Sample Footer</u>

See also:

> <u>File Page Setup Header/Footer</u>
> <u>File Preview</u>
> <u>File Print</u>

Example: Sample Header

To print a header with BUDGET at the left, INCOME in the center, and MAY at the right:

BUDGET   INCOME   MAY

enter the following in the Header text box:

BUDGET|INCOME|MAY

Example: Sample Footer

To print a footer with the current date at the left and the page number at the right:

10-Jun-91   Page 1

enter the following in the Footer text box:

@||Page #

where @ creates the current date using the day-month-year format, Page is right-aligned text you enter in the Footer text box, and # creates the current page number.

File Page Setup Margins

Sets the top, bottom, left, and right margins for the printed page.

1. Choose File Page Setup.

2. Under Margins, enter margin settings in the Top, Bottom, Left, and Right text boxes:

    * To specify a margin in inches, type **in** after you enter the margin setting.

    * To specify a margin in millimeters, type **mm** after you enter the margin setting. You can also type **cm** to specify a margin in centimeters. 1-2-3 automatically converts the setting to millimeters.

3. Select OK

Combined Left and Right margin settings cannot be greater than the width of the paper. Combined Top and Bottom margin settings cannot be greater than the length of the paper.

Default Settings

* To make current page settings the default page settings, select File Page Setup Update.

* To replace the currently selected page settings with the default page settings, select File Page Setup Restore.

* If you do not specify File Page Setup Update or Restore, the selected settings are in effect until you change them again or you end the current 1-2-3 session.

Named Settings

* To save the current page settings as named page settings, select File Page Setup Save.

* To make named page settings the current page settings, select File Page Setup Retrieve.

See also:

File Commands
File Page Setup
File Print

File Page Setup Borders

Specifies the columns to print as a vertical heading at the left of every page and print range, and the rows to print as a horizontal heading at the top of every page and above every print range.

1. Choose File Page Setup.

2. Under Borders, enter ranges in the Columns and Rows <u>text boxes</u>:

   Columns
   Specifies the range of columns to print as the vertical heading.

   The Column range needs to include only one cell from each of the columns you want to use in the vertical heading.

   Rows
   Specifies the range of rows to print as the horizontal heading.

   The Row range needs to include only one cell from each of the rows you want to use in the horizontal heading.

3. Select OK.

Note Do not include in your print range the rows and columns you specified as borders or 1-2-3 will print them twice.

Creating Borders

1-2-3 prints borders that correspond only to the rows and columns in your print range. For example, if you specify D3..D15 as your print range and column A as your border, 1-2-3 prints the contents of cells A3 through A15 as the border.

1-2-3 takes the border columns and rows from the worksheets that contain the print range. For example, if you specify A:D3..C:D15 as your print range and column A as your border, 1-2-3 prints A:A3..A:A15 as the border for the range A:D3..A:D15, B:A3..B:A15 as the border for the range B:D3..B:D15, and C:A3..C:A15 as the border for the range C:D3..C:D15.

Deleting Borders

To remove border columns or rows, delete the range specification from the Columns or Rows text box.

Default Settings

* To make current page settings the <u>default page settings</u>, select <u>File Page Setup Update</u>.

* To replace the currently selected page settings with the default page settings, select <u>File Page Setup Restore</u>.

* If you do not specify File Page Setup Update or Restore, the selected settings are in effect until you change them again or you end the current 1-2-3 session.

Named Settings

* To save the current page settings as <u>named page settings</u>, select <u>File Page Setup Save</u>.

* To make named page settings the current page settings, select <u>File Page Setup Retrieve</u>.

See also:

<u>File Commands</u>
<u>File Page Setup</u>
<u>File Print</u>

File Page Setup Compression

Compresses a print range so printed data is smaller and more data fits on a printed page, or expands a print range so printed data is larger and less data fits on a printed page. Page-break settings are not affected by compression or expansion of printed data.

1. Choose File Page Setup.

2. Under Compression, select one of the following options:

   Automatically fit to page
   Automatically compresses a print range, by up to a factor of seven, with the goal of fitting the range on one printed page whenever possible.

   Manually size
   Compresses or expands the print range, depending on the percentage you specify.

   None
   Removes compression or expansion settings from a print range.

3. If you select Manually size, enter a percentage in the Manually size <u>text box</u>:

   * To compress the print range, enter a percentage from 15 through 99.

   * To expand the print range, enter a percentage from 101 through 1000.

   For example, to compress the print range to 75% of its normal size, enter 75.

4. Select OK.

1-2-3 uses the closest installed type size for expanded and compressed printing. If you try to print expanded characters in type sizes that are larger than you installed, your printer may distort the characters.

Default Settings

* To make current page settings the <u>default page settings</u>, select <u>File Page Setup Update</u>.

* To replace the currently selected page settings with the default page settings, select <u>File Page Setup Restore</u>.

* If you do not specify File Page Setup Update or Restore, the selected settings are in effect until you change them again or you end the current 1-2-3 session.

Named Settings

* To save the current page settings as <u>named page settings</u>, select <u>File Page Setup Save</u>.

* To make named page settings the current page settings, select <u>File Page Setup Retrieve</u>.

See also:

<u>File Commands</u>
<u>File Page Setup</u>
<u>File Print</u>

File Page Setup Options

Prints the results of formulas or the formulas themselves, and prints the range with or without the worksheet frame and with or without the grid lines.

1. Choose File Page Setup.

2. Under Options, select the check box of one or more of the following:

    Show worksheet frame
    Prints the worksheet frame.

    Show grid lines
    Prints the print range with grid lines.

3. Select OK.

Default Settings

*   To make current page settings the default page settings, select File Page Setup Update.

*   To replace the currently selected page settings with the default page settings, select File Page Setup Restore.

*   If you do not specify File Page Setup Update or Restore, the selected settings are in effect until you change them again or you end the current 1-2-3 session.

Named Settings

*   To save the current page settings as named page settings, select File Page Setup Save.

*   To make named page settings the current page settings, select File Page Setup Retrieve.

See also:

File Commands
File Page Setup
File Print

File Page Setup Orientation

Determines whether 1-2-3 prints in <u>portrait mode</u> or in <u>landscape mode</u>, if landscape mode is available on your printer.

1. Choose File Page Setup.

2. Under Orientation, select one of the following options:

   Landscape
   Prints across the length of the paper.

   Portrait
   Prints across the width of the paper.

3. Select OK.

Default Settings

* To make current page settings the <u>default page settings</u>, select <u>File Page Setup Update</u>.

* To replace the currently selected page settings with the default page settings, select <u>File Page Setup Restore</u>.

* If you do not specify File Page Setup Update or Restore, the selected settings are in effect until you change them again or you end the current 1-2-3 session.

Named Settings

* To save the current page settings as <u>named page settings</u>, select <u>File Page Setup Save</u>.

* To make named page settings the current page settings, select <u>File Page Setup Retrieve</u>.

See also:

<u>File Commands</u>
<u>File Page Setup</u>
<u>File Print</u>

File Page Setup Update

Makes the current Header, Footer, Margins, Borders, Options, and Orientation settings the <u>default page settings</u> for all pages printed from the file.

1. Choose File Page Setup.

2. Under Default settings, select Update.

   1-2-3 saves the current settings as the default page settings.

3. Select OK.

See also:

<u>File Commands</u>
<u>File Page Setup</u>
<u>File Print</u>

File Page Setup Restore

Replaces the currently selected Header, Footer, Margins, Borders, Options, and Orientation settings with the default page settings for the file.

1. Choose File Page Setup.

2. Under Default settings, select Restore.

   1-2-3 replaces the current settings with the default page settings.

3. Select OK.

See also:

File Commands
File Page Setup
File Print

File Page Setup Save

Saves the current page settings as named page settings in a file on disk.

1. Choose File Page Setup.

2. Under Named settings, select Save.

   The File Page Setup Named Save dialog box is displayed.

3. In the File name text box, specify the name of the file to save the settings to. 1-2-3 automatically adds the extension .AL3 to a file containing named page settings unless you enter a different extension.

   You can edit the file name in the File name text box, or you can use the Files and Directories list boxes and the Drives drop-down box to select the file you want. For more information about using these boxes, see Specifying a File.

4. Select OK.

   The File Page Setup dialog box is redisplayed.

5. Select OK.

If, in step 3, you specify a file name that already exists, 1-2-3 asks whether you want to cancel saving the named settings in the existing file or replace the data in the existing file with the new named settings data.

See also:

    File Commands
    File Page Setup
    File Page Setup Save (Replace/Cancel)
    File Page Setup Retrieve
    File Print

File Page Setup Save (Replace/Cancel)

Cancels or completes the File Page Setup Save command when the file you are saving named settings to already exists on disk.

1. Select one of the following options:

   Replace
   Replaces data in the file on disk with the new named settings.

   Cancel
   Returns 1-2-3 to READY mode without updating the file on disk.

2. Select OK.

See also:

File Commands
File Page Setup Save

File Page Setup Retrieve

Retrieves <u>named page settings</u> from a file on disk and makes the retrieved settings the current settings for the file.

1. Choose File Page Setup.

2. Under Named settings, select Retrieve.

    The File Page Setup Named Retrieve dialog box is displayed.

3. In the File name text box, specify the name of the file that contains the named page settings you want to use.

    You can edit the file name in the File name <u>text box</u>, or you can use the Files and Directories <u>list boxes</u> and the Drives <u>drop-down box</u> to select the file you want. For more information about using these boxes, see <u>Specifying a File</u>.

4. Select OK.

    The File Page Setup dialog box is redisplayed, and 1-2-3 updates the current page settings.

5. Select OK.

See also:

<u>File Commands</u>
<u>File Page Setup</u>
<u>File Page Setup Save</u>
<u>File Print</u>

File Print

About Cell References (4:10)

About Cell References (4:10)

Printing Data (1:25)

Printing a Graph (2:35)

Printing Headers and Footers (1:45)

Printing Several Ranges (1:55)

Specifies the data to print and the page numbers to use, and sends the data to the printer. File Print also allows you to review and change page settings and to preview pages you select for printing.

1. Choose File Print.

2. To change the range displayed In the Range(s) <u>text box</u>, specify a new range to print. To print multiple ranges, specify the ranges in the Range(s) text box.

    *   To specify multiple ranges, enter <u>range addresses</u> or <u>range names</u>, separated by <u>argument separators</u>.

        For example, specify D:D1..F12,SUMMARY,A:A1..C:B5 to print the range D1..F12 from worksheet D, then the range SUMMARY from the current worksheet, and then the 3-D range A:A1..C:B5.

    *   If the print range contains a <u>long label</u>, include in the print range the cells the long label overlaps.

        For example, to print a long label entered in A1 that overlaps B1 and C1, be sure to include cells A1, B1, and C1 in the print range.

3. Under Pages, specify the pages to print:

    From page
    Enter a number from 1 through 9999 to specify the page number of the first page to print.

    To
    Enter a number from 1 through 9999 to specify the page number of the last page to print.

4. Under Pages, in the Starting page number text box, enter a number from 1 through 9999 to specify the page number to assign to the first page in the print range.

5. (Optional) To review or change the current page settings, select <u>Page Setup</u>.

6. (Optional) To see how the specified pages will look when they are printed, select Preview.

7. Select OK.

See also:

<u>File Commands</u>
<u>File Preview</u>
<u>Printing Data</u>

File Print Cancel

Indicates that data sent to the printer through 1-2-3 for Windows is currently printing, and asks whether you want to cancel printing.

1. To cancel printing, select Cancel.

See also:

File Commands
File Print

Printing Data

▶ About Cell References (4:10)

▶ About Cell References (4:10)

▶ About Cell References (4:10)

▶ About Cell References (4:10)

▶ About Cell References (4:10)

▶ Printing Several Ranges (1:55)

You can print the contents of a worksheet file and the text of a Help topic in 1-2-3 for Windows. You must, however, first install printers through Windows. If you want to print with installable fonts supported by 1-2-3, Windows, or your printer, you must also first install the fonts.

After printers and fonts are installed, you can use 1-2-3 commands to specify the ones you want to use.

Printing Worksheet Contents

Before you print the contents of a worksheet, you can divide the worksheet into pages by using Worksheet Page Break, and you can set the layout and header and footer text for printed pages by using File Page Setup. You can also specify fonts by using Style Font and Style Font Replace.

If the printer you select cannot use the page settings and options you specify with File Page Setup, 1-2-3 uses the printer settings that are closest to the specified settings. You can see how the selected printer will print a page by using File Preview.

To select a printer and printer settings and options, you use File Printer Setup. You can print multiple copies, and you can print the worksheet contents to an encoded file, if the printer you select supports these options.

To specify the pages to print, and to begin printing, you use File Print.

Printing a Graph

You can print a graph, the contents of a .CGM or .PIC file, or a bitmap that is added to a worksheet. If you want to enlarge the graph, .CGM or .PIC item, or bitmap in the worksheet before you print it, you can use Graph Size.

Printing a Help Topic

You can print any 1-2-3 for Windows Help topic, or a Help topic in any other Windows Help (.HLP) file. To print a Help topic, you display the topic in the Help window and choose File Print Topic from the Help window File commands.

You can use the printer currently selected in Windows or select another printer from the list of installed printers. You can also change printer settings and print options if other settings and options are available for the printer. To select a printer and printer settings and options, choose File Printer Setup from the Help window File commands.

Postscript Printing

1-2-3 does some of the work related to PostScript printing so that a print job runs quickly. If you want the Windows PostScript driver to do all of the work so that PostScript output from all Windows applications looks the same, you must change the **postscript=** statement in the PRINTER section of the 1-2-3 for Windows 123W.INI file to read **postscript=system**.

See also:

File Printer Setup

▶ About Printing (2:55)

Selects a default printer from the list of printers installed in Windows and, optionally, changes the printer settings.

1. Choose File Printer Setup.

2. In the Printers list box, select the printer you want to use.

3. (Optional) Select Setup to change the printer settings.

    A Windows dialog box containing settings for the printer is displayed.

4. (Optional) Change the settings for the selected printer.

5. Select OK.

    The 1-2-3 File Printer Setup dialog box is redisplayed.

6. Select OK.

See also:

File Commands
Printing Data

File Exit

Ends the 1-2-3 for Windows session. When you end a session, 1-2-3 removes all <u>active files</u> from memory, but does not delete the files from disk. The 1-2-3 window closes, and the Windows Program Manager screen is redisplayed.

1. Choose File Exit.

2. If 1-2-3 indicates that active files changed and asks whether you want to save the changes, select one of the following options:

   Yes
   Saves the changes and ends the session.

   If the file already exists on disk, 1-2-3 asks whether you want to replace data already in the file with the updated data, create a backup of the file before replacing data in it, or cancel ending the session.

   No
   Ends the session without saving the changes.

   Cancel
   Does not end the session.

See also:

<u>Closing a Window in 1-2-3</u>
<u>Exiting and Ending 1-2-3 for Windows</u>
<u>File Commands</u>
<u>File Exit (Replace/Backup/Cancel)</u>
<u>Working with Multiple Files</u>

File Exit (Replace/Backup/Cancel)

Cancels or completes the File Exit command when one or more files changed during the 1-2-3 for Windows session already exist on disk.

1. Select one of the following options:

   Replace
   For all changed files, replaces the data in the files on disk with the updated data.

   Backup
   For all changed files, renames the files on disk with the extension .BAK and replaces the data in the original files on disk with the updated data.

   Cancel
   Returns 1-2-3 to READY mode without updating any file on disk.

2. Select OK.

See also:

File Commands
File Exit

Specifying a File

When you use a 1-2-3 command that requires you to specify a file, you must specify the file path and the file name. To do this, you can enter the path and file name in the File name text box, select the path and file name from the Files, Directories, and Drives list boxes, or use the File name text box in combination with one or more of the list boxes.

The File Path

The file path consists of the drive and directory in which the file is located. The file name is the unique name, including the file extension, assigned to the file.

For example, in the following file specification

C:\123\BUDGET.WK3

C:\123 is the path. It identifies C: as the drive and 123 as the directory in which the file named BUDGET.WK3 is located. The file extension is .WK3.

If the file you are specifying is in a subdirectory, the path includes more than one directory name.

For example, in the following file specification

C:\123\FY91\BUDGET.WK3

FY91 is a subdirectory in the directory named 123.

A \ (backslash) must separate one directory from another.

If you do not specify a path for a file, 1-2-3 searches the current directory for the file.

The File Name Text Box and the List Boxes

By default, the File name text box displays the drive and directory in which the current file is located and the name of the file. The list boxes display information as follows:

List box	Displays
Directories	All directories in the current drive, with the current directory highlighted.
Drives	The currently specified drive or the default drive defined in Tools User Setup, and (in the drop-down box) all available drives, including drives on the network that you are connected to.
Files	All files in the current directory, with the current file or the first file in the list highlighted.

The current directory or subdirectory is represented in the Directories list box by .. (two dots). Subdirectories belonging to the current directory are listed under the .. (two dots).

To display all directories for a drive in the Directories list box, select the drive from the Drives drop-down box.

Using Wildcard Characters to List Files

You can see a list of files with similar names or extensions in the Files list box by including the wildcard characters * (asterisk) and ? (question mark) in the file name you enter in the File name text box.

For example, to have 1-2-3 list all files with the characters MARCH9 (such as MARCH9.WK3, MARCH90.WK3, and MARCH91.WK3) in the Files list box, type **march9*.*** in the File name text box and press ENTER.

The * wildcard character represents any number of consecutive characters in a file name or extension. For example, to have 1-2-3 list all files with the extension .WK3, type ***.wk3** in the File name text box and

press ENTER. To have 1-2-3 list all files that begin with B and have the extension .CGM, type **b*.cgm** and press ENTER. To have 1-2-3 list all files in a directory, type ***.*** and press ENTER.

The ? wildcard character represents any single character in a file name or extension. For example, to have 1-2-3 list all files with a three-character extension that begins with .W, type ***.w??** as the file name in the File name text box and press ENTER.

See also:

Editing Keys
File Commands
Naming a 1-2-3 File
Tools User Setup

Naming a 1-2-3 File

Every file in a directory has a unique name. When you create a new 1-2-3 file in memory through File New, 1-2-3 assigns a default name to the file. The first default file name is FILE0001.WK3; the next default file name is FILE0002.WK3, and so on. You can save the file on disk with this default name or with another name that you create.

A file name can contain up to eight characters. You can use any combination of letters, numbers, _ (underscores), and - (hyphens), and you can use uppercase and lowercase letters (they are equivalent in file names).

Using Spaces in a File Name

Although 1-2-3 for Windows allows spaces in file names, you should not use spaces for the following reasons:

*   Some operating systems do not support spaces in file names, so a 1-2-3 file whose name contains spaces will not be usable in all operating systems.

*   Some of your operating system's file management commands, such as COPY and DELETE, may not work with a file whose name contains spaces.

*   You may not be able to use a 1-2-3 file whose name contains spaces with other software programs.

*   A .WK1 file created in 1-2-3 for Windows is not portable to releases of 1-2-3 earlier than Release 3.1 if its name contains spaces.

Instead of spaces, you can use _ (underscores); for example, MY_WORK.WK3.

Using File Extensions

When 1-2-3 creates a worksheet, format, or backup file, or a file for a named font set or named page settings, it adds a three-character extension to the file name to identify the file type:

Extension	File Type
.AF3	Named font set; a file created when you save the current font set as a named font set with Style Font Replace Save.
.AL3	Named page settings; a file created when you save the current page settings as named page settings with File Page Setup Save.
.BAK	Backup version of a .WK3 file; created when you save a 1-2-3 for Windows file as a backup file with File Save As or File Extract To.
.FM3	Formatting; created when you save a 1-2-3 for Windows file.
.FMB	Backup version of an .FM3 file; created when you save a 1-2-3 for Windows file as a backup file with File Save As.
.MAC	Macro for a customized icon; a file created with Tools Icon Palette Customize Assign Macro.
.WK3	Worksheet; created when you save a file as a 1-2-3 for Windows worksheet file with File Save, File Save As, or File Extract To.

You can assign another extension to a file by specifying the extension when you save the file. The extension must begin with a . (period) and contain up to three characters. For example, you can save a 1-2-3 for Windows (.WK3) worksheet file in Release 2 format by using File Save As and changing the extension in the file name to .WK1.

See also:

File Commands
Saving Files in 1-2-3 Release 2 (.WK1) Format

<u>Specifying a File</u>

Protecting Data and Files

To protect a file you create, you can do any of the following:

*   Assign a password to a file when you save it with <u>File Save As</u>. When a file is password protected, you must supply the password to open the file or combine data from the file.

*   Seal a file's worksheet and reservation settings with <u>File Administration Seal File</u>. When a file is sealed, you can read the file into memory, but you cannot change the settings that were sealed in the file.

    When a file is sealed, the seal is password protected. You must supply the password to unseal, change, and reseal the file's worksheet and reservation settings.

*   Globally protect worksheet data with <u>Worksheet Global Settings</u>. When the worksheet is globally protected, you cannot change data except in cells you explicitly unprotect with <u>Range Unprotect</u>.

*   Hide worksheet data with <u>Worksheet Hide</u>. When data is hidden, you cannot display or print it.

*   Get the file reservation. To prevent other users from updating a shared file you open on a network, you can get the file reservation with <u>File Administration Network Reserve</u>. When you get a file reservation, other users can open the file with read-only access, but you are the only user who can save changes to the file.

See also:

<u>File Commands</u>
<u>File Password Protection</u>
<u>Hiding Data</u>
<u>Layout Lock (Graph Window)</u>
<u>Reserving a File</u>

File Password Protection

If a file contains sensitive or confidential data, you can protect it with a password. When you protect a worksheet file with a password, only a user who knows the password can open the file or combine data from it into another file. No operating system command can display the contents of the worksheet file.

You can also seal a file's worksheet and reservation settings. When you seal a file, you protect the seal with a password so that only users who know the password can unseal, change, and reseal the settings.

Assigning a Password

You can assign a password to a file, and change or delete the password, when you save the file with File Save As.

Note 1-2-3 does not assign a password to the format file (.FM3) associated with the worksheet file.

You password protect a seal on a file's worksheet and reservation settings when you seal the settings with File Administration Seal File.

Accessing Password-Protected Data

When you use File Open or File Combine From and specify a file that is password protected, or when you use File Administration Seal File and try to unseal a sealed file, 1-2-3 prompts you to enter the password.

You must enter the correct password. 1-2-3 cannot tell you the password for a file.

1-2-3 is case-sensitive for passwords, so you must remember the exact combination of uppercase and lowercase letters you used when you created the password. If you forget the password, you cannot open or combine data from the file.

See also:

File Commands
Protecting Data and Files

Graph New
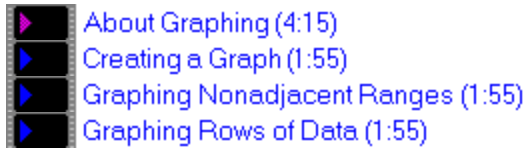
Creates a graph for a range of data in a worksheet and links the graph and the range so that the graph automatically reflects changes to data in the range.

1-2-3 sets the first column of the selected range as the X data range and each succeeding column as the A - F data ranges. If you select a single-column range, 1-2-3 sets the column as the A data range.

For information about the way 1-2-3 uses the X and A - F data ranges in graphs, see About Graph Types.

1. Select the range of data to graph.

2. Choose Graph New.

3. To change the range displayed in the Range text box, specify a new range.

4. To change the default graph name displayed in the Graph name text box, enter a new graph name (see conventions below).

   If you do not enter a new name, 1-2-3 assigns the displayed default name to the graph. The first default graph name is GRAPH1, the next default graph name is GRAPH2, and so on.

5. Select OK.

1-2-3 displays the graph in the Graph window, and the menu bar changes to display the Graph window commands so that you can customize the graph and create and position objects in the graph.

To add objects to a range in a worksheet, use Range Annotate.

Graph Naming Conventions

Graph names can be up to 15 characters long. 1-2-3 does not distinguish between uppercase and lowercase letters in graph names.

Do not start a graph name with ! (exclamation point), and do not include spaces, commas, semicolons, periods, or any of the following characters in a graph name:

+   *   -   /   &   >   <   @   #   {   ?

Do not create names that look like cell addresses, such as P12 or EX100, or names that begin with numbers, such as 20DEC. Do not use @function names, key names, or macro command keywords as graph names.

See also:

Creating Graphs
Graph Commands
Graph Name Delete
Graph Window Commands

Graph View

Displays a graph in the Graph window.

1. Choose Graph View.

2. In the Graph name text box, specify the graph to view.

3. Select OK.

   1-2-3 displays the graph in the Graph window, and the menu bar changes to display the Graph window commands.

If 1-2-3 displays an empty Graph window when you try to view a graph, one of the following conditions exists: you erased the data or file on which the graph is based; your monitor cannot display graphs; you selected a screen display driver in Install that cannot display graphs; you specified incorrect scale settings for the graph.

Displaying a Graph Added to a Worksheet

To display a graph that is added to a worksheet, you can use Graph View as described above or you can double-click the range in which the graph is stored. When you double-click the range, 1-2-3 displays the graph in the Graph window.

See also:

Graph Commands
Graph Window Commands

Graph Add to Sheet
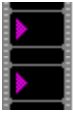
Adds a graph to a worksheet.

1. Select the range to add the graph to.

2. Choose Graph Add to Sheet.

3. In the Graph name text box, specify the graph to add.

4. To change the range displayed in the Range text box, specify another range.

5. Select OK.

1-2-3 automatically sizes the graph to fit in the specified range.

If you specify a 3-D range, 1-2-3 places the graph in all worksheets of the range.

To add an object to a range in a worksheet, use Range Annotate.

See also:

Graph Commands
Graph Name Delete

Graph Name

Deletes graphs, or lists the graphs created for a file.

Delete
Deletes a graph or range annotation from a file.

Paste Table
Creates a table that lists graphs in a file.

See also:

Graph Commands

Graph Name Delete

Deletes a graph and <u>objects</u> associated with the graph, or deletes a range annotation and the blank graph associated with the annotation, from a file.

When you delete a graph, 1-2-3 closes the associated graph window if the window is open, erases the graph from the file, and makes the graph name available for use with another graph. If the graph is added to a worksheet, 1-2-3 also removes the graph from the worksheet.

Graph Name Delete does not affect the data on which the graph is based.

To Delete One Graph or Range Annotation

1. Choose Graph Name Delete.

2. In the Graph name <u>text box</u>, specify the name of the graph or the name of the blank graph associated with the range annotation you want to delete.

3. Select Delete.

4. To delete another graph name or range annotation, repeat steps 2 and 3.

5. Select OK.

To remove graphs, objects, and range annotations from a worksheet without affecting the open Graph window, use <u>Edit Clear</u>.

To Delete All Graphs and Range Annotations in a File

1. Choose Graph Name Delete.

2. Select Delete All.

Note When you select Delete All, 1-2-3 immediately deletes all graphs and range annotations in the file without prompting you for confirmation. You can use <u>Edit Undo</u> to undo the deletion.

See also:

<u>Graph Commands</u>
<u>Graph Name</u>

Graph Name Paste Table

Creates a three-column alphabetical list of graphs in a file, including their names, types, and titles.

Graph Name Paste Table does not list blank graphs created with <u>Range Annotate</u>, or the contents of .CGM or .PIC files imported into the file.

Note If you select a multi-cell range before you choose Graph Name Paste Table, the command executes immediately from the pulldown menu, without displaying the Graph Name Paste Table dialog box.

1. Move the <u>cell pointer</u> to the top left corner of the range to receive the table.

   The table occupies three columns and as many rows as there are graphs plus one blank row.

   Caution 1-2-3 writes over existing data in the range, so make sure the range does not contain data you need.

2. Choose Graph Name Paste Table.

   If you selected a multi-cell range, the command executes now. If you selected a single-cell range, the Graph Name Paste Table dialog box is displayed.

3. To change the range displayed in the Range <u>text box</u>, specify a new range.

   You need to specify only the first cell of the table's location.

4. Select OK.

See also:

<u>Graph Commands</u>
<u>Graph Name</u>

Graph Import

Adds to a worksheet the contents of a .PIC file or a .CGM file on disk, and links the worksheet and the .PIC or .CGM file.

1. Select the range to import to.

2. Choose Graph Import.

3. Specify the name of the .PIC or .CGM file to import from.

    You can edit the file name in the File name text box, or you can use the Files, Directories, and Drives list boxes to select the file you want. For more information about using these list boxes, see Specifying a File.

4. Under File type, select CGM or PIC.

5. To change the range displayed in the Range text box, specify a new range.

6. Select OK.

1-2-3 displays the imported graph or object in the specified range in the worksheet.

See also:

Creating Graphs
Graph Commands

Graph Size

Resizes a graph in a worksheet by changing the range the graph occupies.

1. Position the <u>cell pointer</u> in the range that contains the graph to resize.

2. Choose Graph Size.

3. In the Graph name <u>text box</u>, specify the graph to resize.

4. In the Range text box, specify a new range that is larger or smaller than the current range.

5. Select OK.

When you change the size of the range, 1-2-3 automatically adjusts the dimensions of the graph to fit the new space.

1-2-3 also adjusts the dimensions of the graph when you use <u>Worksheet Column Width</u> or <u>Worksheet Row Height</u> to change column width or row height in the worksheet.

To resize an <u>object</u> in a graph, use <u>Graph View</u> to display the graph in the Graph window, and then use <u>Rearrange Adjust Size</u>.

To move a graph to another range in the worksheet, use <u>Edit Move Cells</u>.

See also:

<u>Graph Commands</u>

Graph Refresh

Updates all graphs in a file to reflect recalculation of worksheet data on which the graphs are based, to reflect changes to graph settings, and to indicate the addition and deletion of graphs in file worksheets.

Note Use Graph Refresh to update graphs only when automatic recalculation of a graph is turned off with <u>Style Display Options (Graph window)</u>. When automatic recalculation of a graph is turned on, 1-2-3 automatically updates the graph each time you change the worksheet data on which the graph is based.

1. Make sure the current file contains the graphs you want to refresh.

2. Choose Graph Refresh.

1-2-3 updates all graphs in the file.

See also:

<u>Graph Commands</u>

Graph Go To

Moves the <u>cell pointer</u> to the upper left cell in the range that contains the graph you specify.

1. Choose Graph Go To.

2. In the Graph name <u>text box</u>, specify the graph to go to.

3. Select OK.

See also:

<u>Graph Commands</u>

Creating Graphs

- About Cell References (4:10)
- About Choosing Graph Types (5:00)
- About Cell References (4:10)
- About Cell References (4:10)
- About Cell References (4:10)
- About Cell References (4:10)

You create a 1-2-3 for Windows graph by selecting data from one or more worksheets and by specifying the type of graph you want. 1-2-3 associates the graph with the current worksheet file.

After you create a graph, you can customize the way data is displayed in the graph, and you can enhance the graph with text and drawings you create in 1-2-3 for Windows.

You can also add the graph to a worksheet and save the graph in a worksheet file.

Selecting Data to Graph and Creating the Graph

You use Graph New to specify a range of data to graph and to assign a name to the graph. The range you specify can contain up to seven columns of data:

*   1-2-3 uses the data in the first column as labels for the x-axis of the graph or as labels for the slices of a pie chart, so the first column usually contains text, or date or time numbers formatted with a Date or Time format. This column is the X data range.

*   1-2-3 uses the data in the remaining columns as the values that are graphed. These columns are the A - F data ranges.

    In a pie chart, 1-2-3 uses only the values in the A data range to create the pie slices.

*   If you specify only one column, 1-2-3 uses the data as the A data range.

After you use Graph New to create the graph, 1-2-3 automatically opens a Graph window and displays the graph as a line graph in the window. When the Graph window is open, you can use the Graph window commands to customize and enhance the graph.

To graph data in ranges from different parts of a worksheet or from different worksheets, you create and name the graph with Graph New and, after 1-2-3 opens the Graph window, you specify data ranges with Chart Ranges (Graph window).

Selecting a Graph Type

When a Graph window is the active window, you can change the graph type. To select the graph type, you use Chart Type (Graph window).

1-2-3 offers seven basic graph types: area, bar, HLCO, line, mixed, pie, and XY. You can vary these basic types, however, by selecting a number of options:

*   3-D effect

*   Stacked or unstacked data ranges

*   Vertical or horizontal orientation

*   Table of values

For more information about graph types, see About Graph Types.

Customizing a Graph

After you create a graph, you can use Graph window Chart commands to control the way data is displayed. For example, you can specify the format in which numbers are displayed along the x-, y-, and 2nd y-axes in a line chart, and you can include or exclude the display of percent labels for slices in a pie chart.

Some other ways you can customize a graph are listed below:

*   Add titles, data labels, footnotes, and legends.

*   Add borders and grid lines.

*   Assign colors and hatch patterns to ranges and values in a range.

*   Assign fonts to text.

Enhancing a Graph with Text and Drawings

To enhance a graph by adding an object such as a block of text or an arrow or circle, you use Draw (Graph window).

To change the appearance and placement of objects in a graph, you use Layout (Graph window), Rearrange (Graph window), and Style (Graph window).

Adding a Graph to a Worksheet and Saving a Graph to Disk

When you create a graph, 1-2-3 associates the graph with the current worksheet file. You can add the graph to the current worksheet or to another worksheet, or you can let the graph remain associated with the current worksheet file without adding it to any worksheet.

1-2-3 automatically saves a graph with the worksheet file when you close or save the file.

To add a graph and its enhancements to a range in a worksheet, you use Graph Add to Sheet. The graph is displayed in the range each time you open the worksheet.

To see a graph saved in a file as an unadded graph the next time you open the file, you use Graph View.

See also:

Graph Commands
Graph Name Delete
Printing Data

Range Format

Sets the cell format. Changing the cell format affects only the display of data, not the data itself. Range Format overrides the global cell format set with Worksheet Global Settings Format.

1. Select the range to format.

2. Choose Range Format.

3. Select a numeric, date, time, or other format from the Format list box.

4. If you select any numeric format except General, specify in the Decimal places text box the number of decimal places (0 through 15) you want 1-2-3 to display.

5. To display numeric values enclosed in parentheses, select the Parentheses check box.

6. To change the range displayed in the Range text box, specify a new range.

7. To reset a range's format to the current global cell format, select Reset.

8. Select OK.

If a column is not wide enough to display a value in the format you selected, 1-2-3 fills the cell with *** (asterisks). Use Worksheet Column Width to widen the column and redisplay the value.

If a column is not wide enough to display a label, 1-2-3 left-aligns the label in the cell no matter what alignment is set in Worksheet Global Settings or in Style Alignment.

See also:

Range Basics
Range Commands

Numeric Formats

▶ Formatting a Range of Numbers (1:50)

For <u>Range Format</u>, <u>Worksheet Global Settings Format</u>, and Graph window <u>Chart Axis X Format</u>, <u>Chart Axis Y Format</u>, and <u>Chart Axis 2nd Y Format</u>.

Fixed
    Displays numbers with up to 15 decimal places, a - (minus sign) for negatives, and a leading zero for decimal values.

Scientific
    Displays numbers in scientific (exponential) notation.

Currency
    Displays numbers with a currency symbol and thousands separators.

, Comma
    Displays numbers with thousands separators.

General
    Displays numbers with no thousands separators.

Percent
    Displays numbers as percentages (that is, multiplied by 100) with a percent sign.

Note Use <u>Tools User Setup International</u> if you want to change the settings for the currency symbol and its position, the thousands separator, and the decimal point symbol.

Examples of Numeric Formats

1-2-3 displays a rounded-off version of the value but stores the actual value in the file. For example, when you use different numeric formats for the value 1200.427, 1-2-3 displays it in the following ways:

Format	Display
Fixed, 1 decimal	1200.4
Scientific, 5 decimals	1.20043E+03
Currency, 2 decimals	$1,200.43
, Comma, 2 decimals	1,200.43
General	1200.427
Percent, 1 decimal	120042.7%

Use the <u>@ROUND</u> function to round off the actual value in a worksheet.
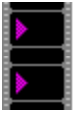
See also:

<u>Date Formats</u>
<u>Formats</u>
<u>Time Formats</u>

Date Formats

About Cell References (4:10)

About Cell References (4:10)

For <u>Range Format</u>, <u>Worksheet Global Settings Format</u>, and Graph window <u>Chart Axis X Format</u>, <u>Chart Axis Y Format</u>, and <u>Chart Axis 2nd Y Format</u>.

In 1-2-3, dates are represented by values from 1 (the <u>date number</u> for January 1, 1900) through 73050 (the date number for December 31, 2099). A date number doesn't look like a date unless you format the cell where it appears. After you format the cell, the date appears in the cell; the date number continues to appear in the <u>edit line</u>.

To display a value as a date, enter a date number in the worksheet, or enter an @function that calculates a date number, such as <u>@DATE</u>, <u>@NOW</u>, or <u>@TODAY</u>. Then format the cell to display the date.

Date	Format
31-Dec-90	Day-month-year
31-Dec	Day-month
Dec-90	Month-year
12/31/90	Long Intl Date -- month/day/year; day/month/year; day.month.year; year-month-day
12/31	Short Intl Date -- month/day; day/month; day.month; month-year

Use <u>Tools User Setup International</u> to change the Long Intl (long international) and Short Intl (short international) date formats.

If the cell format is <u>Automatic</u> and you enter a date that resembles day-month-year, day-month, or Long Intl Date format, 1-2-3 automatically formats the cell in the format used for the entered date. For example, if you enter 31-Dec-90, 1-2-3 stores the entry as the date number 33238 and formats the cell as day-month-year.
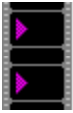
See also:

<u>Formats</u>
<u>Numeric Formats</u>
<u>Time Formats</u>

Time Formats

About Cell References (4:10)
About Cell References (4:10)

For <u>Range Format</u>, <u>Worksheet Global Settings Format</u>, and Graph window <u>Chart Axis X Format</u>, <u>Chart Axis Y Format</u>, and <u>Chart Axis 2nd Y Format</u>.

In 1-2-3, time is represented by a decimal value from .00000000 (the <u>time number</u> for 12:00 midnight) through .99998843 (the time number for 11:59:59 PM). A time number doesn't look like a time unless you format the cell where it appears. After you format the cell, the time appears in the cell; the time number continues to appear in the <u>edit line</u>.

To display a value as time, enter a time number in the worksheet, or enter an @function that calculates a time number, such as <u>@NOW</u> or <u>@TIME</u>. Then format the cell to display the time.

Time	Format
11:59:59 PM	Hour:minutes:seconds AM/PM
11:59 PM	Hour:minutes
23:59:59	Long Intl Time -- hour:minutes:seconds; hour.minutes.seconds; hour**h**minutes**m**seconds**s** (for example, 23h59m59s); hour,minutes,seconds
23:59	Short Intl Time -- hour:minutes; hour.minutes; hour, minutes; hour**h**minutes**m** (for example, 23h59m)

Use <u>Tools User Setup International</u> to change the Long Intl (long international) and Short Intl (short international) time formats.

If the cell format is <u>Automatic</u> and you enter a time that resembles any format except Short Intl Time hour.minutes, 1-2-3 automatically formats the cell in the format used for the entered time. For example, if you enter 11:59 PM, 1-2-3 stores the entry as the time number .99930556 and formats the cell as hour:minutes.

See also:

<u>Date Formats</u>
<u>Formats</u>
<u>Numeric Formats</u>

Formats

Formatting a Range of Numbers (1:50)

For Range Format, Worksheet Global Settings Format, and Graph window Chart Axis X Format, Chart Axis Y Format, and Chart Axis 2nd Y Format.

Formats for Range Format, Worksheet Global Settings Format, and Chart Axis [X, Y, 2nd Y] Format

+/-
   Displays a bar of + (plus) or - (minus) signs equal to the integer value of the entry (for example, displays 5.9 as +++++).

   Displays a . (period) for any value between -1 and 1.

Hidden
   Makes data invisible. When the cell pointer is on a hidden cell and the cell is unprotected, the data appears in the edit line; if the cell is protected, the data does not appear in the edit line. To make hidden data visible again, select Reset in the Range Format dialog box.

   To hide entire columns in the worksheet, select Worksheet Hide.

Formats for Range Format and Worksheet Global Settings Format

Automatic
   Formats the cell according to the appearance of the entry, in a numeric, date, time, or label format. For example, if you enter 31-Dec-90, 1-2-3 stores the entry as the date number 33238 and formats the cell as day-month-year.

Label
   Stores new entries as labels by automatically adding a label prefix (except for entries you create using Data commands); displays existing numbers in General format.

   Use Style Color to set the display color to red for negative values.

Text
   Displays actual formulas rather than their calculated values; displays values in General format.

See also:

   Date Formats
   Numeric Formats
   Time Formats

Range Name

Range names are names of up to 15 characters that you use instead of range addresses in commands and formulas. The following commands create and maintain range names:

Create
Creates defined range names.

Label Create
Creates defined range names for single-cell ranges, using labels in adjacent cells as the range names.

Delete
Deletes defined range names in the current file, or undefines range names in the file by dissociating each range name from its range address.

Paste Table
Creates a table of range names and addresses.

See also:

> Defined Range Names
> Range Basics
> Range Commands
> Undefined Range Names

Defined Range Names

You define a range name when you associate it with a <u>range address</u>. Use <u>Range Name Create</u> or <u>Range Name Label Create</u> to define a range name.

Use defined range names to label data and parts of a worksheet so you can easily refer to the ranges in commands and formulas and easily locate data on large worksheets.

For example, if you assign the range name SALES to A5..D9, you can move the cell pointer to A5 by choosing Range Go To and selecting SALES from the <u>list box</u>; by pressing F5 (GOTO) and entering SALES; or by pressing F3 (NAME) and selecting SALES from the list box.

You can total the values in A5..D9 with the formula @SUM(SALES), and you can print the data in A5..D9 by specifying SALES as the print range.

See also:

<u>Range Basics</u>
<u>Range Commands</u>
<u>Range Name</u>
<u>Undefined Range Names</u>

Undefined Range Names

Undefined range names are range names that are not associated with <u>range addresses</u>. You can use undefined range names only in formulas, not in commands.

You can create an undefined range name in the following ways:

*   Enter a formula that contains a range name you have not yet defined.

    The formula evaluates to <u>ERR</u> until you define the range name with <u>Range Name Create</u> or <u>Range Name Label Create</u>.

*   Use <u>Range Name Delete</u> to undefine a currently defined range name. Any formulas using the undefined range name evaluate to ERR until you define the range name again.

See also:

<u>Defined Range Names</u>
<u>Range Basics</u>
<u>Range Commands</u>
<u>Range Name</u>

Range Name Create

Assigns a range name to a range address.

1. Select the range to name.

2. Choose Range Name Create.

3. Specify a name in the Range name text box (see conventions below).

4. To change the range displayed in the Range text box, specify a new range.

5. Select Create.

6. To create another range name, repeat steps 3 through 5.

7. Select OK.

If you select an existing range name, 1-2-3 displays the range address to which the name is currently assigned in the Range text box.. To assign the name to a different range, enter the new range in the Range text box.

When you save a file or extract data to a new file, 1-2-3 saves the range names with the file.

Range Name Conventions

Range names can be up to 15 characters long.

1-2-3 does not distinguish between uppercase and lowercase letters in range names. Do not start a range name with ! (exclamation point), and do not include spaces, commas, semicolons, periods, or any of the following characters in a range name:

+   *   -   /   &   >   <   @   #   {   ?

Do not create names that look like cell addresses, such as P12 or EX100, or names that begin with numbers, such as 20DEC. Do not use @function names, key names, or macro command keywords as range names.

Range Names in Formulas

In any formulas that use a range address (for example, B5..B5 as opposed to the cell address B5) to refer to a cell you named with Range Name Create, 1-2-3 replaces the range address with the corresponding range name. For example, when you assign the name APRIL to B5, 1-2-3 changes the formula @MAX(B5..B5) to @MAX(APRIL), but 1-2-3 does not change the formula +B5/30.

To have 1-2-3 treat a range name in a formula as an absolute reference, precede the range name with a $ (dollar sign).

See also:

Defined Range Names
Naming a Macro
Range Basics
Range Commands
Range Name

Range Name Label Create

Assigns range names to single-cell ranges, using the labels (up to 15 characters) in adjacent cells as the range names.

Use Range Name Label Create to assign an existing label as the range name for the cell immediately above, below, to the right of, or to the left of the label.

1. Select the range that contains the labels you want to use as range names.

2. Choose Range Name Label Create.

3. Select a direction (from labels to cells):

    Left
    Names cells to the left of the labels (for example, labels in column B become names for adjacent cells in column A).

    Right
    Names cells to the right of the labels (for example, labels in column A become names for adjacent cells in column B).

    Up
    Names cells above the labels (for example, labels in row 2 become names for cells in row 1).

    Down
    Names cells below the labels (for example, labels in row 1 become names for cells in row 2).

4. To use labels contained in a range other than the one displayed in the Range <u>text box</u>, specify a new range.

5. Select OK.

In any formulas that use a range address (for example, B5..B5 as opposed to the cell address B5) to refer to a cell you named with Range Name Label Create, 1-2-3 replaces the range address with the corresponding range name. For example, when you assign the name APRIL to B5, 1-2-3 changes the formula @MAX(B5..B5) to @MAX(APRIL), but 1-2-3 does not change the formula +B5/30.

See also:

<u>Defined Range Names</u>
<u>Range Basics</u>
<u>Range Commands</u>
<u>Range Name</u>
<u>Range Name Create</u> for rules on range names

Range Name Delete

Deletes <u>defined range names</u> in the current file, but leaves the data in each range unchanged; or undefines range names in the file by dissociating each range name from its <u>range address</u>.

To Delete One Defined Range Name

1. Choose Range Name Delete.

2. In the Range name <u>text box</u>, specify the range name to delete.

3. Select Delete.

4. To delete another range name, repeat steps 2 and 3.

5. Select OK.

In formulas that use the deleted range name, 1-2-3 replaces the deleted range name with its range address. For example, if SALES is defined as B14..H14 and you delete SALES, 1-2-3 changes the formula @SUM(SALES)to @SUM(B14..H14).

To Delete All Defined Range Names

1. Choose Range Name Delete.

2. Select Delete All.

1-2-3 deletes all defined range names in the current file and closes the dialog box. In formulas that use a deleted range name, 1-2-3 replaces the deleted range name with its range address (see example above).

To Undefine a Range Name

1. Choose Range Name Delete.

2. In the Range name text box, specify the range name to undefine.

3. Select Undefine.

4. To undefine another range name, repeat steps 2 and 3.

5. Select OK.

An undefined range name continues to exist, but it is no longer associated with a range, and 1-2-3 does not include it in range name tables.

Formulas that use the undefined range name now evaluate to <u>ERR</u>. When you redefine the range name with Range Name Create or Range Name Label Create, 1-2-3 evaluates formulas that use the range name according to the data in the new location.

See also:

<u>Defined Range Names</u>
<u>Range Basics</u>
<u>Range Commands</u>
<u>Range Name</u>
<u>Undefined Range Names</u>

Range Name Paste Table

Creates a two-column alphabetical list of <u>defined range names</u> and their addresses.

If the file whose range names you are listing contains only one worksheet, 1-2-3 omits the worksheet letters of the range addresses in the table. If the file contains two or more worksheets, 1-2-3 uses full range addresses in the table.

Note If you select a multi-cell range before you choose Range Name Paste Table, the command executes immediately from the pulldown menu, without displaying the Range Name Paste Table dialog box.

1. Move the <u>cell pointer</u> to the top left corner of the range to receive the table.

   The table will occupy two columns and as many rows as there are range names plus one blank row.

   Caution 1-2-3 writes over any existing data when it creates the table, so make sure the range does not contain data you need.

2. Choose Range Name Paste Table.

3. To change the table location displayed in the Range <u>text box</u>, specify a new range.

   You need to specify only the first cell of the table's location.

4. Select OK.

See also:

<u>Range Commands</u>
<u>Range Name</u>

Range Justify

Rearranges a column of <u>labels</u> so the labels fit within a width you specify. Range Justify justifies only one column of labels at a time. A blank cell or numeric value marks the end of a column of labels.

Use Range Justify to equalize the length of a series of labels, to fit text into a specific width for viewing or printing, to create a paragraph in a worksheet, or to justify an edited paragraph.

To use this command, global protection must be off for the worksheet that contains the column of labels.

Note If you select a multi-cell range before you choose Range Justify, the command executes immediately from the pulldown menu, without displaying the Range Justify dialog box.

1. Select the range to justify.

    Be sure to include the first cell in the column of labels you want to justify.

2. Choose Range Justify.

    If you selected a multi-cell range, the command executes now. If you selected a single-cell range, the Range Justify dialog box is displayed.

3. To change the range displayed in the Range <u>text box</u>, specify a new range.

4. Select OK.

Specifying the Justify Range

The width and length of the justify range control the way 1-2-3 performs the justification.

The total width of the columns in the justify range determines the maximum width of the justified labels (to a limit of 512 characters).

The total number of rows in the justify range affects the result of Range Justify as follows:

*   If you specify a single-row justify range, 1-2-3 justifies the entire column of labels to fill the width of the justify range. If the justified labels occupy more rows than the original labels, 1-2-3 moves subsequent data in the column (data below the justified labels) down. If the justified labels occupy fewer rows than the original labels, 1-2-3 moves subsequent data up. Use a single-row justify range only if all cells below the labels you are justifying are blank or if movement of data below the labels is acceptable.

*   If you specify a multiple-row justify range, 1-2-3 limits the justification to the specified range and does not move data below the justify range. If you use a multiple-row justify range, be sure the range is wide and deep enough to hold the entire series of justified labels.

When 1-2-3 performs the justification, it left-aligns all the justified labels and assigns the entire column of justified labels the cell format and protection status of the first cell in the column.

If you specify a <u>3-D range</u>, 1-2-3 justifies the column of labels in each worksheet separately.

See also:

<u>Range Basics</u>
<u>Range Commands</u>
<u>Worksheet Global Settings</u>

Range Protect

Prevents changes to cells in a range when the worksheet or worksheets the range occupies are globally protected. When the <u>cell pointer</u> is on a protected cell in a worksheet that is globally protected, 1-2-3 displays PR in the <u>format line</u>.

Use Range Protect only if global protection has been turned on through <u>Worksheet Global Settings Protection</u> and if you previously unprotected the range with <u>Range Unprotect</u>.

Note If you select a multi-cell range before you choose Range Protect, the command executes immediately from the pulldown menu, without displaying the Range Protect dialog box.

1. Select the range to protect.

2. Choose Range Protect.

   If you selected a multi-cell range, the command executes now. If you selected a single-cell range, the Range Protect dialog box is displayed.

3. To change the range displayed in the Range <u>text box</u>, specify a new range.

4. Select OK.

See also:

<u>Range Basics</u>
<u>Range Commands</u>

Range Unprotect

Allows changes to a range when the worksheet or worksheets containing the range are globally protected with Worksheet Global Settings Protection. You can also use Range Unprotect with the macro command {FORM} to create a data-input range in a worksheet or in a data-entry form set up in the worksheet.

When the cell pointer is on an unprotected cell, 1-2-3 displays U in the format line and displays data in the cell in the color set with Window Display Options.

Note If you select a multi-cell range before you choose Range Unprotect, the command executes immediately from the pulldown menu, without displaying the Range Unprotect dialog box. You can select a multi-cell range only if global protection is not yet turned on.

1. Choose Range Unprotect.

    If you selected a multi-cell range, the command executes now. If you selected a single-cell range, the Range Unprotect dialog box is displayed.

2. To change the range displayed in the Range text box, specify a new range.

3. Select OK.

To prevent changes to cells you have unprotected with Range Unprotect, protect the cells with Range Protect.

See also:

Range Basics
Range Commands
Setting Up an Entry Form

Setting Up an Entry Form

1. Plan the entry form so that the blanks the user will fill in form a single <u>range</u>.

2. Enter text that makes clear what information you want the user to enter in each blank.

   Be sure to format blanks in which the user will enter dates with a <u>Date format</u> or with the <u>Automatic format</u>.

3. Include instructions for filling in the blanks, for moving the cell pointer from blank to blank, and for exiting from the form when the user finishes entering information.

4. (Optional) After you complete the form, choose <u>Range Name Create</u> and name the entry form.

5. Select the range of blanks.

6. Choose Range Unprotect.

   Because you preselected the range, the command executes immediately, without displaying the Range Unprotect dialog box.

7. When you want to use the entry form, move the <u>cell pointer</u> to the unprotected data-input range.

Example

<u>Entry Form</u>

See also:

<u>Range Commands</u>
<u>{FORM}</u>

Example: Entry Form

Cells in the range K25..K28 are left blank and unprotected so that a user can enter information about a new employee.

```
   A -------- I ----------- J ------------ K ------------- L ------------ M ------------   N
19                      NEW EMPLOYEE INFORMATION
20                      ===============================
21                      Use arrow keys to move between entries.
22                      Press ESC when done.
23                      ===============================
24
25                            Name:
26                        Job Title:
27                           Salary:
28                      Start Date:
```

Range Transpose

Copies data in a range, transposing the copied data and replacing any copied formulas with their current values.

When you transpose data to a single-sheet range, 1-2-3 changes the data from a horizontal arrangement to a vertical arrangement or vice versa.

1. If the CALC indicator appears in the <u>status line</u>, press F9 (CALC) to update formulas. If there are linked formulas in the range you want to transpose, you also need to use <u>File Administration Update Links</u> to make sure the values are up to date.

2. Select the range to transpose.

3. Choose Range Transpose.

4. To change the range displayed in the From <u>text box</u>, specify a new range.

5. In the To text box, specify the range you want to copy the transposed data to. You need to specify only the first cell of the To range. If you are transposing a <u>3-D range</u>, be sure there are enough worksheets in the To range to fit the transposed data.

    Caution 1-2-3 writes over any existing data in the To range, so make sure the range does not contain data you need. Specifying overlapping From and To ranges may result in data loss.

6. Select OK.

If you specify a 3-D range in the From or To text box, 1-2-3 displays the <u>Range Transpose (Options)</u> dialog box so you can indicate how you want the data transposed.

To copy a range without transposing data or converting formulas to values, use <u>Edit Copy</u>.

To copy a range and convert formulas to values without transposing data, use <u>Edit Quick Copy</u>.

See also:

<u>Range Commands</u>

Range Transpose (Options)

After you choose Range Transpose and select a 3-D range to transpose from or to, indicates how you want data transposed.

1. Select one of the following options:

   Rows/Columns
   Worksheet by worksheet, transposes the data in the From range from a horizontal arrangement to a vertical arrangement or vice versa.

   Columns/Worksheets
   Copies the first column in each worksheet of the From range to the first worksheet in the To range, the second column in each worksheet of the From range to the second worksheet in the To range, and so on.

   Worksheets/Rows
   Copies the first row in each worksheet of the From range to the first worksheet in the To range, the second row in each worksheet of the From range to the second worksheet in the To range, and so on.

2. Select OK.

See also:

Range Commands
Range Transpose

Range Annotate

Adds a line, arrow, shape, freehand drawing, text, or other object to a range in the current worksheet.

1. Select the range to annotate.

2. Choose Range Annotate.

Range Annotate displays a blank Graph window and associates it with the range you selected in the worksheet. You can draw an object in the Graph window and use any of the Graph window commands except the Chart commands to customize the object.

When you save the worksheet file, 1-2-3 saves the blank graph with the worksheet. You can then open the worksheet at a later time, click the range containing the blank graph to display it in the Graph window, draw an object in the blank Graph window, and display the object in the range.

To draw an object in the blank Graph window, use the Draw (Graph window) commands.

To erase the object from the range, use Edit Delete (Graph window).

To display the object in the worksheet range, click the window containing the worksheet.

See also:

Range Basics
Range Commands

Range Go To

Moves the <u>cell pointer</u> to a specified range.

1. Choose Range Go To.

2. In the Range <u>text box</u>, specify the range to go to.

3. Select OK.

1-2-3 moves the cell pointer to the top left corner of the range.

To go to a range in another <u>active file</u>, precede the <u>range name</u> or <u>range address</u> with a <u>file reference</u>. For example:

<<SALES89.WK3>>A:A1..A:C5

See also:

<u>F5 (GOTO)</u>
<u>Range Commands</u>

Range Basics

A range is any rectangular block of adjacent cells. A range can be a single cell (A1..A1), part of a row (A2..C2) or column (B1..B3), or a block of cells in several rows and columns (A1..C3). A range can be 3-D, spanning adjacent worksheets (A:A1..C:C3), as long as the worksheets are in the same file.

A range address consists of the cell addresses of any two diagonally opposite corners of a range, separated by one or two periods. For example, A1..A1 is the range address of a range consisting of one cell, and A:A1..A:C3 is the range address of a range consisting of a block of cells.

See also:

Highlighting a Range
Range Commands
Specifying a Range

Specifying a Range

Many 1-2-3 commands and formulas require you to specify a range of data. You can specify a range by using one of the following methods.

Highlighting a Range

You can highlight a range

* Before you choose a command, when 1-2-3 is in READY mode

* After you choose a command, when 1-2-3 is in POINT mode

* While you are entering a formula, when 1-2-3 is in POINT mode

Move the cell pointer to the first cell of the range and expand the highlight to cover the whole range. For more information, see Highlighting a Range.

Entering a Range Address

You can enter a range address in either a text box or a formula that requires a range.

In a text box, when you begin to type, 1-2-3 changes from POINT mode to EDIT mode. (To return 1-2-3 to POINT mode, press F2 (EDIT).)

Enter the cell addresses of any two diagonally opposite corners of a range, separating the cell addresses by one or two periods (for example, A:A1..A:C5). If the range is in another file, precede the range address with the file reference. For example:

<<SALES89.WK3>>A:A1..A:C5

Entering a Range Name or Using F3 (NAME)

You can enter a range name in either a text box or a formula that requires a range.

In a text box, when you begin to type, 1-2-3 changes from POINT mode to EDIT mode. (To return 1-2-3 to POINT mode, press F2 (EDIT).)

Enter the name you assigned to the range. For information on creating range names, see Range Name Create or Range Name Label Create.

If the range is in another file, precede the range name with the file reference. For example:

<<SALES89.WK3>>JAN

Instead of entering the range name, you can press F3 (NAME) to see a list of all range names in all active files. Select the name of a range in the current file, or select the name of another active file.

When you select the name of another active file, 1-2-3 displays a list of all range names in the file. When you select the name of a range in a file that is not the current file, 1-2-3 automatically inserts a file reference before the range name.

Specifying Multiple Ranges

Most 1-2-3 commands and @functions that require ranges operate on only one range at a time. However, you can specify multiple ranges with File Print and all database and statistical @functions, and with Data Query when specifying an input range.

You can specify the ranges by entering range addresses or using range names. Separate the ranges with the punctuation mark defined as the argument separator in Tools User Setup International, but do not include spaces after the argument separator.

In the following multiple-range list, range addresses and a range name are used to specify ranges, and the semicolon is used as the argument separator:

A:A1..C:D4;EXPENSES;M22..M22

See also:

Highlighting a Range

You can highlight a range either before you choose the command, when 1-2-3 is in READY mode, or after you choose the command, when 1-2-3 is in POINT mode. You can also highlight a range while you are entering a formula, after you put 1-2-3 in POINT mode.

You can highlight a range in a single worksheet, or you can highlight a range across two or more worksheets in the same file (3-D range).

* If you highlight a range before you choose a command (that is, preselect the range), the range remains highlighted after the command is completed. You can then continue to work with that range without respecifying the range each time you choose a command.

* If you highlight a range after you choose a command, the range does not remain highlighted after the command is complete. 1-2-3 redisplays the selection that was current before you chose the command.

Dialog-Box Behavior During Highlighting

In a dialog box, 1-2-3 goes into POINT mode when you select the text box that requires a range. As soon as you begin highlighting the range in the worksheet, the dialog box disappears, and the address of the range you are highlighting appears in the <u>contents box</u>.

When you confirm the range by releasing the mouse button or pressing ENTER, the dialog box reappears, and the address of the range you highlighted is in the text box.

To Highlight a Range in a Worksheet
1. In READY mode or POINT mode, move the <u>mouse pointer</u> to one corner of the range, and then press and hold the mouse button to anchor the <u>cell pointer</u>.

   Some commands, such as Range Format, begin with the cell pointer anchored in the current cell.

2. <u>Drag</u> the mouse to expand the range.

The cell address in the <u>address box</u> changes as you highlight the range to show the address of the <u>free cell</u>.

To Highlight a Range in a Worksheet
1. In POINT mode, use the <u>pointer-movement keys</u> to leave the dialog box and activate the worksheet.

   In a formula, 1-2-3 goes into POINT mode if you press a pointer-movement key after typing an <u>operator</u>, for example, after typing + > (or &.

2. Use the pointer-movement keys to move the <u>cell pointer</u> to one corner of the range.

3. Anchor the cell pointer in one of the following ways:

   * In READY mode, press F4.

   * In POINT mode, press . (period).

   Some commands, such as Range Format, begin with the cell pointer anchored in the current cell.

   To anchor the cell pointer somewhere else, press ESC to reduce the range address to a cell address. Then move the cell pointer to the cell you want and anchor the cell pointer by pressing . (period).

4. Use the pointer-movement keys to expand the highlight across the range.

5. When you have highlighted the entire range, press ENTER.

To anchor a different corner of the range you just highlighted, press . (period) before confirming the range. You can then change the range using the new anchor cell.

To Highlight a 3-D Range
1. Using the keyboard in one of the ways described above, highlight a range on the first or last

worksheet of the 3-D range you want to create.

2. Press CTRL+PG UP or CTRL+PG DN to expand the range to other worksheets.

3. When you have highlighted the entire range, press ENTER.

See also:

Range Basics
Range Commands
Specifying a Range

Style Font

About Styling (4:30)
About Cell References (4:10)
Changing Font Sets (1:30)

Applies a <u>font</u> in the current <u>font set</u> to a range and adds bold, italics, and underlining to data in a range.

1. Select the range to format.

2. Choose Style Font.

3. Select a font from the Fonts <u>list box</u>.

    The first font in the list is the <u>default font</u> for the current worksheet file.

4. To add boldface, italics, or underlining to the range, select the Bold, Italics, or Underline <u>check box</u>.

5. If you select Underline, select a line style from the <u>drop-down box</u>.

6. To change the range displayed in the Range <u>text box</u>, specify a new range.

7. Select OK.

To Work with Font Sets

1. To replace fonts in the current font set, update and restore the <u>default font set</u>, and save and retrieve <u>named font sets</u>, select <u>Replace</u>.

See also:

<u>Style Commands</u>
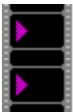
Style Font Replace

About Cell References (4:10)
About Cell References (4:10)

Replaces <u>fonts</u> in the current <u>font set</u>, updates and restores the <u>default font set</u>, and saves and retrieves <u>named font sets</u>.

To Replace a Font in the Current Font Set

1. Choose Style Font.

2. Select Replace.

3. Select the font to replace from the Current fonts <u>list box</u>.

4. <u>Specify</u> a font in the Available fonts <u>text box</u>.

5. In the Size text box, specify a <u>point size</u> to associate with the font specified in step 4.

6. Select Replace.

Working with the Default Font Set

*   To make the current font set the <u>default font set</u>, select <u>Update</u>.

*   To replace the current font set with the default font set, select <u>Restore</u>.

Working with a Named Font Set

*   To save the current font set as a named font set, select <u>Save</u>.

*   To make a named font set the current font set, select <u>Retrieve</u>.

See also:

<u>Style Commands</u>
<u>Style Font</u>

Style Font Replace Update

 Changing Font Sets (1:30)

Makes the current font set the <u>default font set</u>.

1. Choose Style Font.

2. Select Replace.

3. Under Default font set, select Update.

   1-2-3 saves the current font set as the default font set.

4. Select OK.

See also:

<u>Style Commands</u>
<u>Style Font</u>

Style Font Replace Restore

Replaces the current font set with the <u>default font set</u>.

1. Choose Style Font.

2. Select Replace.

3. Under Default font set, select Restore.

    1-2-3 replaces the current font set with the default font set.

4. Select OK.

1-2-3 reformats data in the current file using the default font set.

See also:

<u>Style Commands</u>
<u>Style Font</u>

Style Font Replace Save

Saves the current font set in a <u>named font set</u> on disk.

1. Choose Style Font.

2. Select Replace.

3. Under Named font set, select Save.

    The Style Font Replace Save dialog box is displayed.

4. Enter a name for the current font set in the File name text box. 1-2-3 automatically adds the extension .AF3 to a file containing a named font set unless you type a different extension.

    You can edit the file name in the File name <u>text box</u>, or you can use the Files, Directories, and Drives <u>list boxes</u> to select a file name you want. For more information about using these list boxes, see <u>Specifying a File</u>.

5. Select OK.

    The Style Font Replace dialog box is redisplayed.

7. Select OK.

If, in step 4, you specify a file name that already exists, 1-2-3 asks whether you want to cancel saving the new file or replace the data in the existing file with the data in the new file.

See also:

> <u>Style Commands</u>
> <u>Style Font</u>

Style Font Save (Replace/Cancel)

Cancels or completes the Style Font Replace Save command for the <u>named font set</u> you are updating on disk.

1. Select one of the following options:

    Replace
    Writes over the file on disk with a copy of the current file.

    Cancel
    Returns 1-2-3 to READY mode without updating any file on disk.

2. Select OK.

Caution When you select Replace, 1-2-3 erases the file on disk before it saves the current version of the file. If 1-2-3 displays a message indicating that the disk is full, save the current file on another disk.

See also:

<u>Style Commands</u>
<u>Style Font</u>

Style Font Replace Retrieve

Makes a <u>named font set</u> the current font set.

1. Choose Style Font.

2. Select Replace.

3. Under Named font set, select Retrieve.

   The Style Font Replace Retrieve dialog box is displayed.

4. Specify the name of the named font set to retrieve.

   You can edit the file name in the File name <u>text box</u>, or you can use the Files, Directories, and Drives <u>list boxes</u> to select the file name you want. For more information about using these list boxes, see <u>Specifying a File</u>.

5. Select OK.

   The Style Font Replace dialog box is redisplayed, and 1-2-3 updates the current font set and reformats data in the current file with those fonts.

6. Select OK.

See also:

<u>Style Commands</u>
<u>Style Font</u>

Style Alignment

About Cell References (4:10)

About Cell References (4:10)

Aligning Labels (1:50)

Changes the alignment of labels in a range by changing their label prefix-characters. You can align a label within a cell or across the columns of a range.

To Align Labels in Individual Cells

1. Select the range that contains the labels you want to align.

2. Choose Style Alignment.

3. Under Align labels, select one of the following options:

    Left
    Aligns labels with the left edge of cells.

    Center
    Centers labels in cells.

    Right
    Aligns labels with the right edge of cells.

4. To change the range displayed in the Range text box, specify a new range.

5. Select OK.

Long labels appear left-aligned regardless of the label prefix.

If the current file is in GROUP mode, Style Alignment affects the same range in all worksheets in the file.

To Align Labels Across the Columns of a Range

1. Select the range in which you want to align labels.

    Make sure there are labels in only the leftmost column of the range. This procedure causes labels in any other columns of the range to be hidden by the labels in the leftmost column.

2. Choose Style Alignment.

3. Select the Align over columns check box.

4. Under Align labels, select one of the following options:

    Left
    Aligns labels with the left edge of the range.

    Center
    Centers labels in the range.

    Right
    Aligns labels with the right edge of the range.

    Even
    Stretches labels over a wider space by expanding the space between words and between the letters in words. Even has no effect on labels that end with a . (period), ! (exclamation point), ? (question mark), or : (colon).

5. To change the range displayed in the Range text box, specify a new range.

6. Select OK.

Labels that exceed the width of the range appear left-aligned regardless of the label prefix.

If the current file is in GROUP mode, Style Alignment affects the same range in all worksheets in the file.

See also:

Style Border

 About Styling (4:30)

Draws horizontal and vertical lines along the edges of cells, outlines around cells and ranges, and <u>drop shadows</u> around ranges.

1. Select the range to apply borders to.

2. Choose Style Border.

3. To draw borders around each cell in a range, select the <u>check box</u> of one of the following options:

   All edges
   Draws an outline around each cell in a range.

   Top
   Draws a line along the top edge of each cell in a range.

   Bottom
   Draws a line along the bottom edge of each cell in a range.

   Left
   Draws a line along the left edge of each cell in a range.

   Right
   Draws a line along the right edge of each cell in a range.

4. Select a line style from the <u>drop-down box</u> next to the option.

5. Repeat steps 3 and 4 as necessary.

6. To draw a border around the range as a whole, select Outline.

   Select a line style from the drop-down box.

7. To draw a drop shadow around the range, select Drop shadow.

8. To change the range displayed in the Range <u>text box</u>, specify a new range.

9. Select OK.

See also:

   <u>Style Commands</u>
   <u>Style Font</u> for underlining data in a cell

Style Color
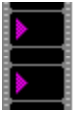
About Cell References (4:10)

About Cell References (4:10)

On color monitors and printers, displays and prints ranges in color, and displays negative values in red instead of the default color set with <u>Window Display Options</u>.

1. Select the range whose color you want to change.

2. Choose Style Color.

3. To specify a color for the data in a range, select a color from the Cell contents <u>drop-down box</u>.

4. To specify a color for the background of a range, select a color from the Background drop-down box.

5. To display negative values in red, select the Negative values in red <u>check box</u>.

6. To change the range displayed in the Range <u>text box</u>, specify a new range.

7. Select OK.

See also:

<u>Style Commands</u>

Style Shading

 About Cell References (4:10)

Adds light, dark, or solid shading to a range and removes shading from a range. The shading is the same color as the global color for cell contents set with <u>Window Display Options</u>.

1. Select the range in which to add or remove shading.

2. Choose Style Shading.

3. Select one of the following options:

    Light
    Adds light shading to a range.

    Dark
    Adds dark shading to a range.

    Solid
    Adds solid shading to a range.

    Clear
    Removes shading from a range.

4. To change the range displayed in the Range <u>text box</u>, specify a new range.

5. Select OK.

See also:

<u>Style Commands</u>

Style Name

Defines a cell's <u>formatting</u> as a <u>named style</u>.

1. Select a cell whose format you want to define as a named style.

2. Choose Style Name.

3. Select a named style: 1, 2, 3, 4, 5, 6, 7, or 8.

4. Enter a name of up to six characters for the named style.

    The name will appear in the Style pulldown menu next to its corresponding number the next time you choose Style.

5. Enter a description of up to 36 characters for the named style.

    The description will appear in the <u>title bar</u> the next time the menu pointer is on the corresponding named-style number; it will also appear in the corresponding dialog box.

6. To change the range displayed in the Range <u>text box</u>, specify a new range.

7. Select OK.

See also:

<u>Style Commands</u>
<u>Style Font Replace</u>

Style (Named Style)

Formats a range with a <u>named style</u> you defined with <u>Style Name</u>.

Note If you select a multi-cell range before you choose a named style, the command executes immediately from the pulldown menu, without displaying the Style (Named Style) dialog box.

1. Select the range to format.

2. Choose Style and the number of the named style you want to use.

   If you selected a multi-cell range, the command executes now. If you selected a single-cell range, the Style (Named Style) dialog box is displayed.

3. Select OK.

See also:

   <u>Style Commands</u>

Tools SmartIcons

▶ About SmartIcons (2:35)

Changes the position of the icon palette in the 1-2-3 window, hides the icon palette, and lets you customize the icon palette.

1. Choose Tools SmartIcons.

2. To change the position of the icon palette, under Palette position, select one of the following options:

   Left
   Places the icon palette at the left edge of the work area.

   Right
   Places the icon palette at the right edge of the work area.

   Top
   Places the icon palette at the top edge of the work area.

   Bottom
   Places the icon palette at the bottom edge of the work area.

   Floating
   Lets you use the mouse to move the icon palette by dragging it. You can also use the mouse to resize the icon palette.

3. To hide the icon palette, select the Hide palette check box.

4. Select OK.

To Customize the Icon Palette

1. To add or remove icons, and to assign macros to custom icons, select Customize.

See also:

Tools Commands
Using SmartIcons

Tools SmartIcons Customize

About SmartIcons (2:35)
Changing the SmartIcon Palette (1:20)

Adds and removes icons from the current icon palette and assigns macros to custom icons.

To Add Icons to the End of the Icon Palette

1. Choose Tools SmartIcons.

2. Select Customize.

   The Tools SmartIcons Customize dialog box is displayed.

3. Under Standard icons or Custom icons, select an icon to add to the icon palette.

4. Select Add.

   Note You can also add icons to the icon palette by double-clicking them.

5. Repeat steps 3 and 4 to add more icons to the icon palette.

6. Select OK.

   The Tools SmartIcons dialog box is redisplayed.

7. Select OK.

Note Depending on the position of the icon palette, you may not be able to see all the icons you added. If you cannot see icons you added to the icon palette, use Tools SmartIcons Floating so you can use the mouse to resize the icon palette.

To Add Icons Elsewhere on the Icon Palette

1. Choose Tools SmartIcons.

2. Select Customize.

   The Tools SmartIcons Customize dialog box is displayed.

3. Under Current palette, select the icon that will follow the new icon.

4. Under Standard icons or Custom icons, select an icon to add to the icon palette.

5. Select Add.

   Note You can also add icons to the icon palette by double-clicking them.

6. Repeat steps 3 through 5 to add more icons to the icon palette.

7. Select OK.

   The Tools SmartIcons dialog box is redisplayed.

8. Select OK.

Note Depending on the position of the icon palette, you may not be able to see all the icons you added. If you cannot see icons you added, use Tools SmartIcons Floating so you can use the mouse to resize the icon palette.

To Remove Icons from the Icon Palette

1. Choose Tools SmartIcons.

2. Select Customize.

   The Tools SmartIcons Customize dialog box is displayed.

3. Under Current palette, select the icon to remove.

4. Select Remove.

   Note You can also remove icons from the icon palette by double-clicking them.

5. Repeat steps 3 and 4 to remove more icons from the icon palette.

6. Select OK.

   The Tools SmartIcons dialog box is redisplayed.

7. Select OK.

To Assign Macros to Custom Icons

1. Choose Tools SmartIcons.

2. Select Customize.

   The Tools SmartIcons Customize dialog box is displayed.

3. Under Custom icons, select one of the custom icons.

4. Select Assign macro.

See also:

   Macro Basics
   Tools Commands
   Using SmartIcons

Tools SmartIcons Customize Assign Macro

About Cell References (4:10)

Assigns <u>macros</u> that you write to custom icons.

1. Add an image to the sample (blank) custom icon as described below in "Creating a Custom Icon."

2. In a worksheet, write, test, and debug, the macro you want to assign to a custom icon. See "Writing Macros for Custom Icons" below to learn rules for writing macros you assign to custom icons.

3. Choose Tools SmartIcons.

4. Select Customize.

   The Tools SmartIcons Customize dialog box is displayed.

5. Under Custom icons, select the icon you created in step 1.

6. Select Assign macro.

   The Tools SmartIcons Customize Assign Macro dialog box is displayed.

7. <u>Specify</u> the range that contains the macro in the Range <u>text box</u>.

   Note When specifying the range, you must include all the cells that contain the macro instructions; you cannot specify only the first cell of the macro.

8. Select Get macro.

   1-2-3 copies the macro from the worksheet to the Macro text box.

9. Select OK.

   The Tools SmartIcons Customize dialog box is redisplayed.

10. Once you assign a macro to an icon, you can add it to the icon palette as described in <u>Tools SmartIcons Customize</u>.

Creating Custom Icons

Custom Icons are stored in bitmap files (.BMP). Bitmap files for Worksheet window icons are stored in a subdirectory of the 1-2-3 for Windows program directory named \SHEETICO; bitmap files for Graph window icons are stored in a subdirectory named \GRAPHICO.

You can create custom icons using any drawing or painting program that runs under Windows 3.0 and creates .BMP files, such as Paintbrush.

To create custom icons, follow these steps:

1. Start your drawing or painting program.

2. To create Worksheet window icons, open the file named SAMPLE.BMP that is stored in the \SHEETICO subdirectory of the 1-2-3 for Windows program directory.

   To create Graph window icons, open the file named SAMPLE.BMP that is stored in the \GRAPHICO subdirectory of the 1-2-3 for Windows program directory.

3. Create the icon.

4. Save the file as a .BMP file.

   Save the file in the \SHEETICO subdirectory if you created a Worksheet window icon or in the \GRAPHICO subdirectory if you created a Graph window icon.

   When you save the file, specify a new name so that SAMPLE.BMP remains unchanged. This lets you use the original file to create more custom icons.

   The next time you choose Tools SmartIcons Customize, the new icons will appear in the Custom icons <u>list box</u>.

Note When you select icons in the Custom icons list box, the description "macro button" appears in the <u>information box</u>. Similarly, when you use the right mouse button to display a description of a custom icon in the Worksheet window or Graph window, the description "macro button" appears in the <u>title bar</u>.

Writing Macros for Custom Icons

When you write macros for custom Icons, keep the following in mind:

* Macro instructions you copy to the Macro text box cannot exceed 512 characters. If you want custom icons to run longer macros, have the macro instructions in the Macro text box <u>branch</u> to macros in the worksheet.

* Except for the macro commands listed below, all macro commands and macro keys work the same way when executed from an icon as they do when executed from the worksheet.

   {*subroutine*}   <u>Subroutine calls</u> can only be made to macros in the worksheet; they cannot be made to macro instructions you copy to the Macro text box.

   {BRANCH}, **{DISPATCH}**, and **{MENUBRANCH}**   Macro instructions you copy to the Macro text box can only <u>branch</u> to macro routines in the worksheet; they cannot branch to macro instructions you copy to the Macro text box.

   {ONERROR}   Both *branch-location* and *message-location* must be located in the worksheet; they cannot be part of any macro instructions you copy to the Macro text box.

See also:

<u>Macro Basics</u>
<u>Tools Commands</u>
<u>Using SmartIcons</u>

Using SmartIcons

About Cell References (4:10)

You can select commonly used commands and macros by clicking icons on the icon palette. SmartIcons provide immediate and easy access to 1-2-3 functionality.

To display a description of an icon, position the mouse pointer on the icon and press the right mouse button. The description appears in the title bar.

To Use SmartIcons

1. If the icon acts on a range or an object, select the range or object.

2. Click the icon.

See also:

Tools SmartIcons

Tools User Setup

Changes settings that affect the display and behavior of 1-2-3. Except for Recalculation, these settings can be stored in the file 123W.INI so that they become <u>default settings</u> and take effect automatically whenever you start 1-2-3.

1. Choose Tools User Setup.

2. Select the <u>check box</u> of one or more of the following options:

   Beep on error
   Sets the computer's bell to sound when errors occur and when <u>{BEEP}</u> commands occur in a macro.

   Enable Edit Undo
   Turns <u>Edit Undo</u> on.

   Run autoexecute macros
   Tells 1-2-3 to run <u>autoexecute macros</u> when you open files that contain the macros.

3. Enter the <u>default directory</u> in the Worksheet directory <u>text box</u>.

4. Under Clock display, select one of the following options for the date and time in the <u>status line</u>:

   Standard
   Displays the date in day-month-year format and the time in hour:minutes (AM/PM) format.

   International
   Displays the date in Long International format and the time in Short International format.

   None
   Removes the date and time from the status line.

5. Select <u>International</u> to set the punctuation for numbers, the argument separators for @functions and macro commands, the currency symbol and its position, the international date and time formats, the display of negative numbers in Comma and Currency formats, the way 1-2-3 reads and saves characters in Release 2 files, and the way 1-2-3 translates characters in <u>text files</u>.

6. Select <u>Recalculation</u> to set when and in what order 1-2-3 recalculates formulas and how many recalculation passes it performs each time it recalculates formulas in active files.

7. (Optional) Select Update to store the new default settings in 123W.INI for use in future sessions.

   If you don't select Update, the changes you make affect the current session only.

8. Select OK.

See also:

   <u>Tools Commands</u>

Tools User Setup Recalculation

Controls when and in what order 1-2-3 <u>recalculates</u> formulas and how many recalculation passes it performs each time it recalculates formulas in active files.

1. Choose Tools User Setup.

2. Select Recalculation.

    The Tools User Setup Recalculation dialog box is displayed.

3. Under Order of Recalculation, select one of the following options:

    Natural
    Before recalculating a formula, 1-2-3 recalculates any other formulas that the formula depends on.

    Columnwise
    Starting in A:A1 of the first <u>active file</u>, 1-2-3 moves column by column through each worksheet in each active file, recalculating all formulas.

    Rowwise
    Starting in A:A1 of the first active file, 1-2-3 moves row by row through each worksheet in each active file, recalculating all formulas.

4. Enter a number from 1 to 50 in the Iterations <u>text box</u>.

    Iterations sets the number of recalculation passes 1-2-3 makes when the order is Columnwise or Rowwise, or when the order is Natural and a <u>circular reference</u> exists.

5. Under Recalculation, select one of the following options:

    Automatic
    Each time you change the contents of a cell, 1-2-3 recalculates formulas affected by the change in all active files. Automatic recalculation occurs in the background, so you can continue working while 1-2-3 performs the recalculation.

    Manual
    1-2-3 recalculates formulas only when you press F9 (CALC). Manual recalculation occurs in the foreground, so you must wait for 1-2-3 to complete it before continuing your work.

6. Select OK.

    The Tools User Setup dialog box is redisplayed.

7. Select OK.

8. 1-2-3 stores recalculation settings with the worksheet file. To save the recalculation settings, use <u>File Save</u>.

The recalculation settings affect all active files. When you use <u>File Open</u> to read a file into memory, 1-2-3 uses the new file's recalculation settings for all active files during that session.

When a worksheet contains formulas that link to data in active files or files on disk, use <u>File Administration Update Links</u> to update those formulas.

See also:

<u>Tools Commands</u>

Tools User Setup International

Changes settings that affect the display and behavior of 1-2-3. These settings can be stored in the file 123W.INI so that they become default settings and take effect automatically whenever you start 1-2-3.

Style
Sets the appearance of decimal points, thousands separators, argument separators, and negative numbers.

Currency
Sets the currency symbol and its position.

Format
Sets the Long and Short Intl (international) Date formats and the Long and Short Intl Time formats.

File translation
Sets the way 1-2-3 reads and saves characters in Release 2 (.WK1) files and sets the character translation table that 1-2-3 uses when importing and creating text files.

See also:

Tools Commands

Tools User Setup International Style

Sets the appearance of decimal points, thousands separators, <u>argument separators</u>, and negative numbers.

1. Choose Tools User Setup.

2. Select International.

   The Tools User Setup International dialog box is displayed.

3. Under Style, select a setting from the <u>drop-down box</u> of one or both of the following options:

   Punctuation
   Sets the characters 1-2-3 uses as the decimal point and thousands separator for numbers, and the argument separator for @functions and macro commands.

   Negative values
   Sets whether 1-2-3 uses ( ) (parentheses) or - (minus sign) for negative values in Currency and Comma formats.

4. Select OK.

   The Tools User Setup dialog box is redisplayed.

5. (Optional) Select Update to store the new default settings in 123W.INI for use in future sessions.

   If you don't select Update, the changes you make affect the current session only.

6. Select OK.

See also:

    <u>Range Format</u>
    <u>Tools Commands</u>
    <u>Tools User Setup</u>

Tools User Setup International Currency

Sets the currency symbol and its position.

1. Choose Tools User Setup.

2. Select International.

    The Tools User Setup International dialog box is displayed.

3. Under Currency, enter a currency symbol in the underline text box and select a position for the symbol from the drop-down box.

    Symbol for currency
    Specifies the currency symbol 1-2-3 uses with Currency format. You can use compose sequences to enter a currency symbol.

    Position of symbol
    Sets whether the currency symbol appears before (Prefix) or after (Suffix) the value.

4. Select OK.

    The Tools User Setup dialog box is redisplayed.

5. (Optional) Select Update to store the new default settings in 123W.INI for use in future sessions.

    If you don't select Update, the changes you make affect the current session only.

6. Select OK.

See also:

    ALT+F1 (COMPOSE)
    Range Format
    Tools Commands
    Tools User Setup

Tools User Setup International Format

Sets the Long and Short Intl (international) Date formats and Time formats that appear as options in Range Format and Worksheet Global Settings Format.

1. Choose Tools User Setup.

2. Select International.

   The Tools User Setup International dialog box is displayed.

3. Under Format, select a setting from the drop-down box of one or both of the following options:

   Date
   Sets the international Date formats. You select the Long Intl Date format; 1-2-3 creates the Short Intl Date format by eliminating the year portion of your selection.

   Time
   Sets the international Time formats. You select the Long Intl Time format; 1-2-3 creates the Short Intl Time format by eliminating the seconds portion of your selection.

4. Select OK.

   The Tools User Setup dialog box is redisplayed.

5. (Optional) Select Update to store the new default settings in 123W.INI for use in future sessions.

   If you don't select Update, the changes you make affect the current session only.

6. Select OK.

If the Long form is	The Short form is
12/31/90	12/31
31/12/90	31/12
31.12.90	31.12
90-12-31	12-31
23:59:59	23:59
23.59.59	23.59
23,59,59	23,59
23h59m59s	23h59m

See also:

Tools Commands
Tools User Setup

Tools User Setup International File Translation

Sets the way 1-2-3 reads and saves characters in Release 2 (.WK1) files and sets the character translation table that 1-2-3 uses when importing and creating <u>text files</u>.

1. Choose Tools User Setup.

2. Select International.

   The Tools User Setup International dialog box is displayed.

3. Under File translation, select a setting from the <u>drop-down box</u> of one or both of the following options:

   1-2-3 Rel 2
   Sets the way 1-2-3 for Windows reads and saves characters in Release 2 (.WK1) worksheet files (<u>ASCII</u> or <u>LICS</u>).

   Note Select ASCII if you are reading or saving Release 2 files that were created with, or will be used with, the Universal Text Display - ASCII - No LICS text-display driver (available in Release 2.01 and later). Otherwise, select LICS.

   Text file
   Sets the character translation table that 1-2-3 uses when importing and creating text files (Country or International).

   Note Select Country to have 1-2-3 use the IBM character set supported for your country (for example, Code Page 437 [Extended ASCII] for the U.S.) when translating characters in text files. Select International only if you have configured your system to run the IBM Code Page 850 character set and you want 1-2-3 to translate characters using that character set.

4. Select OK.

   The Tools User Setup dialog box is redisplayed.

5. (Optional) Select Update to store the new default settings in 123W.INI for use in future sessions.

   If you don't select Update, the changes you make affect the current session only.

6. Select OK.

See also:

<u>Range Format</u>
<u>Saving Files in 1-2-3 Release 2 (.WK1) Format</u>
<u>Tools Commands</u>
<u>Tools User Setup</u>

Tools Macro

Starts <u>macros</u>, starts STEP mode and opens the Macro Trace window so you can <u>debug</u> a macro, and records and plays back keystrokes and mouse actions.

<u>Run</u>
Starts a macro.

<u>Debug</u>
Starts STEP mode and opens the Macro Trace window so you can find errors in a macro.

<u>Show Transcript</u>
Opens the Transcript window so you can edit, delete, or play back recorded keystrokes and mouse actions.

See also:

<u>Macro Basics</u>

<u>Tools Commands</u>

Tools Macro Run

Runs a <u>macro</u>.

1. Choose Tools Macro Run.

2. Select a macro from the Macro name <u>list box</u>, type the macro name or address in the Macro name <u>text box</u>, or click the first cell of the macro.

   The list box displays all range names in the current file and the names of other active files.

   If the macro is in another active file, select the name of that file to see the range names from that file. Then select the macro name from the list.

3. Select OK.

See also:

<u>Running a Macro</u>

<u>Tools Commands</u>

Tools Macro Debug

Starts STEP mode and opens the Macro Trace window so you can find errors in a macro.

1. Choose Tools Macro Debug.

2. Select the <u>check box</u> of one or both of the following options:

    Single step
    Starts STEP mode.

    Trace
    Displays the Macro Trace window, which displays the current location and the macro instruction 1-2-3 is currently executing.

3. Select OK.

Note You can also press ALT+F2 (STEP) to start STEP mode.

To End STEP Mode and Close the Macro Trace Window

1. Choose Tools Macro Debug.

2. Remove the X from Single step to end STEP mode.

3. Remove the X from Trace to close the Macro Trace window.

Note You can also press ALT+F2 (STEP) to end STEP mode.

See also:

<u>Debugging a Macro</u>

<u>Tools Commands</u>

Tools Macro Show Transcript

Opens the Transcript window. You can use the following commands in the Transcript window:

File
Closes the Transcript window or ends 1-2-3 for Windows session.

Edit
Deletes, cuts, or copies recorded keystrokes in the Transcript window, or pastes the contents of the Clipboard to the Transcript window.

Macro
Runs keystrokes from the Transcript window as a macro, controls macro recording, helps you debug macros, and sets the behavior of the Transcript window during macro execution.

Window
Tiles or cascades windows and lists open windows.

Help
Provides access to broad categories of 1-2-3 for Windows Help topics.

See also:

Tools Commands
Using the Transcript Window

File Commands (Transcript Window)

Close the Transcript window or end the 1-2-3 for Windows session.

Close
Closes the Transcript window.

Exit
Ends the 1-2-3 for Windows session.

See also:

Tools Commands
Tools Macro Show Transcript
Using the Transcript Window

File Close (Transcript Window)

Closes the Transcript window.

1. Choose File Close.

See also:

> [Tools Commands](#)
> [Tools Macro Show Transcript](#)
> [Using the Transcript Window](#)

File Exit (Transcript Window)

Ends the 1-2-3 for Windows session. When you end a session, 1-2-3 removes all <u>active files</u> from memory, but does not delete the files from disk. The 1-2-3 window closes, and the Windows Program Manager screen is redisplayed.

1. Choose File Exit.

2. If 1-2-3 indicates that active files changed and asks whether you want to save the changes, select one of the following options:

    Yes
    Saves the changes and ends the session.

    No
    Ends the session without saving the changes.

    Cancel
    Does not end the session.

See also:

<u>Exiting and Ending 1-2-3 for Windows</u>
<u>Tools Commands</u>
<u>Tools Macro Show Transcript</u>
<u>Using the Transcript Window</u>

File Exit (Replace/Backup/Cancel)

Cancels or completes the File Exit (Transcript window) command when one or more files changed during the 1-2-3 for Windows session already exist on disk.

1. Select one of the following options:

   Replace
   For all changed files, replaces the data in the files on disk with the updated data.

   Backup
   For all changed files, renames the files on disk with the extension .BAK and replaces the data in the original files on disk with the updated data.

   Cancel
   Returns 1-2-3 to READY mode without updating any file on disk.

2. Select OK.

See also:

File Commands (Transcript Window)
File Exit (Transcript Window)

Edit Commands (Transcript Window)

Delete, cut, or copy recorded keystrokes in the Transcript window, or paste text from the Clipboard to the Transcript window.

Cut
Cuts selected keystrokes from the Transcript window to the Clipboard.

Copy
Copies selected keystrokes from the Transcript window to the Clipboard.

Paste
Copies the contents of the Clipboard to the Transcript window.

Clear
Deletes selected keystrokes from the Transcript window without moving them to the Clipboard.

Clear All
Deletes all keystrokes from the Transcript window without moving them to the Clipboard.

See also:

Tools Commands
Tools Macro Show Transcript
Using the Transcript Window

Edit Cut (Transcript Window)

Cuts selected keystrokes from the Transcript window to the Clipboard. The cut keystrokes remain on the Clipboard until you use Edit Copy or Edit Cut again.

1. Select the keystrokes to cut.

2. Choose Edit Cut, or press SHIFT+DEL.

Use Edit Paste to insert cut keystrokes in a worksheet file.

To delete keystrokes from the Transcript window without moving them to the Clipboard, use Edit Clear.

See also:

Tools Commands
Tools Macro Show Transcript
Using the Transcript Window

Edit Copy (Transcript Window)

Copies selected keystrokes from the Transcript window to the <u>Clipboard</u>. The copied keystrokes remain on the Clipboard until you use Edit Cut or Edit Copy again.

1. Select the keystrokes to copy.

2. Choose Edit Copy, or press CTRL+INS.

Use <u>Edit Paste</u> to insert copied keystrokes in a worksheet file.

See also:

<u>Tools Commands</u>
<u>Tools Macro Show Transcript</u>
<u>Using the Transcript Window</u>

Edit Paste (Transcript Window)

Copies the contents of the <u>Clipboard</u> to the Transcript window, starting at the <u>insertion point</u>.

1. Move the insertion point to the position at which to start pasting the Clipboard contents.

2. Choose Edit Paste, or press SHIFT+INS.

1-2-3 inserts the pasted data without writing over existing data in the window.

See also:

<u>Edit Copy (Transcript Window)</u>
<u>Edit Cut (Transcript Window)</u>
<u>Tools Commands</u>
<u>Tools Macro Show Transcript</u>
<u>Using the Transcript Window</u>

Edit Clear (Transcript Window)

Deletes selected keystrokes from the Transcript window without moving them to the Clipboard.

1. Select the keystrokes you want to delete from the Transcript window.

2. Choose Edit Clear, or press DEL.

See also:

Edit Cut (Transcript Window)
Tools Commands
Tools Macro Show Transcript
Using the Transcript Window

Edit Clear All (Transcript Window)

Deletes all keystrokes from the Transcript window without moving them to the Clipboard.

1. Choose Edit Clear All.

See also:

Edit Cut (Transcript Window)
Tools Commands
Tools Macro Show Transcript
Using the Transcript Window

Macro Commands (Transcript Window)

Control macro recording, help you debug macros, run a macro, and set the behavior of the Transcript window during macro execution.

Run
Plays back keystrokes from the Transcript window as a macro.

Pause Recording
Suspends keystroke recording, but does not close the Transcript window.

Debug
Starts STEP mode and opens the Macro Trace window so you can find errors in a macro.

Minimize on Run
Reduces the Transcript window to an icon and makes it inactive when you play back keystrokes with Run.

See also:

Tools Commands
Tools Macro Show Transcript
Using the Transcript Window

Macro Run (Transcript Window)

Plays back keystrokes from the Transcript window as a macro.

Before you open the Transcript window, make sure the cell pointer is in a location that you want the keystrokes to affect.

1. Select the keystrokes in the Transcript window to play back.

2. Choose Macro Run

See also:

Tools Commands
Tools Macro Show Transcript
Using the Transcript Window

Macro Pause Recording (Transcript Window)

Suspends keystroke recording, but does not close the Transcript window.

1. Choose Macro Pause Recording.

   1-2-3 stops recording keystrokes.

After you choose this command the first time, a check mark appears next to the command in the menu. The Transcript window retains the current setting for this command until you turn it off or leave 1-2-3.

To resume keystroke recording, choose Macro Pause Recording again.

See also:

Tools Commands
Tools Macro Show Transcript
Using the Transcript Window

Macro Debug (Transcript Window)

Starts STEP and mode and opens the Macro Trace window so you can find errors in a macro.

1. Choose Macro Debug.

2. Select the check box of one or both of the following options:

    Single step
    Starts STEP mode.

    Trace
    Opens the Macro Trace window, which displays the current location and the macro instruction 1-2-3
    is currently executing.

3. Select OK.

Note You can also press ALT+F2 (STEP) to start STEP mode.

To End STEP Mode and Close the Macro Trace Window

1. Choose Macro Debug.

2. Remove the check from Single step to end STEP mode.

3. Remove the check from Trace to close the Macro Trace window.

Note You can also press ALT+F2 (STEP) to end STEP mode.

See also:

Debugging a Macro
Tools CommandsTools Macro Show Transcript
Using the Transcript Window

Macro Minimize on Run (Transcript Window)

Reduces the Transcript window to an <u>icon</u> and makes it inactive when you play back keystrokes with Macro Run Go.

1. Choose Macro Minimize on Run.

After you choose this command the first time, a check mark appears next to the command in the menu. The Transcript window retains the current setting for this command until you turn it off or leave 1-2-3.

To turn off Minimize on Run, choose Macro Minimize on Run again.

To restore the Transcript window to its original size, choose <u>Restore</u> from the Transcript window Control menu or double-click the Transcript window icon.

Note If you don't use Minimize on Run, the Transcript window becomes inactive when it plays back keystrokes as a macro, but it is not reduced to an icon.

See also:

<u>Tools Commands</u>
<u>Tools Macro Show Transcript</u>
<u>Using the Transcript Window</u>

Window Commands (Transcript Window)

Control the display of windows open in 1-2-3, and list open 1-2-3 windows.

Tile
Sizes all open windows and places them side by side in the 1-2-3 window.

Cascade
Sizes all open windows and arranges them in the 1-2-3 window so they appear one on top of the other, with just the title bars showing.

See also:

Tools Commands
Tools Macro Show Transcript
Using the Transcript Window

Tools Add-in

Reads <u>add-ins</u> into memory and removes add-ins from memory.

<u>Load</u>
Reads an add-in into memory.

<u>Remove</u>
Removes a specified add-in from memory.

<u>Remove All</u>
Removes all open add-ins from memory.

See also:

<u>Add-in Files</u>
<u>Tools Commands</u>
<u>Using Add-in @Functions and Macro Commands</u>

Tools Add-in Load

Reads an add-in into memory.

1. Choose Tools Add-in.

2. Select Load.

   The Tools Add-in Load dialog box is displayed.

3. Specify the name of the add-in you want to read into memory.

   You can edit the file name in the File name text box, or you can use the Files, Directories, and Drives list boxes to select the file you want. For more information about using these list boxes, see Specifying a File.

4. Select OK.

If the add-in contains an application, the name of the application appears in the Tools pulldown menu.

See also:

Tools Add-in
Tools Commands

Tools Add-in Remove

Removes a specified add-in from memory.

1. Choose Tools Add-in.

2. Specify the add-in to remove in the Add-ins list box.

3. Select Remove.

Any formulas that contain @functions from a closed add-in file evaluate to ERR.

See also:

> Tools Add-in
> Tools Commands

Tools Add-in Remove All

Removes all <u>add-ins</u> from memory.

1. Choose Tools Add-in.

3. Select Remove All.

Any formulas that contain @functions from a closed add-in file evaluate to <u>ERR</u>.

See also:

> <u>Tools Add-in</u>
> <u>Tools Commands</u>

Add-in Files

1-2-3 <u>add-in</u> files can contain add-in applications, @functions, or macro commands.

Add-in applications
>   Perform a specific task in 1-2-3. For example, an application in the add-in file MYFORM.ADW is called MYFORM.

Add-in @functions
>   Work like the 1-2-3 <u>@functions</u>. You use add-in @functions in formulas in 1-2-3 just as you use 1-2-3 @functions.

Add-in macro commands
>   Work like the 1-2-3 <u>macro commands</u>. You use add-in macro commands in macros just as you use 1-2-3 macro commands.

Each add-in file can contain any combination of @functions, macro commands, and an application.

See also:

>   <u>Tools Add-in</u>
>   <u>Using Add-in @Functions and Macro Commands</u>

Using Add-in @Functions and Macro Commands

You use add-in @functions and macro commands just as you use 1-2-3 @functions and macro commands.

Add-in @Function Format

Add-in @functions have the same format as any 1-2-3 @function:

@FUNCTION

or

@FUNCTION(*arg1,arg2,...,argn*)

@FUNCTION represents the name of the @function. It tells 1-2-3 which calculation to perform.

arg1,arg2,...,argn represent arguments. Arguments supply the information 1-2-3 needs to complete the @function calculation. For example, when 1-2-3 encounters the function @SUM(B4..B25), the argument B4..B25 tells 1-2-3 to add the values in the range B4..B25.

File References in Add-in @Functions

When you use an add-in @function, 1-2-3 automatically adds the name of the add-in file to the @function name.

For example, when you use the @function @MEDIAN from the file STATS.ADW, 1-2-3 displays the @function as @<<STATS>>MEDIAN.

However, if you use an add-in @function that has the same name as a 1-2-3 @function or an @function in another add-in file, you must precede the @function with the name of its add-in file enclosed in << >> (double angle brackets). If you do not, 1-2-3 may not choose the intended @function.

If you use more than one @function with the same name and do not precede the @function with a file name, 1-2-3 chooses the 1-2-3 @function with that name, if there is one, or the @function from the last add-in file you read into memory that contains that @function name.

Add-in Macro Command Format

Add-in macro commands have the same format as any 1-2-3 macro command:

{KEYWORD}

or

{KEYWORD *arg1,arg2,...,argn*}

KEYWORD represents the verb in the macro command. It tells 1-2-3 which action to perform.

arg1,arg2,...,argn represent arguments. Arguments supply the information 1-2-3 needs to complete the command.

File References in Add-in Macro Commands

When you use an add-in macro command, 1-2-3 automatically adds the name of the add-in file to the macro command.

For example, when you use the macro command SAVE from the file SAVEMAC.ADW, 1-2-3 displays the macro command as <<SAVEMAC>>{SAVE *file*}.

However, if you use an add-in macro command that has the same name as a 1-2-3 macro command or a macro command in another add-in file, you must precede the command with the name of its add-in file enclosed in << >> (double angle brackets). If you do not, 1-2-3 may not choose the intended macro command.

If you use more than one macro command with the same name and do not precede the command with a

file name, 1-2-3 chooses the 1-2-3 macro command with that name, if there is one, or the macro command from the last add-in file you read into memory that contains that command name.

See also:

@Function Basics
Macro Basics
Tools Add-in

Solver Help Overview

This overview lists Help topics related to the Solver.

Creating a Worksheet Model

Solver Basics
Setting Up a Solver Problem
Modifying a Solver Problem
@Functions in Solver Problems

Solving a Problem

Solver Definition
Solver Progress
Solver Guess

Viewing and Saving Solver Results

Solver Answer
Solver Report
Roundoff Messages in the Solver
Saving Solver Answers and Attempts
Saving a Solver Table Report
Restoring Original Values After Using the Solver

Sample Worksheet Models

Included with 1-2-3 for Windows are the following sample worksheet files, which you can use with the Solver:

*   INVEST.WK3 contains a model for structuring an investment portfolio.

*   PRODUCT.WK3 contains a model for planning production levels.

*   SALES.WK3 contains a model for examining sales quotas.

The Install program transferred these files to the subdirectory SAMPLE in your 1-2-3 program directory. (If you are using the network version of 1-2-3, SAMPLE is a subdirectory in your personal directory. See your network administrator for more information.) **Chapters 2, 3, and 4** of the *Solver Guide* explain how to use the sample worksheet models.

Solver Basics

The Solver analyzes data in a worksheet and shows you a variety of possible <u>answers</u> to a problem you define. An answer satisfies constraints you specify. You can start with any worksheet model that contains <u>logical formulas</u> and values you want to experiment with.

The Worksheet Model

A simple worksheet model for profits and expenses can be represented by two formulas, one for profits (+SALES-EXPENSES) and one for expenses (+COMMISSION*SALES). You can use the Solver to find answers for the problem of how to maximize profits given different values for SALES, EXPENSES, and COMMISSION.

You must specify two kinds of information to the Solver before it can find answers:

* Cells that may be adjusted. Examples of <u>adjustable cells</u> are SALES and COMMISSION.

* Cells containing logical formulas that are <u>constraints</u> for the problem. Examples of constraint formulas are +SALES<=250000, or +COMMISSION>=0.10. Each constraint should depend directly or indirectly on the value of one or more adjustable cells.

In addition, the Solver can find the maximum or minimum value for a single cell, called the <u>optimal cell</u>. Some problems do not require an optimization of this kind, so an optimal cell is optional. In the example above, you want to find the value that gives you the highest profit, so you specify the cell containing +SALES-EXPENSES as the optimal cell.

For more information about creating a worksheet model for the Solver, see <u>Setting Up a Solver Problem</u> or see the sample worksheet models provided with 1-2-3: SALES.WK3, PRODUCT.WK3, and INVEST.WK3.

The Install program transferred these files to the subdirectory SAMPLE in your 1-2-3 program directory. (If you are using the network version of 1-2-3, SAMPLE is a subdirectory in your personal directory. See your network administrator for more information.) **Chapters 2, 3, and 4** of the *Solver Guide* explain how to use the sample worksheet models.

Working with the Solver

When solving, the Solver finds sets of values for the adjustable cells that satisfy each of the constraints. Each set of such values is an answer. In the example above, the Solver adjusts the cells called SALES and COMMISSION to maximize profits and find other representative answers.

You work with the Solver through a series of dialog boxes, one dialog box leading to the next at each step of the procedure.

<u>Solver Definition</u>
Defines the problem for the Solver. You supply the addresses of adjustable and constraint cells, and an optional optimal cell.

<u>Solver Progress</u>
Shows the Solver's progress in analyzing and solving the problem.

<u>Solver Answer</u>
Shows the number of answers or attempts the Solver found and instructs the Solver to display the different solutions in the worksheet.

<u>Solver Report</u>
Displays information about answers or attempts the Solver found.

<u>Solver Guess</u>
Asks you to specify new values for adjustable cells if the Solver did not find answers to the problem as you defined it. The Solver uses these new values to try to find an answer to the problem.

See also:

Solver Definition

Defines the problem for the Solver. Before you define the problem here, you must <u>set up the problem</u> in a worksheet.

1. Open the worksheet file that contains the problem you want to solve.

2. Choose Tools Solver.

   The Solver Definition dialog box is displayed, with the name of the current worksheet file.

3. In the Adjustable cells <u>text box</u>, specify the addresses or range names of the cells containing values that the Solver can change.

   Separate each address or range name with a valid <u>argument separator</u>.

4. In the Constraint cells text box, specify the addresses or range names of the cells containing the logical formulas that each answer must satisfy.

5. (Optional) In the Optimal cell text box, specify the address or range name of the cell for which you want the Solver to find the highest or lowest value.

   The optimal cell must depend directly or indirectly on the value of one or more adjustable cells.

   Select one of the following options:

   Max
   Finds the highest value for the optimal cell.

   Min
   Finds the lowest value for the optimal cell.

6. (Optional) Select <u>Options</u> to specify the number of answers you want the Solver to find. If you do not specify otherwise, the Solver will automatically find up to ten answers.

7. Select Solve.

   Note The more complex the problem, the more time the Solver may need to solve it. Increasing the number of adjustable and/or constraint cells typically increases the number of answers the Solver will find and the time required to find all answers. You cannot do other tasks in 1-2-3 while the Solver is solving, so you may want to choose a time for solving when you do not need to do other work in 1-2-3.

The Solver displays the <u>Solver Progress</u> dialog box while it analyzes the problem and looks for answers. When the Solver finishes solving, it displays the <u>Solver Answer</u> dialog box.

See also:

Solver Options

Specifies the number of answers you want the Solver to find.

1. In the Number of answers <u>text box</u>, enter a number between 1 and 999.

    The number you specify is an estimate; the Solver may find fewer or more answers than you request.

2. Select OK.

The <u>Solver Definition</u> dialog box is redisplayed.

See also:

<u>Solver Basics</u>

Solver Progress

Informs you of the Solver's progress in solving the problem and lets you cancel solving.

Note The more complex the problem, the more time the Solver may need to solve it. Increasing the number of adjustable and/or constraint cells typically increases the number of answers the Solver will find and the time required to find all answers. You cannot do other tasks in 1-2-3 while the Solver is solving, so you may want to choose a time for solving when you do not need to do other work in 1-2-3.

To Cancel Solving

1. Select Cancel or press CTRL+BREAK to stop the Solver.

If the Solver has found one or more answers or attempts when you select Cancel, it displays the Solver Answer dialog box. If the Solver has not found any answers or attempts, it redisplays the Solver Definition dialog box.

Progress Messages

Analyzing Problem
Indicates that the Solver is examining the worksheet to locate the values, formulas, and other information it needs to solve the problem.

Searching for Answer #
Displays which answer the Solver is looking for.

Elapsed Time
Displays the time elapsed since the Solver began to search for answers.

% Complete
Displays the percent complete (0-100%), representing the Solver's progress.

The Solver may find more than one answer to a problem. It stops searching for answers when it reaches the limit you specified in Solver Options, or when it finds all of the answers that satisfy the constraints.

The Solver displays the Solver Answer dialog box when it finishes solving.

See also:

Solver Basics

Solver Answer

Provides information about the <u>answers</u> or <u>attempts</u> the Solver finds and displays the answers or attempts in the worksheet. You can scroll through the answers or attempts displayed in the worksheet, see a report, tell the Solver to look for more answers, or specify <u>guess values</u>.

To View Answers

The Solver numbers the answers and then displays the first answer in the worksheet. If you specified an optimal cell, the first answer the Solver displays is always the <u>optimal answer</u> or the best answer found.

The <u>information boxes</u> display the number of the answer and what type of answer it is: "Optimal Answer" when the Solver finds the mathematical optimum; "Best Answer Found" when it is possible that there may be better results; and "Sample Answer #" for other answers the Solver found. The information box may also display a <u>roundoff message</u>.

1. To scroll through answers in the worksheet, select one of the following:

    Next
    Displays the next answer by changing the values in <u>adjustable cells</u> and cells containing dependent formulas.

    First
    Displays the optimal answer (if any) or the first answer by changing the values in adjustable cells and cells containing dependent formulas.

    Original
    Displays the values that were in the worksheet before you ran the Solver.

2. To search for more answers, select Solve.

    The number of answers the Solver finds is equal to or less than the value you specified in the <u>Solver Options</u> dialog box. If there are no more answers when you select Solve, the Solver displays a message.

3. To display report information for the answers, select Report.

    The <u>Solver Report</u> dialog box is displayed.

To View Attempts

If the Solver cannot find answers to a problem, it produces attempts that satisfy some but not all <u>constraints</u>. The Solver numbers the attempts and displays the first attempt in the worksheet.

The information box displays "Inconsistent" for each attempt to remind you that there is at least one <u>inconsistent constraint</u>. If the Solver can pursue an attempt and possibly return an answer, the information box displays "Guesses required." If guesses are required, the Guess command button replaces the Solve command button.

1. To scroll through attempts in the worksheet, select one of the following:

    Next
    Displays the next attempt by changing the values in adjustable cells and cells containing dependent formulas.

    First
    Displays the first attempt in the sequence of attempts by changing the values in adjustable cells and cells containing dependent formulas.

    Original
    Displays the values that were in the worksheet before you ran the Solver.

2. To specify guess values for an attempt showing "Guesses required," select Guess.

    The <u>Solver Guess</u> dialog box is displayed.

3. To display report information for the attempts, select Report.

   The Solver Report dialog box is displayed.

See also:

Solver Guess

Prompts you to supply guess values for adjustable cells and uses these values to try to find an answer.

The Solver Guess dialog box displays the following information:

Cell
    Displays the cell address and name of the current adjustable cell that requires a guess value. For the cell name, the Solver uses either the range name, if it has one, or the labels to the left and above the cell.

Initial guess
    Displays the value you entered for the cell before you last solved the problem.

Current value
    Displays the value for the current attempt.

To Specify Guess Values

1. In the Solver Answer dialog box, select Next until the attempt that most closely approximates a reasonable solution to the problem is displayed in the worksheet. The attempt you display must be an attempt for which the message "Requires guesses" appears.

2. Select Guess.

   The Solver Guess dialog box is displayed.

3. Accept the value provided in the New guess text box, or enter a new value for the current adjustable cell.

4. Select Next to move to the next adjustable cell that requires a guess value.

5. After entering all guess values, select Solve.

The Solver tries to solve the problem using the new guess values. The Solver looks for a single answer, not the number of answers specified in the Solver Options dialog box. If the Solver is successful, it discards all other attempts it previously found, displays the Solver Answer dialog box, and places the answer in the worksheet.

See also:

    Solver Basics
    Solver Definition
    Solver Progress

Solver Report

Displays options for reporting information about <u>answers</u> and <u>attempts</u> the Solver found. The Solver can create the following reports:

<u>Answer table</u>
Lists all the answers or attempts the Solver found for a problem. The report includes the values of all the <u>adjustable cells</u>, the <u>optimal cell</u> (if any), and any other cells used to solve the problem.

<u>Cells used</u>
Lists the adjustable, constraint, and optimal cells the Solver used to solve the problem.

<u>Differences</u>
Compares two answers (or two attempts) and reports cells used whose values differ by at least the amount you specify.

<u>How solved</u>
Lists the information the Solver used to find an answer or attempt.

<u>Inconsistent constraints</u>
Lists the constraint cells that were not satisfied (returned a value of 0) for the current attempt.

<u>Unused constraints</u>
Lists the constraint cells the Solver did not use to find the current answer or attempt.

<u>What-if limits</u>
Lists the amount the adjustable cells can change and still satisfy all the constraints for the current answer.

See also:

<u>Saving a Solver Table Report</u>
<u>Solver Basics</u>
<u>Solver Definition</u>

Solver Report: Answer Table

Creates a worksheet file that contains a Solver Table Report of all the answers or attempts the Solver found for a problem. The Solver gives the file a unique name beginning with ANSWER (for example, ANSWER01.WK3).

The report lists

* Highest and lowest values across all answers or attempts for all cells in the problem (except constraint cells)

* The value for the optimal cell (if specified) for each answer or attempt

* The values for the adjustable cells for each answer or attempt

* The values for all other cells, called supporting formula cells, that contain values or formulas required to compute the value of the optimal cell or one or more constraint cells

The Answer table report is available in table format only.

1. Select Report in the Solver Answer dialog box.

   The Solver Report dialog box is displayed.

2. Under Type, select Answer table.

3. Under Format, select Table.

4. Select OK.

   The Solver creates a new worksheet file containing a Solver Table Report.

See also:

Saving a Solver Table Report
Saving Solver Answers and Attempts
Solver Basics
Solver Definition

Solver Report: Cells Used

Lists the adjustable and constraint cells, and the optimal cell (if any) the Solver used to solve the problem.

1. Select Report in the Solver Answer dialog box.

   The Solver Report dialog box is displayed.

2. Under Type, select Cells used.

3. Under Format, select one of the following:

   Cell
   Displays, one at a time, information about each adjustable and constraint cell, and the optimal cell (if any). The report is displayed in a Solver Cell Report dialog box.

   Table
   Creates a Solver Table Report in a new worksheet file. The Solver gives the file a unique name beginning with CELLS (for example, CELLS001.WK3). The Solver Table Report lists all adjustable and constraint cells, the optimal cell (if any), and their names. For the cell name, the Solver uses either the range name, if it has one, or the labels to the left and above the cell.

4. Select OK.

   The Solver displays the report in the format you selected.

See also:

Saving a Solver Table Report
Solver Basics
Solver Definition

Solver Report: Differences

Compares the values found for a cell in two answers or two attempts and calculates the difference between the values.

To produce the Differences report, you must enter the number the Solver assigned to each answer or attempt. You can use the Answer table report to list these numbers.

1. Select Report in the Solver Answer dialog box.

   The Solver Report dialog box is displayed.

2. Under Type, select Differences.

3. Under Format, select one of the following:

   Cell
   Displays, one at a time, the amount and percentage by which the two answers or attempts differ for each cell used to solve the problem. The report is displayed in a Solver Cell Report dialog box.

   Table
   Creates a Solver Table Report in a new worksheet file. The Solver gives the file a unique name beginning with DIFFS (for example, DIFFS001.WK3). The Solver Table Report lists the amount and percentage by which the two answers or attempts differ for each cell used to solve the problem.

4. Select OK.

   The Solver Report Differences dialog box is displayed.

See also:

Saving a Solver Table Report
Solver Basics
Solver Definition

Solver Report Differences

Specifies the numbers the Solver assigned to the two answers or attempts you want the Solver to compare, and the value for the comparison. You can use the Answer table report to list the numbers the Solver assigned.

1. In the Compare answers text boxes, enter the numbers the Solver assigned to the two answers or attempts you want to compare.

2. In the For differences >= text box, enter the number to use for the comparison value.

   For example, enter 25 to compare answers that differ by $25.

3. Select OK.

   The Solver displays the report in the format you selected in the Solver Report dialog box.

See also:

Solver Basics
Solver Definition

Solver Report: How Solved

Creates a worksheet file that contains information about the currently displayed answer or attempt. The Solver gives the file a unique name beginning with HOW (for example, HOW00001.WK3).

The report lists the following for the current answer or attempt:

*   The <u>optimal cell</u> (if any) and its value

*   All <u>adjustable cells</u> and their values

*   All <u>binding constraints</u>

*   All <u>unused constraints</u>

*   All <u>inconsistent constraints</u> (for attempts only)

*   All cells that require <u>guess values</u> (for attempts that require guesses only)

The How solved report is available in table format only.

1. Select Report in the <u>Solver Answer</u> dialog box.

    The <u>Solver Report</u> dialog box is displayed.

2. Under Type, select How solved.

3. Under Format, select Table.

4. Select OK.

    The Solver creates a new worksheet file containing a Solver Table Report.

See also:

<u>Saving a Solver Table Report</u>
<u>Solver Basics</u>
<u>Solver Definition</u>

Solver Report: Inconsistent Constraints

Lists the cells that contain <u>inconsistent constraints</u> for the current attempt. For each inconsistent constraint, the Solver also displays a revised <u>logical formula</u> that would return 1 (true).

1. Select Report in the <u>Solver Answer</u> dialog box.

   The <u>Solver Report</u> dialog box is displayed.

2. Under Type, select Inconsistent constraints.

3. Under Format, select one of the following:

   Cell
   Displays, one at a time, each inconsistent constraint found and the suggested revision of the formula in a <u>Solver Cell Report</u> dialog box.

   Table
   Creates a Solver Table Report in a new worksheet file. The Solver gives the file a unique name beginning with INCONS (for example, INCONS01.WK3). The Solver Table Report lists all inconsistent constraints found and the suggested revisions of the formulas.

4. Select OK.

   The Solver displays the report in the format you selected.

See also:

<u>Saving a Solver Table Report</u>
<u>Solver Basics</u>
<u>Solver Definition</u>

Solver Report: Unused Constraints

Lists <u>constraints</u> the Solver did not use when finding the current answer or attempt and suggests a revision of the formula that would make it <u>binding</u> for the answer.

The Solver did not use the constraints because other constraint cells were more restrictive for the current answer or attempt. For example, if the problem has two constraints, +B1>=10 and +B1>=12, the Solver uses only the second constraint.

For each unused constraint, the Solver reports how to change the logical formula so the constraint would become binding for the answer.

1. Select Report in the <u>Solver Answer</u> dialog box.

    The <u>Solver Report</u> dialog box is displayed.

2. Under Type, select Unused constraints.

3. Under Format, select one of the following:

    Cell
    Displays, one at a time, each unused constraint found and the suggested revision of the formula. The report appears in a <u>Solver Cell Report</u> dialog box.

    Table
    Creates a Solver Table Report in a new worksheet file. The Solver gives the file a unique name beginning with UNUSED (for example, UNUSED01.WK3). The Solver Table Report lists all unused constraints found and the suggested revisions of the formulas.

4. Select OK.

    The Solver displays the report in the format you selected.

See also:

<u>Saving a Solver Table Report</u>
<u>Solver Basics</u>
<u>Solver Definition</u>

Solver Report: What-if Limits

Lists a range of the possible values an <u>adjustable cell</u> can have in the current answer and still satisfy all the <u>constraints</u>.

1. Select Report in the <u>Solver Answer</u> dialog box.

   The <u>Solver Report</u> dialog box is displayed.

2. Under Type, select What-if limits.

3. Under Format, select one of the following:

   Cell
   Displays, one at a time, the values for each adjustable cell in a <u>Solver Cell Report</u>. The report displays the highest and lowest values for the adjustable cell for all the answers, and the approximate range of values for the adjustable cell that would satisfy all the constraints for this answer, assuming no other adjustable cell values are changed.

   Table
   Creates a Solver Table Report in a new worksheet file. The Solver gives the file a unique name beginning with LIMITS (for example, LIMITS01.WK3). The Solver Table Report displays the highest and lowest values for each adjustable cell for all the answers, and the approximate range of values for each adjustable cell that would satisfy all the constraints, assuming no other adjustable cell values are changed.

4. Select OK.

   The Solver displays the report in the format you selected.

See also:

<u>Saving a Solver Table Report</u>
<u>Solver Basics</u>
<u>Solver Definition</u>

Solver Cell Report

Displays the report information you requested in the <u>Solver Report</u> dialog box for each cell in the problem one at a time.

1. Select Next to display information about the next cell in the problem.

2. Select Cancel to return to the Solver Report dialog box.

See also:

<u>Solver Basics</u>
<u>Solver Definition</u>

Roundoff Messages in the Solver

When "Roundoff error" or "Minor roundoff" appears in the <u>Solver Answer</u> dialog box, the Solver has found an answer, but one of the following conditions pertains to the current answer:

* One or more constraint cells return 0 (false) after rounding off the constraint to 5 decimal places (for "Roundoff error") or 16 decimal places (for "Minor roundoff"). In most cases, roundoff errors of this magnitude should not affect how you use the answer that the Solver found.

* A mathematically valid Solver answer recalculates to <u>ERR</u> when displayed in the worksheet. For example, the Solver can find both negative and positive values that satisfy odd-powered roots, but the worksheet only recognizes the positive values and displays ERR when the negative value is displayed in the worksheet.

* <u>Tools User Setup Recalculation</u> is set to either Columnwise or Rowwise. Reset the recalculation order to Natural and solve the problem again.

You can use the <u>Inconsistent constraints</u> report to see which constraint cells the message "Roundoff error" refers to.

See also:

> <u>Solver Basics</u>
> <u>Solver Definition</u>

Setting Up a Solver Problem

Before the Solver can solve a problem, you must set up the problem in a worksheet.

1. Build a worksheet model to describe a problem that you want to solve.

   For example, a problem may involve an income worksheet model that lists, among other things, sales, various types of expenses, and net income. You want to see the effects of changes in sales and advertising expenses on your income statement.

2. Determine which cells contain values that the Solver may change when finding answers to the problem. The cells that contain these values are the adjustable cells.

   For example, you can adjust the value in the cells named SALES and ADVERTEXP.

3. Determine the requirements you want each Solver answer to satisfy. These requirements become the constraints for the problem.

   For example, you know that sales will probably not increase more than 15%. You specify 15% as the limit for the sales increase.

4. Create a series of logical formulas in the worksheet that describe the requirements. The cells that contain these formulas are the Solver constraint cells.

   For example, +SALES_YR2>=0 and +SALES_YR2<=SALES_YR1*1.15.

5. (Optional) Determine the single cell for which you want the Solver to find the highest or lowest value it can. This is the optimal cell.

   For example, you want to see the maximum value for the cell named INCOME.

6. Choose Tools Solver to display the Solver Definition dialog box and specify the addresses or range names of the adjustable cells, constraint cells, and the optimal cell (if any).

Included with 1-2-3 for Windows are three sample worksheet models that you can use with the Solver: SALES.WK3, PRODUCT.WK3, and INVEST.WK3.

The Install program transferred these files to the subdirectory SAMPLE in your 1-2-3 program directory. (If you are using the network version of 1-2-3, SAMPLE is a subdirectory in your personal directory. See your network administrator for more information.) **Chapters 2, 3, and 4** of the *Solver Guide* explain how to use the sample worksheet models.

See also:

> @Functions in Solver Problems
> Modifying a Solver Problem
> Solver Basics
> Solver Definition
> Solver Help Overview

Modifying a Solver Problem

After you view <u>answers</u> or <u>attempts</u>, you may want to modify the problem.

Caution When you make changes that cause 1-2-3 to recalculate a worksheet file containing the Solver problem, the Solver discards all answers or attempts it found and cannot reset the worksheet when you select Original in the <u>Solver Answer</u> dialog box. If you want to save the current Solver answer, use <u>File Save As</u> to save the worksheet file under another name. Do this for as many answers as you want to save.

1. Make the worksheet containing the model you want to modify current.

2. Make changes to the worksheet as necessary.

3. Choose Tools Solver.

   The Solver displays the <u>Solver Definition</u> dialog box.

4. As necessary, add or modify the cell addresses in the Adjustable cells, Constraint cells, and Optimal cell <u>text boxes</u>.

5. Select Solve.

The Solver displays the <u>Solver Progress</u> dialog box while it analyzes and solves the problem, and displays the <u>Solver Answer</u> dialog box when it finishes.

See also:

<u>Restoring Original Values After Using the Solver</u>
<u>Setting Up a Solver Problem</u>
<u>Solver Basics</u>
<u>Solver Definition</u>

Saving Solver Answers and Attempts

You can save one of the Solver underline answers or underline attempts in the worksheet model, or you can save all answers or attempts in a Solver Table Report.

To Save Answers or Attempts in the Worksheet Model

1. Display the answer or attempt to save in the worksheet by pressing Next in the Solver Answer dialog box.

2. Make the worksheet file containing the answer or attempt current.

3. Choose File Save As.

4. Accept the current worksheet file name or enter a new name in the File name text box.

5. Select OK.

To Save All Answers or Attempts

1. Select Report in the Solver Answer dialog box.

   The Solver Report dialog box is displayed.

2. Under Type, select Answer table.

3. Under Format, select Table.

4. Select OK.

   The Solver creates a worksheet file containing a Solver Table Report of all the answers the Solver found for the problem. The Solver gives the file a unique name beginning with ANSWER (for example, ANSWER01.WK3).

5. Make the worksheet file containing the Solver Table Report current.

6. Choose File Save As.

7. Accept the current worksheet file name or enter a new name in the File name text box.

8. Select OK.

See also:

Restoring Original Values After Using the Solver
Solver Basics
Solver Definition

Saving a Solver Table Report

A Solver Table Report appears in a worksheet file that the Solver creates. A worksheet file containing a Solver Table Report is like any other 1-2-3 worksheet file. You can print, graph, or edit the data it contains, or you can save the file for later use.

1. If necessary, select Cancel one or more times to close the Solver dialog boxes.

2. Make the worksheet containing the Solver Table Report the current worksheet.

3. Choose <u>File Save As</u>.

4. Accept the current worksheet file name or enter a new name in the File name <u>text box</u>.

5. Select OK.

See also:

<u>Solver Basics</u>
<u>Solver Definition</u>
<u>Solver Report</u>

Restoring Original Values After Using the Solver

You can restore values that were in the worksheet before you last solved the problem.

1. Select Original in the Solver Answer dialog box.

Caution If you make changes that cause 1-2-3 to recalculate the worksheet file containing the Solver problem, the Solver discards all answers or attempts it found and cannot reset the worksheet when you select Original.

See also:

Solver Basics
Solver Definition

@Functions in Solver Problems

The list below shows @functions you can always use in a formula in any Solver problem.

In addition, the Solver can solve problems containing formulas that use any other 1-2-3 for Windows @function, as long as that @function is not used to compute the result of a constraint cell or the optimal cell.

@Functions the Solver cannot use include @functions with *string* arguments, date and time @functions, database @functions, string @functions, and some special @functions.

If you are unsure whether a problem you define contains @functions the Solver cannot use, try solving the problem anyway. If the Solver detects an @function it cannot use, it displays a message indicating which cell contains the @function.

@ABS	@MOD
@ACOS	@NPV
@ASIN	@PI
@ATAN	@PMT
@ATAN2	@PV
@AVG	@RATE
@CHOOSE	@ROUND
@COLS	@ROWS
@COS	@SHEETS
@COUNT	@SIN
@CTERM	@SLN
@DDB	@SQRT
@EXP	@STD
@FALSE	@STDS
@FV	@SUM
@HLOOKUP	@SUMPRODUCT
@IF	@SYD
@INDEX	@TAN
@INT	@TERM
@IRR	@TRUE
@ISNUMBER	@VAR
@LN	@VARS
@LOG	@VDB
@MAX	@VLOOKUP
@MIN	

See also:

Tools Backsolver

Finds a value for one cell that makes the result of a formula equal to a value you specify.

Caution Backsolver replaces the current value of one cell with the solved value, so you may want to save the worksheet before using the Backsolver or use Edit Undo to restore the original value in the worksheet.

1. Make the worksheet containing the problem you want to solve current.

2   Determine the formula for which you want to find a specific value. The cell containing the formula will be the Make cell.

3. Decide on the desired result value for the formula. This will be the Equal to value.

4. Determine the cell containing the value that the Backsolver can change. This will be the value for the By changing cell. The formula contained in the Make cell must depend directly or indirectly on the By changing cell; that is, when the value in the By changing cell changes, the result of the formula in the Make cell also changes.

5. Choose Tools Backsolver.

6. Enter the address of the cell containing the formula in the Make cell text box.

7. Enter the desired value for the formula in the Equal to value text box. The value must be a number or a formula that evaluates to a number.

8. Enter the address of the cell containing the value to be changed in the By changing cell text box.

9. Select Solve.

    The Backsolver replaces the value in the By changing cell with the value that causes the Make cell to evaluate to the Equal to value.

Example

Backsolver

See also:

Solver Help Overview
Tools Commands

Example: Backsolver

A worksheet has the following values and formulas, which calculate information about monthly mortgage payments on a house:

	A	B
1	House price	130,000
2	Down payment	26,000
3	Loan amount	104,000
4	Interest rate	12%
5	Term of loan (yrs.)	30
6	Monthly payment	1,069.76

Cell B2 contains the formula +B1*0.2.

Cell B3 contains the formula +B1-B2.

Cell B6 contains the @PMT formula @PMT(B3,B4/12,B5*12).

The worksheet shows a purchase price of $130,000 and a down payment of 20%. At an interest rate of 12% and a term of 30 years, the mortgage payment is $1,069.76 per month.

Suppose you can afford a higher monthly payment -- $1,250 for example. Using the Backsolver, you can find the loan amount that results in the monthly payment you want.

1. Choose Tools Backsolver.

2. Specify the following:

   Make cell   B6

   Equal to value   1250

   By changing cell   B1

   Note The formula in B6 does not use B1; it uses B3, which contains a reference to B1. The Backsolver can trace through multiple formulas when solving.

3. Select Solve.

Cell B1 contains the new house price: $151,903.64. The Backsolver also adjusts cells that refer to B1, namely B2 and B3. The worksheet shows the following values:

	A	B
1	House price	151,903.64
2	Down payment	30,380.73
3	Loan amount	121,522.91
4	Interest rate	12%
5	Term of loan (yrs.)	30
6	Monthly payment	1,250.00

See also:

Solver Help Overview
Tools Backsolver
Tools Commands

Window Split
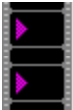
About Cell References (4:10)

About Cell References (4:10)

Divides a Worksheet window horizontally or vertically into two panes, or displays three contiguous worksheets in perspective view.

1. Position the cell pointer in the row or column at which you want to split the window.

2. Choose Window Split.

3. Under Type, select one of the following options:

   Horizontal
   Creates two panes divided by the current row.

   Vertical
   Creates two panes divided by the current column.

   Perspective
   Displays the same area of three contiguous worksheets.

   Clear
   Turns off a horizontal, vertical, or perspective view and restores full worksheet display.

4. (Optional) Select the Synchronize check box to cause views to scroll together.

5. Select OK.

1-2-3 saves a file's window settings when you save the file. When you read the file into memory, 1-2-3 displays the file using the window settings saved for the file.

Dividing a Window into Panes
You can use the mouse to divide a window horizontally or vertically into panes. To divide a window horizontally, move the mouse pointer to the horizontal splitter at the top of the right scroll bar. When the shape of the mouse pointer changes to a black two-headed vertical arrow, drag the mouse pointer to the row at which you want to horizontally divide the window.

To divide a window vertically, move the mouse pointer to the vertical splitter at the far left of the bottom scroll bar. When the shape of the mouse pointer changes to a black two-headed horizontal arrow, drag the mouse pointer to the column at which you want to vertically divide the window.

Working in Panes

* To move the cell pointer between panes using the keyboard, press F6 (PANE) in READY or POINT mode.

* To move the cell pointer between panes using the mouse, click a cell in the pane you want to move to.

* To expand a pane to the full size of the window, press ALT+F6 (ZOOM). Press ALT+F6 (ZOOM) again to return a pane to its original size.

* When you create horizontal or vertical panes, you can change the column widths, hidden and displayed columns, and worksheet titles in one pane independently of the other.

* When you clear a horizontal or vertical view, 1-2-3 uses the settings from the top or left pane.

Working in Perspective View

* To move between worksheets in perspective view, press F6 (PANE)

* To move the previous or next worksheet into view, press CTRL+PG UP or CTRL+PG DN.

See also:

Window Commands

Window Display Options

 About the Appearance of Data (3:25)

Controls display settings for the current 1-2-3 session and, optionally, makes the settings the default settings for all active files. The settings of the most recently opened file become the display settings for all other active files during the 1-2-3 session.

Colors
Assigns colors to worksheet frame, cell background, cell contents, negative values, drop shadows, grid lines, range borders, cell pointer, highlighted ranges, and unprotected cells.

Options
Specifies whether the worksheet appears with page breaks, in draft or graphic display, in monochrome or color display, and with grid lines.

Zoom
Changes the display size of worksheet cells.

Frame
Hides or changes the appearance of the 1-2-3 worksheet frame.

Palette
Sets the colors or shades of gray that can be used for displaying and printing worksheets and graphs.

Update
Makes the current Colors, Options, Zoom, Frame, and Palette settings the default settings for all active files.

Restore
Replaces the currently selected Colors, Options, Zoom, Frame, and Palette settings with the default settings that belong to the current file.

See also:

Window Commands

Window Display Options Colors

About Cell References (4:10)

Assigns colors from the worksheet palette (set through Window Display Options Palette) to grid lines, cells, and other parts of the worksheet in all active files. These colors are visible when a worksheet is displayed or printed on a color printer.

1. Choose Window Display Options.

2. Under Colors, select the drop-down box of one of the following options:

   Worksheet frame
   Sets the color for the worksheet frame.

   Cell background
   Sets the color for the background in cells.

   Cell contents
   Sets the color for values and labels.

   Negative values
   Sets the color for negative values.

   Drop shadows
   Sets the color for drop shadows.

   Grid lines
   Sets the color for grid lines.

   Range borders
   Sets the color for outlines around and lines within ranges.

   Selected ranges
   Sets the color for the cell pointer and highlighted ranges.

   Unprotected cells
   Sets the color for unprotected ranges.

3. Select a color from the list.

4. Repeat steps 2 and 3 to assign colors to other parts of the worksheet.

5. Select OK.

Default Settings

*   To make current Colors, Options, Zoom, Frame, and Palette settings the default settings for all active files, select Window Display Options Update.

*   To replace the currently selected Colors, Options, Zoom, Frame, and Palette settings with the default settings that belong to the current file, select Window Display Options Restore.

*   If you do not specify Window Display Options Update or Restore, the selected settings are in effect until you change them again or you end the current 1-2-3 session.

See also:

Range Unprotect
Style Border
Window Commands
Window Display Options

Window Display Options Options

Displays each worksheet in all <u>active files</u> in monochrome or color and in draft or graphic mode, and displays or hides grid lines and page breaks in each worksheet.

1. Choose Window Display Options.

2. Under Options, select the <u>check box</u> of one or more of the following options:

    Page breaks
    Displays or hides the page breaks 1-2-3 inserts when you set a print range with the Range option of <u>File Print</u> and when you set page breaks with <u>Worksheet Page Break</u>.

    Draft
    Sets worksheet display to draft or graphic mode.

    In draft mode, 1-2-3 uses a monospace font and does not display borders and <u>formatting</u> on the screen; however, the format of the current cell is indicated in the <u>format line</u>, and printed output reflects formatting.

    In graphic mode, the screen display closely resembles the printed output.

    B&W
    Sets the screen display to monochrome or color.

    If you do not have a color printer, use this option to see how colors will appear as shades of gray when printed.

    Grid lines
    Displays <u>grid lines</u> that outline cells in the worksheet.

3. Select OK.

Default Settings

*   To make current Colors, Options, Zoom, Frame, and Palette settings the <u>default settings</u> for all active files, select <u>Window Display Options Update</u>.

*   To replace the currently selected Colors, Options, Zoom, Frame, and Palette settings with the default settings that belong to the current file, select <u>Window Display Options Restore</u>.

*   If you do not specify Window Display Options Update or Restore, the selected settings are in effect until you change them again or you end the current 1-2-3 session.

See also:

<u>Window Commands</u>
<u>Window Display Options</u>

Window Display Options Zoom

Changes the display size of cells in each worksheet in all <u>active files</u>. You can set the display size of cells to as little as 25% or to as much 400% of the normal display size.

When you enlarge cells, the number of displayed rows and columns decreases. When you reduce cells, the number of displayed rows and columns increases.

1. Choose Window Display Options.

2. Enter a number from 25 through 400 in the Zoom <u>text box</u>.

3. Select OK.

Default Settings

* To make current Colors, Options, Zoom, Frame, and Palette settings the <u>default settings</u> for all active files, select <u>Window Display Options Update</u>.

* To replace the currently selected Colors, Options, Zoom, Frame, and Palette settings with the default settings that belong to the current file, select <u>Window Display Options Restore</u>.

* If you do not specify Window Display Options Update or Restore, the selected settings are in effect until you change them again or you end the current 1-2-3 session.

See also:

<u>Window Commands</u>
<u>Window Display Options</u>

Window Display Options Frame

Hides or changes the appearance of the 1-2-3 <u>worksheet frame</u> for each worksheet in all <u>active files</u>.

1. Choose Window Display Options.

2. Select one of the following options from the Frame <u>drop-down box</u>:

   Standard
   Displays a gray worksheet frame.

   Characters
   Displays the worksheet frame as rulers based on 10-point characters.

   Inches
   Displays the worksheet frame as rulers based on inches.

   Metric
   Displays the worksheet frame as rulers based on centimeters.

   Points/Picas
   Displays the worksheet frame as rulers based on points and picas.

   None
   Hides the worksheet frame.

3. Select OK.

Default Settings

* To make current Colors, Options, Zoom, Frame, and Palette settings the <u>default settings</u> for all active files, select <u>Window Display Options Update</u>.

* To replace the currently selected Colors, Options, Zoom, Frame, and Palette settings with the default settings that belong to the current file, select <u>Window Display Options Restore</u>.

* If you do not specify Window Display Options Update or Restore, the selected settings are in effect until you change them again or you end the current 1-2-3 session.

See also:

<u>Window Commands</u>
<u>Window Display Options</u>

Window Display Options Palette

About Cell References (4:10)

For all <u>active files</u>, sets the colors or shades of gray that can be used for displaying and printing worksheets, ranges, graphs, and graph <u>objects</u>.

1. Choose Window Display Options.

2. Select Palette.

   The Window Display Options Palette dialog box is displayed.

3. From the Palette <u>list box</u>, select the box containing the color you want to replace.

4. Under Colors, select a color or shade of gray.

   1-2-3 displays the new color or shade of gray in the selected Palette box.

5. Repeat steps 3 and 4 until the colors or shades of gray you want are displayed under Palette.

6. Select OK.

   The Window Display Options dialog box is redisplayed.

7. Select OK.

Default Settings

* To make current Colors, Options, Zoom, Frame, and Palette settings the <u>default settings</u> for all active files, select <u>Window Display Options Update</u>.

* To replace the currently selected Colors, Options, Zoom, Frame, and Palette settings with the default settings that belong to the current file, select <u>Window Display Options Restore</u>.

* If you do not specify Window Display Options Update or Restore, the selected settings are in effect until you change them again or you end the current 1-2-3 session.

To assign colors to	Use
Parts of a worksheet	<u>Window Display Options Colors</u>
Data in a range	<u>Style Color</u>
Parts of a graph	<u>Chart Options Colors (Graph window)</u>
Graph objects	<u>Style Color (Graph window)</u>
Graphed values	<u>Chart Options Advanced Styles (Graph window)</u>

See also:

<u>Window Commands</u>
<u>Window Display Options</u>

Window Display Options Update

Makes the current Colors, Options, Zoom, Frame, and Palette settings the <u>default settings</u> for all <u>active files</u>.

1. Choose Window Display Options.

2. Under Default settings, select Update.

   1-2-3 saves the current settings as the default display settings.

3. Select OK.

See also:

<u>Window Commands</u>
<u>Window Display Options</u>

Window Display Options Restore

For all <u>active files</u>, replaces the currently selected Colors, Options, Zoom, Frame, and Palette settings with the <u>default settings</u> that belong to the current file.

1. Choose Window Display Options.

2. Under Default settings, select Restore.

   1-2-3 replaces the current settings with the default display settings.

3. Select OK.

See also:

<u>Window Commands</u>
<u>Window Display Options</u>

Window Tile

Sizes open windows (Worksheet, Graph, and Transcript) and places them side by side in the 1-2-3 window.

1. Choose Window Tile.

1-2-3 places the active window in the upper left corner of the work space.

See also:

Tools Macro Show Transcript
Window Cascade
Window CommandsWindow Commands (Graph Window)

Window Cascade

Sizes open windows (Worksheet, Graph, and Transcript) and arranges them in the 1-2-3 window so they appear one on top of the other, with just the title bars showing.

1. Choose Window Cascade.

1-2-3 places the active window in front.

See also:

Tools Macro Show Transcript
Window Commands
Window Commands (Graph Window)
Window Tile

Window (Window Name)

Lists up to nine open windows (Worksheet, Graph, and Transcript), and displays a check mark next to the active window.

The listed names are the same as the names displayed in the title bar of each open window.

Use this list, or the More Windows list, to make a window active.

1. Select a window from the list.

Using the Mouse or Keyboard to Activate a Window

You can make a window active by moving the mouse pointer to the window and clicking the window or by pressing CTRL+F6 to move the cell pointer to the window.

See also:

Tools Macro Show Transcript
Window Cascade
Window Commands
Window Commands (Graph Window)
Window Tile

Window More Windows

Lists all windows that are open in 1-2-3. Window More Windows is available on the Window pulldown menu when more than nine windows are open in 1-2-3.

Use Window More Windows to make a window active.

1. Choose Window More Windows.

2. Specify a window in the Window list box.

3. Select OK.

See also:

Tools Macro Show Transcript
Window Commands
Window Commands (Graph Window)
Window (Window Name)

Worksheet Global Settings

About Cell References (4:10)

Controls the following global settings for the current worksheet:

Zero display
Sets the display for cells with a value of zero.

Align labels
Sets the global label alignment.

Group mode
Turns GROUP mode on and off.

When GROUP mode is turned on, other Worksheet Global Settings options (Zero display, Align labels, Protection, Column width, and Format), Range commands (Format, Protect, and Unprotect), and Style commands (Alignment, Color, Border, Shading, and Font) affect all worksheets in the file.

Protection
Turns global protection on and off.

Column width
Sets the global column width.

Format
Sets the global cell format.

See also:

Worksheet Commands

Worksheet Global Settings Zero Display

Determines whether 1-2-3 displays a zero, a <u>label</u>, or nothing in cells in the current worksheet that contain either the number zero or a formula that evaluates to zero.

If the current file is in GROUP mode, Worksheet Global Settings Zero display affects all worksheets in the current file.

1. Choose Worksheet Global Settings.

2. Under Zero display, select one of the following options:

    Display zeros
    Displays a zero in cells whose value is zero.

    Leave zeros blank
    Suppresses the display of zeros. Cells whose value is zero appear blank.

    Use label
    Displays a specified label in cells whose value is zero.

3. If you select Use label, enter a label for 1-2-3 to display instead of a zero.

4. Select OK.

See also:

<u>Worksheet Commands</u>
<u>Worksheet Global Settings</u>

Worksheet Global Settings Align Labels

About Cell References (4:10)

Sets the global label alignment for the current worksheet. Worksheet Global Settings Align labels sets the label-prefix character 1-2-3 automatically adds when you enter a label in the worksheet. The label prefix controls the way 1-2-3 displays labels.

If the current file is in GROUP mode, Worksheet Global Settings Align labels affects all worksheets in the file.

1. Choose Worksheet Global Settings.

2. Under Align labels, select Left, Center, or Right.

3. Select OK.

To change the alignment of existing labels in a specific worksheet range, use Style Alignment.
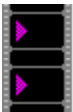
See also:

LABEL Mode
Worksheet Commands
Worksheet Global Settings

Worksheet Global Settings Group Mode

▶ About Cell References (4:10)

▶ About Cell References (4:10)

Turns GROUP mode on for the current file. Use GROUP mode when you want 1-2-3 to assign the current worksheet's cell formats and settings to all worksheets in the current file.

Caution Turning on GROUP mode makes permanent changes to the settings for all worksheets in the current file. Turning off GROUP mode does not reverse those changes.

1. Choose Worksheet Global Settings.

2. Select the Group mode check box.

3. Select OK.

1-2-3 displays the GROUP status indicator in the status line at the bottom of the 1-2-3 window.

While GROUP mode is on, changes you make to one worksheet with any of the following commands affect every worksheet in the current file:

Worksheet commands:
   Column Width, Row Height, Delete [Column, Row], Global Settings, Insert [Column, Row], Page Break, Titles

Range commands:
   Format, Protect, Unprotect

Style commands:
   Font, Alignment, Border, Color, Shading

See also:

   Range Commands
   Working with Multiple Worksheets in a File
   Worksheet Commands
   Worksheet Global Settings

Worksheet Global Settings Protection

Turns global protection on for the current worksheet.

If the current file is in GROUP mode, Worksheet Global Settings Protection affects all worksheets in the file.

1. Choose Worksheet Global Settings.

2. Select the Protection check box.

3. Select OK.

When protection is on and the cell pointer is on a protected cell, 1-2-3 displays PR in the format line. You cannot change data in the current worksheet except in cells you unprotect with Range Unprotect.

See also:

>   Protecting Data and Files
>   Worksheet Commands
>   Worksheet Global Settings

Worksheet Global Settings Column Width

About Cell References (4:10)

Sets the width of all columns in the current worksheet except those columns whose widths you set individually with Worksheet Column Width.

If the current file is in GROUP mode, Worksheet Global Settings Column width affects all worksheets in the current file.

1. Choose Worksheet Global Settings.

2. Enter a number from 1 through 240 in the Column width text box.

3. Select OK.

Effect of Fonts on Column Widths

1-2-3 measures the column width by the number of characters that fit in a column. When you install 1-2-3 for Windows, the default column width is set to 9. The 9 means that nine characters in the default font can be displayed across a column.

If you increase the column width but not the font size, you can display more characters across each column. If you decrease the column width but not the font size, you can display fewer characters across each column.

In 1-2-3 for Windows, you can make the column width as small as 1 or as large as 240. The number of characters you can display across a column depends on the font you select.

Effect of Column Width on Values

When a column is too narrow to display an entire value as it is formatted, 1-2-3 displays *** (asterisks) instead of the value. To display the value, the column must be one character wider than the length of the value as formatted.

Use Worksheet Column Width to widen the column, or use Range Format to change the value's cell format to one requiring fewer characters.

Effect of Column Width on Labels

If a label is longer than the cell it occupies and the cells to the right are blank, 1-2-3 displays the label across the blank cells. If the cells to the right contain data, 1-2-3 displays only the part of the label that fits in the cell where it is entered. Use Worksheet Column Width to widen the column.

See also:

Worksheet Commands
Worksheet Global Settings

Worksheet Global Settings Format

 About Cell References (4:10)

 About Cell References (4:10)

Sets the global cell format for the current worksheet. Changing the cell format affects only the display of data, not the data itself.

If the current file is in GROUP mode, Worksheet Global Settings Format affects all worksheets in the file.

1. Choose Worksheet Global Settings.

2. Select Format.

    The Worksheet Global Settings Format dialog box is displayed.

3. Select a numeric, date, time, or other format from the Format list box.

4. If you select any numeric format except General, specify in the Decimal places text box the number of decimal places (0 to 15) you want 1-2-3 to display.

5. To enclose negative values in parentheses, select the Parentheses check box.

6. Select OK.

    The Worksheet Global Settings dialog box is redisplayed.

7. Select OK.

If a column is not wide enough to display a value in the format you select, 1-2-3 fills the cell with *** (asterisks). Use Worksheet Column Width to widen the column and redisplay the value.

To change the format of data for a range, use Range Format. Worksheet Global Settings Format does not affect cells formatted with Range Format.

See also:

Worksheet Commands
Worksheet Global Settings

Worksheet Insert

Inserts one or more blank columns or rows in existing worksheets, or adds worksheets to a file.

Caution Worksheet Insert inserts entire columns, rows, and worksheets in a file, not just in the part you see on the screen. If the current file is in GROUP mode, inserting rows or columns in one worksheet inserts rows or columns in all worksheets in that file.

1. To insert columns or rows, select a range that includes at least one cell in each of the columns or rows you are inserting. For example:

   * If you want to insert three columns to the left of column A, select at least one cell in columns A, B, and C.

   * If you want to insert five rows above row 1, select at least one cell in rows 1, 2, 3, 4 and 5.

2. Choose Worksheet Insert.

3. Select one of the following options:

   Column
   Inserts new columns to the left of the selected columns and moves existing data to the right.

   Row
   Inserts new rows above the selected rows and moves existing data down.

   Sheet
   Inserts new worksheets.

   Select Before or After to insert new worksheets before or after the current worksheet, and enter in the Quantity <u>text box</u> the number of worksheets to insert.

4. To change the range displayed in the Range text box, specify a new range.

5. Select OK.

When you insert columns, rows, or worksheets, 1-2-3 redefines named ranges and adjusts cell and range addresses in formulas. For example, if you enter the formula +E6*100 and then insert two columns to the left of column E, 1-2-3 changes the formula to +G6*100.

Use <u>File New</u> to insert a new blank file in memory.

See also:

<u>Working with Multiple Worksheets in a File</u>
<u>Worksheet Commands</u>

Worksheet Delete

Deletes one or more columns, rows, or worksheets in the current file, closing up the space left by the deletion. To remove a file from memory, use <u>File Close</u>.

Caution Worksheet Delete deletes entire columns, rows, or worksheets, not just the part you see on the screen. If the current file is in GROUP mode, deleting rows or columns in one worksheet deletes the same rows or columns in all worksheets in that file.

1. Select the range of data to delete. The range must include at least one cell in each of the columns, rows, or worksheets to be deleted.

2. Choose Worksheet Delete.

3. Select one of the following options:

   Column
   Deletes all columns of data in the selected range.

   Row
   Deletes all rows of data in the selected range.

   Sheet
   Deletes all worksheets in the selected range.

4. To change the range displayed in the Range <u>text box</u>, specify a new range.

5. Select OK.

To restore the deleted columns, rows, or worksheets, use <u>Edit Undo</u> before you perform another activity or use another command.

When you delete columns, rows, or worksheets, 1-2-3 redefines named ranges and adjusts <u>cell addresses</u> and <u>range addresses</u> in formulas.

Note If you delete an entire range whose address is used in a formula, the formula evaluates to <u>ERR</u>. If you delete an entire named range whose name is used in a formula, the range name stays in the formula, but 1-2-3 treats it as an <u>undefined range name</u>, and the formula evaluates to ERR.

See also:

<u>Worksheet Commands</u>

Worksheet Hide

Hides columns in a worksheet, or entire worksheets, to prevent display and printing of data.

1. Select the range of columns or worksheets to hide.

   The range needs to include only one cell in each of the columns or worksheets to hide.

2. Choose Worksheet Hide.

3. Select one of the following options:

   Column
   Hides the selected columns.

   Sheet
   Hides the selected worksheets.

4. To change the range displayed in the Range text box, specify a new range.

5. Select OK.

Effects of Worksheet Hide

After you hide columns or worksheets, you cannot move the cell pointer to them in READY mode, and you cannot enter data in them. Formulas in the hidden columns or worksheets and formulas that refer to data in the hidden columns and worksheets continue to work correctly, however.

Whenever 1-2-3 is in POINT mode, it displays hidden columns and worksheets with an * (asterisk) next to the column or worksheet letter. This means you can perform 1-2-3 operations on cells in hidden columns or worksheets. For example, you can format, unprotect, or copy to or from cells in hidden columns or worksheets. When creating formulas, you can refer to cells in hidden columns or worksheets by entering POINT mode and highlighting those cells.

Use Range Format to hide data in a range without removing columns from view.

Use Worksheet Global Settings Format to hide all data in a worksheet without removing the worksheet from view.

To Hide Columns

1. Move the mouse pointer to the right column border of the rightmost column you want to hide.

   The mouse pointer changes to a black two-headed horizontal arrow.

2. Drag the mouse pointer to the left until the mouse pointer is on the left column border of the leftmost column you want to hide.

See also:

Worksheet Commands

Worksheet Unhide

Worksheet Unhide

Redisplays columns or worksheets hidden with Worksheet Hide.

1. Select the range of columns or worksheets to redisplay.

   For example, to redisplay hidden columns C and D, select at least one cell in columns A and E.

2. Choose Worksheet Unhide.

3. Select one of the following options:

   Column
   Redisplays the selected columns.

   Sheet
   Redisplays the selected worksheets.

4. To change the range displayed in the Range text box, specify a new range.

5. Select OK.

To unhide data in a range whose cell format is Hidden, select another cell format in Range Format.

To unhide data in a worksheet whose global cell format is Hidden, select another cell format in Worksheet Global Settings Format.

To Unhide Columns
1. Move the mouse pointer to the left column border of the column that is to the right of the hidden column.

   The mouse pointer changes to a black two-headed horizontal arrow.

2. Drag the mouse pointer to the right until the hidden columns are redisplayed.

See also:

   Worksheet Commands

Worksheet Column Width

Sets the width of one or more columns in the worksheet or resets columns to the global column width. If the current file is in GROUP mode, Worksheet Column Width affects all worksheets in the file.

1. Select the range of columns whose width you want to set or reset.

2. Choose Worksheet Column Width.

3. Select one of the following options:

   Set width to
   Adjusts column width.

   Enter a number from 1 through 240 in the characters text box.

   Reset to global
   Resets the range of columns to the global width defined with Worksheet Global Settings.

4. To change the range displayed in the Range text box, specify a new range.

5. Select OK.

Effect of Fonts on Column Widths

1-2-3 measures the column width by the number of numeric characters that fit in a column. When you install 1-2-3 for Windows, the default column width is set to 9. The 9 means that nine numeric characters in the default font can be displayed across a column.

If you increase the column width but not the font size, you can display more numeric characters across each column. If you decrease the column width but not the font size, you can display fewer numeric characters across each column.

In 1-2-3 for Windows, you can make the column width as small as 1 or as large as 240. The number of characters you can display across a column depends on the font you select.

Effect of Column Width on Values

When a column is too narrow to display an entire value as it is formatted, 1-2-3 displays *** (asterisks) instead of the value. To display the value, the column must be one character wider than the length of the value as formatted.

Use Set width to widen the column, or use Range Format to change the value's cell format to one requiring fewer characters.

Effect of Column Width on Labels

If a label is longer than the cell it occupies and the cells to the right are blank, 1-2-3 displays the label across the blank cells. If the cells to the right contain data, 1-2-3 displays only the part of the label that fits in the cell where it is entered. Use Set width to widen the column.

To Set Column Widths

1. When 1-2-3 is in READY mode, move the mouse pointer to the right column border.

   The mouse pointer changes to a black two-headed horizontal arrow.

2. Drag the mouse pointer to the right until the column is the width you want.

See also:

Worksheet Commands

Worksheet Row Height

Sets the height of one or more rows in the worksheet, or resets rows to the default row height for the current global font.

If the current file is in GROUP mode, Worksheet Row Height affects all worksheets in the file.

1. Select the range of rows whose height you want to set or reset.

2. Choose Worksheet Row.

3. Select one of the following options:

   Set height to
   Adjusts row height.

   Enter a height in points in the points text box.

   Reset height
   Resets the range of rows to the default row height for the default font.

4. To change the range displayed in the Range text box, specify a new range.

5. Select OK.

Effects of Fonts on Row Heights

In an unformatted worksheet, all rows are the same height. As you change fonts, however, row heights will no longer be the same. 1-2-3 automatically adjusts the height of a row to accommodate the largest font in the row.

If you format a range in a font smaller than the default font, row height will accommodate the height of the default font. The row height will become shorter only if you format the entire row in a smaller font.

To Set Row Heights

1. When 1-2-3 is in READY mode, move the mouse pointer to the lower row border.

   The mouse pointer changes to a black two-headed vertical arrow.

2. Drag the mouse pointer down until the row is the height you want and release the button.

   You can make a row any height from 1 through 255 points, but you cannot hide a row.

See also:

   Worksheet Commands

Worksheet Titles

Freezing Rows and Columns (1:45)

Freezes (or unfreezes) columns along the top of the current worksheet, rows along the left edge of the current worksheet, or both. These title columns and rows remain in view as you scroll through the worksheet.

If the current   file is in GROUP mode, Worksheet Titles creates titles in all worksheets in that file.

1. Position the <u>cell pointer</u> one cell below the rows you want to freeze, one cell to the right of the columns you want to freeze, or, if you want to freeze both rows and columns, in the cell that is below the rows and to the right of the columns you want to freeze.

2. Choose Worksheet Titles.

3. Select one of the following options:

    Horizontal
    Freezes the rows above the cell pointer.

    Vertical
    Freezes the columns to the left of the cell pointer.

    Both
    Freezes the rows above and columns to the left of the cell pointer.

    Clear
    Unfreezes all title rows and columns.

4. Select OK.

Moving the Cell Pointer into the Title Area

If 1-2-3 is in READY mode, you cannot use the pointer-movement keys to move the cell pointer to a cell that contains a worksheet title. To move the cell pointer into the titles area, use F5 (GOTO).

When you press F5 (GOTO) and specify a cell in a title row or column, 1-2-3 displays a second set of titles immediately below or to the right of the titles. You can use this second set to edit your titles. To clear the second set of titles, press PG DN and then PG UP (for rows), or CTRL+RIGHT and then CTRL+LEFT (for columns).

If you move the cell pointer into the titles area when you specify a range during a command or while entering a formula (in POINT mode), 1-2-3 temporarily displays a second set of titles. When you return 1-2-3 to READY mode, however, the second set disappears.

See also:

<u>F5 (GOTO)</u>
<u>Worksheet Commands</u>

Worksheet Page Break

Inserts or removes horizontal and vertical page breaks that tell 1-2-3 to begin a new page when printing the worksheet.

If the current file is in GROUP mode, Worksheet Page Break affects all worksheets in the file.

1. Position the <u>cell pointer</u> in the column you want to be the leftmost column of the new page, in the row you want to be the top row of the new page, or at the intersection of the row and the column you want to be the topmost row and the leftmost column in the new page.

2. Choose Worksheet Page Break.

3. Select one of the following options:

   Horizontal
   Inserts a horizontal page break, using the row with the selected cell as the top row of the new page.

   Vertical
   Inserts a vertical page break, using the column with the selected cell as the leftmost column of the new page.

   Both
   Inserts a page break, using the selected cell as the cell that marks both the top row and the leftmost column of the new page.

   Clear
   Removes the page break associated with the selected cell.

4. Select OK.

When you create a page break, 1-2-3 displays a dashed line along the left of the column for a vertical page break, along the top of the row for a horizontal page break, or along the left of the column and the top of the row for a page break in both directions. Page-break lines are displayed only when the Page breaks option of <u>Window Display Options Options</u> is selected.

When you print your data, 1-2-3 starts a new page at the row, column, or intersection you select.

A page break overrides page lengths set through <u>File Print</u> or <u>File Page Setup</u>.

See also:

   <u>Worksheet Commands</u>

Graph Window Commands

Specify graph types, enhance and manipulate graphs, and control the Graph window.

File
Closes the current Graph window or ends the current 1-2-3 session.

Edit
Selects, replicates, and deletes objects in the Graph window, and copies the graph to the Clipboard.

Chart
Sets the data ranges to be graphed, selects graph types, and adds titles, legend, and other enhancements to the graph in the Graph window.

Draw
Adds text, arrows, lines, shapes, and freehand drawings to the Graph window.

Layout
Positions graph objects in front of or behind others, and prevents changes to graph objects.

Rearrange
Modifies the size and the spatial orientation of objects.

Style
Controls the appearance of text and objects in the Graph window, and the appearance of a graph in a worksheet.

Tools
Gives you access to the icon palette so you can position or hide the icon palette, add or remove SmartIcons, and create custom SmartIcons.

Window
Controls the display of the Graph window, and the display of all open windows.

Help
Provides access to broad categories of 1-2-3 for Windows Help topics.

See also:

Graph Commands

File Commands (Graph Window)

Close the current file and end the current 1-2-3 session.

Close
Closes the Graph window.

Exit
Ends the 1-2-3 session.

See also:

Graph Commands

Graph Window Commands

Edit Commands (Graph Window)

Select, replicate, and delete objects in the Graph window, and copy the graph to the   Clipboard.

Copy
Copies the entire graph to the Clipboard.

Delete
Deletes selected objects or the entire graph.

Undelete
Restores to the Graph window the object or graph most recently deleted with Edit Delete.

Replicate
Creates a copy of an object or the entire graph.

Select
Selects or deselects an object or the entire graph.

See also:

    Graph Commands
    Graph Window Commands

Chart Commands (Graph Window)

Set the data ranges to be graphed, select graph types, and add the titles, legend, and other enhancements to the graph in the Graph window.

Ranges
Sets the X and A - F data ranges for line, area, bar, XY HLCO, and mixed graphs; for pie charts, sets the X and A data ranges, colors, and other display options.

Type
Selects a graph type, sets the graph orientation, and creates a table of data ranges.

Data Labels
Creates labels for data points or bars.

Headings
Adds graph titles and footnotes.

Legend
Creates a key that identifies the colors, symbols, or hatch patterns of the graph's data ranges.

Axis
Sets axis scaling, the format of numbers that appear along an axis, axis titles, axis-unit names, and other options for the x-axis, y-axis, and 2nd y-axis. Chart Axis does not apply to pie charts.

Borders/Grids
Adds borders and grid lines to the current graph. Chart Borders/Grids does not apply to pie charts.

Options
Controls the colors, hatch patterns, fonts, and lines used display text and data in a graph.

Clear
Resets all or selected settings for the current graph to 1-2-3 default settings.

See also:

Graph Commands
Graph Window Commands

Draw Commands (Graph Window)

Add text, arrows, lines, shapes, and freehand drawings to the Graph window.

Text
Adds text.

Line
Adds a single straight line or connected line segments.

Arrow
Adds a line or connected line segments with an arrowhead at the point you stop drawing.

Rectangle
Adds a rectangle or square.

Polygon
Adds a multi-sided object.

Ellipse
Adds an ellipse or circle.

Freehand
Adds a freehand drawing.

See also:

Graph Commands
Graph Window Commands
Selecting Objects in the Graph Window

Layout Commands (Graph Window)

Position graph objects in front of or behind others, and prevent changes to graph objects.

<u>Send Forward</u>
Places selected objects in front of all other objects.

<u>Fall Back</u>
Places selected objects behind all other objects.

<u>Lock</u>
Prevents changes to objects.

<u>Unlock</u>
Removes the lock on objects set with Layout Lock.

See also:

<u>Graph Commands</u>
<u>Graph Window Commands</u>

Rearrange Commands (Graph Window)

Modify the size and the spatial orientation of objects.

Flip
Flips an object or the entire graph so that it appears upside down or backwards.

Quarter-Turn
Rotates an object or the entire graph around its center in 90-degree increments.

Skew
Adjusts the slant and size of an object or the entire graph by making its horizontal or vertical axis a hinge on which you can rotate the object or graph.

Turn
Rotates an object or the entire graph around its center at any angle.

Adjust Size
Changes the size of an object or the entire graph.

Clear
Cancels the effects of all Rearrange commands, returning an object or the entire graph to its original state.

See also:

Graph Commands
Graph Window Commands

Style Commands (Graph Window)

Control the appearance of text and objects in the Graph window, and the appearance of a graph in a worksheet.

Font
Applies a font in the current font set to text you add to a graph with Draw Text (Graph window) and changes the size of any text in a graph.

Color
Assigns colors to parts of a graph.

Lines
Controls the appearance of lines or the outlines of objects.

Alignment
Aligns text added to a graph with Draw Text (Graph window).

Display Options
Makes graphs in the worksheet transparent or opaque, turns the display of graphs in the worksheet on or off, automatically updates a graph in the worksheet, and displays grid lines in the range the graph occupies.

See also:

Graph Commands
Graph Window Commands

Tools Command (Graph Window)

Gives you access to the icon palette.

SmartIcons
Positions or hides the icon palette, adds or removes SmartIcons, and creates custom SmartIcons.

See also:

Graph Commands
Graph Window Commands

Window Commands (Graph Window)

Control the display of the Graph window.

Enlarge
Enlarges the contents of the Graph window.

Reduce
Reduces the enlarged contents of the Graph window.

Full
Redisplays the contents fo the Graph window at normal size.

Zoom
Enlarges an area of the Graph window to fill the window.

Tile
Sizes all open windows and places them side by side in the 1-2-3 window.

Cascade
Sizes all open windows and arranges them in the 1-2-3 window so they appear one on top of the other, with just   the title bars showing.

(Window Name)
Lists up to nine windows that are open in the 1-2-3 window and displays a check mark next to the active window.

More Windows
Lists all windows that are open in the 1-2-3 window.
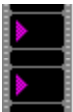
See also:

Graph Commands
Graph Window Commands

Chart Ranges (Graph Window)

About Cell References (4:10)
About Cell References (4:10)

Sets the X and A - F data ranges for a graph.

For information about the way 1-2-3 uses the X and A - F data ranges in graphs, see About Graph Types.

To Set Data Ranges Individually

1. Choose Chart Ranges.

2. Specify a range of labels for the x-axis in the X data range text box.

3. Under Data ranges, specify a range in the A text box.

4. To attach the A data range to the 2nd y-axis in line, area, bar, mixed, and XY graphs, select the 2nd Y check box for the A range.

5. Repeat steps 3 and 4 for each data range (through F) you want to graph.

6. Select OK.

1-2-3 does not display the 2nd y-axis unless you attach one or more ranges to it. If you attach all data ranges to the 2nd y-axis, 1-2-3 does not display the y-axis.

To Set Data Ranges and Graph Display Options for a Pie Chart

1. (Optional) Set up a colors range in the worksheet.

2. (Optional) To remove percent labels from pie slices, set up a percent-labels range in the worksheet.

3. Choose Chart Ranges.

4. Specify the range of pie-slice labels in the X data range text box.

5. Under Data ranges, in the A text box, specify the range of data to graph.

6. To assign colors to the values in the A data range, hide a pie slice, or explode a pie slice, specify in the B text box the colors range you set up in step 1.

7. To remove the percent labels from the pie chart, specify in the C text box the percent-labels range you set up in step 2.

8. Select OK.

To set up hatch patterns for a pie chart, use Chart Options Advanced Styles.

**To Set Data Ranges All at Once**

1. Choose Chart Ranges.

2. Select Group Range.

1-2-3 displays the Chart Ranges Group Range dialog box.

See also:

   Chart Commands (Graph Window)
   Creating Graphs
   Graph Commands
   Graph Window Commands

Chart Ranges Group Range (Graph Window)

Graphing Rows of Data (1:55)

Using a single range, sets the X and A - F data ranges for a graph. 1-2-3 sets the first column of the selected range as the X data range and each succeeding column as the A - F data ranges. If you select a single-column range, 1-2-3 sets the column as the A data range.

For information about the way 1-2-3 uses the X and A - F data ranges in graphs, see About Graph Types.

1. Choose Chart Ranges.

2. Select Group Range.

3. Specify a range in the Range text box.

4. Under Divide into data ranges, select one of the following options:

   Columnwise
   Sets the first column of the range as the X data range and each succeeding column as the A - F data ranges.

   If you specified only a single column, 1-2-3 uses it to set the A data range.

   Rowwise
   Sets the first row of the range as the X data range and each succeeding row as the A - F data ranges.

5. Select OK.

   The Chart Ranges dialog box is redisplayed.

6. Select OK.

To create individual data ranges or to attach one or more of the A - F data ranges to the 2nd y-axis, use Chart Ranges.

To Set Data Ranges and Graph Display Options for a Pie Chart

1. (Optional) Set up a colors range in the worksheet.

2. (Optional) To remove percent labels from pie slices, set up a percent-labels range in the worksheet.

3. Choose Chart Ranges.

4. Select Group Range.

5. Specify a range in the Range text box.

6. Under Divide into data ranges, select one of the following options:

   Columnwise
   Sets the first column of the range as the range of pie-slice labels (the X data range) and the second column as the range of data to graph (the A data range).

   If you specified only a single column, 1-2-3 uses it to set the A data range.

   Rowwise
   Sets the first row of the range as the range of pie-slice labels (the X data range) and the second row as the range of data to graph (the A data range).

7. Select OK.

   The Chart Ranges dialog box is redisplayed.

8. To assign colors to the values in the A data range, hide a pie slice, or explode a pie slice, specify in the B text box the colors range you set up in step 1.

9. To remove the percent labels from the pie chart, specify in the C text box the percent-labels range you set up in step 2.

10. Select OK.

To set up hatch patterns for a pie chart, use <u>Chart Options Advanced Styles</u>.

See also:

> <u>Chart Commands (Graph Window)</u>
> <u>Creating Graphs</u>
> <u>Graph Window Commands</u>

Chart Type (Graph Window)
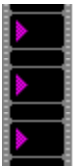
About Cell References (4:10)

About Cell References (4:10)

About Cell References (4:10)

Selects a graph type, sets the graph orientation, and, optionally, creates a table of values for data ranges included in the graph.

1. Choose Chart Type.

2. Under Orientation, select one of the following options:

   Vertical
   Displays the x-axis across the bottom of the graph, the y-axis along the left edge of the graph, and the 2nd y-axis along the right edge of the graph.

   Horizontal
   Displays the x-axis along the left edge of the graph, the y-axis across the top of the graph, and the 2nd y-axis along the bottom of the graph.

3. Under Type, select one of the following graph types:

   Line
   Graphs up to six data ranges as stacked or unstacked lines, with or without data points, or as stacked or unstacked data points.

   Area
   Graphs up to six data ranges as lines, with the area between the lines filled in.

   Bar
   Graphs up to six data ranges as clustered or stacked bars.

   Pie
   Graphs values in a data range as slices in a circular chart.

   XY
   Graphs up to six data ranges, using a scaled x-axis, as stacked or unstacked lines with or without data points, or as stacked or unstacked data points.

   HLCO
   Graphs four data ranges as high, low, close, and open lines, a fifth data range as bars, and a sixth data range as a line.

   Mixed
   Graphs up to three data ranges as clustered or stacked bars and up to three other data ranges as lines, as lines with the area between them filled in, or as lines with or without data points.

   3D Line
   Graphs up to six data ranges as stacked or unstacked lines with 3-D effect.

   3D Area
   Graphs up to six data ranges as stacked or unstacked lines and filled areas with 3-D effect.

   3D Bar
   Graphs up to six data ranges as clustered or stacked bars with 3-D effect.

   3D Pie
   Graphs values in a data range as slices in a circular chart with 3-D effect.

4. Select one of the options displayed for the graph type.

5. To include a table of the values plotted in the graph, select the Include table of values check box.

This option is not available for pie charts, HLCO graphs, and XY graphs.

6. Select OK.

To set the way lines are displayed for individual A - F data ranges in area, line, XY, HLCO, and mixed graphs, use Chart Options Lines.

See also:

About Graph Types
Chart Commands (Graph Window)
Creating Graphs
Graph Commands
Graph Window Commands

Chart Data Labels (Graph Window)

Creates labels for <u>data points</u> or bars, using data in one or more ranges as the labels.

To Create Labels for Data Ranges Individually

1. Choose Chart Data Labels.

2. In the <u>text box</u> for one of the A - F data ranges, specify the range that contains the <u>values</u>, <u>labels</u>, or <u>formulas</u> you want to use as data labels.

   The data-label range should be the same size as the corresponding A - F data range. The data-label range can contain any combination of values, labels, or formulas. 1-2-3 uses the current value of a formula as the data label.

3. To position the labels for the data range, select one of the following options from the <u>drop-down box</u>:

   Above
   Places the data labels above the data points in a line graph and area graph and above the bars in a bar graph.

   Center
   Centers the data labels on the data points in a line graph and area graph and above the bars in a bar graph.

   Below
   Places the data labels below the data points in a line graph and area graph and below the bars in a bar graph.

   Left
   Places the data labels to the left of the data points in a line graph and area graph and above the bars in a bar graph.

   Right
   Places the data labels to the right of the data points in a line graph and area graph and above the bars in a bar graph.

   Note For stacked bars, 1-2-3 places data labels inside the corresponding portions of the stacked bars regardless of the placement you specify.

4. Repeat steps 2 and 3 for each data range you want to assign labels to.

5. Select OK.

To Create Labels for Data Ranges All at Once

1. Choose Chart Data Labels.

2. Select Group Range.

1-2-3 displays the <u>Chart Data Labels Group Range</u> dialog box.

Creating Data Labels

* To label only some of the values in a data range, leave blank the cells in the data-label range that correspond to the values you don't want to label. For example, to label only the first, third, and fifth values in a data range, enter numbers, labels, or formulas in only the first, third, and fifth cells of the data-label range.

* To label the slices in a pie chart, use <u>Chart Ranges</u> and specify an X data range that contains the numbers, labels, or formulas you want to use.

* When you clear a data range with <u>Chart Clear</u>, 1-2-3 automatically clears the corresponding data-label ranges.

See also:

Chart Data Labels Group Range (Graph Window)

Creates labels for <u>data points</u> or bars, using data in a single range as the data labels.

1. Choose Chart Data Labels.

2. Select Group Range.

3. In the Range <u>text box</u>, specify the range that contains the <u>values</u>, <u>labels</u>, or <u>formulas</u> you want to use as data labels.

   The data-label range can contain any combination of values, labels, or formulas. 1-2-3 uses the current value of a formula as the data label.

   The data-label range should be the same size as all the data ranges combined. For example, if the graph includes A, B, and C data ranges, each of which contains six values, the group data-label range should include 18 cells (six each in three consecutive rows or columns).

4. To change the position of labels for the data ranges, select one of the following options from the Label position <u>drop-down box</u>:

   Above
   Places the data labels above the data points in a line graph and area graph and above the bars in a bar graph.

   Center
   Centers the data labels on the data points in a line graph and area graph and above the bars in a bar graph.

   Below
   Places the data labels below the data points in a line graph and area graph and below the bars in a bar graph.

   Left
   Places the data labels to the left of the data points in a line graph and area graph and above the bars in a bar graph.

   Right
   Places the data labels to the right of the data points in a line graph and area graph and above the bars in a bar graph.

   Note For stacked bars, 1-2-3 places data labels inside the corresponding portions of the stacked bars regardless of the placement you specify.

5. Under Divide into data label ranges, select one of the following options:

   Columnwise
   Divides the data-label range by columns and uses data in the first column as labels for the A data range, data in the second column as labels for the B data range, and so on.

   Rowwise
   Divides the data-label range by rows and uses data in the first row as labels for the A data range, data in the second row as labels for the B data range, and so on.

6. Select OK.

To create data labels for individual data ranges, use <u>Chart Data Labels</u>.

Creating Data Labels

* To label only some of the values in a data range, leave blank the cells in the data-label range that correspond to the values you don't want to label. For example, to label only the first, third, and fifth values in a data range, enter numbers, labels, or formulas in only the first, third, and fifth cells of the data-label range.

* To label the slices in a pie chart, use <u>Chart Ranges</u> and specify an X data range that contains the

numbers, labels, or formulas you want to use.

* When you clear a data range with <u>Chart Clear</u>, 1-2-3 automatically clears the corresponding data-label ranges.

See also:

<u>About Graph Types</u>
<u>Chart Commands (Graph Window)</u>
<u>Graph Window Commands</u>

Chart Headings (Graph Window)
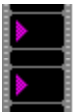
About Cell References (4:10)

About Cell References (4:10)

Adds graph titles and footnotes to a graph.

1. Choose Chart Headings.
2. Specify the title in the Title <u>text box</u> in one of the following ways:
   * Enter the title.
   * Type **** (backslash) and specify the cell that contains the title.

     If you enter a range name or address, 1-2-3 uses the contents of the first cell in the range.
3. Specify the subtitle in the Subtitle text box in one of the ways described in step 2.
4. Specify the footnote in the Note text box in one of the ways described in step 2.
5. Specify the second footnote in the 2nd note text box in one of the ways described in step 2.
6. Select OK.

Titles and footnotes can contain any numbers, letters, and special characters.

1-2-3 centers the graph title and subtitle above the graphed data and places footnotes below the graphed data in the left corner of the graph window.

1-2-3 displays the titles and footnotes using the font you set with <u>Chart Options Fonts</u> and the colors you set with <u>Chart Options Colors</u>.

See also:

<u>Chart Commands (Graph Window)</u>
<u>Graph Commands</u>
<u>Graph Window Commands</u>

Chart Legend (Graph Window)

About Cell References (4:10)

About Cell References (4:10)

Creates <u>legend labels</u> that identify the colors, symbols, or <u>hatch patterns</u> of the graph's <u>data ranges</u>.

To Create Legend Labels for Data Ranges Individually

1. Choose Chart Legend.

2. In the <u>text box</u> for a data range, specify the legend label in one of the following ways:

    *   Enter the legend label.

    *   Type **** (backslash) and specify the cell that contains the legend label.

        If you enter a range name or address, 1-2-3 uses the contents of the first cell in the range.

3. Repeat step 2 for each data range you want to include in the legend.

4. Select OK.

1-2-3 locates the legend below the graph.

To assign colors and hatch patterns to graph data ranges, use <u>Chart Options</u>.

To Create Legend Labels for Data Ranges All at Once

1. Choose Chart Legend.

2. Select Group Range.

1-2-3 displays the <u>Chart Legend Group Range</u> dialog box.

See also:

<u>Chart Commands (Graph Window)</u>
<u>Graph Commands</u>
<u>Graph Window Commands</u>

Chart Legend Group Range (Graph Window)

Creates legend labels that identify the colors, symbols, or hatch patterns of the graph's data ranges, using data in a single column or row as the legend labels.

1. Choose Chart Legend.

2. Select Group Range.

3. In the Range text box, specify the column or row that contains the data you want to use as legend labels.

4. Select OK.

1-2-3 uses the first entry in the range as the legend label for the A data range, the second entry as the legend label for the B data range, and so on. In a pie chart, 1-2-3 uses the data in the first cell of the range as the legend label for the first pie slice, the data in the second cell as the legend label for the second pie slice, and so on up to six pie slices.

1-2-3 locates the legend below the graph.

To create legend labels for individual data ranges, use Chart Legend.

To assign colors and hatch patterns to graph data ranges, use Chart Options.

See also:

Chart Commands (Graph Window)
Graph Window Commands

Chart Axis (Graph Window)

Sets axis scaling, the format of numbers that appear along an axis, axis titles, axis-unit names, and other options for the x-axis, y-axis, and 2nd y-axis. The Chart Axis commands do not apply to pie charts.

X
Sets all options and formats values for the numeric x-axis in XY graphs; for other graph types, sets only the x-axis title and the display interval for x-axis labels, and lets you assign an x-axis-unit name.

Y
For the y-axis, sets the scaling, the format of numbers, the axis title, and the axis-unit name.

2nd Y
For the 2nd y-axis, sets the scaling, the format of numbers, the 2nd y-axis title, and the 2nd y-axis-unit name.

See also:

Chart Commands (Graph Window)
Graph Window Commands

Chart Axis X (Graph Window)

Sets the scaling, the order of magnitude, and the type of scale for the numeric x-axis of XY graphs. For options you can use with other graph types, as well as XY graphs, see Chart Axis X Options.

1. Choose Chart Axis X.

2. Under Scale axis, select one of the following scaling methods:

   Automatic
   Automatically creates a scale for the x-axis that displays all the graph data.

   Manual
   Creates a scale for the x-axis that displays only the data that falls between (and includes) the upper and lower limits that you specify.

   If you select Manual, enter the lower limit value in the Lower text box and the upper limit value in the Upper text box. If you specify an upper limit value that is lower than the lower limit value, 1-2-3 displays a blank window when you try to view the graph.

3. Under Axis units, select one of the following methods for setting the order of magnitude for the x-axis scale (the power of 10 by which the numbers along the scale must be multiplied to reflect the values you are graphing):

   Automatic
   Automatically sets the order of magnitude for the scale based on the values you are graphing.

   For example, if you are graphing values between 0 and 5,000, 1-2-3 sets the order of magnitude as 3 (10 to the third power).

   Manual
   Uses the order of magnitude that you specify.

   If you select Manual, specify a magnitude value between -95 and 95 in the Exponent text box.

   Use Chart Axis X Options to create the axis-unit name that explains the magnitude used for the scale.

4. Under Type of scale, select one of the following options:

   Standard
   Increases scale numbers linearly by a fixed number of units.

   Logarithmic
   Increases scale numbers logarithmically.

5. Select OK.

To Format Numbers Displayed on the X-Axis of XY Graphs

1. Choose Chart Axis X.

2. Select Format.

1-2-3 displays the Chart Axis X Format dialog box.

To Specify the X-Axis Title, Axis-Unit Name, and Display Interval for X-Axis Labels

1. Choose Chart Axis X.

2. Select Options.

1-2-3 displays the Chart Axis X Options dialog box.

See also:

Chart Axis (Graph Window)
Chart Commands (Graph Window)

<u>Graph Window Commands</u>

Chart Axis X Format (Graph Window)

Sets the format in which 1-2-3 displays numbers along the x-axis in XY graphs.

1. Choose Chart Axis X.

2. Select Format.

3. Select a <u>numeric</u>, <u>date</u>, <u>time</u>, or <u>other</u> format from the Format <u>list box</u>.

4. If you select any numeric format except General, specify in the Decimal places <u>text box</u> the number of decimal places (0 through 15) you want 1-2-3 to display.

5. Select OK.

    The Chart Axis X dialog box is redisplayed.

6. Select OK.

See also:

<u>Chart Axis (Graph Window)</u>
<u>Chart Axis X (Graph Window)</u>
<u>Chart Commands (Graph Window)</u>

Chart Axis X Options (Graph Window)

Specifies the x-axis title, axis-unit name, and display interval for x-axis labels.

1. Choose Chart Axis X.

2. Select Options.

3. In the Axis title text box, specify the title for the x-axis in one of the following ways:

    *   Enter the title.

    *   Type **** (backslash) and specify the cell that contains the title.

        If you enter a range name or address, 1-2-3 uses the contents of the first cell in the range.

4. Under Name of units, select one of the following methods for creating the x-axis-unit name:

    Automatic
    Automatically creates the axis-unit name based on the order of magnitude used for the scale numbers.

    Manual
    Uses the axis-unit name that you specify.

    If you select Manual, specify the axis-unit name in the Manual text box in one of the following ways:

    *   Enter the x-axis-unit name.

    *   Type **** (backslash) and specify the cell that contains the name.

        If you enter a range name or address, 1-2-3 uses the contents of the first cell in the range.

5. In the Display label every *n* ticks text box, enter a value that specifies the points on the x-axis at which to display x-axis labels.

    This option determines which entries in the X data range 1-2-3 displays along the x-axis. For example, if you enter 3, 1-2-3 displays along the x-axis only the first, fourth, seventh, tenth (and so on) entries in the X data range. This option does not affect XY graphs.

6. Select OK.

    The Chart Axis X dialog box is redisplayed.

7. Select OK.

See also:

Chart Axis (Graph Window)
Chart Axis X (Graph Window)
Chart Commands (Graph Window)

Chart Axis Y (Graph Window)

For the y-axis, sets the scaling, the format of numbers, the axis title, and the axis-unit name.

1. Choose Chart Axis Y.

2. Under Scale axis, select one of the following scaling methods:

    Automatic
    Automatically creates a scale for the y-axis that displays all the graph data.

    Manual
    Creates a scale for the y-axis that displays only the data that falls between (and includes) the upper and lower limits that you specify.

    If you select Manual, enter the lower limit value in the Lower text box and the upper limit value in the Upper text box. If you specify an upper limit value that is lower than the lower limit value, 1-2-3 displays a blank window when you try to view the graph.

3. Under Axis units, select one of the following methods for setting the order of magnitude for the y-axis scale (the power of 10 by which the numbers along the scale must be multiplied to reflect the values you are graphing):

    Automatic
    Automatically sets the order of magnitude for the scale based on the values you are graphing.

    For example, if you are graphing values between 0 and 5,000, 1-2-3 sets the order of magnitude as 3 (10 to the third power).

    Manual
    Uses the order of magnitude that you specify.

    If you select Manual, specify a magnitude value between -95 and 95 in the Exponent text box.

    Use Chart Axis Y Options to create the axis-unit name that explains the magnitude used for the scale.

4. Under Type of scale, select one of the following options:

    Standard
    Increases scale numbers linearly by a fixed number of units.

    Logarithmic
    Increases scale numbers logarithmically.

    Percentage
    Shows values in a data range as percentages of their total value.

    Selecting Percentage for the y-axis also selects Percentage for the 2nd y-axis.

5. Select OK.

To Format Numbers Displayed on the Y-Axis

1. Choose Chart Axis Y.

2. Select Format.

1-2-3 displays the Chart Axis Y Format dialog box.

To Specify the Y-Axis Title and Axis-Unit Name

1. Choose Chart Axis Y.

2. Select Options.

1-2-3 displays the Chart Axis Y Options dialog box.

See also:

Chart Axis Y Format (Graph Window)

Sets the format in which 1-2-3 displays numbers along the y-axis.

1. Choose Chart Axis Y.

2. Select Format.

3. Select a numeric, date, time, or other format from the Format list box.

4. If you select any numeric format except General, specify in the Decimal places text box the number of decimal places (0 through 15) you want 1-2-3 to display.

5. Select OK.

   The Chart Axis Y dialog box is redisplayed.

6. Select OK.

See also:

Chart Axis (Graph Window)
Chart Axis Y (Graph Window)
Chart Commands (Graph Window)

Chart Axis Y Options (Graph Window)

Specifies the y-axis title and axis-unit name.

1. Choose Chart Axis Y.

2. Select Options.

3. In the Axis title <u>text box</u>, specify the title for the y-axis in one of the following ways:

    *   Enter the title.

    *   Type **** (backslash) and specify the cell that contains the title.

        If you enter a range name or address, 1-2-3 uses the contents of the first cell in the range.

4. Under Name of units, select one of the following methods for creating the y-axis-unit name:

    Automatic
    Automatically creates the axis-unit name based on the order of magnitude used for the scale numbers.

    Manual
    Uses the axis-unit name that you specify.

    If you select Manual, specify the axis-unit name in the Manual text box in one of the following ways:

    *   Enter the y-axis-unit name.

    *   Type **** (backslash) and specify the cell that contains the name.

        If you enter a range name or address, 1-2-3 uses the contents of the first cell in the range.

5. Select OK.

    The Chart Axis Y dialog box is redisplayed.

6. Select OK.

See also:

<u>Chart Axis (Graph Window)</u>
<u>Chart Axis Y (Graph Window)</u>
<u>Chart Commands (Graph Window)</u>

Chart Axis 2nd Y (Graph Window)

For the 2nd y-axis, sets the scaling, the format of numbers, the axis title, and the axis-unit name.

1. Choose Chart Axis 2nd Y.

2. Under Scale axis, select one of the following scaling methods:

    Automatic
    Automatically creates a scale for the 2nd y-axis that displays all the graph data.

    Manual
    Creates a scale for the 2nd y-axis that displays only the data that falls between (and includes) the upper and lower limits that you specify.

    If you select Manual, enter the lower limit value in the Lower text box and the upper limit value in the Upper text box. If you specify an upper limit value that is lower than the lower limit value, 1-2-3 displays a blank window when you try to view the graph.

3. Under Axis units, select one of the following methods for setting the order of magnitude for the 2nd y-axis scale (the power of 10 by which the numbers along the scale must be multiplied to reflect the values you are graphing):

    Automatic
    Automatically sets the order of magnitude for the scale based on the values you are graphing.

    For example, if you are graphing values between 0 and 5,000, 1-2-3 sets the order of magnitude as 3 (10 to the third power).

    Manual
    Uses the order of magnitude that you specify.

    If you select Manual, specify a magnitude value between -95 and 95 in the Exponent text box.

    Use Chart Axis 2nd Y Options to create the text that explains the magnitude used for the scale.

4. Under Type of scale, select one of the following options:

    Standard
    Increases scale numbers linearly by a fixed number of units.

    Logarithmic
    Increases scale numbers logarithmically.

    Percentage
    Shows values in a data range as percentages of their total value.

    Selecting Percentage for the 2nd y-axis also selects Percentage for the y-axis.

5. Select OK.

To Format Numbers Displayed on the 2nd Y-Axis

1. Choose Chart Axis 2nd Y.

2. Select Format.

1-2-3 displays the Chart Axis 2nd Y Format dialog box.

To Specify the 2nd Y-Axis Title and Axis-Unit Name

1. Choose Chart Axis 2nd Y.

2. Select Options.

1-2-3 displays the Chart Axis 2nd Y Options dialog box.

See also:

Chart Axis 2nd Y Format (Graph Window)

Sets the format in which 1-2-3 displays numbers along the 2nd y-axis.

1. Choose Chart Axis 2nd Y.

2. Select Format.

3. Select a <u>numeric</u>, <u>date</u>, <u>time</u>, or <u>other</u> format from the Format <u>list box</u>.

4. If you select any numeric format except General, specify in the Decimal places <u>text box</u> the number of decimal places (0 through 15) you want 1-2-3 to display.

5. Select OK.

   The Chart Axis 2nd Y dialog box is redisplayed.

6. Select OK.

See also:

<u>Chart Axis (Graph Window)</u>
<u>Chart Axis 2nd Y (Graph Window)</u>
<u>Chart Commands (Graph Window)</u>

Chart Axis 2nd Y Options (Graph Window)

Specifies the 2nd y-axis title and axis-unit name.

1. Choose Chart Axis 2nd Y.

2. Select Options.

3. In the Axis title <u>text box</u>, specify the title for the 2nd y-axis in one of the following ways:

    *   Enter the title.

    *   Type **** (backslash) and specify the cell that contains the title.

        If you enter a range name or address, 1-2-3 uses the contents of the first cell in the range.

4. Under Name of units, select one of the following methods for creating the axis-unit name:

    Automatic
    Automatically creates the axis-unit name based on the order of magnitude used for the scale numbers.

    Manual
    Uses the axis-unit name that you specify.

    If you select Manual, specify the axis-unit name in the Manual text box in one of the following ways:

    *   Enter the 2nd y-axis-unit name.

    *   Type **** (backslash) and specify the cell that contains the name.

        If you enter a range name or address, 1-2-3 uses the contents of the first cell in the range.

5. Select OK.

    The Chart Axis 2nd Y dialog box is redisplayed.

6. Select OK.

See also:

<u>Chart Axis (Graph Window)</u>
<u>Chart Axis 2nd Y (Graph Window)</u>
<u>Chart Commands (Graph Window)</u>

Chart Borders/Grids (Graph Window)

Adds borders and grid lines to the current graph. Chart Borders/Grids does not apply to pie charts.

1. Choose Chart Borders/Grids.

2. Under Borders, select one or more of the following options:

   Left
   Adds a border to the left of the graphed data.

   Right
   Adds a border to the right of the graphed data.

   Top
   Adds a border above the graphed data.

   Bottom
   Adds a border below the graphed data.

3. Under Grid lines, select one or more of the following options:

   X-axis
   Adds vertical grid lines that originate from points along the x-axis.

   Y-axis
   Adds horizontal grid lines that originate from points along the y-axis.

   2nd Y-axis
   Adds horizontal grid lines that originate from points along the 2nd y-axis.

4. Select OK.

See also:

Chart Options (Graph Window)

Controls the colors, hatch patterns, fonts, and lines used to display text and data in a graph.

Colors
Sets the colors for text and A - F data ranges, or hides text and data ranges.

Hatches
Sets hatch patterns for A - F data ranges.

Fonts
Sets the fonts for text in a graph.

Lines
Sets the way 1-2-3 displays lines for individual A - F data ranges in area, HLCO, line, mixed, and XY graphs.

Advanced Styles
Sets the color and hatch pattern for individual values in an A - F data range based on values you set up in a worksheet.

See also:

Chart Commands (Graph Window)
Graph Commands
Graph Window Commands

Chart Options Colors (Graph Window)

Sets the colors for text and A - F data ranges in a graph, or hides text and data ranges.

To Set Text Colors

1. Choose Chart Options Colors.

2. Under Text colors, select the <u>drop-down box</u> for one of the following categories of text:

   Chart title
   Sets the color for, or hides, the title of the graph.

   Subtitle, axis titles, legend
   Sets the color for, or hides, the graph subtitle, axis titles, and legend.

   Labels, notes, name of units
   Sets the color for, or hides, the A - F data labels, graph footnotes, and <u>axis-unit names</u>.

3. Select a color, or select H to hide the text.

4. Repeat steps 2 and 3 for each category of text you want to set colors for.

5. Select OK.

To create	Use
Graph title, subtitle, footnotes	<u>Chart Headings</u>
Legend	<u>Chart Legend</u>
Data labels	<u>Chart Data Labels</u>
Axis titles, axis-unit names	<u>Chart Axis</u>

To Set Data-Range Colors

1. Choose Chart Options Colors.

2. Under Data range colors, select the drop-down box for one of the A - F data ranges.

3. Select a color, or select H to hide the data range.

4. Repeat steps 2 and 3 for each A - F data range you want to set colors for.

5. Select OK.

To set	Use
Colors for pie slices	<u>Chart Ranges</u>
A - F data ranges	<u>Chart Ranges</u>

To assign colors to individual values in a data range, use <u>Chart Options Advanced Styles</u>.

See also:

<u>Chart Commands (Graph Window)</u>
<u>Chart Options (Graph Window)</u>
<u>Graph Window Commands</u>

Chart Options Hatches (Graph Window)

Sets the hatch patterns for A - F data ranges. You can use these hatch patterns in the bars of a bar, HLCO, or mixed graph, in the slices of a pie chart, and in the area between lines in an area or mixed graph.

1. Choose Chart Options Hatches.

2. Select the drop-down box for one of the A - F data ranges.

3. Select a hatch pattern.

4. Repeat steps 2 and 3 for each A - F data range you want to set a hatch pattern for.

5. Select OK.

To assign hatch patterns to individual values in a data range, including the values used to create the slices of a pie chart, use Chart Options Advanced Styles.

To create A - F data ranges, use Chart Ranges.

See also:

Chart Commands (Graph Window)
Chart Options (Graph Window)
Graph Window Commands

Chart Options Fonts (Graph Window)

Sets the font for text displayed in a graph.

1. Choose Chart Options Fonts.

2. Select the <u>drop-down box</u> for one of the following options:

   Chart title
   Sets the font for the title of the graph.

   Subtitle, axis titles, legend
   Sets the font for the graph subtitle, axis titles, and <u>legend labels</u>.

   Labels, notes, name of units
   Sets the font for <u>data labels</u>, graph footnotes, and <u>axis-unit names</u>.

3. Select a font from the list.

4. Repeat steps 2 and 3 for each category of text you want to set fonts for.

5. Select OK.

To create	Use
Graph title, subtitle, footnotes	<u>Chart Headings</u>
Legend	<u>Chart Legend</u>
Data labels	<u>Chart Data Labels</u>
Axis titles, axis-unit names	<u>Chart Axis</u>

See also:

<u>Chart Commands (Graph Window)</u>
<u>Chart Options (Graph Window)</u>
<u>Graph Window Commands</u>

Chart Options Lines (Graph Window)

Sets the way 1-2-3 displays lines for individual A - F data ranges in area, HLCO, line, mixed, and XY graphs.

1. Choose Chart Options Lines.

2. For one of the A - F data ranges, select the <u>check box</u> of one or more of the following line options:

   Connectors
   Displays connecting lines between the points in the data range.

   Symbols
   Displays a symbol at each point in the data range.

   Area fill
   Fills the space between one data range and the next, or between the data range and the x-axis, with the color assigned to the data range with <u>Chart Options Colors</u>.

3. Repeat step 2 for each A - F data range you want to set a line for.

4. Select OK.

To display all lines in a graph in the same way or to make line display different in different types of graphs, use <u>Chart Type</u>.

See also:

Chart Options Advanced Styles (Graph Window)

Sets the color and the hatch pattern for each value in an A - F data range, using a range of color values and a range of hatch values you set up in a worksheet, or sets the hatch patterns for the slices in a pie chart using a range of hatch values you set up.

To set colors and other display options for a pie chart, use Chart Ranges.

To Set a Color and Hatch Pattern for Each Value in an A - F Data Range

1. Set up each colors range and hatches range you want to use with the A - F data ranges.

2. Choose Chart Options Advanced Styles.

3. In the text boxes for an A - F data range, specify the colors range in the text box on the left and the hatches range in the text box on the right.

4. Repeat step 3 for each A - F data range you want to assign colors and hatch patterns to.

5. Select OK.

To set one color for all values in an A - F data range, use Chart Options Colors.

To set one hatch pattern for all values in an A - F data range, use Chart Options Hatches.

To Set Hatch Patterns for a Pie Chart

1. Set up the hatches range you want to use for the pie chart.

2. Choose Chart Options Advanced Styles.

3. In the hatch values text box for the B data range, specify the hatches range.

4. Select OK.

See also:

Chart Commands (Graph Window)
Chart Options (Graph Window)
Graph Window Commands

Setting Up a Colors Range

You use a colors range to assign a color to each value in an A - F <u>data range</u> or to assign a color to each slice in a <u>pie chart</u>, hide a pie slice, or explode a pie slice.

Assigning Colors

*   The colors range must be the same size as the data range.

*   Each cell in the colors range must contain a value from 1 through 14.

    Values 1 through 8 correspond to the palette you set with <u>Window Display Options Palette</u>.

    Values 9 through 14 correspond to colors set by your computer's monitor.

*   1-2-3 uses the color value in the color range whose location corresponds to the location of the value in the data range.

Example

   <u>Colors Range</u>

Hiding and Exploding Pie Slices

You can use the colors range to hide and explode pie slices. (An exploded pie slice is displayed as cut away from the pie.)

*   To hide a pie slice, enter a negative number in the color-range cell that corresponds to the value in the data range you want to hide.

*   To explode a pie slice, add 100 to the value in the corresponding color-range cell.

    For example, to explode a pie slice to which you are assigning the color 4, enter 104 in the corresponding color-range cell.

See also:

   <u>Chart Commands (Graph Window)</u>
   <u>Chart Options Advanced Styles (Graph Window)</u>
   <u>Chart Ranges (Graph Window)</u>

Example: Colors Range

B21..B25 is the A data range and C21..C25 is its corresponding colors range. The value 4 in the colors range represents the fourth color in the color palette, and the value 6 represents the sixth color in the palette. In a bar graph of this data range, 1-2-3 displays the first and second bars in color 4 and the third, fourth, and fifth bars in color 6.

```
   A -------------- A -------------------- B ---------------------- C ---------------------
19      SALESPERSON       Q1 TOTAL
20      -------------------------------------------------
21      Aubry                        35,000                                    4
22      Hall                         38,275                                      4
23      Howard                       25,225                                  6
24      Kaplan                       26,225                                  6
25      Maher                        26,650                                    6
26
27
```

Setting Up a Hatches Range

You use a hatches range to assign a <u>hatch pattern</u> to each value in an A - F <u>data range</u> or to assign a hatch pattern to each slice in a <u>pie chart</u>, hide a pie slice, or explode a pie slice.

Assigning Hatch Patterns

*   The hatches range must be the same size as the data range.

*   Each cell in the hatches range must contain a value from 1 through 14.

       Values 1 through 8 correspond to the hatch patterns available in <u>Chart Options Hatches</u>.

       Values 9 through 14 correspond to varying shades of gray.

*   1-2-3 uses the hatch value in the hatches range whose location corresponds to the location of the value in the data range.

Example

       <u>Hatches Range</u>

Hiding and Exploding Pie Slices

You can use the hatches range to hide and explode pie slices. (An exploded pie slice is displayed as cut away from the pie.)

*   To hide a pie slice, enter a negative number in the hatches-range cell that corresponds to the value in the data range you want to hide.

*   To explode a pie slice, add 100 to the value in the corresponding hatches-range cell.

       For example, to explode a pie slice to which you are assigning hatch pattern 4, enter 104 in the corresponding hatches-range cell.

See also:

<u>Chart Commands (Graph Window)</u>
<u>Chart Options Advanced Styles (Graph Window)</u>

Example: Hatches Range

B21..B25 is the A data range and C21..C25 is its corresponding hatches range. The values 2 and 7 represent two of the hatch patterns available in 1-2-3. In a bar graph of this data range, 1-2-3 displays the first and second bars in hatch pattern 2 and the third, fourth, and fifth bars in hatch pattern 7.

```
   A ---------------- A -------------------- B -------------------- C ----------------------
19    SALESPERSON     Q1 TOTAL
20    --------------------------------------------------
21    Aubry                      35,000                              2
22    Hall                       38,275                               2
23    Howard                 25,225                            7
24    Kaplan                 26,225                            7
25    Maher                  26,650                            7
26
27
```

Setting Up a Percent-Labels Range

You use a percent-labels range to remove percent labels from display in a <u>pie chart</u>.

*   The percent-labels range must be the same size as the data range.

*   Each cell in the percent-labels range must contain a 0 (zero) or a one (1).

*   0 (zero) removes the percent label from the pie slice displayed for the value in the corresponding cell of the data range.

Example

<u>Percent-Labels Range</u>

See also:

<u>Chart Commands (Graph Window)</u>
<u>Chart Ranges (Graph Window)</u>

Example: Percent-Labels Range

B21..B25 is the A data range and C21..C25 is its corresponding percent-labels range. A 0 is entered for two sales totals (both representing more than 20% of the total sales for the quarter). In a pie chart of the Q1 TOTAL data range, 1-2-3 removes the percent labels for the corresponding slices.

	A	B	C
19	SALESPERSON	Q1 TOTAL	
20	---		
21	Aubry	35,000	0
22	Hall	38,275	0
23	Howard	25,225	1
24	Kaplan	26,225	1
25	Maher	26,650	1
26			
27			

Chart Clear (Graph Window)

Resets all or selected settings for the current graph to 1-2-3 <u>default settings</u>.

1. Choose Chart Clear.

2. To clear current X and A - F data-range settings and data-label settings, select the <u>check box</u> of one or more of the following options under Data ranges:

   All (X, A-F)
   Erases all data-range and data-label settings and deletes the ranges and labels from the graph.

   X, A, B, C, D, E, F
   Erases a data-range and its data-label settings and deletes the range and labels from the graph.

3. To clear all settings for the graph, select Entire chart.

4. To clear data-label, heading, legend, axis, color, hatch, font, and line settings for the graph, select Chart settings.

5. Select OK.

To remove the graph from a range in the worksheet, use <u>Edit Clear Special</u>.

To delete the graph from the file, use <u>Graph Name Delete</u>.

See also:

<u>Chart Commands (Graph Window)</u>

<u>Graph Commands</u>

<u>Graph Window Commands</u>

About Graph Types

The graph type you choose determines how data in <u>data ranges</u> is plotted and displayed. In 1-2-3, you can create seven basic types of graphs.

Area Graph (Including 3-D Area)

Area graphs are line graphs. 1-2-3 plots area graphs exactly as it plots line graphs: the X data range becomes the x-axis labels, and the A - F data ranges become lines in the graph. <u>Data points</u> along the line represent one value in the range.

In an area graph, however, 1-2-3 uses a different color or <u>hatch pattern</u> to fill the area between each line or between each line and the x-axis.

Bar Graph (Including 3-D Bar)

Bar graphs are useful for comparing related data at a point in time or for tracking changes in data over time. Each bar in a bar graph represents a value in a data range.

In a bar graph, 1-2-3 uses the X data range as the x-axis labels and the A - F data ranges as the sets of bars in the graph. 1-2-3 creates one set of bars for each data range, with each bar representing one value in the range.

In a stacked bar graph, 1-2-3 graphs the A - F data ranges as portions of bars, with the A-range data at the bottom of the bars, the B-range data above the A-range data, and so on. In a clustered bar graph, 1-2-3 uses separate bars to graph A - F data ranges.

HLCO Graph

High-Low-Close-Open graphs, also called stock market graphs, track fluctuations in stock prices (or any other type of data) over time. The high and low values are depicted as a vertical line that includes a right tick mark for the closing value and a left tick mark for the opening value. The number of vertical lines in the graph depends on the number of time periods for which the high-low-close-open data was recorded.

You can also include bars (to represent, for example, the daily volume of trading for the stock) and a line (to represent, for example, a rolling stock-price average) in the graph.

In an HLCO graph, 1-2-3 uses the X data range as the x-axis labels; the A, B, C, and D ranges as the sets of high, low, close, and open values, respectively; the E data range as the set of bars below the high-low-close-open area of the graph; and the F data range as the line in the high-low-close-open area.

You must use at least the A and B data ranges or the E or F data range.

Line Graph (Including 3-D Line)

Line graphs stress continuity of data over time, and they are particularly useful for identifying trends and making projections. Each line in a line graph represents a data range, and each point along the line represents a value at a particular time.

In a line graph, 1-2-3 uses the X data range as the x-axis labels and the A - F data ranges as the lines in the graph. 1-2-3 creates one line for each data range; each data point along the line represents one value in the range.

In an unstacked line graph, 1-2-3 plots the actual values in each data range, so the lines may overlap if the data ranges have values that are close together.

In a stacked line graph, 1-2-3 plots data ranges one on top of the other, placing the A range closest to the x-axis and plotting its actual values. To plot the line for the B data range, 1-2-3 adds the values in the A data range to the corresponding values in the B data range. To plot the line for the C data range, 1-2-3 adds the newly derived values of the B data range to the corresponding values in the C data range, and so on for each range in the graph.

Mixed Graph

Mixed graphs are combination bar and line graphs. They are useful for plotting different types of data (for example, sales volumes and advertising expenditures) in the same graph.

For mixed graphs, 1-2-3 uses the X data range as the x-axis labels; the A, B, and C data ranges as sets of bars in the graph; and the D, E, and F data ranges as lines.

Pie Chart (Including 3-D Pie)

Pie charts relate two or more positive values to one another and to the whole data range by depicting the values as slices of a pie. Pie charts show the percentage of the total belonging to each value.

In a pie chart, 1-2-3 uses the X data range as the pie-slice labels and the A data range as the pie slices. Optionally, you can create a B data range to color, hide, and explode pie slices and a C data range to suppress display of percent labels.

XY Graph

XY graphs, also called scatter charts, show correlations between two types of numeric data. XY graphs resemble line graphs in the sense that values are plotted as points in the graph. Unlike line graphs, however, XY graphs use a numeric scale along the x-axis.

In an XY graph, 1-2-3 uses the values in the X data range as the x-axis scale. 1-2-3 graphs the A - F data ranges as points, creating one set of points for each data range you specify. These points are plotted against the values in the x-axis.

In an unstacked XY graph, 1-2-3 plots the actual values in each data range, so the lines, data points, or lines and data points may overlap if the data ranges have values that are close together.

In a stacked XY graph, 1-2-3 plots data ranges one on top of the other, placing the A range closest to the x-axis and plotting its actual values.To plot the line, data points, or line and data points for the B data range, 1-2-3 adds the values in the A data range to the corresponding values in the B data range. To plot the line, data points, or line and data points for the C data range, 1-2-3 adds the newly derived values of the B data range to the corresponding values in the C data range, and so on for each range in the graph.

Displaying X-Axis Labels

*   When 1-2-3 uses the contents of the X data range as the x-axis labels (in area, bar, HLCO, line, and mixed graphs) and the labels are long enough to overlap one another, 1-2-3 automatically staggers the labels.

*   To suppress the display of some of the labels along the x-axis, use Chart Axis X Options.

See also:

Chart Commands (Graph Window)
Chart Ranges (Graph Window)
Chart Type (Graph Window)
Creating Graphs
Graph Commands

Draw Text (Graph Window)

Adds text to the current Graph window. Each block of text that you add can contain up to 512 characters of text.

1. Choose Draw Text.

2. Specify the text in the New text text box in one of the following ways:

   * Enter the text.

   * Type **** (backslash) and specify the cell that contains the text.

      If you enter a range name or address, 1-2-3 uses the contents of the first cell in the range.

3. Select OK.

   The mouse pointer changes to a thin black cross in the Graph window.

4. Using the mouse or the pointer-movement keys, move the mouse pointer to the place in the Graph window at which you want to enter the text.

5. Click the mouse or press ENTER to add the text.

1-2-3 adds the text to the Graph window as a selected object (handles appear around the text).

To move the text block within the Graph window, select the text and drag it to the new location.

To Change the Text

1. In the Graph window, select the text you want to change.

2. Press F2 (EDIT).

3. Change the text in the New text text box in one of the following ways:

   * Enter the new text.

   * Type **** (backslash) and specify the cell that contains the new text.

      If you enter a range name or address, 1-2-3 uses the contents of the first cell in the range.

4. Select OK.

1-2-3 replaces the existing text with the new text.

See also:

Draw Commands (Graph Window)
Graph Commands
Graph Window Commands
Selecting Objects in the Graph Window

Edit Text (Graph Window)

Changes text created with Draw Text in the current <u>Graph window</u>.

1. In the Graph window, select the text you want to change.

2. Press F2 (EDIT).

   The Edit Text dialog box is displayed.

3. Change the text in the New text <u>text box</u> in one of the following ways:

   * Enter the new text.

   * Type **** (backslash) and specify the cell that contains the new text.

     If you enter a range name or address, 1-2-3 uses the contents of the first cell in the range.

   Each block of text can contain up to 512 characters of text.

4. Select OK.

1-2-3 replaces the existing text with the new text.

See also:

<u>Draw Text (Graph Window)</u>
<u>Selecting Objects in the Graph Window</u>

Draw Line (Graph Window)

Adds a single straight line or connected line segments to the current Graph window.

1. Choose Draw Line.

   The mouse pointer changes to a thin black cross in the Graph window.

2. Using the mouse or the pointer-movement keys, move the mouse pointer to the place in the Graph window at which you want to begin drawing the line.

3. Draw the line in one of the following ways:

   * Drag the mouse in the direction you want the first line segment to go and release the mouse; drag the mouse in the direction you want the second line segment to go and release the mouse again. Continue dragging and releasing the mouse until you draw all the line segments you want.

     To erase the previously drawn line segment, click the right mouse button.

     To stop drawing line segments, double-click the mouse.

     To align a line segment with the nearest 45-degree increment, press SHIFT as you begin to drag the mouse, or as you release the mouse to stop drawing.

   * Press the space bar to anchor the first line segment and use the pointer-movement keys to draw the first line segment in the direction you want it to go; press the space bar to anchor the second line segment and use the pointer-movement keys to draw the second line segment in the direction you want it to go. Continue using the space bar and pointer-movement keys to draw all the line segments you want.

     To erase the previously drawn line segment, press ESC.

     To stop drawing line segments, press ENTER.

     To align a line segment with the nearest 45-degree increment, press SHIFT as you anchor the line, or as you press ENTER to stop drawing.

1-2-3 adds the line to the Graph window as a selected object (a handle appears at the center of the line).

To move the line within the Graph window, select the line and drag it to the new location.

To smooth connected line segments into curves, use Style Lines (Graph window).

See also:

Draw Commands (Graph Window)
Graph Commands
Graph Window Commands
Selecting Objects in the Graph Window

Draw Arrow (Graph Window)

Adds a line segment or connected line segments with an arrowhead at one end to the current <u>Graph window</u>.

1. Choose Draw Arrow.

   The <u>mouse pointer</u> changes to a thin black cross in the Graph window.

2. Using the mouse or the <u>pointer-movement keys</u>, move the pointer to the place in the Graph window at which you want to begin drawing the arrow line.

3. Draw the arrow line in one of the following ways:

   * <u>Drag</u> the mouse in the direction you want the first line segment to go and release the mouse; drag the mouse in the direction you want the second line segment to go and release the mouse again. Continue dragging and releasing the mouse until you draw all the line segments you want.

     To erase the previously drawn line segment, click the right mouse button.

     To stop drawing line segments, double-click the mouse.

     To align a line segment with the nearest 45-degree increment, press SHIFT as you begin to drag the mouse, or as you release the mouse to stop drawing.

   * Press the space bar to anchor the first line segment and use the pointer-movement keys to draw the first line segment in the direction you want it to go; press the space bar to anchor the second line segment and use the pointer-movement keys to draw the second line segment in the direction you want it to go. Continue using the space bar and pointer-movement keys to draw all the line segments you want.

     To erase the previously drawn line segment, press ESC.

     To stop drawing line segments, press ENTER.

     To align a line segment with the nearest 45-degree increment, press SHIFT as you anchor the line, or as you press ENTER to stop drawing.

1-2-3 adds an arrowhead to the line and displays the arrow in the Graph window as a selected object (a <u>handle</u> appears at the center of the line).

To add or delete arrowheads, or to smooth connected line segments into curves, use <u>Style Lines (Graph window)</u>.

To move the arrow within the Graph window, select the arrow and drag it to the new location.

See also:

Draw Rectangle (Graph Window)

Adds a rectangle or a square to the current Graph window.

1. Choose Draw Rectangle.

    The mouse pointer changes to a thin black cross in the Graph window.

2. Using the mouse or the pointer-movement keys, move the pointer to the place in the Graph window at which you want to begin drawing the rectangle or square.

3. Draw the rectangle or square in one of the following ways:

    *   Drag the mouse in the direction you want the rectangle to go until the bounding box is the size and shape you want. Release the mouse to stop drawing the rectangle.

        To draw a square, press SHIFT as you begin to drag the mouse or as you release the mouse to stop drawing.

    *   Press the space bar to anchor the first corner of the bounding box, and use the pointer-movement keys to stretch the box in the direction you want the rectangle to go until the box is the size you want the rectangle to be. Press ENTER to stop drawing the rectangle.

        To draw a square, press SHIFT as you anchor the first corner of the bounding box or as you press ENTER to stop drawing.

1-2-3 adds the rectangle or square to the Graph window as a selected object (handles appear in the outline of the rectangle or square).

To move the rectangle or square within the Graph window, select the rectangle or square and drag it to the new location.

To smooth the corners of the rectangle or square into curves, use Style Lines (Graph window).

See also:

Draw Commands (Graph Window)
Graph Commands
Graph Window Commands
Selecting Objects in the Graph Window

Draw Polygon (Graph Window)

Adds a multi-sided object to the current Graph window.

1. Choose Draw Polygon.

   The mouse pointer changes to a thin black cross in the Graph window.

2. Using the mouse or the pointer-movement keys, move the mouse pointer to the place in the Graph window at which you want to begin drawing the polygon.

3. Draw the polygon in one of the following ways:

   * Drag the mouse in the direction you want the first side of the polygon to go and release the mouse; drag the mouse in the direction you want the second side to go and release the mouse again. Continue dragging and releasing the mouse until you draw all the sides you want; if you don't draw the last side, 1-2-3 draws it for you.

     To erase the previously drawn line segment, click the right mouse button.

     To stop drawing the polygon, double-click the mouse.

   * Press the space bar to anchor the first side of the polygon and use the pointer-movement keys to draw the first side of the polygon in the direction you want it to go; press the space bar to anchor the second side of the polygon and use the pointer-movement keys to draw the second side. Continue using the space bar and pointer-movement keys to draw all the sides you want; if you don't draw the last side, 1-2-3 draws it for you.

     To erase the previously drawn line segment, press ESC.

     To stop drawing the polygon, press ENTER.

1-2-3 adds the polygon to the Graph window as a selected object (handles appear in the outline of the polygon).

To move the polygon within the Graph window, select the polygon and drag it to the new location.

To smooth the corners of the polygon into curves, use Style Lines (Graph window).

See also:

    Draw Commands (Graph Window)
    Graph Commands
    Graph Window Commands
    Selecting Objects in the Graph Window

Draw Ellipse (Graph Window)

Adds an ellipse or a circle to the current <u>Graph window</u>.

1. Choose Draw Ellipse.

   The <u>mouse pointer</u> changes to a thin black cross in the Graph window.

2. Using the mouse or the <u>pointer-movement keys</u>, move the mouse pointer to the place in the Graph window at which you want to begin drawing the ellipse or circle.

3. Draw the ellipse or circle in one of the following ways:

   * <u>Drag</u> the mouse in the direction you want the ellipse to go until the <u>bounding box</u> is the size and shape you want the ellipse to be. Release the mouse to stop drawing the ellipse.

     To draw a circle, press SHIFT as you begin to drag the mouse or as you release the mouse to stop drawing.

   * Press the space bar to anchor the first corner of the bounding box, and use the pointer-movement keys to stretch the box in the direction you want the ellipse to go until the box is the size you want the ellipse to be. Press ENTER to stop drawing the ellipse.

     To draw a circle, press SHIFT as you anchor the first corner of the bounding box or as you press ENTER to stop drawing.

1-2-3 adds the ellipse or circle to the Graph window as a selected object (<u>handles</u> appear in the outline of the ellipse or circle).

To move the ellipse or circle within the Graph window, select the ellipse or circle and drag it to the new location.

See also:

<u>Draw Commands (Graph Window)</u>
<u>Graph Commands</u>
<u>Graph Window Commands</u>
<u>Selecting Objects in the Graph Window</u>

Draw Freehand (Graph Window)

Adds an object that is drawn freehand to the current Graph window.

1. Choose Draw Freehand.

    The mouse pointer changes to a thin black cross in the Graph window.

2. Using the mouse or the pointer-movement keys, move the mouse pointer to the place in the Graph window at which you want to begin drawing the object.

3. Draw the freehand object in one of the following ways:

    *   Drag the mouse to draw the object; the pointer changes to a pencil when you begin to drag the mouse. Release the mouse to stop drawing the object.

    *   Press the space bar to anchor the drawing and use the pointer-movement keys to draw the object; the pointer changes to a pencil when you anchor the drawing. Press ENTER to stop drawing the object.

1-2-3 adds the freehand object to the Graph window as a selected object (handles appear in the outline of the object).

To move the freehand object within the Graph window, select the object and drag it to the new location.

To smooth corners in the drawing into curves, use Style Lines (Graph window).

See also:

Draw Commands (Graph Window)
Graph Commands
Graph Window Commands
Selecting Objects in the Graph Window

Selecting Objects in the Graph Window

You must select an <u>object</u> or a graph before you can copy, delete, rearrange, or move the object or graph in the <u>Graph window</u>, adjust the object's line style or colors, and make other layout changes to the object or graph. You can then make one or more changes to your selection and select another item to change.

You can use the mouse or the Edit Select (Graph window) commands to select an object or a graph. When you make your selection, 1-2-3 outlines the object or the graph with <u>handles</u>.

You can also use the mouse and Edit Select commands to deselect an object or a graph. When you deselect an item, the handles go away.

Using the Mouse

To select an object or a graph with the mouse, position the <u>mouse pointer</u> on the boundary line of the object or graph and click the mouse. When you select a graph, objects drawn in the graph are not selected.

To select several objects with the mouse, imagine a box large enough to include all the objects you want to select, position the mouse pointer at one corner of this box, and then <u>drag</u> the mouse until you surround all the objects.

To deselect all selected items, position the mouse pointer anywhere in the Graph window and click the mouse.

To deselect one item when several items are selected, position the mouse pointer in the item and simultaneously press SHIFT and click the mouse.

Using the Edit Select Commands

You can use the <u>Edit Select (Graph window)</u> commands to select and deselect an object or a graph as described below:

This command	Does this:
Edit Select All	Selects all objects, but not a graph, in the Graph window.
Edit Select None	Deselects all selected items in the Graph window, including a selected graph.
Edit Select Cycle	Starting with the item in the Graph window that was created first, cycles through all items, including the graph, and selects the items you specify.
Edit Select Chart	Selects the graph in the Graph window.

See also:

<u>Draw Commands (Graph Window)</u>
<u>Graph Commands</u>
<u>Graph Window Commands</u>

Edit Copy (Graph Window)

Copies the contents of the Graph window to the Clipboard. The copy remains on the Clipboard until you use Edit Copy or Edit Cut again in 1-2-3 for Windows or in another Windows application.

1. Choose Edit Copy.

Use Edit Paste to insert the copied items in a worksheet file or in another Windows application.

See also:

> Copying Data in 1-2-3
> Edit Commands (Graph Window)
> Graph Commands
> Graph Window Commands
> Selecting Objects in the Graph Window

Edit Delete (Graph Window)

Deletes an <u>object</u> or the entire graph from the <u>Graph window</u>.

1. Select the objects or graph to delete.

2. Choose Edit Delete or press DEL.

To undo the deletion, choose <u>Edit Undelete</u> or press INS while the Graph window is displayed.

See also:

<u>Edit Commands (Graph Window)</u>
<u>Graph Commands</u>
<u>Graph Name Delete</u>
<u>Graph Window Commands</u>
<u>Selecting Objects in the Graph Window</u>

Edit Undelete (Graph Window)

Restores to the <u>Graph window</u> the <u>object</u> or graph most recently deleted with Edit Delete or DEL.

1. Choose Edit Undelete or press INS.

1-2-3 redisplays the deleted items in the Graph window.

See also:

<u>Edit Commands (Graph Window)</u>
<u>Graph Commands</u>
<u>Graph Window Commands</u>

Edit Replicate (Graph Window)

Creates a copy of an object or the entire graph.

1. Select the objects or graph to replicate.

2. Choose Edit Replicate or press SHIFT+INS.

1-2-3 displays the copy superimposed on the original. To move the copy, position the mouse pointer in the copy and drag the copy to another location in the Graph window.

See also:

Edit Commands (Graph Window)
Graph Commands
Graph Window Commands
Selecting Objects in the Graph Window

Edit Select (Graph Window)

Selects or deselects an <u>object</u> or the entire graph.

<u>All</u>
Selects all objects, except a graph.

<u>None</u>
Deselects all selected objects, including a graph.

<u>Cycle</u>
Cycles through objects, including a graph, and selects or deselects the items you specify.

<u>Chart</u>
Selects a graph.

See also:

<u>Edit Commands (Graph Window)</u>
<u>Graph Commands</u>
<u>Graph Window Commands</u>

Edit Select All (Graph Window)

Selects all objects, except a graph. After you choose Edit Select All, you can use other Graph window commands to copy, delete, or rearrange the selected items, or make layout changes.

1. Choose Edit Select All.

1-2-3 outlines all the items with <u>handles</u>.

See also:

<u>Edit Commands (Graph Window)</u>
<u>Edit Select (Graph Window)</u>
<u>Selecting Objects in the Graph Window</u>

Edit Select None (Graph Window)

Deselects all selected objects, including a graph.

1. Choose Edit Select None.

1-2-3 removes <u>handles</u> from all items.

See also:

<u>Edit Commands (Graph Window)</u>
<u>Edit Select (Graph Window)</u>
<u>Selecting Objects in the Graph Window</u>

Edit Select Cycle (Graph Window)

Starting with the item that was created first, cycles through objects, including a graph, and selects or deselects the items you specify. After you choose Edit Select Cycle and select items, you can use other Graph window commands to copy, delete, or rearrange the items, or make layout changes.

1. Choose Edit Select Cycle.

2. Select Next to move to the next item in the cycle. Select Previous to move to the previous item in the cycle.

3. To select or deselect the item, select Select.

   Note You can reverse selection or deselection of the item by selecting Select again before you move to the next item or before you select OK.

4. To move to another item and select or deselect it, repeat steps 2 and 3.

5. Select OK.

1-2-3 outlines each selected item with underline.

See also:

Edit Commands (Graph Window)
Edit Select (Graph Window)
Selecting Objects in the Graph Window

Edit Select Chart (Graph Window)

Selects a graph. After you choose Edit Select Chart, you can use other Graph window commands to copy, delete, or rearrange the graph, or make layout changes.

1. Choose Edit Select Chart.

1-2-3 outlines the graph with <u>handles</u>.

See also:

<u>Edit Commands (Graph Window)</u>
<u>Edit Select (Graph Window)</u>
<u>Selecting Objects in the Graph Window</u>

File Close (Graph Window)

Closes the current Graph window and redisplays the worksheet. When you close a Graph window, 1-2-3 removes the graph from memory but does not delete the graph from disk.

1. Choose File Close.

1-2-3 automatically saves changes to graphs.

See also:

> File Commands (Graph Window)
> Graph Commands
> Graph Name Delete
> Graph Window Commands

File Exit (Graph Window)

Ends the 1-2-3 for Windows session. When you end a session, 1-2-3 saves changes to graphs and removes all <u>active files</u> from memory but does not delete the files from disk. The 1-2-3 window closes, and the Windows Program Manager screen is redisplayed.

1. Choose File Exit.

2. If 1-2-3 indicates that active files changed and asks whether you want to save the changes, select one of the following options:

   Yes
   Saves the changes and ends the session.

   No
   Ends the session without saving the changes.

   Cancel
   Does not end the session.

See also:

<u>Closing a Window in 1-2-3</u>
<u>Exiting and Ending 1-2-3 for Windows</u>
<u>File Commands (Graph Window)</u>
<u>Graph Commands</u>
<u>Graph Window Commands</u>
<u>Working with Multiple Files</u>

File Exit (Replace/Backup/Cancel)

Cancels or completes the File Exit (Graph window) command when one or more files changed during the 1-2-3 for Windows session already exist on disk.

1. Select one of the following options:

   Replace
   For all changed files, replaces the data in the files on disk with the updated data.

   Backup
   For all changed files, renames the files on disk with the extension .BAK and replaces the data in the original files on disk with the updated data.

   Cancel
   Returns 1-2-3 to READY mode without updating any file on disk.

2. Select OK.

See also:

File Commands (Graph Window)
File Exit (Graph Window)

Layout Send Forward (Graph Window)

Places selected <u>objects</u> in front of all other objects. Objects in front may hide objects behind them.

1. Select the objects to place in front.

2. Choose Layout Send Forward.

See also:

<u>Graph Commands</u>
<u>Graph Window Commands</u>
<u>Layout Commands (Graph Window)</u>
<u>Selecting Objects in the Graph Window</u>

Layout Fall Back (Graph Window)

Places selected <u>objects</u> behind all other objects. Objects in back may be hidden by objects in front of them.

1. Select the objects to place in back.

2. Choose Layout Fall Back.

See also:

<u>Graph Commands</u>
<u>Graph Window Commands</u>
<u>Layout Commands (Graph Window)</u>
<u>Selecting Objects in the Graph Window</u>

Layout Lock (Graph Window)

Prevents changes to objectsor the graph itself. When you lock objects, their selection indicators change from squares to diamonds.

1. Select the objects or graph to lock.

2. Choose Layout Lock.

See also:

> Graph Commands
> Graph Window Commands
> Layout Commands (Graph Window)
> Selecting Objects in the Graph Window

Layout Unlock (Graph Window)

Removes the lock, set with <u>Layout Lock</u>, that protects selected <u>objects</u> from changes.

1. Select the objects to unlock.

2. Choose Layout Unlock.

See also:

<u>Graph Commands</u>
<u>Graph Window Commands</u>
<u>Layout Commands (Graph Window)</u>
<u>Selecting Objects in the Graph Window</u>

Rearrange Flip (Graph Window)

Flips an <u>object</u> or the entire graph horizontally or vertically.

<u>Horizontal</u>
Flips an object or the entire graph horizontally axis so that it appears backwards.

<u>Vertical</u>
Flips an object or the entire graph vertically so that it appears upside down.

See also:

<u>Graph Commands</u>
<u>Graph Window Commands</u>
<u>Rearrange Commands (Graph Window)</u>

Rearrange Flip Horizontal (Graph Window)

Flips an <u>object</u> or the entire graph horizontally so that it appears backwards.

1. Select the objects or graph you want to flip.

2. Choose Rearrange Flip Horizontal.

See also:

<u>Rearrange Commands (Graph Window)</u>
<u>Rearrange Flip (Graph Window)</u>
<u>Rearrange Flip Vertical (Graph Window)</u>
<u>Selecting Objects in the Graph Window</u>

Rearrange Flip Vertical (Graph Window)

Flips an <u>object</u> or the entire graph vertically so that it appears upside down.

1. Select the objects or graph you want to flip.

2. Choose Rearrange Flip Vertical.

See also:

<u>Rearrange Commands (Graph Window)</u>
<u>Rearrange Flip (Graph Window)</u>
<u>Rearrange Flip Horizontal (Graph Window)</u>
<u>Selecting Objects in the Graph Window</u>

Rearrange Quarter-Turn (Graph Window)

Rotates an object or the entire graph around its center in 90-degree increments.

1. Select the objects or graph you want to rotate.

2. Choose Rearrange Quarter-Turn.

See also:

Graph Commands
Graph Window Commands
Rearrange Commands (Graph Window)
Selecting Objects in the Graph Window

Rearrange Skew (Graph Window)

Adjusts the slant and size of an <u>object</u> or the entire graph by making its horizontal or vertical axis a hinge on which you can rotate the object.

<u>Horizontal</u>
Adjusts the slant and size of an object or the entire graph by making its horizontal axis a hinge on which you can rotate the object.

<u>Vertical</u>
Adjusts the slant and size of an object or the entire graph by making its vertical axis a hinge on which you can rotate the object.

See also:

<u>Graph Commands</u>
<u>Graph Window Commands</u>
<u>Rearrange Commands (Graph Window)</u>

Rearrange Skew Horizontal (Graph Window)

Adjusts the slant and size of an <u>object</u> or the entire graph by making its horizontal axis a hinge on which you can rotate the object.

1. Select the objects or graph whose slant and size you want to change.

2. Choose Rearrange Skew Horizontal.

3. Use the mouse or pointer-movement keys to adjust the selected objects. When you finish, double-click or press ENTER.

See also:

<u>Rearrange Commands (Graph Window)</u>
<u>Rearrange Skew (Graph Window)</u>
<u>Rearrange Skew Vertical (Graph Window)</u>
<u>Selecting Objects in the Graph Window</u>

Rearrange Skew Vertical (Graph Window)

Adjusts the slant and size of an <u>object</u> or the entire graph by making its vertical axis a hinge on which you can rotate the object.

1. Select the objects or graph whose size and slant you want to change.

2. Choose Rearrange Skew Vertical.

3. Use the mouse or pointer-movement keys to adjust the selected objects. When you finish, double-click or press ENTER.

See also:

<u>Rearrange Commands (Graph Window)</u>
<u>Rearrange Skew (Graph Window)</u>
<u>Rearrange Flip Horizontal (Graph Window)</u>
<u>Selecting Objects in the Graph Window</u>

Rearrange Turn (Graph Window)

Rotates an <u>object</u> or the entire graph around its center at any angle.

1. Select the objects or graph you want to rotate.

2. Choose Rearrange Turn.

3. Use the mouse or pointer-movement keys to rotate the selected objects or graph. When you finish, double-click or press ENTER.

See also:

<u>Graph Commands</u>
<u>Graph Window Commands</u>
<u>Rearrange Commands (Graph Window)</u>
<u>Selecting Objects in the Graph Window</u>

Rearrange Adjust Size (Graph Window)

Changes the size of an <u>object</u> or the entire graph.

1. Select the objects or graph whose size you want to change.

2. Choose Rearrange Adjust Size.

3. Use the mouse or pointer-movement keys to adjust the size of the selected objects or graph. When you finish, double-click or press ENTER.

See also:

<u>Graph Commands</u>
<u>Graph Window Commands</u>
<u>Rearrange Commands (Graph Window)</u>
<u>Selecting Objects in the Graph Window</u>

Rearrange Clear (Graph Window)

Cancels the effects of all Rearrange commands, returning an <u>object</u> or the entire graph to its original state.

1. Select the objects or graph you want to return to its original states.

2. Choose Rearrange Clear.

See also:

<u>Graph Commands</u>
<u>Graph Window Commands</u>
<u>Rearrange Commands (Graph Window)</u>
<u>Selecting Objects in the Graph Window</u>

Style Font (Graph Window)

Applies a <u>font</u> in the current <u>font set</u> to text you add to a graph with <u>Draw Text</u>, or changes the size of all text in a graph.

1. Select the text to format.

2. Choose Style Font.

3. Select a font from the Fonts <u>list box</u>.

    The first font in the list is the <u>default font</u> for the current worksheet file.

4. To indicate the percentage by which to increase or decrease the size of all text in the graph, enter a number from 1 through 1000 in the Magnify all fonts <u>text box</u>.

    For example, enter 150 to enlarge all text in the graph to 150% of its default size.

5. Select OK.

See also:

<u>Graph Commands</u>
<u>Graph Window Commands</u>
<u>Selecting Objects in the Graph Window</u>
<u>Style Commands (Graph Window)</u>

Style Color (Graph Window)

Assigns colors to parts of the graph. These colors are visible when the worksheet is displayed on a color monitor or printed on a color printer.

1. Select the objects whose colors you want to change.

2. Choose Style Color.

3. Select the drop-down box of one of the following options:

   Text
   Sets the color for text added to the graph with Draw Text.

   Line
   Sets the color for a selected line or arrow, or the outline of a selected rectangle, polygon, ellipse, or freehand drawing.

   Interior fill
   Sets the color for the inside of a selected object.

   Note If the selected object is the graph itself, selecting Interior fill changes the color inside the frame bounded by the x-axis and y-axis.

   Background
   Sets the color for the background of the graph.

4. Select a color from the list.

5. Repeat steps 3 and 4 to assign colors to other parts of the graph.

6. Select OK.

See also:

Graph Commands
Graph Window Commands
Selecting Objects in the Graph Window
Style Commands (Graph Window)

Style Lines (Graph Window)

Controls the appearance of lines or the outlines of rectangles, polygons, ellipses, or freehand drawings.

Line
Changes the style and width of lines and outlines.

Smoothing
Replaces the corners of rectangles, polygons, freehand drawings, and connected line segments with curves.

Add arrowheads
Adds, removes, and changes the placement of arrowheads.

See also:

Graph Commands
Graph Window Commands
Style Commands (Graph Window)

Style Lines Line (Graph Window)

Changes the style and width of lines or outlines.

1. Select the objects whose line styles or line widths you want to change.
2. Choose Style Lines.
3. To specify a style for lines and outlines, select a line style from the Style <u>drop-down box</u>.
4. To specify a width for lines and outlines, select a width from the Width drop-down box.
5. Select OK.

See also:

> <u>Graph Commands</u>
> <u>Graph Window Commands</u>
> <u>Selecting Objects in the Graph Window</u>
> <u>Style Commands (Graph Window)</u>

Style Lines Smoothing (Graph Window)

Replaces the corners of rectangles, polygons, freehand drawings, and connected line segments with curves.

1. Select the objects whose smoothing you want to change.

2. Choose Style Lines.

3. Under Smoothing, select one of the following options:

   None
   Removes smoothing from an object (turns an ellipse into a rectangle, for example).

   Tight
   Draws a smooth outline that approximates the original outline of an object.

   Medium
   Draws an object with maximum smoothing (turns a rectangle into an ellipse, for example).

4. Select OK.

See also:

Graph Commands
Graph Window Commands
Selecting Objects in the Graph Window
Style Commands (Graph Window)

Style Lines Add Arrowheads (Graph Window)

Adds, removes, and changes the placement of arrowheads.

1. Select the lines or arrows you want to change.

2. Choose Style Lines.

3. Under Add arrowheads, select one or both of the following:

   Start of line
   Adds an arrowhead to the beginning of a line.

   End of line
   Adds an arrowhead to the end of a line.

4. Select OK.

See also:

Graph Commands
Graph Window Commands
Selecting Objects in the Graph Window
Style Commands (Graph Window)

Style Alignment (Graph Window)

Left-aligns, centers, or right-aligns text added to a graph with <u>Draw Text</u>. 1-2-3 aligns the text relative to what the center point of the line of text was when it was added.

1. Select the lines of text you want to align.

2. Choose Style Alignment.

3. Under Align text, select one of the following options:

   Left
   Left-aligns a line of text.

   Center
   Centers a line of text.

   Right
   Right-aligns a line of text.

4. Select OK.

See also:

<u>Graph Commands</u>
<u>Graph Window Commands</u>
<u>Selecting Objects in the Graph Window</u>
<u>Style Commands (Graph Window)</u>

Style Display Options (Graph Window)

Makes a graph in the worksheet transparent or opaque; turns the display of a graph in the worksheet on or off; makes a graph in the worksheet update automatically to reflect changes in the data on which it is based; and displays a grid that shows the outline of each cell in the range the graph occupies.

1. Choose Style Display Options.

2. Under Graph display on sheet, select one or more of the following options:

   Transparent
   Changes the current graph in the worksheet from opaque to transparent. Opaque graphs hide worksheet data under them; transparent graphs let worksheet data under them show through.

   Hidden
   Turns the display of the current graph in the worksheet off. When the display of a graph is turned off, 1-2-3 displays the graph as a shaded rectangle in the worksheet. When you turn the display of a graph off, 1-2-3 still prints the actual graph, not the shaded rectangle.

   Updated automatically
   Turns on automatic recalculation of the current graph in the worksheet. When automatic recalculation of graphs is on, 1-2-3 automatically updates graphs in the worksheet when you change the data the graphs are based on.

4. To display a grid that shows the outline of each cell in the range the graph occupies, select the Show grid lines check box.

   Note The grid lines are not part of the graph and are not displayed when you return to the Worksheet window.

5. Select OK.

See also:

Graph Commands
Graph Window Commands
Style Commands (Graph Window)

Window Enlarge (Graph Window)

Enlarges the contents of the Graph window. Window Enlarge does not affect the way the contents of the Graph window appear in the worksheet or in print.

1. Choose Window Enlarge or press + (plus sign).

2. Repeat step 1 up to four times to continue enlarging the contents of the Graph window.

1-2-3 displays scroll bars in the Graph window when you choose Window Enlarge. You can use the scroll bars to view other areas of the window.

To reduce the enlarged contents of the Graph window, choose Window Reduce or press - (minus sign).

To redisplay the contents of the Graph window at normal size, choose Window Full or press * (asterisk).

See also:

Graph Commands
Graph Window Commands
Window Commands (Graph Window)

Window Reduce (Graph Window)

Reduces the enlarged contents of the Graph window. Window Reduce does not affect the way the contents of the Graph window appear in the worksheet or in print.

1. Choose Window Reduce or press - (minus sign).

2. Repeat step 1 up to four times to continue reducing the Graph window contents.

To enlarge the contents of the Graph window, choose Window Enlarge or press + (plus sign).

To redisplay the contents of the Graph window at normal size, choose Window Full or press * (asterisk).

See also:

Graph Commands
Graph Window Commands
Window Commands (Graph Window)

Window Full (Graph Window)

Redisplays the contents of the Graph window at normal size. Window Full does not affect the way the contents of the Graph window appear in the worksheet or in print.

1. Choose Window Full or press * (asterisk).

To enlarge the contents of the Graph window, choose Window Enlarge or press + (plus sign).

To reduce the enlarged contents of the Graph window, choose Window Reduce or press - (minus sign).

See also:

> Graph Commands
> Graph Window Commands
> Window Commands (Graph Window)

Window Zoom (Graph Window)

Enlarges an area of the Graph window to fill the window. Window Zoom does not affect the way the contents of the Graph window appear in the worksheet or in print.

1. Choose Window Zoom or press @ (at sign).

2. Select an area of the Graph window to enlarge.

1-2-3 displays scroll bars in the Graph window when you choose Window Zoom. You can use the scroll bars to view other areas of the window.

To reduce the enlarged area of the Graph window, choose Window Reduce or press - (minus sign).

To redisplay the contents of the Graph window at normal size, choose Window Full or press * (asterisk).

See also:

Graph Commands
Graph Window Commands
Selecting Objects in the Graph Window
Window Commands (Graph Window)

@Function Basics

The 1-2-3 @functions are built-in formulas that perform specialized calculations automatically. Some @functions are simple; for example, @SUM adds the values in a range. @SUM(D1..D7) adds the values in the range D1..D7, which is easier than typing out the formula +D1+D2+D3+D4+D5+D6+D7. Other @functions replace complex formulas; for example, @NPV calculates the net present value of a series of future cash-flow values.

You can use an @function by itself as a formula, combine it with other @functions and formulas, or use it in a macro.

@Function Categories
Lists the categories of @functions.

@Function Format
Illustrates the format for writing @functions and defines the types of arguments you can use in @functions.

@Function Index
Lists @functions in alphabetical order.

@Function Rules
Lists rules for writing @functions.

Writing an @Function
Describes how to enter an @function.

@Function Categories

1-2-3 has eight categories of @functions. For an alphabetical list of all @functions, see the <u>@Function Index</u>.

<u>Database</u>
Perform statistical calculations and queries in <u>database tables</u>.

<u>Date and time</u>
Calculate values that represent dates and times.

<u>Financial</u>
Analyze investments and annuities, determine depreciation, and calculate cash flows and loans.

<u>Logical</u>
Calculate the results of <u>logical formulas</u>.

<u>Mathematical</u>
Simplify various mathematical operations, such as calculating square roots, and replace complex trigonometric calculations.

<u>Special</u>
Return information about cells, ranges, or the operating system; find the contents of a cell; or mark places where information is missing or incorrect.

<u>Statistical</u>
Perform calculations on lists of values.

<u>String</u>
Provide information about text in cells, and perform other operations on text.

See also:

<u>@Function Format</u>
<u>@Function Rules</u>
<u>Writing an @Function</u>

Writing an @Function

Using @Functions to Calculate (1:25)

Most @functions have three parts:

* The @ (at sign)

* The name of the @function

* One or more <u>arguments</u> enclosed in parentheses

For example, to enter an @function in cell B12 that calculates the sum of the numbers in cells B1 through B10

1. Move to cell B12.

2. Type @sum(.

    You can enter @functions in either uppercase or lowercase letters; 1-2-3 displays them in uppercase letters.

3. Type or select B1..B10, the range you want to sum in the @function.

4. Type) (close parenthesis) to complete the @function.

5. Click the Confirm box or press ENTER.

To Enter @Functions Using F3 (NAME)

1. Type @.

2. Press F3 (NAME).

    1-2-3 displays a list of the @functions.

3. Select the @function you want.

4. Double-click or press ENTER.

    1-2-3 inserts the @function name into the edit line along with the ((open parenthesis) if the @function requires an argument.

5. Enter the arguments and the) (close parenthesis).

6. Click the Confirm box or press ENTER.

See also:

<u>@Function Format</u>
<u>@Function Index</u>
<u>@Function Rules</u>
<u>Entering Formulas</u>

@Function Index

@@	@ISSTRING
@ABS	@LEFT
@ACOS	@LENGTH
@ASIN	@LN
@ATAN	@LOG
@ATAN2	@LOWER
@AVG	@MAX
@CELL	@MID
@CELLPOINTER	@MIN
@CHAR	@MINUTE
@CHOOSE	@MOD
@CLEAN	@MONTH
@CODE	@N
@COLS	@NA
@COORD	@NOW
@COS	@NPV
@COUNT	@PI
@CTERM	@PMT
@DATE	@PROPER
@DATEVALUE	@PV
@DAVG	@RAND
@DAY	@RATE
@DAYS360	@REPEAT
@DCOUNT	@REPLACE
@DDB	@RIGHT
@DGET	@ROUND
@DMAX	@ROWS
@DMIN	@S
@DQUERY	@SECOND
@DSTD	@SHEETS
@DSTDS	@SIN
@DSUM	@SLN
@D360	@SOLVER
@DVAR	@SQRT
@DVARS	@STD
@ERR	@STDS

@EXACT

@EXP

@FALSE

@FIND

@FV

@HLOOKUP

@HOUR

@IF

@INDEX

@INFO

@INT

@IRR

@ISAAF

@ISAPP

@ISERR

@ISNA

@ISNUMBER

@ISRANGE

@STRING

@SUM

@SUMPRODUCT

@SYD

@TAN

@TERM

@TIME

@TIMEVALUE

@TODAY

@TRIM

@TRUE

@UPPER

@VALUE

@VAR

@VARS

@VDB

@VLOOKUP

@YEAR

Database @Functions Category

Database @functions perform statistical calculations and queries, based on criteria you specify, in database tables in both worksheets and external databases.

@DAVG
Averages values in a field.

@DCOUNT
Counts nonblank cells in a field.

@DGET
Finds the contents of a cell in a field.

@DMAX
Finds the largest value in a field.

@DMIN
Finds the smallest value in a field.

@DQUERY
Gives you access to a function of an external database and uses the result of the function in a criteria range.

@DSTD
Calculates the population standard deviation of values in a field.

@DSTDS
Calculates the sample standard deviation of values in a field.

@DSUM
Sums values in a field.

@DVAR
Calculates the population variance of values in a field.

@DVARS
Calculates the sample variance of values in a field.

See also:

Guidelines for Using Database @Functions

Date and Time @Functions Category

Date and time @functions calculate values that represent dates and times.

Date Calculations

@DATE
Calculates the date number for a set of year, month, and day values.

@DATEVALUE
Converts text that looks like a date into its equivalent date number.

@DAY
Calculates the day of the month in a date number.

@DAYS360
Calculates the number of days between two date numbers, based on a 360-day year. (This conforms to the 1990 modifications to the Securities Industry Association's 1986 *Standard Securities Calculation Methods.*)

@D360
Calculates the number of days between two date numbers, based on a 360-day year (12 months, each with 30 days).

@MONTH
Calculates the month in a date number.

@YEAR
Calculates the year in a date number.

Time Calculations

@HOUR
Calculates the hour in a time number.

@MINUTE
Calculates the minutes in a time number.

@SECOND
Calculates the seconds in a time number.

@TIME
Calculates the time number for a set of hours, minutes, and seconds.

@TIMEVALUE
Converts text that looks like a time into its equivalent time number.

Current Date and Time Calculations

@NOW
Calculates the value that corresponds to the current date and time on the computer's clock.

@TODAY
Calculates the date number that corresponds to the current date on the computer's clock.

See also:

@MOD
Guidelines for Using Date and Time @Functions

Financial @Functions Category

Financial @functions analyze investments and annuities, determine depreciation, and calculate cash flows and loans.

Capital-Budgeting Tools

@IRR
Calculates the internal rate of return for a series of cash flows.

@NPV
Calculates the net present value of a series of cash flows.

Depreciation

@DDB
Calculates the double-declining balance depreciation allowance of an asset.

@SLN
Calculates the straight-line depreciation allowance of an asset for one period.

@SYD
Calculates the sum-of-the-years'-digits depreciation allowance of an asset.

@VDB
Calculates depreciation using the double-declining balance method and allows the percentage of straight-line depreciation to be values other than 200%.

Ordinary Annuities

@FV
Calculates the future value of a series of equal payments.

@PMT
Calculates the amount of periodic payment needed to pay off a loan.

@PV
Calculates the present value of a series of equal payments.

@TERM
Calculates the number of payment periods of an investment.

Single-Sum Compounding

@CTERM
Calculates the number of compounding periods necessary for an investment to grow to a future value.

@RATE
Calculates the periodic interest rate necessary for an investment to grow to a future value.

See also:

   Guidelines for Using Financial @Functions

Logical @Functions Category

Logical @functions calculate the results of <u>logical formulas</u>.

<u>@FALSE</u>
Returns the logical value 0 (false).

<u>@IF</u>
Takes one action if a condition is true; another if the condition is false.

<u>@ISAAF</u>
Returns 1 (true) for a defined <u>add-in</u> @function; 0 (false) for any other entry.

<u>@ISAPP</u>
Returns 1 (true) for a currently loaded add-in; 0 (false) for any other entry.

<u>@ISERR</u>
Returns 1 (true) for the value <u>ERR</u>; 0 (false) for any other entry.

<u>@ISNA</u>
Returns 1 (true) for the value <u>NA</u>; 0 (false) for any other entry.

<u>@ISNUMBER</u>
Returns 1 (true) for a <u>value</u> or a <u>blank cell</u>; 0 (false) for any other entry.

<u>@ISRANGE</u>
Returns 1 (true) for a <u>defined range name</u> or valid range address; 0 (false) for any other entry.

<u>@ISSTRING</u>
Returns 1 (true) for text enclosed in " " (double quotation marks), a <u>text formula</u>, or the address or name of a cell that contains a <u>label</u>; 0 (false) for a value or blank cell.

<u>@TRUE</u>
Returns the logical value 1 (true).

See also:

<u>Guidelines for Using Logical @Functions</u>

Mathematical @Functions Category

Mathematical @functions simplify various mathematical operations, such as calculating square roots, and replace complex trigonometric calculations.

General

@ABS
Calculates the absolute (positive) value of a <u>value</u>.

@EXP
Calculates the number *e* raised to a specified power.

@INT
Returns the integer portion of a value.

@LN
Calculates the natural logarithm (base *e*) of a value.

@LOG
Calculates the common logarithm (base 10) of a value.

@MOD
Calculates the remainder (modulus) of two values.

@RAND
Generates a random value between 0 and 1.

@ROUND
Rounds a value to a specified number of decimal places.

@SQRT
Calculates the positive square root of a value.

Trigonometric

@ACOS
Calculates the arc cosine of a value.

@ASIN
Calculates the arc sine of a value.

@ATAN
Calculates the arc tangent of a value.

@ATAN2
Calculates the four-quadrant arc tangent of two values.

@COS
Calculates the cosine of an angle.

@PI
Returns the value pi (calculated at 3.14159265358979324).

@SIN
Calculates the sine of an angle.

@TAN
Calculates the tangent of an angle.

See also:

Guidelines for Using Mathematical @Functions

Special @Functions Category

Special @functions return information about cells, ranges, or the operating system; find the contents of a cell; or mark places where information is missing or incorrect.

Cell and Range Information

@@
Returns the contents of the cell whose name or address is specified in another cell.

@CELL
Returns information about a cell or its contents.

@CELLPOINTER
Returns information about the current cell or its contents.

@COLS
Counts the columns in a range.

@COORD
Creates an absolute, mixed, or relative cell reference from values.

@ROWS
Counts the rows in a range.

@SHEETS
Counts the worksheets in a range.

Error Checking

@ERR
Returns the value ERR.

@NA
Returns the value NA.

Lookup Calculations

@CHOOSE
Finds a specified value or label in a list of values and/or labels.

@HLOOKUP
Finds the contents of a cell in a specified row in a horizontal lookup table.

@INDEX
Finds the contents of a cell in a specified row, column, and worksheet in a range.

@VLOOKUP
Finds the contents of a cell in a specified column in a vertical lookup table.

System and Session Information

@INFO
Returns information for the current 1-2-3 session.

@SOLVER
Returns information about the status of the Solver.

Statistical @Functions Category

Statistical @functions perform calculations on lists of values.

@AVG
Averages a list of values.

@COUNT
Counts the nonblank cells in a list of ranges.

@MAX
Finds the largest value in a list of values.

@MIN
Finds the minimum value in a list of values.

@STD
Calculates the population standard deviation of a list of values.

@STDS
Calculates the sample standard deviation of a list of values.

@SUM
Adds a list of values.

@SUMPRODUCT
Sums the products of corresponding elements in multiple ranges.

@VAR
Calculates the population variance of a list of values.

@VARS
Calculates the sample variance of a list of values.

See also:

Guidelines for Using Statistical @Functions

String @Functions Category

String @functions provide information about text in cells and perform other operations on text.

@CHAR
Returns the character that a Lotus Multibyte Character Set (LMBCS) code produces.

@CODE
Returns the LMBCS code that corresponds to the first character in a string.

@EXACT
Returns 1 (true) if two strings are the same; 0 (false) if the strings are different.

@FIND
Calculates the position of the first occurrence of one string within another string.

@LEFT
Returns a specified number of characters from the beginning of a string.

@LENGTH
Counts the characters in a string.

@LOWER
Converts all the letters in a string to lowercase.

@MID
Returns a number of characters in a string, starting at a specified character.

@N
Returns the value in the first cell in a range or 0 if the cell contains a label.

@PROPER
Converts the first letter in each word in a string to uppercase and the rest of the letters in each word to lowercase.

@REPEAT
Duplicates a string a specified number of times.

@REPLACE
Replaces characters in a string with characters from a different string.

@RIGHT
Returns a specified number of characters from the end of a string.

@S
Returns the label in the first cell in a range or an empty string if the cell contains a value or is blank.

@STRING
Converts a value into a label with a specified number of decimal places.

@TRIM
Removes leading, trailing, and consecutive spaces from a string.

@UPPER
Converts all the letters in a string to uppercase.

@VALUE
Converts a label or text that looks like a number into a value.

See also:

Guidelines for Using String @Functions

@Function Format

Each @function has a specific format. Unless you follow this format exactly, 1-2-3 cannot interpret the @function. The format for an @function is

@FUNCTION

or

@FUNCTION(*arg1,arg2,...,argn*)

@FUNCTION represents the name of the @function. It tells 1-2-3 which calculation to perform.

arg1,arg2,...,argn represent arguments. Arguments supply the information 1-2-3 needs to complete the @function calculation. For example, when 1-2-3 encounters the function @SUM(B4..B25), the argument B4..B25 tells 1-2-3 to add the values in the range B4..B25.

The arguments in an @function can be any length, providing the total number of characters in the cell that contains the @function does not exceed 512.

Optional Arguments

Optional arguments, displayed in [ ] (brackets) in Help, are arguments you can omit from an @function. For example, @INDEX(*range,column,row,[worksheet]*) works even if you don't specify a *worksheet* argument.

Argument Separators

Argument separators separate two or more arguments. 1-2-3 allows three argument separators: , (comma), ; (semicolon), and . (period). A ; (semicolon) is always a valid argument separator. You can set either . (period) or , (comma) as an argument separator with Tools User Setup International, but the argument separator cannot be the same as the decimal separator. Some countries use , (comma) as the decimal separator, while others use . (period); so you may want to use ; (semicolon) as the argument separator in worksheet files that will be used with varying international settings.

Argument Types

@Functions use four types of information as arguments: values, strings, locations, and conditions.

Value
    A number, a numeric formula, or the address or name of a cell that contains a number or formula.

String
    Text enclosed in " " (quotation marks), a text formula, or the address or name of a cell that contains a label or a formula that results in a label.

Location
    A range name or address, or any formula that evaluates to a range name or address.

Condition
    Usually a logical formula or the address or name of a cell that contains a logical formula. However, you can also use any numeric or text formula, text (enclosed in double quotation marks), or cell reference as a condition argument.

@Function Rules

Observe the following rules when you write @functions:

Writing an @Function

*   Begin every @function with the @ symbol.

*   Do not type spaces between the @function name and its arguments. For example, @AVG(B6..B12) is correct; @AVG (B6..B12) is not.

*   Enclose an @function's arguments in parentheses. For example, in @INT(@SUM(A5..A11)), the argument for @INT is (@SUM(A5..A11)), and the argument for @SUM is (A5..A11).

*   The total number of characters in the cell that contains the @function must not exceed 512.

Using Ranges with @Functions

*   You can use single-sheet or 3-D ranges as arguments in any @function that accepts a range address or name as an argument, except for database @functions, @HLOOKUP, and @VLOOKUP; you cannot use 3-D ranges for these @functions.

*   If, after entering an @function that uses a range address as an argument, you assign a name to that range, 1-2-3 automatically replaces the address in the @function with the range name you assigned.

    For example, if you enter @SUM(E5..H7) and later assign E5..H7 the name COSTS, 1-2-3 automatically changes @SUM(E5..H7) to @SUM(COSTS).

    The automatic replacement occurs only for range addresses. For example, if you assign a range name to C10, 1-2-3 updates @AVG(C10..C10) and @AVG(!C10) but not @AVG(C10). (Typing an exclamation point in front of a single-cell address, as in @AVG(!C10), is equivalent to using a range address.)

*   If, after entering an @function that uses a range name as an argument, you undefine the range name, the @function evaluates to ERR.

See also:

@Function Format
Writing an @Function

Guidelines for Using Database @Functions

Database @functions scan one or more underlined database tables, select the underlined records that match the criteria in the criteria range, and then perform calculations on the selected records in the underlined field you specify. You can use database @functions on any range of related data organized in rows and columns, as long as the columns have unique field names and you provide a criteria range.

Most database @functions have an equivalent statistical @function. Use the database @functions to select and use only those values in a field that meet specific criteria. Use the statistical @functions to calculate using all values in a range. For example, use @DAVG to find the average of values that meet criteria you specify, such as the average sales in July by salesperson. Use @AVG to calculate the average value for a range, such as the average of all sales. The database @functions are equivalent to using the corresponding statistical @functions on the results of a Data Query command.

A database @function that refers to external database tables is recalculated each time any value in the worksheet changes. A database @function that refers only to database tables in the worksheet file is recalculated only when a value the @function depends on changes.

All database @functions except @DQUERY use three arguments: *input*, *field*, and *criteria*.

input

input is the input range. *input* can be the address or name of a single-sheet range that contains a database table, or the name of an external table.

You can use more than one *input* range in a database @function. To do so, separate each *input* range with a valid argument separator. When 1-2-3 calculates a database @function, it reads the arguments from right to left. 1-2-3 uses the last argument in the @function as the *criteria* range, the next to last argument as the *field*, and the remaining arguments as *input* ranges.

For example, @DAVG(SALES,INVENTORY,"PRICE",CRIT_RANGE) has a *criteria* range (CRIT_RANGE), a *field* name ("PRICE"), and two *input* ranges (SALES and INVENTORY).

There is no limit to the number of input ranges you can use, providing the total number of characters in the cell that contains the @function does not exceed 512.

You do not need to identify an *input* range with the Data Query command before you use an *input* argument with a database @function.

field

field is the field name or the field's offset number.

If you use just one *input* range, *field* can be a field name from the database table enclosed in quotation marks, or an offset number.

If you use more than one *input* range, *field* must be a field name from the database table enclosed in quotation marks.

If you use an *input* range from an external table, *field* must be a field name from the external table enclosed in quotation marks.

Note If you use more than one *input* range (either in the worksheet or from an external database table) and *field* is not a unique field name (it appears in more than one of the *input* ranges), *field* must be the name of the *input* range followed by a period and the field name, enclosed in quotation marks. For example, if the field name COST appears in two *input* ranges, GOTHAM and MAYFAIR, "GOTHAM.COST" refers to the field name COST in the *input* range GOTHAM.

criteria

criteria is the criteria range. *criteria* can be a range address or a range name.

See also:

Guidelines for Using Date and Time @Functions

If you enter a <u>date number</u> that contains decimal places as an argument, 1-2-3 uses only the integer part of the number. For example, 1-2-3 calculates both @YEAR(31790.5) and @YEAR(31790) as 87.

If you enter a <u>time number</u> that contains numbers to the left of the decimal point as an argument, 1-2-3 uses only the decimal part of the number. For example, 1-2-3 calculates both @SECOND(54.333) and @SECOND(.333) as 31.

See also:

<u>Date and Time @Functions Category</u>

Guidelines for Using Financial @Functions

Term

Within an @function, express the term and the interest rate in the same unit of time. For example, in @PMT(1000,0.05/12,36) the term is 36 months, so the annual interest rate is divided by 12 to produce a monthly interest rate.

Interest

1-2-3 accepts interest rates as either percentages or decimal values. For example, you can enter 15.5% either as 0.155 or as 15.5%. 1-2-3 automatically converts all percentages to decimal values.

Annuities

The financial @functions assume that investments are ordinary annuities. An annuity is a series of equal payments made at regular intervals. An ordinary annuity is an annuity in which the payments are made at the end of each time interval. An annuity due is an annuity in which a payment is made at the beginning of each period.

Ranges

1-2-3 assigns the value 0 to blank cells whose addresses are used as arguments in financial @functions.

Financial @functions accept 3-D ranges.

See also:

Financial @Functions Category

Guidelines for Using Logical @Functions

Error Checking with Logical @Functions

Use @ISERR and @ISNA to test for the values ERR and NA. These values cause a ripple-through effect. You can use @ISERR and @ISNA in @IF formulas to stop the ripple-through effect.

For example, you want to divide the value in G12 by the value in K12. The value in G12 is the result of a complex formula, and you want to be sure the formula has not evaluated to ERR before you use G12 in other calculations. @IF(@ISERR(G12),0,G12/K12) returns 0 if G12 contains the value ERR; this prevents 1-2-3 from evaluating the G12/K12 formula if G12 contains the value ERR. If G12 does not contain the value ERR, the @IF formula returns the result of G12/K12.

Use @ISNUMBER and @ISSTRING to prevent errors that would occur if a cell used in a formula contained the wrong type of data.

For example, @IF(@ISNUMBER(G12),@AVG(A12..K12),"Label") returns the result of @AVG(A12..K12) if G12 contains a value. If G12 contains a label, the @IF formula returns the word Label.

Ranges

1-2-3 assigns the value 0 to blank cells whose addresses are used as arguments in logical @functions.

See also:

Logical @Functions Category

Guidelines for Using Mathematical @Functions

Angles and Radians

You must express angles you enter as arguments for @SIN, @COS, and @TAN in radians. To convert degrees to radians, multiply the number of degrees by @PI/180.

@ASIN, @ACOS, @ATAN, and @ATAN2 produce angle values in radians. To convert radians to degrees, multiply the number of radians by 180/@PI.

Ranges

1-2-3 assigns the value 0 to blank cells whose addresses are used as arguments in mathematical @functions.

See also:

Mathematical @Functions Category

Guidelines for Using Statistical @Functions

With the exception of @SUMPRODUCT, each of the statistical @functions has an equivalent database @function. For example, you use @AVG to average values in a range; you use @DAVG to average values in a field of a database table that meet criteria you specify.

All statistical @functions perform calculations on lists of values, which are represented by the argument named *list*.

list

list can contain any of the following, in any combination: numbers, numeric formulas, and addresses or names of ranges that contain numbers or numeric formulas. Separate elements of *list* with argument separators. You can use 3-D ranges with statistical @functions.

Note @SUMPRODUCT is the only statistical @function that requires all entries in *list* to be references to ranges.

Labels within ranges in *list* will not cause statistical @functions to evaluate to ERR. With the exception of @COUNT, 1-2-3 assigns the value 0 to all labels in *list* (either in a range or listed individually) and includes them in calculations. For example, if you use @AVG to calculate the average of the values in a range and the range contains a label, 1-2-3 considers the label to have the value 0 when it calculates the average. Always check for labels in the ranges you use in statistical @functions to guard against unexpected results.

The statistical @functions ignore blank cells in multiple-cell ranges in *list*, but they do not ignore references to blank cells listed individually. For example, if you use @AVG to average the values in a range that spans four cells (A1..A4), and the range contains a blank cell, 12-3 divides the sum by three to find the correct average. If you list those four cells individually, however (A1,A2,A3,A4), 1-2-3 divides the sum by four.

See also:

Statistical @Functions Category

Guidelines for Using String @Functions

Uppercase and lowercase letters have different <u>LMBCS</u> codes. For example, <u>@CODE("A")</u> returns the code 65, but @CODE("a") returns the code 97.

If you use <u>blank cells</u> as arguments in string @functions, 1-2-3 returns the value <u>ERR</u>. For example, @LENGTH(D9) returns the value ERR if D9 is a blank cell.

If a cell contains a <u>label-prefix character</u> but contains no text, 1-2-3 treats it as an empty string, a string with a length of 0. The cell looks blank, but 1-2-3 will not return the value ERR when you use it as an argument in a string @function.

See also:

<u>String @Functions Category</u>

@CLEAN is reserved for internal use only.

@@

@@(*location*) lets you indirectly obtain the contents of the cell specified in *location*.

Arguments

location is the address or name of a cell that contains a cell address or name, or a formula that returns the address or name of a cell. *location* points to another cell, whose contents @@ displays in the cell that contains @@. If *location* is not a valid cell address or range name, or is a multiple-cell range, @@ evaluates to ERR.

Uses

@@ is useful in building conditional formulas because its indirect reference can automatically alter its own value. For example, the formula

@IF(D2="Y","D8",@IF(D2="N","D9",@ERR))

in cell A10, and the formula @@(A10) in cell E2, return the contents of cell D8 or D9, or <u>ERR</u>, in E2, depending on whether D2 contains Y or N, or something else.

Notes

When *location* refers to a cell that contains a formula you must press F9 (CALC) to update the @@ formula after automatic recalculation. If you do not press F9 (CALC), the @@ formula evaluates to 0.

Examples

<u>@@</u>

Similar @Functions

<u>@HLOOKUP</u> and <u>@VLOOKUP</u> return the contents of a specified cell in a horizontal or vertical lookup table. <u>@CHOOSE</u> returns a value or label from *list*, and <u>@INDEX</u> returns the contents of a cell located at the intersection of a specified column, row, and worksheet.

See also:

<u>@Function Basics</u>

Example: @@

In this simple sales commission chart, cell A10 contains the formula

@IF(C3="W","C7",@IF(C3="G","C8",@ERR))

that results in one of two cell addresses (C7 or C8), depending on which product code (W or G) you enter in C3. @@(A10) entered in C4 returns the contents of the cell whose address is returned by the formula in A10.

If you enter anything in C3 other than one of the two product codes, both the @IF and @@ functions will evaluate to ERR.

```
A ----------- A ------------- B ---------- C -----
1    SALES COMMISSION CHART
2
3    Enter Product Code:      W
4    Commission rate:         5%
5
6    Product        Code     Rate
7    Widgets        W         5%
8    Grommets       G         3%
9
10 C7
```

@ABS

@ABS(*x*) calculates the absolute (positive) value of *x*.

Arguments

x is any value, or the address or name of a cell that contains a value.

Uses

Use @ABS when you need numbers to be positive, such as percentage differences between actual and budgeted values, or to find the absolute difference between values in a list of positive and negative values.

@ABS prevents ERR when you use @SQRT to find the square root of a negative number. You can also combine @ABS with @IF to test whether a number is negative in a check register or other application where positive numbers are essential. For example, @IF(@ABS(TOTAL)=TOTAL,TOTAL,"Overdrawn") prints the contents of TOTAL if its value is positive, and Overdrawn if not.

Notes

Use -@ABS to force the result of the @function to be negative.

Examples

@ABS(A5) = 25 if cell A5 contains the value 25, -25, or a formula that results in 25 or -25.

-@ABS(A5) = -25 if cell A5 contains the value 25, -25, or a formula that results in 25 or -25.

@ABS(START-END) = 5.6, when START and END contain any combination of positive or negative numbers that differ by 5.6 or -5.6.

See also:

@Function Basics
Guidelines for Using Mathematical @Functions

@ACOS

@ACOS(*x*) calculates the arc cosine (inverse cosine) using the cosine *x* of an angle. The result of @ACOS is an angle, in <u>radians</u>, from 0 through pi. This represents an angle between 0 and 180 degrees.

Arguments

x is the cosine of an angle and is a value, or the address or name of a cell that contains a value, from -1 through 1.

Uses

Use @ACOS to find the size of an angle when you know the cosine of the angle. @ACOS calculates the angle between the hypotenuse and the side adjacent to the angle in a right triangle.

Notes

To convert the result of @ACOS from radians to degrees, multiply it by 180/@PI.

Examples

In a right triangle, the cosine of angle *z* is 1/2, or 0.5. To determine the arc cosine, use @ACOS(0.5), which returns 1.0472 radians. To convert this to degrees, use @ACOS(0.5)*180/@PI. The result is 60 degrees, the size of angle *z*.

Similar @Functions

<u>@COS</u> calculates the cosine of an angle.

See also:

<u>@Function Basics</u>
<u>Guidelines for Using Mathematical @Functions</u>

@ASIN

@ASIN(*x*) calculates the arc sine (inverse sine) using the sine *x* of an angle. The result of @ASIN is an angle, in <u>radians</u>, from -pi/2 through pi/2. This represents an angle between -90 and 90 degrees.

Arguments

x is the sine of an angle and is a value, or the address or name of a cell that contains a value, from -1 through 1.

Uses

Use @ASIN to find the size of an angle when you know the sine of the angle.

Notes

To convert the result of @ASIN from radians to degrees, multiply it by 180/l@PI.

Examples

In a right triangle, the sine of angle *z* is 2/3, or 0.66. To determine the arc sine, use @ASIN(0.66), which returns 0.72082 radians. To convert this to degrees, use @ASIN(0.66)*180/@PI. The result is 41.3 degrees, the size of angle *z*.

Similar @Functions

<u>@SIN</u> calculates the sine of an angle.

See also:

<u>@Function Basics</u>
<u>Guidelines for Using Mathematical @Functions</u>

@ATAN

@ATAN(*x*) calculates the arc tangent (inverse tangent) using the tangent *x* of an angle. The result of @ATAN is an angle, in <u>radians</u>, from -pi/2 through pi/2. This represents an angle between -90 and 90 degrees.

Arguments

x is the tangent of an angle and is any value, or the address or name of a cell that contains any value.

Uses

Use @ATAN to find the size of an angle when you know the tangent of the angle. @ATAN calculates the angle between the hypotenuse and the adjacent side.

Notes

To convert the result of @ATAN from radians to degrees, multiply it by 180/@PI.

Examples

In a right triangle, the tangent of angle *z* is 2/1, or 2. To determine the arc tangent, use @ATAN(2), which returns 1.10715 radians. To convert this to degrees, use @ATAN(2)*180/@PI. The result is 63.4 degrees, the size of angle *z*.

Similar @Functions

<u>@ATAN2</u> calculates the size of an angle whose tangent is *y*/*x*. <u>@TAN</u> calculates the tangent of an angle.

See also:

> <u>@Function Basics</u>
> <u>Guidelines for Using Mathematical @Functions</u>

@ATAN2

@ATAN2(*x,y*) calculates the arc tangent using the tangent *y*/*x* of an angle. The result of @ATAN2 is an angle, in <u>radians</u>, from -pi through pi. This represents an angle between -180 and 180 degrees, depending on the sign of *x* and *y* (see the list below).

Arguments

x and *y* are values, or the addresses or names of cells that contain values. If *y* is 0, @ATAN2 returns 0; if both *x* and *y* are 0, @ATAN2 returns ERR.

Uses

Use @ATAN2 to find the size of an angle in any of the four quadrants when you know the length of the two sides (*x* and *y*) that form the right angle in a right triangle. @ATAN2 calculates the angle between the hypotenuse and either of the sides that form the right angle, without first having to calculate the tangent.

Notes

To convert the result of @ATAN2 from radians to degrees, multiply it by 180/@PI.

@ATAN2 differs from @ATAN in that the result of @ATAN2 is a value from -pi through pi. The list below gives the value ranges for @ATAN2.

*   If *x* is positive and *y* is positive, then the result can be from 0 to pi/2 (quadrant I).

*   If *x* is negative and *y* is positive, then the result can be from pi/2 to pi (quadrant II).

*   If *x* is negative and *y* is negative, then the result can be from -pi to -pi/2 (quadrant III).

*   If *x* is positive and *y* is negative, then the result can be from -pi/2 to 0 (quadrant IV).

When *x* and *y* are both positive (quadrant I), and when *x* is positive and *y* is negative (quadrant IV), the results are the same as for @ATAN.

Examples

In a right triangle, the two sides that form the right angle measure 1 and 2. To determine the arc tangent, use @ATAN2(1,2), which returns 1.10715 radians. To convert this to degrees, use @ATAN2(1,2)*180/@PI. The result is 63.4 degrees, the size of angle *z*.

Similar @Functions

<u>@ATAN</u> calculates the arc tangent using the tangent *x* of an angle. <u>@TAN</u> calculates the tangent of an angle.

See also:

<u>@Function Basics</u>
<u>Guidelines for Using Mathematical @Functions</u>

@AVG

@AVG(*list*) calculates the average of a *list* of values.

Arguments

list can contain any of the following, in any combination: numbers, numeric formulas, and addresses or names of ranges that contain numbers or numeric formulas. Separate elements of *list* with argument separators.

Uses

Use @AVG to find the average, or mean, of any series of values in a worksheet.

Notes

@AVG ignores blank cells in ranges, but not references to blank cells listed individually. Labels count as zero, as do cells that are apparently empty but contain a label-prefix character or spaces. This means that labels, apparently empty cells, and blank cells listed individually increase the total number of items in *list*; and if *list* contains any of these, the result of @AVG may not be what you expect.

Examples

@AVG(720,318,332,278) = 412.

@AVG(A1..A4) = 252.75, when A1..A4 contains the values 160, 227, 397, and 227.

Similar @Functions

@DAVG finds the average of values in a field of a database table that meet criteria you specify.

See also:

　　@Function Basics
　　Guidelines for Using Statistical @Functions

@CELL

@CELL(*attribute,location*) returns information about the first cell in *location*. The information depends on the *attribute* you specify.

Arguments

location is the address or name of a range.

attribute is any of the items listed below, enclosed in " " (quotation marks), or the address or name of a cell that contains one of the items.

Attribute	Returns
address	The absolute address in abbreviated form (column letter and row number only)
col	The column letter, as a value from 1 through 256 (1 for column A, 2 for column B, and so on)
color	1 if the cell is formatted for negative numbers in color
	0 if the cell is not formatted for negative numbers in color
contents	The contents of the cell
coord	The absolute cell address in full form (worksheet letter, column letter, and row number)
filename	The name of the file that contains the cell, including the path
format	The cell format:
	C0 to C15 if Currency, 0 through 15 decimal places
	F0 to F15 if Fixed, 0 through 15 decimal places
	G if General, a label, or a blank cell
	P0 to P15 if Percent, 0 through 15 decimal places
	S0 to S15 if Sci (Scientific), 0 through 15 decimal places
	,0 to ,15 if , (Comma), 0 through 15 decimal places
	+ if +/- format
	D1 to D9 if Date/Time
	T if Text
	H if Hidden
	L if Label
	A if Automatic
	-- if Color for negative numbers
	() if Parentheses
parentheses	1 if the cell is formatted for parentheses
	0 if the cell is not formatted for parentheses
prefix	' if the cell contains a left-aligned label
	" if the cell contains a right-aligned label
	^ if the cell contains a centered label
	\ if the cell contains a repeating label

		if the cell contains a nonprinting label
	Blank (no label prefix) if the cell is blank or contains a value
protect	1 if the cell is protected
	0 if the cell is not protected
row	The row number, from 1 through 8192
sheet	The worksheet letter, as a value from 1 through 256 (1 for worksheet A, 2 for worksheet B, and so on)
type	The type of data in the cell:
	b if the cell is blank
	v if the cell contains a numeric value or a <u>numeric formula</u> or <u>text formula</u>
	l if the cell contains a label
width	The column width

Uses

@CELL is useful in macros and in combination with @IF. Use @CELL to check input during a macro to guard against certain types of entries, and to direct macro execution using subroutines based on a user's entry. @CELL can also allow an automated application to change cell attributes based on a user's entries.

Notes

@CELL returns the attribute for the first cell in *location* as it was last recalculated. Because the cell is not recalculated by some commands, recalculate your work before you use @CELL to be sure the results are correct.

Examples

The following example uses @CELL with @IF and @ERR to return an error (ERR) if the user does not type a value in the cell named AMT, and to return the contents of AMT (a value) if the user types a value.

@IF(@CELL("type",AMT)="v",AMT,@ERR)

You can also use @CELL in an <u>{IF}</u> macro to perform a similar task. In the following example, if the user does not type a value, 1-2-3 beeps and displays a message to advise the user.

{IF @CELL("type",AMT)<>"v"}{BEEP}{INDICATE "Type a value!"}

Similar @Functions

<u>@CELLPOINTER</u> returns information about the current cell. <u>@@</u> indirectly returns the contents of a specified cell.

See also:

<u>@Function Basics</u>

@CELLPOINTER

@CELLPOINTER(*attribute*) returns information about the current cell. The information depends on the *attribute* you specify.

Arguments

attribute is any of the items listed in the table below, enclosed in " " (quotation marks), or the address or name of a cell that contains one of the items.

Attribute	Returns
address	The absolute address in abbreviated form (column letter and row number only)
col	The column letter, as a value from 1 through 256 (1 for column A, 2 for column B, and so on)
color	1 if the cell is formatted for negative numbers in color
	0 if the cell is not formatted for negative numbers in color
contents	The contents of the cell
coord	The absolute cell address in full form (worksheet letter, column letter, and row number)
filename	The name of the file that contains the cell, including the path
format	The cell format:
	C0 to C15 if Currency, 0 through 15 decimal places
	F0 to F15 if Fixed, 0 through 15 decimal places
	G if General, a label, or a blank cell
	P0 to P15 if Percent, 0 through 15 decimal places
	S0 to S15 if Sci (Scientific), 0 through 15 decimal places
	,0 to ,15 if , (Comma), 0 through 15 decimal places
	+ if +/- format
	D1 to D9 if Date/Time
	T if Text
	H if Hidden
	L if Label
	A if Automatic
	-- if Color for negative numbers
	() if Parentheses
parentheses	1 if the cell is formatted for parentheses
	0 if the cell is not formatted for parentheses
prefix	' if the cell contains a left-aligned label
	" if the cell contains a right-aligned label
	^ if the cell contains a centered label
	\ if the cell contains a repeating label
	| if the cell contains a nonprinting label

	Blank (no label prefix) if the cell is blank or contains a value
protect	1 if the cell is protected
	0 if the cell is not protected
row	The row number, from 1 through 8192
sheet	The worksheet letter, as a value from 1 through 256 (1 for worksheet A, 2 for worksheet B, and so on)
type	The type of data in the cell:
	b if the cell is blank
	v if the cell contains a numeric value or a <u>numeric formula</u> or <u>text formula</u>
	l if the cell contains a label
width	The column width

Uses

@CELLPOINTER is useful in macros and in combination with @IF. Use @CELLPOINTER to find the current location of the <u>cell pointer</u> or to evaluate a formula based on the contents of the current cell. You can then direct processing depending on the cell's contents or type.

Notes

@CELLPOINTER returns the attribute for the current cell as it was last recalculated. Because the cell is not recalculated by some commands, recalculate your work before you use @CELLPOINTER to be sure the results are correct.

Examples

You can use @CELLPOINTER in a macro that tests for a <u>blank cell</u> in a list of items. In the following example, if 1-2-3 encounters a blank cell, it beeps and branches to a subroutine.

{IF @CELLPOINTER("type")="b"}{BEEP}{BRANCH Step2}

Similar @Functions

<u>@CELL</u> returns information about a specified cell.

See also:

<u>@Function Basics</u>

@CHAR

@CHAR(*x*) returns the character of the <u>Lotus Multibyte Character Set (LMBCS)</u> that corresponds to the number *x*.

Arguments

x is an integer, or the address or name of a cell that contains an integer. Values that do not correspond to LMBCS character codes return ERR. If *x* is not an integer, @CHAR truncates it to an integer.

Uses

@CHAR is useful for entering foreign-language characters and mathematical symbols. Whether a character prints depends on the capabilities of your printer.

Notes

If your monitor cannot display the character that corresponds to *x*, 1-2-3 displays a character that resembles the desired character when possible. If no character approximates the character, 1-2-3 displays a solid rectangle, which represents an undisplayable character. Make sure your printer can print the characters you enter.

Examples

@CHAR(156) = £ (British pound sign).

@CHAR(D9) = A, if cell D9 contains the value 65.

Similar @Functions

<u>@CODE</u> returns the LMBCS code that corresponds to a character.

See also:

<u>@Function Basics</u>
<u>Guidelines for Using String @Functions</u>

@CHOOSE

@CHOOSE(*x,list*) returns a value or label, represented by *x*, from *list*.

Arguments

x is a value, or the address or name of a cell that contains a value. *x* represents the <u>offset number</u> of an item's position in *list*.

list is a group of values and, or the addresses or names of cells that contain values and labels, separated by <u>argument separators</u>. 1-2-3 numbers each entry in *list*, and then chooses the entry that corresponds to the value of *x*.

Uses

Use @CHOOSE to enter a list of values to use in formulas without setting up a lookup table.

Examples

A worksheet contains a list of labels in the range A1..A4 and their offset numbers 0, 1, 2, 3 in the range B1..B4. @CHOOSE(B3,A1,A2,A3,A4) returns the label in A3, which is the item whose offset number is 2 (2 is the value in B3) in *list*.

Similar @Functions

<u>@HLOOKUP</u>. and <u>@VLOOKUP</u> find entries in horizontal or vertical lookup tables. <u>@INDEX</u> returns the contents of a cell located at the intersection of a specified column, row, and worksheet.

See also:

<u>@Function Basics</u>

@CODE

@CODE(*string*) returns the <u>Lotus Multibyte Character Set (LMBCS)</u> code that corresponds to the first character in *string*.

Arguments

string is text enclosed in " " (quotation marks), the address or name of a cell that contains a label, or a formula or @function that results in text.

Uses

Use @CODE when you need to know the LMBCS code for a character.

Notes

If *string* refers to a blank cell or a value, @CODE returns ERR.

Examples

@CODE("A") = 65.

@CODE(C5) = 77, if C5 contains the label Ms. Jones, because 77 is the LMBCS code for M.

Similar @Functions

<u>@CHAR</u> returns the LMBCS character that corresponds to a code number.

See also:

<u>@Function Basics</u>
<u>Guidelines for Using String @Functions</u>

@COLS

@COLS(*range*) counts the number of columns in *range*.

Arguments

range is a range address or range name.

Uses

@COLS is useful when you need to determine a value that depends on the number of columns (for example, to find the size of a range you want to print).

Use @COLS with {FOR} in a macro that repeats the same action on a series of columns to determine when the macro should stop.

Examples

@COLS(D9..J25) = 7, because *range* contains columns D through J (seven columns).

@COLS(SCORES) = 2, if SCORES is the name of the range B3..C45.

Similar @Functions

@ROWS counts the rows, and @SHEETS counts the worksheets, in a range.

See also:

@Function Basics

@COORD

@COORD(*worksheet,column,row,absolute*) creates a <u>cell reference</u> from values that correspond to *worksheet*, *column*, and *row*.

Arguments

worksheet and *column* are any integers, or the addresses or names of cells that contain integers, from 1 through 256. *worksheet* and *column* correspond to the worksheet and column letters (1 for column A, 2 for column B, and so on).

row is any integer, or the address or name of a cell that contains an integer, from 1 through 8192. *row* corresponds to the row number.

absolute is any integer, or the address or name of a cell that contains an integer, from 1 through 8.

Uses

Use @COORD with <u>@INDEX</u>, <u>@VLOOKUP</u>, or <u>@HLOOKUP</u> to create cell addresses from tables of values in the active worksheet file. Use @COORD with <u>@@</u> to return the value in the cell address created by @COORD.

Notes

@COORD creates a cell reference that is <u>relative</u>, <u>absolute</u>, or <u>mixed</u>, according to the value of *absolute*. The following table shows the possible values of *absolute* and their effect on the cell address A1 in worksheet A.

Value of *absolute*	Value of **@COORD(1,1,1,*absolute*)**
1	$A:$A$1
2	$A:A$1
3	$A:$A1
4	$A:A1
5	A:$A$1
6	A:A$1
7	A:$A1
8	A:A1

Examples

@COORD(3,7,25,8) returns the relative cell address C:G25.

@@(@COORD(C1,D1,E4,8)) returns the value in cell A:A4 (C1 contains 1, D1 contains 1, and E4 contains 4).

See also:

<u>@Function Basics</u>

@COS

@COS(z) calculates the cosine of angle z. The cosine is the ratio of the side adjacent an acute angle of a right triangle to the hypotenuse. The result of @COS is a value from -1 through 1.

Arguments

z is an angle measured in radians.

Uses

Use @COS to find the length of a side in a right triangle, when you know the length of the hypotenuse and of the size of the angle between the hypotenuse and the side adjacent to the angle.

Use @COS to find the secant, or reciprocal of @COS, with the following formula: 1/@COS(z).

Notes

To convert from degrees to radians, multiply degrees by @PI/180. z is any value, or the address or name of a cell that contains a value, from -2_{32}*pi through 2_{32}*pi.

Examples

@COS(30*@PI/180) = 0.866, the cosine of a 30-degree angle.

Similar @Functions

@ACOS calculates the arc cosine of a value to find the size of an angle.

See also:

@Function Basics
Guidelines for Using Mathematical @Functions

@COUNT

@COUNT(*list*) counts the <u>nonblank cells</u> in a *list* of ranges.

Arguments

list is any combination of range addresses or names, separated by <u>argument separators</u>.

Uses

Use @COUNT to count the entries in a range. @COUNT also counts labels, so if you want to keep an accurate count of values in a range, make sure the range does not contain any labels.

@COUNT is also useful to stop (or divert) a macro that performs a task on a series of ranges when the <u>cell pointer</u> reaches a range that has no entries.

Notes

@COUNT counts every cell in *list* that contains an entry of any kind, including a label, a <u>label-prefix character</u>, or the values ERR and NA. @COUNT does not count blank cells if they occur in a range; however, @COUNT counts blank cells if you refer to them by single-cell addresses in *list*.

Examples

@COUNT(A2..A3,A5) = 1, if A2..A3 is blank and whether or not A5 is blank, because A5 is a single-cell address.

{IF @COUNT(SEPTEMBER)=0}{BRANCH YTD} branches to a macro called YTD (which may calculate year-to-date totals) if the range named SEPTEMBER is blank.

Similar @Functions

<u>@DCOUNT</u> counts the nonblank cells in a field of a database table that meet criteria you specify.

See also:

<u>@Function Basics</u>
<u>Guidelines for Using Statistical @Functions</u>

@CTERM

@CTERM(*interest,future-value,present-value*) calculates the number of compounding periods required for an investment (*present-value*) to grow to a *future-value*, earning a fixed *interest* rate per compounding period.

Arguments

interest is any value, or the address or name of a cell that contains a value, greater than -1 except 0.

future-value and *present-value* can be any values, or the addresses or names of cells that contain values. Both *future-value* and *present-value* must be either positive or negative.

Uses

Use @CTERM to determine how long it will take a single investment of a given amount to grow to another given amount at a specified interest rate.

Notes

See **Chapter 4** of the *User's Guide* for the formula@CTERM uses to calculate the compounding period.

Examples

You just deposited $10,000 in an account that pays an annual interest rate of 10% (.10), compounded monthly. You want to determine how many years it will take to double your investment.

@CTERM(.10/12,20000,10000)/12 = 6.960312.

In other words, it will take about seven years to double the original investment of $10,000.

Because @CTERM calculates the total number of compounding periods, you may need to include the number of periods for which the *interest* rate is compounded in order to express the term and interest rate in the same unit of time. In the example above, the annual interest rate of 10%, compounded monthly, is entered as .10/12 (*interest* divided by the number of compounding periods).

Similar @Functions

@TERM determines the number of periods required for an investment of equal periodic payments to reach a specified value.

See also:

@Function Basics
Guidelines for Using Financial @Functions

@DATE

@DATE(*year,month,day*) calculates the <u>date number</u> for the specified *year*, *month*, and *day*.

Arguments

year is an integer, or the address or name of a cell that contains an integer, from 0 (the year 1900) through 199 (the year 2099).

month is an integer, or the address or name of a cell that contains an integer, from 1 through 12.

day is an integer, or the address or name of a cell that contains an integer, from 1 through 31. The value you use for *day* must be a valid day for the *month*. For example, you cannot use 31 as the *day* if you use 4 (April) as the *month*.

Uses

Use @DATE to create date entries to use in calculation. Dates you enter with @DATE are also the only dates you can use in operations that depend on chronological order, such as sorting by date, or using search criteria to search for dates within a range.

Notes

Even though February 29,1900, did not exist (it was not a leap year), 1-2-3 assigns a date number to this day. This does not invalidate any of your date calculations unless you use dates from January 1, 1900, through March 1, 1900. If you are using dates within that period, subtract 1 from any results within the period.

If you want the results of an @DATE calculation to appear as an actual date, format the cell that contains the @DATE function with one of the <u>Range Format</u> date formats.

Examples

@DATE(92,2,21) returns 33655, or 21-Feb-92, in a cell formatted as DD-MMM-YY.

@DATE(91,2,29) returns ERR, because 1991 was not a leap year.

Similar @Functions

<u>@DATEVALUE</u> calculates the date number for a date entered as a label. <u>@TIME</u> calculates the time number for a specified time. <u>@NOW</u> calculates the date-and-time number for the current date and time.

See also:

<u>@Function Basics</u>
<u>Guidelines for Using Date and Time @Functions</u>

@DATEVALUE

@DATEVALUE(*string*) calculates the <u>date number</u> for the date specified in *string*.

Arguments

string is text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a <u>label</u> or a formula that results in a label. *string* must be in one of the five 1-2-3 <u>date formats</u>.

Uses

@DATEVALUE is useful with data imported from another program, such as a word processing program. You can also use @DATEVALUE to convert dates entered as labels to date numbers so that you can use the dates in calculations.

Notes

If you want the results of an @DATEVALUE calculation to appear as an actual date, format the cell that contains the @DATEVALUE function with one of the <u>Range Format</u> date formats.

Examples

@DATEVALUE("21-Feb-91") returns the date number 33290.

@DATEVALUE(BIRTHDAY) returns the date number 20723, if the cell named BIRTHDAY contains the label 25-Sep-56.

Similar @Functions

<u>@DATE</u> calculates the date number for a specified date.

See also:

<u>@Function Basics</u>
<u>Guidelines for Using Date and Time @Functions</u>

@DAVG

@DAVG(*input,field,criteria*) finds the average of the values in a *field* of a database table (or any range set up like a database table) that meet the criteria in the *criteria* range.

Arguments

For detailed descriptions of Database @Function arguments, see Guidelines for Using Database @Functions

input is the address or name of a range (or ranges) that contains a database table.

field is either the name or offset number of the field, or the address of a cell that contains the field name.

criteria is the address or name of a range you create to specify selection requirements.

Uses

Use @DAVG to find the average value of only those items in a list that meet certain conditions: for example, the average sales for a particular division or the average score for test-takers from a certain city.

Examples

@DAVG

Similar @Functions

@AVG finds the average value in a list.

See also:

@Function Basics

Example: @DAVG

A database table named SALES lists house sales in Arlington, Belmont, and Cambridge in April and May. The sale prices of the houses are listed in the field named SOLD. The criteria range, in C13..C14, is named CRIT_RANGE. The following @DAVG formula determines the average price of a house sold in Cambridge:

@DAVG(SALES,"SOLD",CRIT_RANGE)

entered in a cell formatted as Currency with no decimal places, returns $365,667, the average price of a house sold in Cambridge in April and May.

```
A ---- A ------------------------ B ---------------------- C -------
1    ADDRESS      CITY                       SOLD
2    467 Brattle    Cambridge      720,000
3    183 Hillside   Arlington      318,000
4    64 N. Gate     Belmont        332,000
5    80 Mt. Auburn Cambridge       278,000
6    14 Charles     Cambridge      160,000
7    1160 Memorial Cambridge       227,000
8    130 Crescent  Arlington       397,000
9    12 Trenton     Arlington      303,000
10 36 Barnes        Cambridge      669,000
11 234 Third        Cambridge      140,000
12
13                                 CITY
14                                 Cambridge
```

@DAY

@DAY(*date-number*) calculates the day of the month (1 through 31) using the value of *date-number*.

Arguments

date-number is a value, or the address or name of a cell that contains a value, from 1 (January 1, 1900) through 73050 (December 31, 2099).

Uses

@DAY is useful when you need to know only the day of the month, and not the entire date. @DAY can also supply the *day* argument for other date @functions that build on previously calculated dates.

Notes

You can use one of the other date @functions to supply the value for *date-number*.

Examples

@DAY(@NOW) = the current day of the month.

@DAY(D9) = 12, if cell D9 contains the date number 33250 (the date 12-Jan-91).

Similar @Functions

@MONTH calculates the month, using a date number. @YEAR calculates the year, using a date number. You can use @MOD to calculate the day of the week.

See also:

> @Function Basics
> Guidelines for Using Date and Time @Functions

@DAYS360

@DAYS360(*start-date,end-date*) calculates the number of days between two date numbers, based on a 360-day year, according to the standards of the U.S. securities industry.

Arguments

start-date and *end-date* are date numbers, @functions that produce date numbers, or the addresses or names of cells that contain date numbers.

Uses

Use @DAYS360 to calculate the number of days in a period. @DAYS360 is also useful to simplify calculations of payments.

Notes

The formula used to calculate @DAYS360 conforms to the 1990 modifications to the Securities Industry Association's 1986 edition of *Standard Security Calculation Methods*.

Use @DATE with @DAYS360 to convert actual dates into date numbers.

Examples

@DAYS360(@DATE(89,4,16),@DATE(89,9,25)) = 159.

@DAYS360(33290,33524) = 232, the number of days between February 21, 1991, and October 13, 1991, based on a 360-day year.

Similar @Functions

@D360 calculates the number of days between two date numbers, based on a 360-day year (12 months, each with 30 days). This method conforms to German standards for a 360-day year.

Note @DAYS360 and @D360 typically return different answers for the same data when either *start-date* or *end-date* is the last day of the month.

See also:

@Function Basics
Guidelines for Using Date and Time @Functions

@DCOUNT

@DCOUNT(*input,field,criteria*) counts the <u>nonblank</u> cells in a *field* of a database table that meet the criteria in the *criteria* range.

Arguments

For detailed descriptions of Database @Function arguments, see <u>Guidelines for Using Database @Functions</u>

input is the address or name of a range (or ranges) that contains a database table.

field is either the name or <u>offset number</u> of the field, or the address of a cell that contains the field name.

criteria is the address or name of a range you create to specify selection requirements.

Uses

Use @DCOUNT to count the number of records in a database table that meet specified criteria: for example, the number of checks written in a certain month.

Examples

<u>@DCOUNT</u>

Similar @Functions

<u>@COUNT</u> counts the nonblank cells in a list.

See also:

<u>@Function Basics</u>

Example: @DCOUNT

A database table named APR_SALES lists house sales for the month of April. The types of heating systems the houses have are listed in a field named HEAT. The criteria range is in C9..C10. The following @DCOUNT formula finds the number of houses heated with gas:

@DCOUNT(APR_SALES,"HEAT",C9..C10)

returns 4, the number of houses sold in April that are heated with gas.

```
A ---- A ------------------------- B ----------------------- C ------------------ D ---
1    ADDRESS              BDRMS    HEAT            COST
2    671 Washington         5      Gas      $290,000
3    131 Aslett             5      Oil      $105,000
4    46 Carlton             2      Gas      $135,000
5    76 Phillips            4      Elec     $128,000
6    479 Marlborough        2      Gas      $174,000
7    8844 Wonderland        3      Gas      $195,000
8
9                                  HEAT
10                                 Gas
```

@DDB

@DDB(*cost,salvage,life,period*) calculates the depreciation allowance of an asset with an initial value of *cost*, an expected useful *life*, and a final *salvage* value for a specified *period* of time, using the double-declining balance method.

Arguments

cost is the amount paid for the asset. *cost* is any value, or the address or name of a cell that contains any value, greater than or equal to *salvage*.

salvage is the estimated value of the asset at the end of its useful life. *salvage* is any value or the address or name of a cell that contains any value.

life is the number of periods the asset takes to depreciate to its *salvage* value. *life* is any value, or the address or name of a cell that contains any value, greater than 2.

period is the time period for which you want to find the depreciation allowance. *period* is any value, or the address or name of a cell that contains any value, greater than or equal to 1.

You must express *life* and *period* in the same units, typically years.

Uses

@DDB uses the double-declining balance method of depreciation. The double-declining balance method accelerates the rate of depreciation so that more depreciation expense occurs (and can be written off) in earlier periods than in later ones. Depreciation stops when the book value of the asset -- that is, the total cost of the asset minus its total depreciation over all prior periods -- reaches the salvage value.

Notes

See **Chapter 4** of the *User's Guide* for the formula @DDB uses to calculate the double-declining balance depreciation for any period.

If the salvage value of an asset is relatively low, @DDB may not fully depreciate the asset by the end of the estimated useful life. You may want to use @VDB, which always fully depreciates the asset within the estimated life.

Examples

You just purchased an office machine for $10,000. The useful life of this machine is eight years, and the salvage value after eight years is $1,200. You want to calculate the depreciation expense for the fifth year, using the double-declining balance method:

@DDB(10000,1200,8,5)

returns $791.02, the depreciation expense for the fifth year of the asset's life.

Similar @Functions

@VDB calculates depreciation using the variable-rate declining balance method. @SLN uses the straight-line method, and @SYD uses the sum-of-the-year's-digits method.

See also:

@Function Basics
Guidelines for Using Financial @Functions

@DGET

@DGET(*input,field,criteria*) retrieves a value or label from a *field* of a database table that meets the criteria in the *criteria* range.

Arguments

For detailed descriptions of Database @Function arguments, see Guidelines for Using Database @Functions

input is the address or name of a range (or ranges) that contains a database table.

field is either the name or offset number of the field, or the address of a cell that contains the field name.

criteria is the address or name of a range you create to specify selection requirements.

Uses

@DGET is useful when you need to retrieve a single value that meets specific criteria: the employee number of a particular employee, for example. With @DGET, you can retrieve this kind of information automatically for use in a macro, as an argument in an @function, or as a variable in a formula.

Notes

If more than one entry meets the *criteria* you specify, @DGET returns ERR.

Examples

@DGET

Similar @Functions

@HLOOKUP and @VLOOKUP return the contents of a specified cell in a horizontal or vertical lookup table. @CHOOSE finds an entry in a list. @INDEX returns the contents of a cell in a table based on relative worksheet, column, and row locations. @@ indirectly returns the contents of a specified cell.

See also:

@Function Basics

Example: @DGET

A database table named SALES lists house sales in three towns in April and May. Brokers' commissions are listed in the field named COMM. The criteria range, in B11..B12, is named CRIT_RANGE. The following @DGET formula returns the broker's commission on the sale of the house at 12 Trenton Street:

@DGET(SALES,"COMM",CRIT_RANGE)

entered in a cell formatted as Currency with no decimal places, returns $12,120, the broker's commission on the sale.

```
A ------- A ------------------------------------ B -------------------------- C ---
1    ADDRESS             BROKER           COMM
2    467 Brattle         Higle            28,800
3    183 Hillside        Levine           12,720
4    64 N. Gate          Higle            19,920
5    80 Mt. Auburn       Smith            11,120
6    14 Charles          Dunbar            9,600
7    1160 Memorial       Levine           13,620
8    130 Crescent        Dunbar           15,880
9    12 Trenton          Higle            12,120
10
11                       ADDRESS
12                       12 Trenton
```

@DMAX

@DMAX(*input,field,criteria*) finds the largest value in a *field* of a database table that meets the criteria in the *criteria* range.

Arguments

For detailed descriptions of Database @Function arguments, see Guidelines for Using Database @Functions

input is the address or name of a range (or ranges) that contains a database table.

field is either the name or offset number of the field, or the address of a cell that contains the field name.

criteria is the address or name of a range you create to specify selection requirements.

Uses

Use @DMAX to find the largest value of only those items that meet certain conditions: the month with the highest sales for a particular product, for example. You can also use @DMAX to find the most recent date or time in a list of dates or times.

@DMAX is also useful when you need to check for unusually large values or to find (and discard) the largest value in some statistical calculations.

Examples

@DMAX

Similar @Functions

@MAX finds the largest value in a list.

See also:

@Function Basics

Example: @DMAX

A database table named SALES lists house sales in Arlington, Belmont, and Cambridge in April and May. The sale prices of the houses are listed in the field named SOLD. The criteria range, in C13..C14, is named CRIT_RANGE. The following @DMAX formula returns the highest price paid for a house in Cambridge:

@DMAX(SALES,"SOLD",CRIT_RANGE)

entered in a cell formatted as Currency with no decimal places, returns $720,000.

```
A ---- A ------------------------- B ----------------------- C -------
1    ADDRESS      CITY                        SOLD
2    467 Brattle     Cambridge         720,000
3    183 Hillside    Arlington          318,000
4    64 N. Gate     Belmont            332,000
5    80 Mt. Auburn Cambridge         278,000
6    14 Charles     Cambridge         160,000
7    1160 Memorial Cambridge         227,000
8    130 Crescent  Arlington          397,000
9    12 Trenton     Arlington          303,000
10 36 Barnes        Cambridge         669,000
11 234 Third         Cambridge         140,000
12
13                                 CITY
14                                 Cambridge
```

@DMIN

@DMIN(*input,field,criteria*) finds the smallest value in a *field* of a database table that meets the criteria in the *criteria* range.

Arguments

For detailed descriptions of Database @Function arguments, see <u>Guidelines for Using Database @Functions</u>

inpu is the address or name of a range (or ranges) that contains a database table.

field is either the name or <u>offset number</u> of the field, or the address of a cell that contains the field name.

criteria is the address or name of a range you create to specify selection requirements.

Uses

Use @DMIN to find the lowest value of only those items that meet certain conditions: the month with the lowest sales for a particular product, for example. You can also use @DMIN to find the earliest date or time in a list of dates or times.

@DMIN is also useful when you need to check for unusually small values, or to find (and discard) the smallest value in some statistical calculations.

Examples

<u>@DMIN</u>

Similar @Functions

<u>@MIN</u> finds the smallest value in a list.

See also:

<u>@Function Basics</u>

Example: @DMIN

A database table named SALES lists house sales in Arlington, Belmont, and Cambridge in April and May. The sale prices of the houses are listed in the field named SOLD. The criteria range, in C13..C14, is named CRIT_RANGE. The following @DMIN formula returns the lowest price paid for a house in Cambridge:

@DMIN(SALES,"SOLD",CRIT_RANGE)

entered in a cell formatted as Currency with no decimal places, returns $140,000.

```
A ---- A ------------------------- B ---------------------- C -------
1    ADDRESS      CITY                      SOLD
2    467 Brattle    Cambridge        720,000
3    183 Hillside   Arlington         318,000
4    64 N. Gate     Belmont          332,000
5    80 Mt. Auburn  Cambridge        278,000
6    14 Charles     Cambridge        160,000
7    1160 Memorial Cambridge         227,000
8    130 Crescent   Arlington         397,000
9    12 Trenton     Arlington         303,000
10 36 Barnes        Cambridge         669,000
11 234 Third        Cambridge         140,000
12
13                                    CITY
14                                    Cambridge
```

@DQUERY

@DQUERY(*function[,ext-arguments]*) gives you access to a function of an <u>external database</u> and uses the result of the function in a <u>criteria range</u> in 1-2-3.

Arguments

function is the name of the external database function.

ext-arguments is an optional argument that lists the arguments the external function requires, separated by valid <u>argument separators</u>.

Uses

@DQUERY is useful when you want to perform a task in an external database that you can't perform in 1-2-3, and then use the results in 1-2-3. Use @DQUERY only in a criteria range to select specific records from an external database table.

Notes

You cannot use @DQUERY in the criteria range of a query whose input range contains more than one database table.

 Consult the documentation that came with your external database driver to see if the driver supports @DQUERY.

1-2-3 calculates @DQUERY only when you use Data Query Delete, Data Query Extract, Data Query Modify Extract, or Data Query Modify Replace.

Examples

An external database management program has a function called LITERS that converts gallons to liters. The function requires a single argument: the number of gallons to convert. To use the function in 1-2-3, you would enter

+QUANTITY=@DQUERY("LITERS",10)

in a criteria range to extract entries from the field QUANTITY of an <u>external table</u> that match the quantity in liters equivalent to 10 gallons.

See also:

<u>@Function Basics</u>
<u>Guidelines for Using Database @Functions</u>

@DSTD

@DSTD(*input,field,criteria*) calculates the standard deviation of the values in a *field* of a database table that meet the criteria in the *criteria* range.

Arguments

For detailed descriptions of Database @Function arguments, see Guidelines for Using Database @Functions

input is the address or name of a range (or ranges) that contains a database table.

field is either the name or offset number of the field, or the address of a cell that contains the field name.

criteria is the address or name of a range you create to specify selection requirements.

Uses

Standard deviation measures the degree to which individual values in a list vary from the mean (average) of all values in the list. The lower the standard deviation, the less individual values vary from the mean, and the more reliable the mean. A standard deviation of 0 indicates that all values in the list are equal.

Use @DSTD to find the standard deviation of values in a field in a database table that meet criteria you specify (when those values are the entire population), such as the standard deviation of all sales within a particular sales group, or the standard deviation of all salaries for a certain job level.

Use @DSTD instead of @DSTDS when the population is large, for more accurate results.

Notes

@DSTD uses the n, or population, method to calculate standard deviation of population data. The n method assumes that the selected values are the entire population. If the values are only a sample of the population, the standard deviation is biased because of errors introduced in taking the sample. See **Chapter 4** of the *User's Guide* for the formula the n method uses.

Standard deviation is the square root of the variance of all individual values from the mean.

Examples

   @DSTD

Similar @Functions

@DSTDS uses the n-1 (sample) method to calculate an unbiased standard deviation. @STD calculates the standard deviation of the entire population of values in a range. @DVAR calculates the population variance of values that meet criteria you specify.

See also:

   @Function Basics

Example: @DSTD

A database table named SALES_HISTORY lists house sales for the years 1982 through 1986. (To save space, rows 4 through 37 in the worksheet are hidden.) The lot sizes of the houses are listed in the field named LOT. The criteria range, in C44..C45, is named CRIT_RANGE. The following @DSTD formula returns the standard deviation of lot size for houses with a cost greater than $125,000:

@DSTD(SALES_HISTORY,"LOT",CRIT_RANGE)

returns 0.47.

```
A ---- A ----------------------------------- B ------------- C ---------------- D ---
1    ADDRESS                      LOT      HEAT           COST
2    12 Bartholomew Sq    0.25    Gas      $290,000
3    40 Prospect St       0.40    Oil      $105,000
38   103 Cranberry La     0.50    Gas      $135,000
39   27 Kilburn St        1.00    Elec     $128,000
40   468 Henshaw St       0.50    Gas      $174,000
41   9 Pleasant St        0.25    Gas      $195,000
42   80 Beach St          0.25    Oil      $118,000
43
44                                COST
45                                >125000
```

@DSTDS

@DSTDS(*input,field,criteria*) calculates the standard deviation of sample values in a *field* of a database table that meet the criteria in the *criteria* range.

Arguments

For detailed descriptions of Database @Function arguments, see Guidelines for Using Database @Functions

input is the address or name of a range (or ranges) that contains a database table.

field is either the name or offset number of the field, or the address of a cell that contains the field name.

criteria is the address or name of a range you create to specify selection requirements.

Uses

Standard deviation measures the degree to which individual values in a list vary from the mean (average) of all values in the list. The lower the standard deviation, the less individual values vary from the mean, and the more reliable the mean. A standard deviation of 0 indicates that all values in the list are equal.

Use @DSTDS to calculate the standard deviation of a sample of values that meet conditions you specify, such as the standard deviation of a sample of SAT scores for high school seniors in Chicago, or the standard deviation of a random sample of salaries for a certain job level.

Use @DSTDS instead of @DSTD when the population is small, for more accurate results. @DSTDS is useful when the entire population is too large to work with, and a sample becomes necessary.

Notes

@DSTDS uses the n-1, or sample, method to calculate standard deviation of sample population data. The n-1 method makes the standard deviation slightly larger than the n method to compensate for errors in the sample. A larger standard deviation is unbiased by sampling errors, and is thus more accurate. See **Chapter 4** of the *User's Guide* for the formula the n-1 method uses.

Standard deviation is the square root of the variance of all individual values from the mean.

Examples

@DSTDS

Similar @Functions

@DSTD uses the n method to calculate the standard deviation of an entire population of data. @STDS calculates the sample standard deviation of a values in a list. @DVARS calculates the sample variance of values that meet criteria you specify.

See also:

@Function Basics

Example: @DSTDS

A database table named SALES_HISTORY lists house sales for the years 1982 through 1986. (To save space, rows 4 through 37 in the worksheet are hidden.) The lot sizes of the houses are listed in the field named LOT. The criteria range, in C44..C45, is named CRIT_RANGE. The following @DSTDS formula returns the sample standard deviation of lot size for houses with a cost greater than $100,000:

@DSTDS(SALES_HISTORY,"LOT",CRIT_RANGE)

returns 0.44.

```
A ---- A ----------------------------------- B ------------ C ------------------ D ---
1    ADDRESS                     LOT      HEAT           COST
2    12 Bartholomew Sq    0.25     Gas       $290,000
3    40 Prospect St          0.40     Oil        $105,000
38   103 Cranberry La      0.50     Gas       $135,000
39   27 Kilburn St           1.00     Elec      $128,000
40   468 Henshaw St       0.50     Gas       $174,000
41   9 Pleasant St          0.25     Gas       $195,000
42   80 Beach St            0.25     Oil        $118,000
43
44                             COST
45                             >100000
```

@DSUM

@DSUM(*input,field,criteria*) calculates the sum of the values in a *field* of a database table that meet the criteria in the *criteria* range.

Arguments

For detailed descriptions of Database @Function arguments, see <u>Guidelines for Using Database @Functions</u>

input is the address or name of a range (or ranges) that contains a database table.

field is either the name or <u>offset number</u> of the field, or the address of a cell that contains the field name.

criteria is the address or name of a range you create to specify selection requirements.

Uses

Use @DSUM to find the total of values that meet conditions you specify, such as total sales for a particular month, or total number of goals scored by a soccer team against a particular team over a season.

Examples

<u>@DSUM</u>

Similar @Functions

<u>@SUM</u> calculates the sum of the values in a list.

See also:

<u>@Function Basics</u>

Example: @DSUM

A database table named SALES lists house sales in Arlington, Belmont, and Cambridge in April and May. The brokers' commissions on the sales are listed in the field named COMM. The criteria range, in B11..B12, is named CRIT_RANGE. The following @DSUM formula calculates the total commission earned by the broker Dunbar:

@DSUM(SALES,"COMM",CRIT_RANGE)

entered in a cell formatted as Currency with no decimal places, returns $25,480.

A ------- A ------------------------------------- B ------------------------- C ---

	ADDRESS	BROKER	COMM
1	ADDRESS	BROKER	COMM
2	467 Brattle	Higle	28,800
3	183 Hillside	Levine	12,720
4	64 N. Gate	Higle	19,920
5	80 Mt. Auburn	Smith	11,120
6	14 Charles	Dunbar	9,600
7	1160 Memorial	Levine	13,620
8	130 Crescent	Dunbar	15,880
9	12 Trenton	Higle	12,120
10			
11		BROKER	
12		Dunbar	

@D360

@D360(*start-date,end-date*) calculates the number of days between two <u>date numbers</u>, based on a 360-day year (12 months, each with 30 days).

Arguments

start-date and *end-date* are date numbers, @functions that produce date numbers, or the addresses or names of cells that contain date numbers.

Uses

Use @D360 to calculate the number of days in a period. @D360 is also useful to simplify calculations of payments, based on twelve 30-day months.

Notes

Use <u>@DATE</u> with @D360 to convert actual dates into date numbers.

Examples

@D360(@DATE(89,4,16),@DATE(89,9,25)) = 159.

@D360(33290,33524) = 232, the number of days between February 21, 1991, and October 13, 1991, based on a 360-day year.

Similar @Functions

<u>@DAYS360</u> calculates the number of days between two date numbers, based on a 360-day year, in accordance with the 1990 modifications to the Securities Industry Association's 1986 edition of *Standard Securities Calculation Methods*.

See also:

<u>@Function Basics</u>
<u>Guidelines for Using Date and Time @Functions</u>

@DVAR

@DVAR(*input,field,criteria*) calculates the population variance of the values in a *field* of a database table that meet the criteria in the *criteria* range.

Arguments

For detailed descriptions of Database @Function arguments, see Guidelines for Using Database @Functions

input is the address or name of a range (or ranges) that contains a database table.

field is either the name or offset number of the field, or the address of a cell that contains the field name.

criteria is the address or name of a range you create to specify selection requirements.

Uses

Variance measures the degree to which individual values in a list vary from the mean (average) of all the values in the list. The lower the variance, the less individual values vary from the mean, and the more reliable the mean. A variance of 0 indicates that all values in the list are equal. Variance is necessary in several ANOVA (analysis of variance) statistical tests.

Use @DVAR to calculate the variance from the mean of a group of values in a database table that meet criteria you specify (when those values are the entire population), such as the variance of all sales within a particular division, or the variance of salaries for a job level.

Use @DVAR instead of @DVARS when the population is large, for more accurate results.

Notes

@DVAR uses the n, or population, method to calculate variance. The n method assumes the selected values are the entire population. If the values are only a sample of the population, the variance is biased because of errors introduced in taking a sample. See **Chapter 4** of the *User's Guide* for the formula the n method uses.

Variance is the square of standard deviation.

Examples

@DVAR

Similar @Functions

@DVARS uses the n-1 (sample) method to calculate an unbiased variance for a sample. @VAR calculates the population variance of values in a list. @DSTD calculates the population standard deviation of values that meet criteria you specify.

See also:

@Function Basics

Example: @DVAR

A database table named SALES_HISTORY lists house sales for 1982 through 1986. (To save space, rows 4 through 37 in the worksheet are hidden.) The lot sizes of the houses are listed in the field named LOT. The criteria range, in C44..C45, is named CRIT_RANGE. The following @DVAR formula returns the variance of lot size for houses with a cost greater than $125,000:

@DVAR(SALES_HISTORY,"LOT",CRIT_RANGE)

returns 0.216385.

```
A ---- A ----------------------------------- B ------------- C ----------------- D ---
1    ADDRESS                   LOT      HEAT           COST
2    12 Bartholomew Sq    0.25     Gas      $290,000
3    40 Prospect St          0.40     Oil       $105,000
38   103 Cranberry La      0.50     Gas      $135,000
39   27 Kilburn St           1.00     Elec      $128,000
40   468 Henshaw St       0.50     Gas      $174,000
41   9 Pleasant St          0.25     Gas      $195,000
42   80 Beach St            0.25     Oil       $118,000
43
44                                   COST
45                                   >125000
```

@DVARS

@DVARS(*input,field,criteria*) calculates the variance of sample values in a field of a database table that meet the criteria in the *criteria* range.

Arguments

For detailed descriptions of Database @Function arguments, see Guidelines for Using Database @Functions

input is the address or name of a range (or ranges) that contains a database table.

field is either the name or offset number of the field, or the address of a cell that contains the field name.

criteria is the address or name of a range you create to specify selection requirements.

Uses

Variance measures the degree to which individual values in a list vary from the mean (average) of all the values in the list. The lower the variance, the less individual values vary from the mean, and the more reliable the mean. A variance of 0 indicates that all values in the list are equal.

Use @DVARS to calculate the variance of a sample of values that meet conditions you specify, such as the variance of a sample of SAT scores for high school seniors in Chicago, or the variance of a random sample of salaries for a job level.

Use @DVARS (instead of @DVAR) when the population is small, for more accurate results. @DVARS is useful when you need to carry out ANOVA (analysis of variance) statistical tests, but the population is large or a sample is all that is available or feasible.

Notes

@DVARS uses the n-1, or sample, method to calculate variance. The n-1 method produces a variance that is slightly larger than the n method to compensate for errors in the sample. A larger variance is unbiased by sampling errors, and is thus more accurate. See **Chapter 4** of the *User's Guide* for the formula the n-1 method uses.

@DVARS replaces the calculation required to produce a sample variance in releases of 1-2-3 earlier than Release 3:

@DCOUNT(1,F,C)/(@DCOUNT(1,F,C)-1)*@DVAR(1,F,C)

Examples

@DVARS

Similar @Functions

@DVAR uses the n (population) method to calculate the variance for an entire population of data. @VARS calculates the variance of a sample of values in a list. @DSTDS calculates the sample standard deviation of values that meet criteria you specify.

See also:

@Function Basics

Example: @DVARS

A database table named SALES_HISTORY lists house sales for 1982 through 1986. (To save space, rows 4 through 37 in the worksheet are hidden.) The lot sizes of the houses are listed in the field named LOT. The criteria range, in C44..C45, is named CRIT_RANGE. The following @DVARS formula returns the variance of a sample of lot sizes for houses costing more than $100,000:

@DVARS(SALES_HISTORY,"LOT",CRIT_RANGE)

returns 0.224114.

```
A ---- A ------------------------- B ----------------------- C ------------------ D ---
1    ADDRESS                  LOT      HEAT           COST
2    12 Bartholomew Sq   0.25     Gas      $290,000
3    40 Prospect St          0.40     Oil       $105,000
38   103 Cranberry La     0.50     Gas      $135,000
39   27 Kilburn St           1.00     Elec     $128,000
40   468 Henshaw St      0.50     Gas      $174,000
41   9 Pleasant St          0.25     Gas      $195,000
42   80 Beach St            0.25     Oil       $118,000
43
44                                COST
45                                >100000
```

@ERR

@ERR returns the value ERR.

Uses

@ERR is useful in flagging errors in calculations. It is seldom used by itself. For example, @ERR used as an argument with @IF produces the value ERR when certain conditions exist, such as when a formula results in an unacceptable value (such as a negative monthly payment).

Notes

The label ERR and the value ERR are not equivalent in formulas. For example, the formula +A2+34 equals ERR, if cell A2 contains @ERR, but equals 34 when cell A2 contains the label ERR.

Examples

@IF(B14>3,@ERR,B14) = ERR, if the value in cell B14 is greater than 3.

Similar @Functions

@NA returns the value NA (not available). @ISERR tests for the value ERR.

See also:

@Function Basics

@EXACT

@EXACT(*string1,string2*) compares two sets of characters. If the two sets match exactly, @EXACT returns 1 (true); if the two sets are not exactly the same, @EXACT returns 0 (false).

Arguments

string1 and *string2* are text enclosed in " " (quotation marks), formulas that result in text, or the addresses or names of cells that contain labels or formulas that result in labels.

Uses

Use @EXACT when you need to ensure that a set of characters exactly matches a required entry, such as in macros that compare what a user enters with a required entry before continuing. This lets you set passwords for macros.

@EXACT is also useful for checking existing entries, as in a database in which you need to ensure that all entries in a field contain the same value.

Notes

@EXACT is more precise than = (the equal operator) in a formula. Unlike =, @EXACT distinguishes between uppercase and lowercase letters and between letters with and without accent marks.

Examples

@EXACT("ATHENS","Athens") = 0 (false).

@EXACT("Overdue",B2) = 1 (true), if cell B2 contains the label Overdue.

@EXACT("400",400) = ERR, because *string2* is a value.

See also:

   @Function Basics
   Guidelines for Using String @Functions

@EXP

@EXP(*x*) calculates the value of the constant *e* (approximately 2.718282) raised to the power *x*.

Arguments

x is a value, or the address or name of a cell that contains a value, from approximately 11355.1371 to approximately 11356.5234.

Uses

Use @EXP in scientific calculations that require exponential functions.

Notes

If *x* is larger than approximately 11356.5234 or smaller than approximately -11355.1371, the calculation is too large for 1-2-3 to store, and @EXP returns ERR. If *x* is smaller than approximately -227.956 or larger than approximately 230.259, 1-2-3 can calculate and store the value of @EXP, but cannot display it. (The cell displays a series of asterisks.)

Examples

@EXP(-1.25) = 0.286505.

@EXP(B1) = *e* raised to the power of the value in cell B1.

Similar @Functions

@LN is the inverse of @EXP.

See also:

    @Function Basics
    Guidelines for Using Mathematical @Functions

@FALSE

@FALSE returns the logical value 0 (false).

Uses

Use @FALSE with macros or @functions such as @IF and @CHOOSE that require a logical value of 0 (false). @FALSE is useful as the *y* argument for @IF, which is the value returned if the condition is not met.

Notes

If a logical statement such as A1=B1 is true, its logical value is 1. If it is false, its logical value is 0.

Using @FALSE is the same as using the value 0 in formulas that evaluate logical conditions, but @FALSE makes the formula easier to understand.

Examples

@IF(A6>500,@TRUE,@FALSE) = 0 when cell A6 contains a value less than or equal to 500.

Similar @Functions

@TRUE returns the logical value 1.

See also:

@Function Basics
Guidelines for Using Logical @Functions

@FIND

@FIND(*search-string,string,start-number*) calculates the position in *string* at which 1-2-3 finds the first occurrence of *search-string*, beginning at the position indicated by *start-number*.

Arguments

search-string and *string* are text enclosed in " " (quotation marks), a formula that results in text or the address or name of a cell that contains text or a formula that results in a label.

start-number is an <u>offset number</u>, or the address or name of a cell that contains a positive integer or 0.

Uses

Use @FIND when you need to determine the position of a particular character or group of characters within a group. @FIND is useful in macros that locate particular sequences of characters for processing.

@FIND is also useful when combined with <u>@MID</u> or <u>@REPLACE</u> to locate and extract or replace text.

Notes

If 1-2-3 does not find *search-string* in *string*, @FIND returns <u>ERR</u>. @FIND also returns ERR if *start-number* is greater than the number of characters in *string*, or if *start-number* is negative.

@FIND is case-sensitive and accent-sensitive; for example, @FIND will not find the *search-string* "e" in the *string* "CAMBRIDGE."

Examples

@FIND("P","Accounts Payable",0) = 9 because *search-string* P is at position 9 in *string* Accounts Payable.

See also:

<u>@Function Basics</u>
<u>Guidelines for Using String @Functions</u>

@FV

@FV(*payments,interest,term*) calculates the future value of an investment, based on a series of equal *payments*, earning a periodic *interest* rate, over the number of payment periods in *term*.

Arguments

payments and *term* are values, or the addresses or names of cells that contain values.

interest is a value, or the address or name of a cell that contains a value, greater than -1.

Uses

Use @FV to determine whether an investment will produce the results you want at the end of *term*.

Notes

See **Chapter 4** of the *User's Guide* for the formula @FV uses to calculate future value.

@FV assumes the investment you are calculating is an ordinary annuity: an investment in which equal *payments* are made at the end of each period in the *term*.

If you make each year's contribution on the first day of the year, you would calculate the amount for an annuity due. To calculate the future value of an annuity due, use the formula

@FV(*payments,interest,term*)*(1+*interest*)

For example, @FV(2000,0.075,20)*(1+0.075) = $93,105.06, the value of your account in 20 years if you make each deposit on the first day of each year.

Examples

You plan to deposit $2,000 each year for the next 20 years into an account to save for retirement. The account pays 7.5% interest, compounded annually; interest is paid on the last day of each year. You want to calculate the value of your account in 20 years. You make each year's contribution on the last day of the year.

@FV(2000,0.075,20) returns $86,609.36, the value of your account at the end of 20 years.

Similar @Functions

@PV determines the present value of an investment. @NPV computes the net present value of an investment, discounting the future value to present value.

See also:

> @Function Basics
> Guidelines for Using Financial @Functions

@HLOOKUP

@HLOOKUP(*x,range,row-offset*) finds the contents of the cell in a specified row of a horizontal lookup table, a range with either value information in ascending order or labels in the first row.

Arguments

x is either a value or a string.

If the first row of the horizontal lookup table contains values, *x* can be any value greater than or equal to the first value in *range*. If *x* is smaller than the first value in *range*, @HLOOKUP returns ERR. If *x* is larger than the last value in the first row of *range,* @HLOOKUP stops at the last cell in the row specified by *row-offset* and returns the contents of that cell as the answer.

If the first row of the horizontal lookup table contains labels, *x* can be text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or a formula that results in a label. If *x* does not exactly match the contents of a cell in the first row of *range*, @HLOOKUP returns ERR.

range represents the location of the horizontal lookup table. *range* is any range address or range name. If *range* is a 3-D range, 1-2-3 uses only the first worksheet in *range*.

row-offset represents an offset number corresponding to the position the row occupies in *range*.

Uses

Use @HLOOKUP when you need to choose items from a table, or to automate data selection for formulas or macros, such as in an application that supplies prices from a price list.

@HLOOKUP is useful for finding entries in tables, such as tax tables or sales commission tables, that contain many different choices based on different variables.

Notes

@HLOOKUP compares *x* to each cell in the first row of the table. When 1-2-3 locates a cell in the first row that contains *x* (or if *x* is a value, the value closest to, but not larger than, *x*), it moves down that column the number of rows specified by *row-offset* and returns the contents of that cell as the answer.

Examples

@HLOOKUP

Similar @Functions

@VLOOKUP finds the contents of a cell in a vertical lookup table. @INDEX finds the contents of a cell when you specify offset numbers for both the column and row. @CHOOSE replaces a lookup table that requires only one row.

See also:

@Function Basics

Example: @HLOOKUP

A horizontal lookup table named RATES (A2..E7) lists rates for sending a parcel to several cities.

@HLOOKUP("Frankfurt",RATES,3), entered in a cell formatted as Currency with two decimal places, returns $24.00, the rate for sending a type 3 parcel to Frankfurt.

A	A	B	C	D	E
1		--------- PARCEL		DESTINATION ---------	
2	Parcel type	London	Paris	Frankfurt	New York
3	1	$18.36		$19.33	$20.12	$9.29
4	2	$20.32	$21.66	$22.03	$11.25
5	3	$22.44	$23.88	$24.00	$13.25
6	4	$24.14	$25.26	$25.75	$16.85
7	5	$28.32	$29.00	$29.80	$19.54

@HOUR

@HOUR(*time-number*) extracts the hour, a value between 0 (midnight) and 23 (23:00 or 11:00 PM), from *time-number*.

Arguments

time-number is a value, or the address or name of a cell that contains a value, from .000000 (midnight) through .999988 (11:59:59 PM). Usually, another time @function supplies *time-number*.

Uses

Use @HOUR to extract the hour portion of time values created with @NOW, @TIME, and @TIMEVALUE. The hour portion is useful in calculations that involve whole hours, such as calculating hourly wages or hours elapsed since you began working on a project, or time-stamping a worksheet.

Examples

@HOUR(.51565) = 12 because .51565 is the time number for 12:22:32 PM.

@HOUR(@TIME(13,45,18)) = 13 (1:00 PM), because 13 is the *hour* argument for @TIME(13,45,18).

Similar @Functions

@MINUTE extracts the minutes, and @SECOND extracts the seconds, from a time number.

See also:

@Function Basics
Guidelines for Using Date and Time @Functions

@IF

@IF(*condition,x,y*) evaluates *condition* and returns one of two values, depending on the result of the evaluation. If *condition* is true, @IF returns *x*; if *condition* is false, @IF returns *y*.

Arguments

condition is usually a logical formula, or the address or name of a cell that contains a logical formula. However, you can use any formula, number, text enclosed in " " (quotation marks), or name or address of a cell as *condition*. 1-2-3 evaluates any *condition* that does not equal zero as true and any *condition* that does equal zero as false. Blank cells, text, and ERR and NA values all equal zero when used as *condition*.

x and *y* are values, text enclosed in " " (quotation marks), or the addresses or names of cells that contain values or labels.

Uses

Use @IF when calculations or processing depends on the result of a test, for example, a test to determine savings-account interest at one rate for balances of $1,000.00 and over and another rate for balances below that amount.

@IF is useful when combined with @ERR and @NA to document errors or missing data in formulas. It is also useful in preventing ERR, NA, and calculation errors in situations where data may be missing or inaccurate, for example, to prevent division by zero, or, with @ISSTRING, to prevent a label from being included in calculations such as @AVG.

Notes

You can nest @IF functions within one another to create a complex condition. For example,

@IF(TOT>10000,TOT*0.15,@IF(TOT>5000,TOT*0.10,TOT*0.02))

nests two @IF functions to determine a commission rate based on three levels of sales: total sales greater than $10,000, total sales greater than $5,000, and total sales less than or equal to $5,000.

Examples

@IF(BALANCE>=0,BALANCE,"Overdrawn") returns the value in the cell named BALANCE when the value in BALANCE is 0 or positive; or returns the label Overdrawn when the value in BALANCE is negative.

See also:

    @Function Basics
    Guidelines for Using Logical @Functions

@INDEX

@INDEX(*range,column,row[,worksheet]*) returns the contents of a cell located at the intersection of a specified *column*, *row*, and (optionally) *worksheet* of a range.

Arguments

range is a range address or range name.

column is the offset number of the column that @INDEX uses, or the address or name of a cell that contains 0 or a positive integer.

row is the offset number of the row that @INDEX uses, or the address or name of a cell that contains 0 or a positive integer.

worksheet is an optional argument that is the offset number of the worksheet that @INDEX uses, or the address or name of a cell that contains 0 or a positive integer. If you do not specify *worksheet*, @INDEX uses only the first worksheet in *range*.

Uses

Use @INDEX when you want to use a lookup table but need to use the relative positions (offset numbers) of the rows, columns, and worksheets, instead of specified values.

Examples

@INDEX

Similar @Functions

@HLOOKUP and @VLOOKUP find entries in horizontal and vertical lookup tables. @CHOOSE finds an entry in a list.

See also:

@Function Basics

Example: @INDEX

A table named INCREASE (A3..E8) shows salary increases based on employee performance ratings.

@INDEX(INCREASE,2,3), entered in a cell formatted as percent, returns 5%, the salary increase for an employee who has a rating of 3 and has a salary level of 2.

@INDEX(INCREASE,1,2), entered in a cell formatted as Percent, returns 7%, the salary increase for an employee who has a rating of 2 and a salary level of 1.

A -------	A ------------	B ------------	C ------------	D ------------	E -------
1					
2		---- S A L A R Y		L E V E L ----	
3	Rating	1	2	3	4
4	1	10%	9%	8%	7%
5	2	7%	6%	5%	4%
6	3	6%	5%	4%	3%
7	4	3%	2%	1%	0%
8	5	0%	0%	0%	0%

@INFO

@INFO(*attribute*) returns information for the current 1-2-3 session.

Arguments

attribute is one of the following items, entered as text enclosed in " " (quotation marks), or the address or name of a cell that contains one of the items:

Attribute	Returns
dbreturncode	The most recent error code returned by the DataLens driver
dbdrivermessage	The most recent DataLens message
dbrecordcount	The number of records extracted, modified, or inserted from the last query (in the worksheet or in an external database)
directory	The current <u>path</u>, including the drive letter
memavail	The amount of available memory
mode	The current mode:
	0 WAIT
	1 READY
	2 LABEL
	3 MENU
	4 VALUE
	5 POINT
	6 EDIT
	7 ERROR
	8 FIND
	9 FILES
	10 HELP
	11 STAT
	13 NAMES
	99 All other modes (for example, user-defined with <u>{INDICATE}</u>)
numfile	The number of currently open files
origin	The address of the first cell in the window that contains the cell pointer
osreturncode	The value returned by the most recent operating system command
osversion	The current operating system version
recalc	The current recalculation mode as one of the two strings, automatic or manual
release	The release number for the 1-2-3 for Windows product being used, consisting of three parts: major release number, upgrade level, and version number
system	The name of the operating system
totmem	The total memory available (both the amount currently available and the amount being used)

Uses

@INFO is useful in macros when you need to provide information about the status of 1-2-3 to the user or the macro (for example, to tell the user the current path in a macro that automates saving files, or to warn that memory is low).

Use @INFO with @IF to check the status of 1-2-3 and to tell a macro what to do in certain conditions, such as to change the path if necessary or to delete unnecessary data or close active files if memory is low.

Notes

Recalculate your work before you use @INFO to be sure the results are correct.

Examples

@INFO("numfile") = 2, if two files are active.

@INFO(B4) = 3, if B4 contains the label mode and 1-2-3 is in MENU mode.

Similar @Functions

@CELL returns information about a specific cell. @CELLPOINTER returns information about the current cell.

See also:

@Function Basics

@INT

@INT(*x*) returns the integer portion of *x*.

Arguments

x is a value, or the address or name of a cell that contains a value.

Uses

Use @INT in calculations that require only the integer portion of values (for example, a calculation of staffing levels).

Notes

@INT truncates a value to its integer portion and eliminates the decimal portion. Format values as Fixed, with 0 decimal places, to display values as integers in the worksheet if you want 1-2-3 to calculate values using their full precision. @INT does not round to an integer.

Examples

@INT(35.67) = 35.

@INT(@NOW) = the date number for the current date and time, because the time portion is a decimal value.

Similar @Functions

@ROUND rounds a value to the closest multiple of the specified power of 10.

See also:

@Function BasicsGuidelines for Using Mathematical @Functions
Range Format
Worksheet Global Settings Format

@IRR

@IRR(*guess,range*) calculates the internal rate of return (profit) for a series of cash-flow values generated by an investment. The internal rate of return is the percentage rate that equates the present value of an expected future series of cash flows to the initial investment.

Arguments

guess is a decimal or percentage value, or the address or name of a cell that contains a decimal or percentage value, that represents your estimate of the internal rate of return. In most cases, *guess* should be a percentage between 0 (0%) and 1 (100%). With very large cash flows, make *guess* as accurate as possible.

range is the address or name of a range that contains the cash flows. 1-2-3 considers negative numbers as cash outflows and positive numbers as cash inflows. Normally, the first cash-flow amount in the range is a negative number (a cash outflow) that represents the investment. 1-2-3 assigns the value 0 to all blank cells and labels in *range* and includes them in the calculation.

Uses

Use @IRR to determine the profitability of an investment. Combine @IRR with other financial @functions, such as @NPV, to assess an investment.

Notes

1-2-3 assumes the cash flows are received at regular, equal intervals.

@IRR uses a series of approximations, starting with your *guess* value, to calculate the internal rate of return. Start with a *guess* that you feel is reasonable for the internal rate of return. More than one solution may be possible, so try another *guess* if the result is less than 0 or greater than 1.

If @IRR cannot approximate the result to within 0.0000001 after 30 calculation iterations, the result is ERR. If your guesses continue to return ERR, use @NPV to determine a better guess. If @NPV returns a positive value, your guess is too low. If @NPV returns a negative value, your guess is too high. @NPV returns 0 if your guess is accurate.

Use @AVG to determine the internal rate of return if you calculate several rates.

Examples

A schedule calculates the internal rate of return of an initial investment of $10,000 that is followed by 12 monthly payments of $1,500. *guess* (12.00%) is entered in GUESS and the payments are listed in a range named CASHFLOWS.

@IRR(GUESS,CASHFLOWS)

returns 10.45%, the internal rate of return.

Similar @Functions

@NPV calculates the net present value of a series of future cash flows. @PV calculates the present value of an annuity based on a series of equal payments. @FV calculates the future value of an annuity. @RATE returns the periodic interest rate necessary for an investment to grow to a future value.

See also:

@Function Basics
Guidelines for Using Financial @Functions

@ISAAF

@ISAAF(*name*) tests *name* for a defined add-in @function. If *name* is a defined add-in @function, @ISAAF returns 1 (true); if *name* is not a defined add-in @function, @ISAAF returns 0 (false).

Arguments

name is the name of the add-in @function you want to test. *name* is text enclosed in " " (quotation marks), the address or name of a cell that contains text, or a formula or @function that results in text. Do not include the initial @ symbol in *name*.

Examples

@ISAAF("degrees") = 1 if @DEGREES is a defined add-in @function.

@ISAAF("dsum") = 0, because @DSUM is a built-in 1-2-3 @function, not an add-in @function.

Similar @Functions

@ISAPP tests for an add-in that is currently in memory.

See also:

@Function Basics
Guidelines for Using Logical @Functions

@ISAPP

@ISAPP(*name*) tests *name* for an add-in that is currently in memory. If *name* is an add-in that is currently in memory, @ISAPP returns 1 (true); if *name* is not an add-in that is currently in memory, @ISAPP returns 0 (false).

Arguments

name is the name of the add-in you want to test. *name* is text enclosed in " " (quotation marks), the address or name of a cell that contains text, or a formula or @function that results in text. Do not include the file extension in *name*.

Notes

@ISAPP returns 1 (true) only for any add-ins you load using Tools Add-in Load. For add-ins that only define add-in @functions, or any add-in installed in your DCF, @ISAPP returns 0 (false).

Examples

@ISAPP("finance") = 1 if an add-in called FINANCE is currently in memory.

Similar @Functions

@ISAAF tests for a defined add-in @function.

See also:

    @Function Basics
    Guidelines for Using Logical @Functions

@ISERR

@ISERR(*x*) tests *x* for the value <u>ERR</u>. If *x* is the value ERR, @ISERR returns 1 (true); if *x* is not the value ERR, @ISERR returns 0 (false) .

Arguments

x is any value, location, text, or condition.

Uses

Use @ISERR with @IF in formulas to stop the <u>ripple-through effect</u> of the value ERR. For example, @IF(@ISERR(C3),0,C3) returns 0 if cell C3 contains the value ERR. The formula returns the contents of cell C3 if cell C3 contains any other entry.

Use @ISERR to block errors that arise from division by zero. For example, the formula @IF(@ISERR(A1/A2),0,A1/A2) tests the result of the division A1/A2 (the contents of cell A1 divided by the contents of cell A2). If the result is the value ERR, the formula returns 0. If the result is any other value, the formula returns that result.

Notes

The label ERR is not equivalent to the value ERR. For example, @ISERR(B2) returns 0 (false) if cell B2 contains the label ERR.

Examples

The subroutine CHKQTY consists of three short subroutines that check entries in the cells named QTY and PRICE. CHKQTY tests whether the entry in QTY is a value; if it is, processing transfers to the subroutine CKERRNA. If QTY does not contain a value, NEWQTY requests a new entry and then transfers to CHKQTY.

CKERRNA uses @ISERR to determine whether QTY contains the value ERR; if @ISERR returns 1 (true), it requests a new value. If QTY does not contain ERR and PRICE does not contain NA, the subroutine multiplies the values in the two cells and enters the result in the cell named TOTAL.

```
...
CHKQTY        {IF @ISNUMBER(QTY)}{BRANCH CKERRNA}
NEWQTY        {GETNUMBER "Enter Quantity number: ",QTY}
              {BRANCH CHKQTY}
CKERRNA       {IF @ISERR(QTY)}{BRANCH NEWQTY}
              {IF @ISNA(PRICE)}{GETNUMBER "Enter new price: ",PRICE}{BRANCH CHKQTY}
              {GOTO}TOTAL~+QTY*Price~
...
```

Similar @Functions

<u>@ISNA</u> tests for the value NA.

See also:

<u>@Function Basics</u>
<u>Guidelines for Using Logical @Functions</u>

@ISNA

@ISNA(*x*) tests *x* for the value <u>NA</u>. If *x* is the value NA, @ISNA returns 1 (true); if *x* is not the value NA, @ISNA returns 0 (false).

Arguments

x is any value, location, text, or condition.

Uses

Use @ISNA in formulas to stop the <u>ripple-through effect</u> of the value NA. For example, @IF(@ISNA(C3),0,C3) returns 0 if cell C3 contains the value NA; the formula returns the contents of cell C3 if cell C3 contains any other entry.

Notes

The label NA is not equivalent to the value NA. For example, @ISNA(B2) returns 0 (false) if cell B2 contains the label NA.

Examples

The subroutine CHKQTY consists of three short subroutines that check entries in the cells named QTY and PRICE. CHKQTY tests whether the entry in QTY is a value; if it is, processing transfers to the subroutine CKERRNA. If QTY does not contain a value, NEWQTY requests a new entry and then transfers to CHKQTY.

CKERRNA uses @ISNA to determine whether PRICE contains the value NA; if @ISNA returns 1 (true), it requests a new value. If PRICE does not contain NA and QTY does not contain ERR, the subroutine multiplies the values in the two cells and enters the result in the cell named TOTAL.

```
...
CHKQTY        {IF @ISNUMBER(QTY)}{BRANCH CKERRNA}
NEWQTY        {GETNUMBER "Enter Quantity number: ",QTY}
              {BRANCH CHKQTY}
CKERRNA       {IF @ISERR(QTY)}{BRANCH NEWQTY}
              {IF @ISNA(PRICE)}{GETNUMBER "Enter new price: ",PRICE}{BRANCH CHKQTY}
              {GOTO}TOTAL~+QTY*Price~
...
```

Similar @Functions

<u>@ISERR</u> tests for the value ERR.

See also:

> <u>@Function Basics</u>
> <u>Guidelines for Using Logical @Functions</u>

@ISNUMBER

@ISNUMBER(*x*) tests *x* for a value. If *x* is a value, <u>NA</u>, <u>ERR</u>, or a <u>blank</u>, @ISNUMBER returns 1 (true); if *x* is text or a cell that contains a label or a formula that results in a label, @ISNUMBER returns 0 (false).

Arguments

x is any value, location, text, or condition. If *x* is a multiple-cell range, @ISNUMBER returns 0 (false), even if the first cell of the range contains a value.

Uses

@ISNUMBER is useful in macros to make sure a user enters the correct type of information (values or labels). For example, @IF(@ISNUMBER(C6)," ","ERROR - Entry must be numeric") returns a blank cell if C6 contains a value, or an error message if C6 contains a label.

Examples

The subroutine CHKQTY consists of three short subroutines that check entries in the cells named QTY and PRICE.

CHKQTY uses @ISNUMBER to determine whether the entry in QTY is a value; if it is, processing transfers to the CKERRNA subroutine. If QTY does not contain a value, NEWQTY requests a new entry.

```
...
CHKQTY       {IF @ISNUMBER(QTY)}{BRANCH CKERRNA}
NEWQTY       {GETNUMBER "Enter Quantity number: ",QTY}
             {BRANCH CHKQTY}
CKERRNA      {IF @ISERR(QTY)}{BRANCH NEWQTY}
             {IF @ISNA(PRICE)}{GETNUMBER "Enter new price: ",PRICE}{BRANCH CHKQTY}
             {GOTO}TOTAL~+QTY*Price~
...
```

Similar @Functions

<u>@ISSTRING</u> tests for a label. <u>@CELL</u> and <u>@CELLPOINTER</u> can also determine whether a cell contains a value or a label.

See also:

<u>@Function Basics</u>
<u>Guidelines for Using Logical @Functions</u>

@ISRANGE

@ISRANGE(*range*) tests *range* for a <u>defined range name</u> or valid range address (a range address with worksheet and column letters from A through IV and row numbers from 1 through 8192). If *range* is a defined range name or valid range address, @ISRANGE returns 1 (true); if *range* is not a defined range name or valid range address, @ISRANGE returns 0 (false).

Arguments

range is any text or range address.

Uses

Use @ISRANGE to avoid errors in formulas caused by incorrect range names.

@ISRANGE is also useful with @IF to determine if an entry is a valid range name for subroutine calls and branching with <u>{DISPATCH}</u>.

Notes

The following table shows when @ISRANGE returns 1 (true) or 0 (false):

If x is	@ISRANGE returns
A valid cell address	1 (true)
A valid range address	1
A defined range name	1
A cell address preceded by +	0 (false)
An undefined range name	0
A number or a string	0
@ERR or @NA	0

Examples

@ISRANGE(A1) = 1 (true).

@ISRANGE(A1..C3) = 1(true).

@ISRANGE(SALES) = 1 (true), if SALES is a defined range name.

@ISRANGE(PRICE) = 0 (false), if PRICE is an undefined range name.

@ISRANGE(3) = 0 (false).

@ISRANGE("COMMISSION") = 0 (false) because the argument is text enclosed in " " (quotation marks).

See also:

<u>@Function Basics</u>
<u>Guidelines for Using Logical @Functions</u>

@ISSTRING

@ISSTRING(*x*) tests *x* for text or a label. If *x* is text or a cell that contains a label or a formula that results in a label, @ISSTRING returns 1 (true); if *x* is a value, ERR, NA, or blank, @ISSTRING returns 0 (false).

Arguments

x is any value, location, text, or condition.

Uses

@ISSTRING is useful in macros to make sure a user enters the correct type of information (values or labels). For example, @IF(@ISSTRING(C6)," ","ERROR - Entry must be a label") returns a blank cell if C6 contains a label, or an error message if C6 contains a value.

Examples

The subroutine CHKSTR checks the contents of the cell named CUSTOMER. If CUSTOMER contains a label (@ISSTRING(CUSTOMER) = 1), the subroutine branches to a new subroutine named FILEORDER. If CUSTOMER does not contain a label, the subroutine requests a new entry.

```
...
CHKSTR      {IF @ISSTRING(CUSTOMER)}{BRANCH FILEORDER}
            {GETLABEL "Enter CUSTOMER name: ",CUSTOMER}
            {CHKSTR}
...
```

Similar @Functions

@ISNUMBER tests for a value. @CELL and @CELLPOINTER can also determine whether a cell contains a value or a label.

See also:

   @Function Basics
   Guidelines for Using Logical @Functions

@LEFT

@LEFT(*string,n*) returns the first *n* characters in *string*.

Arguments

string is text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or a formula that results in a label.

n is an <u>offset number</u>, or the address or name of a cell that contains a positive integer or 0. If *n* is 0, the result is an empty string. If *n* is larger than the length of *string*, @LEFT returns the entire string.

Uses

@LEFT is useful for copying only part of a label into another cell, starting at the beginning of the label (for example, for separating titles such as Dr. and Ms. from names).

In a macro, @LEFT can extract parts of labels the user enters to store them in a database, for subroutine calls, or to alter the macro itself.

Use @LEFT with <u>@FIND</u> when you do not know the exact value for *n*, or when *n* may vary.

Notes

@LEFT counts punctuation and spaces as characters.

Examples

@LEFT(PHONE,3} = the area code for the telephone number in the cell PHONE.

@LEFT(A1,@FIND("*",A1,0)) = the first name in cell A1 (for example, Richard if cell A1 contains the name Richard Smith). The * (asterisk) represents one space.

Similar @Functions

<u>@MID</u> returns characters from within *string*. <u>@RIGHT</u> returns the last *n* characters in *string*.

See also:

<u>@Function Basics</u>
<u>Guidelines for Using String @Functions</u>

@LENGTH

@LENGTH(*string*) counts the characters in *string*.

Arguments

string is text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or a formula that results in a label.

Uses

Use @LENGTH with @TRIM to find the length of *string* without including leading, trailing, or consecutive spaces.

@LENGTH is also useful in any application in which labels should be a certain length, such as ZIP codes and purchase order numbers.

Notes

@LENGTH counts punctuation and spaces as characters.

Examples

@LENGTH("fiscal") = 6.

@LENGTH(A5&G12) = the total number of characters in cells A5 and G12.

@LENGTH(@TRIM("   Mr.   Jones")) = 9.

See also:

@Function Basics
Guidelines for Using String @Functions

@LN

@LN(*x*) calculates the natural logarithm (base *e*) of *x*.

Arguments

x is a value, or the address or name of a cell that contains a value, greater than 0.

Uses

Use @LN in scientific calculations that require natural logarithms, such as compound growth or loss.

Notes

A natural logarithm is one that uses the number *e* (approximately 2.718282) as a base.

Examples

@LN(2) = 0.693147.

@LN(@EXP(1)) = 1, because @EXP(1) = 2.718282.

Similar @Functions

@EXP is the inverse of @LN. @LOG calculates the common logarithm (base 10) of *x*.

See also:

@Function Basics
Guidelines for Using Mathematical @Functions

@LOG

@LOG(*x*) calculates the common logarithm (base 10) of *x* .

Arguments

x is a value, or the address or name of a cell that contains a value, greater than 0.

Uses

Use @LOG in any calculation that requires a common logarithm, such as a formula to find a root of a number.

Examples

10^(@LOG(8)/3) = 2, the cube root of 8.

@LOG(B3) = 0.60206, if cell B3 contains the value 4.

Similar @Functions

@LN calculates the natural logarithm (base *e*) of a value.

See also:

@Function Basics
Guidelines for Using Mathematical @Functions

@LOWER

@LOWER(*string*) converts all the letters in *string* to lowercase.

Arguments

string is text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or a formula that results in a label.

Uses

@LOWER is useful when you combine labels from several sources and you want the case of the labels to be consistent throughout the worksheet file.

Notes

If you selected ASCII sort order during Install, capitalization affects the sort order of labels when you use Data Sort; two otherwise identical labels may not appear together if their capitalization is different.

Examples

@LOWER("Sales Forecast") = sales forecast.

Similar @Functions

@UPPER converts all letters in *string* to uppercase. @PROPER converts the first letter of each word in *string* to uppercase and converts the rest of the letters to lowercase.

See also:

@Function Basics
Guidelines for Using String @Functions

@MAX

@MAX(*list*) finds the largest value in *list*.

Arguments

list can contain any of the following, in any combination: numbers, numeric formulas, and addresses or names of ranges that contain numbers or numeric formulas. Separate elements of *list* with <u>argument separators</u>.

Uses

Use @MAX to find the largest value in a series. @MAX is also useful when you need to check for unusually large values or to find (and discard) the largest value in some statistical calculations.

Notes

@MAX ignores <u>blank cells</u> in ranges, but not references to blank cells listed individually. <u>Labels</u> count as zero, as do cells that are apparently empty but contain a <u>label-prefix character</u> or spaces. This means that labels, apparently empty cells, and blank cells listed individually increase the total number of items in *list*; and if *list* contains any of these, the result of @MAX may not be what you expect.

Examples

@MAX(55,39,50,28,67,43) = 67.

@MAX(A1..C10) returns the largest value in A1..C10.

Similar @Functions

<u>@MIN</u> finds the smallest value in *list*. <u>@DMAX</u> finds the largest value in the field of a database table that meets criteria you specify.

See also:

<u>@Function Basics</u>
<u>Guidelines for Using Statistical @Functions</u>

@MID

@MID(*string,start-number,n*) copies *n* characters from *string*, beginning with the character at *start-number*.

Arguments

string is text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or a formula that results in a label.

start-number is an <u>offset number</u>, or the address or name of a cell that contains a positive integer or 0. If *start-number* is larger than the length of *string*, the result of @MID is an empty string.

n is any positive integer or 0, or the address or name of a cell that contains a positive integer or 0. If *n* is 0, the result of @MID is an empty string; if *n* is larger than the length of *string*, 1-2-3 returns all the characters from *start-number* to the end of *string*.

Uses

Use @MID to extract a part of a label that is not located at the beginning or end of the label. To extract part of a label when you do not know its *start-number*, use @MID with <u>@FIND</u>.

@MID is useful in macros to store parts of labels the user enters, to create subroutine calls, or to alter the macro itself.

Notes

@MID counts punctuation and spaces as characters.

Use a large number for *n* if you do not know the length of *string*; 1-2-3 will ignore the extra spaces and return the entire *string* beginning with *start-number*.

Examples

@MID("Daily Account Balance",6,7) = Account.

Similar @Functions

<u>@LEFT</u> returns the first *n* characters of *string*, and <u>@RIGHT</u> returns the last *n* characters in *string*.

See also:

<u>@Function Basics</u>
<u>Guidelines for Using String @Functions</u>

@MIN

@MIN(*list*) finds the smallest value in *list*.

Arguments

list can contain any of the following, in any combination: numbers, numeric formulas, and addresses or names of ranges that contain numbers or numeric formulas. Separate elements of *list* with underline argument separators.

Uses

Use @MIN to find the smallest value in a series. @MIN is also useful when you need to check for unusually small values or to find (and discard) the smallest value in some statistical calculations.

Notes

@MIN ignores blank cells in ranges, but not references to blank cells listed individually. Labels count as zero, as do cells that are apparently empty but contain a label-prefix character or spaces. This means that labels, apparently empty cells, and blank cells listed individually increase the total number of items in *list*; and if *list* contains any of these, the result of @MIN may not be what you expect.

Examples

@MIN(55,39,50,28,67,43) = 28.

@MIN(A1..C10) returns the smallest value in A1..C10.

Similar @Functions

@MAX finds the largest value in *list*. @DMIN finds the smallest value in the field of a database table that meets criteria you specify.

See also:

    @Function Basics
    Guidelines for Using Statistical @Functions

@MINUTE

@MINUTE(*time-number*) extracts the minutes, a value from 0 through 59, from *time-number*.

Arguments

time-number is a value, or the address or name of a cell that contains a value, from .000000 (midnight) through .999988 (11:59:59 PM). Usually, another time @function supplies *time-number*.

Uses

Use @MINUTE to extract the minutes portion of time values created with @NOW, @TIME, and @TIMEVALUE. The minutes portion is useful in calculations that involve only minutes, such as the time that has elapsed since the start of an application.

Examples

@MINUTE(0.333) = 59 because 0.333 is the time number for 7:59:31.

@MINUTE(@TIME(11,15,45)) = 15 because 15 is the *minutes* argument for @TIME(11,15,45).

Similar @Functions

@HOUR extracts the hour, and @SECOND extracts the seconds, from a time number.

See also:

@Function Basics
Guidelines for Using Date and Time @Functions

@MOD

@MOD(*x,y*) calculates the remainder (modulus) of *x/y*.

Arguments

x is a value, or the address or name of a cell that contains a value. If *x* is 0, @MOD returns 0. The sign of the result (+ or -) is always the same as the sign of *x*.

y is a value, or the address or name of a cell that contains a value, other than 0.

Uses

Use @MOD to determine the remainder in a calculation (for example, the amount of material left over from a production run). You can also use @MOD to determine whether a number is even or odd: with a divisor of 2, an even number has no remainder.

Use @MOD to calculate the day of the week by entering a <u>date number</u> as *x* and 7 (the number of days in a week) as *y*. 1-2-3 assigns a number to each day of the week: 0 for Saturday, 1 for Sunday, 2 for Monday, up to 6 for Friday. If you divide the date number by 7, the remainder is the day of the week. For example, @MOD(@DATE(91,1,19),7) = 0; January 19, 1991, was a Saturday.

Notes

1-2-3 uses the following formula to calculate the modulus:

x-(*y**@INT(*x/y*))

Examples

@MOD(9,4) = 1.

@MOD(-14,3) = -2.

See also:

<u>@Function Basics</u>
<u>Guidelines for Using Mathematical @Functions</u>

@MONTH

@MONTH(*date-number*) extracts the month, a value from 1 through 12, from *date-number*.

Arguments

date-number is a value, or the address or name of a cell that contains a value, from 1 (January 1, 1900) through 73050 (December 31, 2099).

Uses

Use @MONTH to track months rather than entire dates. Use @MONTH to keep track of events that happen in certain months, such as quarterly sales summaries, or to calculate the months that have elapsed between events.

@MONTH can also supply the *month* argument for other date @functions that build on previously calculated dates.

Notes

You can use one of the other date @functions to supply the value for *date-number*.

Examples

@MONTH(@DATE(91,3,27)) = 3 because 3 is the *month* argument for @DATE(91,3,27).

@MONTH(20181) = 4 because the date number 20181 is the date 02-Apr-55.

@MONTH(@NOW) = the current month.

Similar @Functions

@DAY calculates the day, using a date number. @YEAR calculates the year, using a date number.

See also:

@Function Basics
Guidelines for Using Date and Time @Functions

@N

@N(*range*) returns the entry in the first cell of *range* as a <u>value</u>. If the cell contains a <u>label</u>, @N returns the value 0.

Arguments

range is a cell or range address, or a range name.

Uses

@N is useful with any @function or formula when a cell may contain a label and the entry must be a value. Use @N to prevent formulas from resulting in <u>ERR</u>.

@N is also useful in macros to check user entries.

Examples

+100+@N(B5..F5) = 885, if cell B5 contains the value 785.

@N(A5)+@N(B5) returns 785, if A5 contains a label and B5 contains the value 785.

Similar @Functions

<u>@S</u> returns the entry in the first cell of a range as a label. <u>@ISNUMBER</u> can determine whether a cell contains a value.

See also:

<u>@Function Basics</u>
<u>Guidelines for Using String @Functions</u>

@NA

@NA returns the value NA (not available).

Uses

@NA is useful when you are building a worksheet that will contain data that you have not yet determined. Use @NA to flag cells where you will enter the data; formulas that refer to those cells result in the value NA until you supply the correct data.

@NA is also useful to determine which formulas depend on a particular cell.

Notes

The label NA and the value NA are not equivalent in formulas. For example, the formula +A2+34 equals NA, if cell A2 contains @NA, but equals 34 when cell A2 contains the label NA.

Examples

@IF(@CELL("type",B14)="b",@NA,B14) returns the value NA when B14 is blank.

Similar @Functions

@ERR returns the value ERR. @ISNA tests for the value NA.

See also:

@Function Basics

@NOW

@NOW calculates the number that corresponds to the current date and time on your computer's clock. This includes both a <u>date number</u> (integer portion) and a <u>time number</u> (decimal portion).

Uses

@NOW produces a record of the current date and time. This record is useful in any calculation that requires the current date, for example, determining the time a payment has been overdue. Use @NOW with F2 (EDIT) and F9 (CALC) to create a fixed record of a date and time for time-stamping worksheets or in calculations of elapsed time.

Notes

Format the value of @NOW in any of the Date or Time formats. If you format @NOW as a date, 1-2-3 displays only the date (integer) portion of the date and time number. If you format @NOW as time, 1-2-3 displays only the time (decimal) portion of the date and time number. In both cases, 1-2-3 stores and calculates with the entire date and time number.

1-2-3 recalculates @NOW each time you recalculate your work. If you use Tools User Setup Recalculation Automatic, 1-2-3 recalculates @NOW whenever it recalculates another value.

Examples

@NOW = 31050.5 at noon on January 3, 1985.

@NOW = 33418.395 at 9:28 A.M. on June 29, 1991.

Similar @Functions

<u>@TODAY</u> calculates the date number that corresponds to the current date.

See also:

<u>@Function Basics</u>
<u>Guidelines for Using Date and Time @Functions</u>
<u>Range Format</u>

@NPV

@NPV(*interest,range*) calculates the net present value of a series of future cash-flow values (*range*), discounted at a fixed periodic *interest* rate.

Arguments

interest is a decimal or percentage value, or the address or name of a cell that contains a decimal or percentage value.

range is the range that contains the cash flows.

Uses

Use @NPV to evaluate an investment or to compare one investment with others. @NPV calculates the initial investment necessary to achieve a certain cash outflow at a certain rate.

Notes

See **Chapter 4** of the *User's Guide* for the formula @NPV uses to calculate net present value.

@NPV assumes that the cash outflows occur at equal time intervals, that the first cash outflow occurs at the end of the first period, and that subsequent cash outflows occur at the end of subsequent periods.

To determine the net present value of an investment in which you make an initial cash outflow immediately, followed by a series of future inflows, you must factor the initial outflow separately, because it is not affected by the interest. For example,

+INITIAL+@NPV(RATE,SERIES) = $904.07 when INITIAL is the initial cash outflow, RATE is the interest rate, and SERIES is the series of future cash inflows.

@NPV returns ERR if *range* contains more than one row or more than one column. For example, @NPV returns ERR if *range* is A1..D25, but does not return ERR if *range* is A1..D1 (a single row) or A1..A25 (a single column).

Examples

This example uses @NPV to discount to today's dollars a series of irregular distributions invested at 11.5% annual percentage rate.

range is a list of cash flows, one a month for 12 months, in a range named DISTRIBUTIONS:

```
$          0.00
$          0.00
$  2,500.00
$  2,500.00
$  3,000.00
$  5,000.00
$  6,000.00
$  9,000.00
$  3,000.00
$  2,500.00
$          0.00
$  7,500.00
$41,000.00    TOTAL
```

To provide @NPV with the correct number of periods, months in which no distribution is made must be included in *range*. The distributions are monthly, so @NPV requires *interest* (the discount rate), in a cell named DISCOUNT, to be expressed as a monthly percentage:

0.115/12 = 0.96

@NPV(DISCOUNT,DISTRIBUTIONS) = $38,084.13.

Similar @Functions

@PV calculates the present value of an annuity based on a series of equal payments. @FV calculates the future value of an annuity.

See also:

@Function Basics
Guidelines for Using Financial @Functions

@PI

@PI produces the value pi (calculated at 3.14159265358979324). The value pi is the ratio of the circumference of a circle to its diameter.

Uses

Use @PI in calculations that require the value pi, particularly in conjunction with trigonometric functions.

Examples

@PI = 3.1415926536.

@PI*4^2 = 50.26548, the area of a circle with a radius of 4.

See also:

@Function Basics
Guidelines for Using Mathematical @Functions

@PMT

@PMT(*principal,interest,term*) calculates the payment on a loan (*principal*) at a given *interest* rate for a specified number of payment periods (*term*).

Arguments

principal and *term* are values, or the addresses or names of cells that contain values.

interest is a decimal or percentage value, or the address or name of a cell that contains a decimal or percentage value.

Uses

Use @PMT to calculate the payment necessary to amortize a loan or the periodic payment returned by an annuity.

Notes

See **Chapter 4** of the *User's Guide* for the formula @PMT uses to calculate periodic payment.

The period used to calculate *interest* must be the same period used for *term*; for example, if you are calculating a monthly payment, enter the interest and term in monthly increments. Usually, this means you must divide the interest rate and the number of years in *term* by 12.

@PMT assumes payments occur at the end of each payment period (an ordinary annuity).

If you make payments at the beginning of each month, you would calculate the amount for an annuity due. To calculate the amount of the periodic payment on an annuity due, use the formula @PMT(*principal,interest,term*)/(1+*interest*).

For example, @PMT(8000,0.14/12,36)/(1+0.14/12) = $270.27, the monthly payment.

Examples

You are considering taking out an $8,000 loan for 3 years at an annual interest rate of 14%, compounded monthly. You want to determine your monthly payment:

@PMT(8000,0.14/12,36) = $273.42, the monthly payment.

See also:

    @Function Basics
    Guidelines for Using Financial @Functions

@PROPER

@PROPER(*string*) capitalizes the first letter of each word in *string* and converts the remaining letters to lowercase.

Arguments

string can be text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or a formula that results in a label.

Uses

@PROPER is useful when you combine data from several sources and want labels to be consistent throughout the worksheet file. Use @PROPER in a database to ensure consistent capitalization of names before sorting the names or before using the names to create mailing labels.

Notes

If you selected ASCII sort order in Install, capitalization affects the sort order of labels when you use Data Sort; two otherwise identical labels may not appear together if their capitalization is different.

Examples

@PROPER(A7&"; "&G7) returns Morton Smith; Athens, Georgia if A7 contains the label MORTON SMITH, and G7 contains the label athens, georgia. Note that the ; (semicolon) is in quotation marks and is therefore treated as a literal string instead of an argument separator.

Similar @Functions

@LOWER converts all letters in *string* to lowercase. @UPPER converts all letters in *string* to uppercase.

See also:

@Function Basics
Guidelines for Using String @Functions

@PV

@PV(*payments,interest,term*) determines the present value of an investment. @PV calculates the present value based on a series of equal *payments*, discounted at a periodic *interest* rate over the number of periods in *term*.

Arguments

payments and *term* are values, or the addresses or names of cells that contain values.

interest is a decimal or percentage value, or the address or name of a cell that contains a decimal or percentage value.

Uses

Use @PV to evaluate an investment or to compare one investment with others. @PV is useful in comparing different types of investments, for example, comparing a single payment investment from a pension fund with a series of periodic payments. Use @PV with @PMT to create an amortization table.

Notes

See **Chapter 4** of the *User's Guide* for the formula @PV uses to calculate present value.

@PV complements @PMT: @PV tells you how large a loan you can take out, given the constraint of the size of the monthly payment you can afford. Conversely, @PMT tells you how large your monthly payment will be, given the constraint of the size of the loan you want to take out.

@PV assumes each payment is made at the end of the period. To calculate the present value of an annuity due (a payment made at the beginning of each period), use the formula @PV(*payments,interest,term*)*(1+*interest*).

Examples

You won $1,000,000. You can receive either 20 annual payments of $50,000 at the end of each year or a single payment of $400,000 instead of the $1,000,000 annuity. You want to find out which option is worth more in today's dollars.

If you were to accept the annual payments of $50,000, you assume that you would invest the money at a rate of 8%, compounded annually.

@PV(50000,0.08,20) returns $490,907, which tells you that the $1,000,000 paid over 20 years is worth $490,907 in today's dollars.

Similar @Functions

@FV calculates the future value of an investment based on a series of equal payments. @NPV computes the net present value of an investment, discounting future value to present value.

See also:

    @Function Basics
    Guidelines for Using Financial @Functions

@RAND

@RAND generates a random value between 0 and 1. 1-2-3 calculates @RAND to 17 decimal places. Each time 1-2-3 recalculates your work, @RAND generates a new random value.

Uses

@RAND is useful in situations that require random numbers, for example, generating test data for simulations or choosing returns to audit.

Notes

To convert the value generated by @RAND to a fixed value, use F2 (EDIT) and F9 (CALC) or Edit Quick Copy

To generate random values in different numeric intervals, multiply @RAND by the size of the interval. Use @ROUND or @INT with the result to create random whole numbers.

Examples

@RAND = 0.419501, or any value between 0 and 1.

@RAND*10 = 6.933674, or any value between 0 and 10.

@INT(@RAND*50)+1 = 49, or any integer between 1 and 50.

See also:

@Function Basics
Guidelines for Using Mathematical @Functions

@RATE

@RATE(*future-value,present-value,term*) returns the periodic interest rate necessary for an investment (*present-value*) to grow to a *future-value* over the number of compounding periods in *term*.

Arguments

future-value, *present-value*, and *term* are values, or the addresses or names of cells that contain values.

Uses

Use @RATE to evaluate an investment or to compare one investment with others. @RATE is useful when you need to calculate the compound rate of an investment, such as the value of a stock, or in any situation where you know the initial value, the final value, and the time elapsed between the two.

Notes

See **Chapter 4** of the *User's Guide* for the formula @RATE uses to calculate periodic interest rate.

Examples

You invested $10,000 in a bond that matures in five years and has a maturity value of $18,000. Interest is compounded monthly. You want to determine the periodic interest rate for this investment.

@RATE(18000,10000,60) returns 0.984%, the periodic (monthly) interest rate. To determine the annual interest rate, use the formula ((1+@RATE(18000,10000,60))^12)-1. This yields an annual interest rate of 12.47%.

See also:

    @Function Basics
    Guidelines for Using Financial @Functions

@REPEAT

@REPEAT(*string,n*) duplicates *string* the number of times specified by *n*.

Arguments

string can be text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or a formula that results in a label.

n can be any positive integer, or the address or name of a cell that contains a positive integer.

Uses

Use @REPEAT to repeat any character, including special mathematical, graphics, or foreign-language symbols.

Notes

@REPEAT duplicates the string as many times as you specify; it is not limited by the current column width. This differs from using the repeating label-prefix character \ (backslash), which repeats a label only as many times as will fill the current column.

Examples

@REPEAT("Hello ",3) returns Hello Hello Hello.

@REPEAT("-",10) returns ----------.

See also:

@Function Basics
Guidelines for Using String @Functions

@REPLACE

@REPLACE(*original-string,start-number,n,new-string*) replaces *n* characters in *original-string* with *new-string*, beginning at *start-number*.

Arguments

original-string and *new-string* can be text enclosed in " " (quotation marks), formulas that result in text, or the addresses or names of cells that contain labels or formulas that result in labels.

start-number is the <u>offset number</u> of a character in *original-string*. It can be any positive value or 0, or the address or name of a cell that contains a positive value or 0. If *start-number* is greater than the length of *original-string*, @REPLACE appends *new-string* to *original-string*.

n can be any positive integer or 0, or the address or name of a cell that contains a positive integer or 0. If *n* is 0, @REPLACE inserts *new-string* at *start-number* without deleting any characters in *original-string*.

Uses

Use <u>@FIND</u> with @REPLACE to search for and replace a label or to calculate an unknown *start-number*.

@REPLACE is useful when you need to replace one set of characters with another, for example, to change the area code in a database of telephone numbers.

Notes

@REPLACE counts all the characters in a string, including spaces and punctuation. If you use @REPLACE to append or insert text, remember to include the necessary spaces.

Examples

@REPLACE(CELL,@FIND("-",CELL,0),1,"/") copies the label in Cell, 4-24, as 4/24.

See also:

<u>@Function Basics</u>
<u>Guidelines for Using String @Functions</u>

@RIGHT

@RIGHT(*string,n*) returns the last *n* characters in *string*.

Arguments

string can be text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or a formula that results in a label.

n can be a positive integer or 0, or the address or name of a cell that contains a positive integer or 0. If *n* is 0, the result is an empty string. If *n* is greater than the length of *string*, @RIGHT returns the entire string.

Uses

@RIGHT is useful for copying only part of a label into another cell (for example, for extracting last names from labels that include both first and last names).

In a macro, @RIGHT can extract parts of labels the user enters to store them in a database, for subroutine calls, or to alter the macro itself.

Use @RIGHT with @FIND when you do not know the exact value for *n,* or when *n* may vary.

Notes

@RIGHT counts punctuation and spaces as characters.

Examples

@RIGHT(B3,5) = Sales, if B3 contains the label January Sales.

Similar @Functions

@LEFT returns the first *n* characters in *string*. @MID returns characters from within *string*.

See also:

@Function Basics
Guidelines for Using String @Functions

@ROUND

@ROUND(*x,n*) rounds the value *x* to the nearest multiple of the power of 10 specified by *n*.

Arguments

x is a value, or the address or name of a cell that contains a value.

n is a value, or the address or name of a cell that contains a value, from -100 through 100.

Uses

Use @ROUND in calculations in which you want to use only the rounded portion of a value.

Notes

If *n* is positive, @ROUND affects the decimal portion of the number (moving right from the decimal point). For example, if *n* is 2, 1-2-3 rounds *x* to the nearest hundredth.

If *n* is negative, @ROUND affects the integer portion of the number (moving left from the decimal point). For example, if *n* is -2, 1-2-3 rounds *x* to the nearest hundred.

If *n* is 0, 1-2-3 rounds *x* to the nearest integer.

Select Fixed from Range Format or Worksheet Global Settings Format to display values with a specified number of decimal places if you want 1-2-3 to calculate the values to their full precision; do not use @ROUND.

Examples

@ROUND(134.578,2) = 134.58.

@ROUND(134.578,0) = 135.

@ROUND(134.578,-2) = 100.

Similar @Functions

@INT truncates a value, discarding the decimal portions.

See also:

    @Function Basics
    Guidelines for Using Mathematical @Functions

@ROWS

@ROWS(*range*) counts the number of rows in *range*.

Arguments

range is a range address or range name.

Uses

@ROWS is useful when you need to determine a value that depends on the number of rows.

Use @ROWS with {FOR} in a macro that repeats the same action on a series of rows to determine when the macro should stop.

Examples

@ROWS(A3..B7) = 5 (rows 3 through 7).

@ROWS(SCORES) = 43, if SCORES is the range B3..B45.

Similar @Functions

@COLS counts the columns, and @SHEETS counts the worksheets, in a range.

See also:

    @Function Basics

@S

@S(*range*) returns the entry in the first cell in *range* as a label.

Arguments

range is a cell address or range name.

Uses

@S is useful with any string @function or text formula when a cell may contain a value and the entry must be a label (for example, a cell that contains a ZIP code). Use @S to prevent text formulas from resulting in ERR, for example, +A1&A2 returns ERR if either cell contains a value.

@S is also useful in macros to check user entries. Use @S in error-trapping routines in macros to prevent errors that would result if a cell used in formulas contained the wrong type of data.

Examples

In the macro instructions

{IF @S(B6)=""}{BEEP}{INDICATE "ENTRY MUST BE A LABEL"}

@S returns an empty string if B6 contains a value or is a blank cell; 1-2-3 then beeps and changes the mode indicator to ENTRY MUST BE A LABEL.

Similar @Functions

@N returns the entry in the first cell of *range* as a value. @ISSTRING determines whether a cell contains a label.

See also:

@Function Basics
Guidelines for Using String @Functions

@SECOND

@SECOND(*time-number*) extracts the seconds, an integer from 0 through 59, from *time-number*.

Arguments

time-number is a value, or the address or name of a cell that contains a value, from .000000 (midnight) through .999988 (11:59:59 PM).

Uses

Use @SECOND to use only the seconds portion of time values created with @NOW, @TIME, or @TIMEVALUE. The seconds portion is useful in calculations that involve only seconds, such as the seconds beyond the four-minute mark that runners take to complete a one-mile course.

Examples

@SECOND(0.333) = 31.

@SECOND(@TIME(11,15,45)) = 45, because 45 is the *seconds* argument for @TIME(11,15,45).

Similar @Functions

@HOUR extracts the hour, and @MINUTE extracts the minutes, from a time number.

See also:

   @Function Basics
   Guidelines for Using Date and Time @Functions

@SHEETS

@SHEETS(*range*) counts the number of worksheets in *range*.

Arguments

range is a range address or range name.

Uses

@SHEETS is useful when you need to determine a value that depends on the number of worksheets.

Use @SHEETS with {FOR} in a macro that repeats the same action in a series of worksheets to determine when the macro should stop.

Examples

@SHEETS(Q_2) = 4 if Q_2 is the range B:B3..E:C45 (worksheets B, C, D, and E).

Similar @Functions

@COLS counts the columns, and @ROWS counts the rows, in a range.

See also:

@Function Basics

@SIN

@SIN(*z*) calculates the sine of angle *z*. The sine is the ratio of the side opposite an acute angle of a right triangle to the hypotenuse:

sin(angle) = side opposite/hypotenuse.

Arguments

z is an angle measured in <u>radians</u>. *z* can be any value, or the address or name of a cell that contains a value, from -2^32*pi through 2^32*pi.

Uses

Use @SIN to find the cosecant, or reciprocal of @SIN, with the following formula: 1/@SIN(*z*).

Notes

To convert from degrees to radians, multiply degrees by @PI/180.

Examples

@SIN(35*@PI/180) = 0.573576, the sine of a 35-degree angle.

Similar @Functions

<u>@ASIN</u> calculates the arc sine of a value to find the size of an angle.

See also:

<u>@Function Basics</u>
<u>Guidelines for Using Mathematical @Functions</u>

@SLN

@SLN(*cost,salvage,life*) calculates the straight-line depreciation allowance of an asset with an initial value of *cost*, an expected useful *life*, and a final value of *salvage*, for one period.

Arguments

cost is the amount paid for the asset. *cost* can be any value, or the address or name of a cell that contains any value.

salvage is the value of the asset at the end of its life. *salvage* can be any value, or the address or name of a cell that contains any value.

life is the number of periods the asset takes to depreciate to its salvage value. *life* can be any value, or the address or name of a cell that contains any value, except 0.

Uses

Use @SLN to calculate an asset's depreciation when the situation does not require accelerated depreciation.

Notes

See **Chapter 4** of the *User's Guide* for the formula @SLN uses to calculate straight-line depreciation.

Straight-line depreciation divides the depreciable cost (the actual cost minus the salvage value) equally into each period of the useful life of the asset. The useful life is the number of periods (typically years) over which the asset is depreciated.

Examples

You have an office machine that cost $10,000. The useful life of this machine is 10 years, and the salvage value in 10 years will be $1,200. You want to calculate yearly depreciation expense, using the straight-line method. @SLN(10000,1200,10) returns $880, the yearly depreciation allowance.

Similar @Functions

@DDB calculates depreciation using the double-declining balance method, @VDB calculates depreciation using the variable-rate declining balance method, and @SYD calculates depreciation using the sum-of-the-years'-digits method.

See also:

@Function Basics
Guidelines for Using Financial @Functions

@SOLVER

@SOLVER(*query-string*) returns a value that gives information about the status of the Solver.

Arguments

query-string is any of the words from the table below, as text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or a formula that results in a label.

Argument	Returns
consistent	1 if all constraints are satisfied
	2 if at least one constraint is not satisfied
	ERR if the Solver is not active or there is no answer in the worksheet
done	1 if the Solver has finished solving
	2 if the Solver is currently solving
	3 if the Solver is active, but hasn't begun solving
	ERR if the Solver is not active
moreanswers	1 if the Solver has found all the answers
	2 if the Solver might be able to find more answers
	ERR if the Solver is not active
needguess	1 if the Solver needs no guesses to find an answer
	2 if the Solver needs guesses to find an answer
	ERR if the Solver is not active or there is no answer in the worksheet
numanswers	*n*, where *n* is the number of answers or attempts the Solver found
	ERR if the Solver is not active or has not solved the problem yet
optimal	1 for the optimal answer
	2 for the best answer found
	3 if the problem is unbounded
	4 if no optimization requested or no answer found
	ERR if the Solver is not active
progress	*n*, where *n* is the percentage of solving completed
	ERR if the Solver is not active or solving has not begun
result	1 if the Solver found one or more answers
	2 if no answers found but representative attempts are available
	ERR if the Solver is not active or has not solved the problem yet

Uses

Use @SOLVER in macros to provide information about the Solver.

Notes

@SOLVER is not recalculated whenever 1-2-3 performs a recalculation. Use {RECALC} or {RECALCCOL} to recalculate cells containing @SOLVER

Examples

The following lines are an excerpt from a longer macro that runs the Solver. The macro uses @SOLVER to determine if the Solver has found all answers. If it has found all answers, the macro enters the first answer in the worksheet and ends processing. If it hasn't found all answers, the macro presses the Solve button to continue solving and then repeats {IF} to see if more answers can be found. The loop continues until the Solver finishes finding all answers. When the Solver has found all answers, subroutine {A} puts the first answer in the worksheet, and {RETURN} ends the macro.

```
CHKSLV {IF @SOLVER("moreanswers")=1}{A}{RETURN}
       {BRANCH CHKSLV}
```

See also:

@Function Basics

@SQRT

@SQRT(*x*) returns the positive square root of *x*.

Arguments

x is a positive value, or the address or name of a cell that contains a positive value.

Uses

Use @SQRT to calculate with or derive the square root of a number. Use @SQRT with @ABS to ensure *x* is a positive number: @SQRT(@ABS(*x*)).

Examples

@SQRT(B3) = 10, if B3 contains the value 100.

@SQRT(-2) = ERR, because *x* is negative.

See also:

@Function Basics
Guidelines for Using Mathematical @Functions

@STD

@STD(*list*) calculates the population standard deviation of the values in *list*.

Arguments

list can contain any of the following, in any combination: numbers, numeric formulas, and range addresses or range names that contain numbers or formulas. Separate elements of *list* with <u>argument separators</u>.

Uses

Standard deviation measures the degree to which individual values in a list vary from the mean (average) of all values in the list. The lower the standard deviation, the less individual values vary from the mean, and the more reliable the mean. A standard deviation of 0 indicates that all values in the list are equal.

Use @STD to find the standard deviation within a population of values (for example, the degree to which individual scores or weights vary from the mean). @STD is useful for statistical calculations that involve finite groups, such as test scores, salary distributions, or ages of people in a company.

Notes

@STD uses the n, or population, method to calculate standard deviation of population data. The n method assumes that the values in *list* are the entire population. If *list* is only a sample of the population, the standard deviation is biased because of errors introduced in taking the sample. See **Chapter 4** of the *User's Guide* for the formula the n method uses.

Standard deviation is the square root of the variance of all individual values from the mean.

Examples

@STD

Similar @Functions

<u>@DSTD</u> calculates the standard deviation of the values in a field of a database table. <u>@STDS</u> calculates the sample standard deviation of the values in a list. <u>@VAR</u> calculates the population variance of the values in a list.

See also:

<u>@Function Basics</u>
<u>Guidelines for Using Statistical @Functions</u>

Example: @STD

This table lists house sales for the years 1982 through 1986. (To save space, rows 4 through 37 in the worksheet are hidden.) The ages (in years) of the houses are listed in a range named AGE_LIST (C2..C42).

@STD(AGE_LIST) returns 18.29, the standard deviation of the ages of the houses in the list.

A ---- A ----------------------------------- B ---------- C -------------------- D ---

	ADDRESS	LOT	AGE	COST
1	ADDRESS			COST
2	12 Bartholomew Sq	0.25	48	$290,000
3	40 Prospect St	0.40	22	$105,000
38	103 Cranberry La	0.50	21	$135,000
39	27 Kilburn St	1.00	70	$128,000
40	468 Henshaw St	0.50	52	$174,000
41	9 Pleasant St	0.25	42	$195,000
42	80 Beach St	0.25	23	$118,000

@STDS

@STDS(*list*) calculates the sample standard deviation of the values in *list*.

Arguments

list can contain any of the following, in any combination: numbers, numeric formulas, and range addresses or range names that contain numbers or formulas. Separate elements of *list* with argument separators.

Uses

Standard deviation measures the degree to which individual values in a list vary from the mean (average) of all values in the list. The lower the standard deviation, the less individual values vary from the mean, and the more reliable the mean. A standard deviation of 0 indicates that all values in the list are equal.

Use @STDS to determine the standard deviation within any group that is only a sample of the entire population (for example, a customer survey, a sample of usability test results, or a random sampling of salary distributions).

Notes

@STDS uses the n-1, or sample, method to calculate standard deviation of sample population data. The n-1 method makes the standard deviation slightly larger than the n method to compensate for errors in the sample. A larger standard deviation is unbiased by sampling errors, and is thus more accurate. See **Chapter 4** of the *User's Guide* for the formula the n-1 method uses.

The sample standard deviation is the square root of the sample variance (@VARS).

Examples

@STDS

Similar @Functions

@DSTDS calculates the sample standard deviation of the values in a field of a database table. @STD calculates the population standard deviation of the values in a list. @VARS calculates the sample variance of the values in a list.

See also:

@Function Basics
Guidelines for Using Statistical @Functions

Example: @STDS

This table lists house sales in three towns in April and May. The sale prices of the houses are listed in a range named ALL_SOLD (D2..D11).

@STDS(ALL_SOLD) returns $195,717, the sample standard deviation of the sale prices of the houses in the list.

```
A ---- A --------------------- B -------------------------------- C ----
1    ADDRESS      CITY                              SOLD
2    467 Brattle    Cambridge        $720,000
3    183 Hillside   Arlington        $318,000
4    64 N. Gate     Belmont          $332,000
5    80 Mt. Auburn  Cambridge        $278,000
6    14 Charles     Cambridge        $160,000
7    1160 Memorial  Cambridge        $227,000
8    130 Crescent   Arlington        $397,000
9    12 Trenton     Arlington        $303,000
10 36 Barnes        Cambridge        $669,000
11 234 Third        Cambridge        $140,000
```

@STRING

@STRING(*x,n*) converts the <u>value</u> *x* to a <u>label</u> with *n* decimal places.

Arguments

x is a value, or the address or name of a cell that contains a value.

n is an integer, or the address or name of a cell that contains an integer, from 0 through 15.

Uses

@STRING is useful when you need to use a value as text, such as in a <u>text formula</u> to form a complex label. For example, if cell B3 contains the value 78 and cell B4 contains the label Lincoln Avenue, the formula @STRING(B3,0)&" "&B4 produces the label 78 Lincoln Avenue.

Notes

@STRING ignores any formatting characters 1-2-3 uses to display the value *x*. This includes all currency and other numeric formatting symbols, whether you enter them or 1-2-3 creates them after you select a format from <u>Range Format</u> or <u>Worksheet Global Settings Format</u>. For example, if cell A7 contains the formatted value $45.23, @STRING(A7,2) returns the label 45.23.

Examples

@STRING(203,3) = the label 203.000.

@STRING(1.23587,0) = the label 1.

@STRING(20%,1) = the label 0.2.

Similar @Functions

<u>@VALUE</u> converts a number entered as text to its corresponding value.

See also:

<u>@Function Basics</u>
<u>Guidelines for Using String @Functions</u>

@SUM

@SUM(*list*) adds the values in *list* .

Arguments

list can contain any of the following, in any combination: numbers, numeric formulas, and range addresses or range names that contain numbers or formulas. Separate elements of *list* with <u>argument separators</u>.

Uses

Use @SUM to find the total value of a series of values, such as total sales or gross budget projections. @SUM eases the time-consuming task of adding the values in individual ranges: @SUM(B1..B5) is equivalent to the formula +B1+B2+B3+B4+B5.

Examples

@SUM(B5..B9) returns the sum of the values in B5..B9.

@SUM(SALES,M25..R25) returns the sum of the values in the range SALES and the range M25..R25.

Similar @Functions

<u>@DSUM</u> calculates the sum of values that meet criteria you specify.

See also:

<u>@Function Basics</u>
<u>Guidelines for Using Statistical @Functions</u>

@SUMPRODUCT

@SUMPRODUCT(*list*) multiplies the values in corresponding cells in multiple ranges and then sums the products.

Arguments

list can be any combination of ranges that contain values and are the same size and shape. If the ranges in *list* are not the same size and shape, @SUMPRODUCT returns ERR.

Uses

Use @SUMPRODUCT when you are more interested in the sum of a series of multiplication formulas than you are in the results of individual formulas. @SUMPRODUCT eases the time-consuming task of multiplying the values in ranges, as long as the ranges are parallel. For example, @SUMPRODUCT(B1..B15,E1..E15,F1..F15) does the same work as setting up 15 formulas with 3 values each (+B1*E1*F1,+B2*E2*F2,+B3*E3*F3, and so on) and then adding the results to find the total.

Notes

If the ranges in *list* are columns, @SUMPRODUCT multiplies by rows. If the ranges in *list* are rows, @SUMPRODUCT multiplies by columns. If each range in *list* spans more than one column, @SUMPRODUCT multiplies by rows.

Examples

This example, taken from a real estate database table, uses @SUMPRODUCT to calculate the total commissions due to agents on house sales in February 1990.

list contains two ranges: SOLD (D4..D6) contains the prices paid for three houses, and COMM (E4..E6) contains the agent's commission percentage of the sale price:

```
SOLD          COMM
$25,000       0.04
$34,580       0.05
$77,325       0.04
```

@SUMPRODUCT(SOLD,COMM) = $5,822, the total commissions ($1,000 + $1,729 + $3,093) due to agents on the sale of three houses.

See also:

    @Function Basics
    Guidelines for Using Statistical @Functions

@SYD

@SYD(*cost,salvage,life,period*) calculates the sum-of-the-years'-digits depreciation allowance of an asset with an initial value of *cost*, an expected useful *life*, and a final value of *salvage*, for a specified *period*.

Arguments

cost is the amount paid for the asset. *cost* can be any value.

salvage is the value of the asset at the end of its life. *salvage* can be any value.

life is the number of periods the asset takes to depreciate to its salvage value. *life* can be any value greater than or equal to 1.

period is the time for which you want to find the depreciation allowance. *period* can be any value greater than or equal to 1.

Uses

The sum-of-the-years'-digits method accelerates the rate of depreciation so that more depreciation expense occurs in earlier periods than in later ones (although not so much as when you use the double-declining balance method). The depreciable cost is the actual cost minus the salvage value.

Use @SYD when you need a higher depreciation expense early in the life of an asset, such as in preparing tax returns.

Notes

See **Chapter 4** of the *User's Guide* for the formula @SYD uses to calculate depreciation using the sum-of-the-years'-digits method.

Examples

You have an office machine that cost $10,000. The useful life of the machine is 10 years, and the salvage value in 10 years will be $1,200. You want to calculate depreciation expense for the fifth year, using the sum-of-the-years'-digits method. @SYD(10000,1200,10,5) returns $960, the depreciation allowance for the fifth year.

Similar @Functions

@DDB calculates depreciation using the double-declining balance method. @VDB uses the variable-rate declining balance method, and @SLN uses the straight-line method.

See also:

@Function Basics
Guidelines for Using Financial @Functions

@TAN

@TAN(*z*) calculates the tangent of angle *z*. The tangent is the ratio of the side opposite an acute angle of a right triangle to the side adjacent the same acute angle:

tan(angle) = side opposite/side adjacent.

Arguments

z is an angle measured in radians.

Uses

Use @TAN, instead of a tangent table, to calculate the tangent of an angle. Use @TAN to find the cotangent, or reciprocal of @TAN, with the following formula: 1/@TAN(*z*).

Notes

To convert from degrees to radians, multiply degrees by @PI/180.

Examples

@TAN(35*@PI/180) = 0.700208.

Similar @Functions

@ATAN calculates the arc tangent using the tangent of an angle.

See also:

@Function Basics
Guidelines for Using Mathematical @Functions

@TERM

@TERM(*payments,interest,future-value*) calculates the number of equal *payments* required for an investment to accumulate a *future-value* at periodic *interest* rate.

Arguments

payments is the value of the equal investments. *payments* can be any value except 0.

interest is the periodic interest rate. *interest* can be any value greater than -1.

future-value is the amount you want to accumulate. *future-value* can be any value.

Uses

Use @TERM when you need to calculate the number of equal deposits, payments, or additions required to attain a specific amount at a given interest rate.

Notes

See **Chapter 4** of the *User's Guide* for the formula @TERM uses to calculate the payment term.

@TERM assumes you are using an ordinary annuity: payments are made at the end of each period. If you made payments at the beginning of each year, you would calculate the amount for an annuity due. To calculate the number of payment periods in an annuity due, use the formula @TERM(*payment,interest,future-value*/(1+*interest*)).

For example, @TERM(2000,0.075,100000/(1+0.075)) = 20.8, the number of years it would take to accumulate $100,000 if you made deposits of $2,000 at the beginning of each year.

You can calculate the term necessary to pay back a loan by using @TERM with a negative *future-value*. For example, you want to know how long it will take to pay back a $10,000 loan at 10% yearly interest, making payments of $1,174 per year. @ABS(@TERM(1174.6,0.1,-10000)) calculates 20 years to pay back the loan.

Examples

You deposit $2,000 at the end of each year into a savings account. Your account earns 7.5% a year, compounded annually. You want to determine how long it will take to accumulate $100,000:

@TERM(2000,0.075,100000) = 21.5, the number of years it will take to accumulate $100,000 in your account.

Similar @Functions

@CTERM calculates the number of compounding periods for a single-deposit investment.

See also:

   @Function Basics
   Guidelines for Using Financial @Functions

@TIME

@TIME(*hour,minutes,seconds*) calculates the time number for the specified *hour*, *minutes*, and *seconds*.

Arguments

hour is an integer from 0 (midnight) through 23 (11:00 PM).

minutes is an integer from 0 through 59.

seconds is an integer from 0 through 59.

Uses

Use @TIME to enter time numbers so that 1-2-3 can perform time arithmetic. Time arithmetic is useful when you need to determine the differences between times, for example, when you need to keep track of elapsed times for billing or in test runs. @TIME is also useful in calendar worksheets.

Notes

Range Format and Worksheet Global Settings Format make the time number appear as the time it represents.

Examples

The formula @TIME(13,0,0)-@TIME(9,15,0)*95*24 calculates the amount due to a consultant on a given day by subtracting the start time from the stop time and multiplying the result by an hourly rate of $95.00.

Similar @Functions

@TIMEVALUE converts labels to time numbers.

See also:

@TIMEVALUE

@TIMEVALUE(*string*) calculates the <u>time number</u> for the time specified in *string*.

Arguments

string can be text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or a formula that results in a label. *string* must be in one of the four 1-2-3 <u>time formats</u>.

Uses

The uses of @TIMEVALUE are the same as those for @TIME, but @TIMEVALUE makes entering arguments simpler.

@TIMEVALUE is useful when you need to convert times entered as labels into time numbers for use in calculations. @TIMEVALUE is especially useful with data that has been imported from another program, such as a word processing program.

Notes

<u>Range Format</u> and <u>Worksheet Global Settings Format</u> make the time number appear as the time it represents.

Examples

@TIMEVALUE("08:19:27 AM") returns 0.34684.

@TIMEVALUE("08:19:27 AM") returns 0.34684 as 08:19:27 AM, if the cell is formatted as HH:MM:SS AM/PM.

Similar @Functions

<u>@TIME</u> calculates the time number when you specify the hour, minutes, and seconds.

See also:

<u>@Function Basics</u>
<u>Guidelines for Using Date and Time @Functions</u>

@TODAY

@TODAY calculates the <u>date number</u> that corresponds to the current date on your computer.

Uses

Use @TODAY in place of @NOW when you need only the current date and not both the current date and time, for example, when you need to calculate the days between two events.

Notes

Format the value of @TODAY in any Date format. 1-2-3 recalculates @TODAY each time you recalculate your work. If you use Tools User Setup Recalculation Automatic, 1-2-3 recalculates @TODAY whenever it recalculates another value.

Examples

@TODAY = 31048 on January 01, 1985.

@TODAY = 33418 on June 29, 1991.

See also:

> <u>@Function Basics</u>
> <u>Guidelines for Using Date and Time @Functions</u>
> <u>Range Format</u>

@TRIM

@TRIM(*string*) removes leading, trailing, and consecutive space characters from *string*.

Arguments

string can be text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or a formula that results in a label.

Uses

Use @TRIM when entries contain unnecessary spaces, such as labels positioned by adding spaces in cells, or labels imported from another program.

@TRIM is also useful to control spaces entered with data or to combine pieces of text that have unknown spacing. @TRIM ensures that database entries do not contain unnecessary spaces that would affect <u>sort</u> order when you use <u>Data Sort</u>.

Examples

@TRIM(" 45   3/8") = 45 3/8, removing the leading space before 45 and one of the two spaces between 45 and 3/8.

@TRIM(" 500   South   St.") = 500 South St., removing the leading space before 500, two of the three spaces between 500 and South, and one of the two spaces between South and St.

See also:

<u>@Function Basics</u>
<u>Guidelines for Using String @Functions</u>

@TRUE

@TRUE returns the logical value 1 (true).

Uses

Use @TRUE with macros or @functions such as @IF and @CHOOSE that require a logical value of 1 (true).

Notes

If a logical statement such as A1=B1 is true, its logical value is 1. If it is false, its logical value is 0.

Using @TRUE is the same as using the value 1 in formulas that evaluate logical conditions, but @TRUE makes the formula easier to understand.

Examples

@IF(A6>500,@TRUE,@FALSE) = 1 when cell A6 contains a value greater than 500.

Similar @Functions

@FALSE returns the logical value 0.

See also:

   @Function Basics
   Guidelines for Using Logical @Functions

@UPPER

@UPPER(*string*) converts all the letters in *string* to uppercase.

Arguments

string can be text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or a formula that results in a label.

Uses

@UPPER is useful when you combine labels from several sources and want capitalization to be consistent throughout the worksheet file. Use @UPPER when you want to ensure that labels are consistently uppercase, for example, before sorting a parts list.

Notes

Capitalization affects the <u>sort</u> order of labels when you use <u>Data Sort</u>. Two otherwise identical labels may not appear together if their capitalization is different.

Examples

@UPPER("Account Number") = ACCOUNT NUMBER.

@UPPER(B2) = WARNING, if B2 contains the label warning.

Similar @Functions

<u>@LOWER</u> converts all letters in *string* to lowercase. <u>@PROPER</u> capitalizes only the first letter of each word in *string*.

See also:

<u>@Function Basics</u>
<u>Guidelines for Using String @Functions</u>

@VALUE

@VALUE(*string*) converts a number entered as a *string* to its corresponding value.

Arguments

string can be text in " " (quotation marks) or a label that contains only numbers. *string* can resemble a standard number (456.7), a number in scientific format (4.567E2), a mixed number (45 7/8), or a formatted number ($45.67).

Uses

Use @VALUE to convert text that consists of numbers into values you can use in mathematical calculations. @VALUE is useful when you need to convert entries retrieved from another source into values.

Notes

@VALUE ignores leading and trailing spaces; however, @VALUE returns ERR when *string* contains spaces that separate symbols from the numbers (such as $ 32.85 or £ 56.20).

@VALUE results in 0 when *string* is a blank cell or empty string, and returns ERR when *string* contains non-numeric characters.

Use Edit Quick Copy to replace @VALUE with its value.

You cannot calculate within a *string* argument in @VALUE, but you can create a formula with several @VALUE functions. For example, @VALUE("22"+"20") = 0, but @VALUE("22")+@VALUE("20") = 42.

Examples

@VALUE("543") = the value 543.

@VALUE(B3) = the value 49.75, if cell B3 contains the label 49 3/4.

@VALUE("85%") = the value .85.

Similar @Functions

@STRING converts a value to a label.

See also:

   @Function Basics
   Guidelines for Using String @Functions

@VAR

@VAR(*list*) calculates the population variance in a *list* of values.

Arguments

list can contain any of the following, in any combination: numbers, numeric formulas, and range addresses or range names that contain numbers or formulas. Separate elements of *list* with underline argument separators.

Uses

Variance measures the degree to which individual values in a list vary from the mean (average) of all the values in the list. The lower the variance, the less individual values vary from the mean, and the more reliable the mean. A variance of 0 indicates that all values in the list are equal.

Use @VAR to calculate the variance from the mean of a list of values when *list* contains all values for the group, as in an employee database or a set of test scores. Variance is necessary in several ANOVA (analysis of variance) statistical tests.

Notes

@VAR uses the n, or population, method to calculate variance. The n method assumes the selected values are the entire population. If the values are only a sample of the population, the variance is biased because of errors introduced in taking a sample. See **Chapter 4** of the *User's Guide* for the formula the n method uses.

Examples

@VAR

Similar @Functions

@VARS uses the n-1 (sample) method to calculate an unbiased variance for a sample. @DVAR calculates the population variance of values that meet criteria you specify.

See also:

@Function Basics
Guidelines for Using Statistical @Functions

Example: @VAR

This table lists house sales for the years 1982 through 1986. (To save space, rows 4 through 37 in the worksheet are hidden.) The ages of the houses (in years) are listed in a range named AGE_LIST (C2..C42).

@VAR(AGE_LIST) returns 334.49, the variance in the age of the houses in the list.

A ---- A	B ----------	C	D ---
1 ADDRESS		LOT	AGE	COST
2 12 Bartholomew Sq	0.25	48	$290,000	
3 40 Prospect St	0.40	22	$105,000	
38 103 Cranberry La	0.50	21	$135,000	
39 27 Kilburn St	1.00	70	$128,000	
40 468 Henshaw St	0.50	52	$174,000	
41 9 Pleasant St	0.25	42	$195,000	
42 80 Beach St	0.25	23	$118,000	

@VARS

@VARS(*list*) calculates the sample population variance in a *list* of values.

Arguments

list can contain any of the following, in any combination: numbers, numeric formulas, and range addresses or range names that contain numbers or formulas. Separate elements of *list* with underlined argument separators.

Uses

Variance measures the degree to which individual values in a list vary from the mean (average) of all the values in the list. The lower the variance, the less individual values vary from the mean, and the more reliable the mean. A variance of 0 indicates that all values in the list are equal.

@VARS replaces the calculation required to produce a sample variance in releases of 1-2-3 earlier than Release 3:

@COUNT(*list*)/@COUNT(*list*)-1)*@VAR(*list*)

Use @VARS to calculate the variance of a list of values when *list* is only a sample, not the entire population of values, such as a sample of employee salaries or a sample of test scores.

Use @VARS (instead of @VAR) when the population is small, for more accurate results. @VARS is useful when the entire population is too large to work with, and a sample becomes necessary. @VARS is useful when you need to carry out ANOVA (analysis of variance) statistical tests, but the population is large or a sample is all that is available or feasible.

Notes

@VARS uses the n-1, or sample, method to calculate variance. The n-1 method produces a variance that is slightly larger than the n method to compensate for errors in the sample. A larger variance is unbiased by sampling errors, and is thus more accurate. See **Chapter 4** of the *User's Guide* for the formula the n-1 method uses.

Examples

@VARS

Similar @Functions

@VAR uses the n, or population, method to calculate the variance for an entire population of data. @DVARS calculates the sample variance of values that meet criteria you specify.

See also:

@Function Basics
Guidelines for Using Statistical @Functions

Example: @VARS

This table lists house sales in three towns in April and May. The sale prices of the houses are listed in a range named ALL_SOLD (D2..D11).

@VARS(ALL_SOLD) returns 3.83E+10, the sample variance in the sale prices of the houses in the list.

```
A ---- A -------------------- B -------------------------------- C ----
1    ADDRESS      CITY                           SOLD
2    467 Brattle   Cambridge      $720,000
3    183 Hillside  Arlington      $318,000
4    64 N. Gate    Belmont        $332,000
5    80 Mt. Auburn Cambridge      $278,000
6    14 Charles    Cambridge      $160,000
7    1160 Memorial Cambridge      $227,000
8    130 Crescent  Arlington      $397,000
9    12 Trenton    Arlington      $303,000
10 36 Barnes       Cambridge      $669,000
11 234 Third       Cambridge      $140,000
```

@VDB

@VDB(*cost,salvage,life,start-period,end-period,[depreciation-factor],[switch]*) calculates the depreciation allowance of an asset with an initial value of *cost*, an expected useful *life*, and a final value of *salvage* for a period specified by *start-period* and *end-period*, using the variable-rate declining balance method.

Arguments

cost is the amount paid for the asset. *cost* can be any value greater than *salvage*.

salvage is the value of the asset at the end of its life. *salvage* can be any value.

life is the number of periods the asset takes to depreciate to its salvage value. *life* can be any value greater than 0.

start-period is the point in the asset's life when you want to begin calculating depreciation. *start-period* can be any value greater than or equal to 0, but cannot be greater than *life*.

end-period is the point in the asset's life when you want to stop calculating depreciation. *end-period* can be any value greater than *start-period*.

start-period and *end-period* correspond to the asset's life, relative to the fiscal period. For example, if you want to find the first year's depreciation of an asset purchased at the beginning of the second quarter of a fiscal year, *start-period* would be 0 and *end-period* would be 0.75 (1 minus 1/4 of a year). You can use @VDB for multiple-period depreciation calculations.

@VDB allows for the use of an initial-period option to calculate depreciation for the period the asset is placed in service. @VDB uses the fractional part of *start-period* and *end-period* to determine the initial-period option. If both *start-period* and *end-period* have fractional parts, then @VDB uses the fractional part of *start-period*.

depreciation-factor is an optional argument that specifies the percentage of straight-line depreciation you want to use as the depreciation rate. If you omit this argument, 1-2-3 uses 200%, which is the double-declining balance rate. *depreciation-factor* can be any value greater than or equal to 0; commonly used rates are 1.25, 1.50, 1.75, and 2.

switch is an optional argument that you include if you do not want @VDB to switch to straight-line depreciation for the remaining useful life. Normally, declining-balance switches to such a straight-line calculation when it is greater than the declining-balance calculation.

switch can be either 0 or 1. If *switch* is 0 (the default), @VDB automatically switches to straight-line depreciation when that is greater than declining-balance depreciation. If *switch* is 1, @VDB never switches to straight-line depreciation.

Uses

Use @VDB when you need to choose the rate of declining balance.

Notes

See **Chapter 4** of the *User's Guide* for the formulas @VDB uses to calculate double-declining balance depreciation and straight-line depreciation.

The variable-rate declining balance method maintains a steady rate of depreciation until the salvage value of an asset drops to less than the value of the following equation:

(book value*((1-(rate/life))life))

where book value = cost - salvage - prior depreciation.

At this point, 1-2-3 switches to straight-line depreciation for the balance of the life of the asset so that there is no excess salvage value. By switching to straight-line depreciation, 1-2-3 adjusts the result of @VDB when necessary to ensure that total depreciation taken over the life of the asset equals the asset's cost minus its salvage value.

Examples

This example calculates depreciation for an office machine, purchased in the middle of the first quarter of the fiscal year, that cost $10,000. The useful life of the machine is 10 years, and the salvage value after 10 years is $600. The following formulas calculate the depreciation expense for each of the 10 years, using the variable-rate declining balance method, with a depreciation rate of 150%. Notice that the switch to straight-line depreciation occurs in the sixth year.

@VDB(10000,600,10,0,0.875,1.5)   = $1,312.50

@VDB(10000,600,10,0.875,1.875,1.5) = $1,303.13

@VDB(10000,600,10,1.875,2.875,1.5) = $1,107.66

@VDB(10000,600,10,2.875,3.875,1.5) = $ 941.51

@VDB(10000,600,10,3.875,4.875,1.5) = $ 800.28

@VDB(10000,600,10,4.875,5.875,1.5) = $ 767.79

@VDB(10000,600,10,5.875,6.875,1.5) = $ 767.79

@VDB(10000,600,10,6.875,7.875,1.5) = $ 767.79

@VDB(10000,600,10,7.875,8.875,1.5) = $ 767.79

@VDB(10000,600,10,8.875,9.875,1.5) = $ 767.79

@VDB(10000,600,10,9.875,10,1.5)   = $ 95.97

                                                        $9,400.00   Total depreciation (*cost* minus *salvage*)

Similar @Functions

@DDB calculates depreciation using the double-declining balance method. @SLN uses the straight-line method, and @SYD uses the sum-of-the-years'-digits method.

See also:

@Function Basics
Guidelines for Using Financial @Functions

@VLOOKUP

@VLOOKUP(*x,range,column-offset*) finds the contents of the cell in a specified column of a vertical lookup table.

Arguments

x can be either a value or a string.

If the first column of the vertical lookup table contains values, *x* can be any value greater than or equal to the first value in *range*. If *x* is smaller than the first value in *range*, @VLOOKUP returns ERR. If *x* is larger than the last value in the first column of *range,* @VLOOKUP stops at the last cell in the column specified by *column-offset* and returns the contents of that cell as the answer.

If the first column of the vertical lookup table contains labels, *x* can be text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or a formula that results in a label. If *x* does not exactly match the contents of a cell in the first column of *range*, @VLOOKUP returns ERR.

range represents the location of the vertical lookup table. *range* can be any range address or range name. If *range* is a 3-D range, 1-2-3 uses only the first worksheet in *range*.

column-offset represents an offset number corresponding to the position the column occupies in *range*.

Uses

Use @VLOOKUP when you need to choose items from a table, or to automate data selection for formulas or macros, such as in an application that supplies prices from a price list.

@VLOOKUP is useful for finding entries in tables, such as tax tables or sales commission tables, that contain many different choices based on different variables.

Notes

@VLOOKUP compares *x* to each cell in the first column of the table. When 1-2-3 locates a cell in the first column that contains *x* (or, if *x* is a value, the value closest to , but not larger than, *x*), it moves across that row the number of columns specified by *column-offset* and returns the contents of that cell as the answer.

Examples

@VLOOKUP

Similar @Functions

@HLOOKUP finds the contents of a cell in a horizontal lookup table. @INDEX finds the contents of a cell when you specify offset numbers for both the column and row. @CHOOSE replaces a lookup table that requires only one row.

See also:

@Function Basics

Example: @VLOOKUP

A vertical lookup table named TAXTABLE (A3..E11) lists tax amounts based on income and filing status.

@VLOOKUP(35329,TAXTABLE,1), entered in a cell formatted as Currency with no decimal places, returns $9,351, the tax amount for the income figure that is closest to, but not greater than, $35,329.

A -------- A -------------------	B ------------	C ------------	D ------------	E -
1	------- F I L I N G	S T A T U S -------		
2 Income >=	1	2	3	4
3 $35,000	$9,219 $7,265	$11,315 $8,531		
4 $35,050	$9,241 $7,282	$11,340 $8,552		
5 $35,100	$9,263 $7,299	$11,363 $8,573		
6 $35,150	$9,285 $7,313	$11,386 $8,594		
7 $35,200	$9,307 $7,330	$11,411 $8,615		
8 $35,250	$9,329 $7,347	$11,436 $8,636		
9 $35,300	$9,351 $7,361	$11,459 $8,657		
10 $35,350	$9,373 $7,377	$11,483 $8,678		
11 $35,400	$9,395 $7,393	$11,507 $8,699		

@YEAR

@YEAR(*date-number*) extracts the year, an integer from 0 (1900) through 199 (2099), from a date number.

Arguments

date-number is an integer, or the address or name of a cell that contains an integer, from 1 (January 1, 1900) through 73050 (December 31, 2099).

Uses

Use @YEAR when you need only the year, rather than the entire date, for example, to determine whether an item was purchased in or before a particular year for warranty restrictions of bond maturity, or to calculate seniority or length of tenure for benefits.

@YEAR can also supply the *year* argument for other date @functions that build on previously calculated dates.

Notes

Add 1900 to @YEAR to convert it into a four-digit year. For example, @YEAR(20181)+1900 creates the four-digit year 1955.

Examples

@YEAR(20181) = 55, because the date number 20181 is the date 02-Apr-55.

@YEAR(@NOW) = the current year.

@YEAR(@DATEVALUE("14-Feb-91")) = 91.

Similar @Functions

@DAY extracts the day of the month (1 to 31), and @MONTH extracts the month (1 to 12), from a date number.

See also:

@Function Basics
Guidelines for Using Date and Time @Functions

Macro Basics

A macro is a series of instructions that speeds up repetitive or complex tasks:

*	Macros can automate procedures you normally perform from the keyboard, such as using commands.

*	Macros can perform complex tasks and programming procedures, such as <u>loops</u> and <u>if-then-else</u> statements.

*	Macros can guide users who are unfamiliar with 1-2-3 through tasks and applications that you create and control.

Macros can consist of keystrokes, macro commands, or both. You can use macros from any open worksheet file or an open macro library file.

<u>Macro Command Categories</u>
Lists the categories of macro commands.

<u>Macro Command Format</u>
Illustrates the format for writing macro commands and defines the types of arguments you can use in macro commands.

<u>Macro Command Index</u>
Lists all macro commands in alphabetical order.

<u>Macro Command Rules</u>
Lists rules for writing macro commands.

<u>Macro Key Names</u>
Lists the macro <u>keywords</u> that correspond to the standard keyboard keys and the 1-2-3 function keys.

<u>Sample Macros</u>
Presents several short, general-purpose macros.

<u>Summary of Steps for Creating a Macro</u>
Provides an overview of the steps for creating and saving a macro.

<u>Special Keystroke Instructions</u>
Describes the ENTER and {CLEARENTRY} keystroke instructions.

<u>Using the Transcript Window</u>Describes how to use the <u>Transcript window</u> to create macros.

Summary of Steps for Creating a Macro

The following list is an overview of the steps for creating and saving a macro.

Planning a Macro
You can save time and trouble by planning what you want a macro to do, and knowing all the steps needed to accomplish that task.

Choosing a Macro Location
You enter a macro in a column in a worksheet. If you use a macro with only one file, it is simplest to enter the macro in that file. If you use a macro with several files, you might enter the macro in a macro library.

Writing a Macro
You can enter recorded macro instructions or enter them from scratch.

Naming a Macro
You name a macro by naming the range that contains the macro.

Documenting a Macro
You document a macro so that you and others can remember the macro name and what the macro does.

Running a Macro
You start the macro so it carries out the task it automates.

Debugging a Macro
If the macro does not do what you expect when you run it, or if 1-2-3 does not finish running it because of an error, you need to debug the macro.

Saving a macro
You save a macro by saving the file that contains the macro.

See also:

Macro Basics

Sample Macros

Planning a Macro

To create a macro, you must first identify the steps of the 1-2-3 task you are automating.

In some cases, identifying the steps means performing the task once manually, noting each key that you press. In other cases, mapping out the procedure with a flow chart may help you work out the steps of a task.

See also:

Macro Basics
Using the Transcript Window

Choosing a Macro Location

You can enter a macro in a worksheet file with other data or in a macro library.

Storing Macros in a Worksheet File with Data

If a macro acts upon only a single worksheet file, the simplest approach is to enter the macro in that file. When you enter macros in a file that contains data, follow these guidelines:

*   Enter macros in a separate worksheet rather than in worksheets that contain data. This keeps you from writing over data when you enter the macros or damaging the macros when you insert or delete rows and columns in the data area. To create another worksheet in a file, use Worksheet Insert.

    Note Before you enter macros in a separate worksheet of a data file, you may want to turn GROUP mode off for the current file. This keeps you from damaging the macros when you insert or delete rows and columns in other worksheets in the file.

    To further protect the macros you enter in a separate worksheet, turn global protection on for that worksheet with Worksheet Global Settings Protection.

*   If you do enter macros in the same worksheet as data, enter the macros below and to the right of the data.

Storing Macros in a Macro Library

If a macro acts upon several files, you may want to enter it in a macro library. A macro library is a file that contains only macros. To use macros in a macro library with data in other files, you must have the macro library file open along with the other files.

To Run Macros in a Macro Library

1. Use File Open to open the worksheet file(s) you want to work with.

2. Use File Open to open the macro library file.

3. To run one of the macros in the library, move the cell pointer to the appropriate location in the file that you want the macro to affect.

4. Choose Tools Macro Run.

5. Select the name of the macro library file from the list box to see the range names from the library file. Then select the macro name from the list.

6. Select OK.

Using a Macro Library

*   In macros in a macro library, cell addresses and range names not preceded by a file reference refer to the current file (the file the macro is acting on), unless they specify a branch or subroutine location, in which case they refer to the macro library file. For example, suppose the following macro is in a macro library:

    {EDIT-COPY TOTALS}

    {BRANCH NEXT_TASK}

    If you run the macro in file SALES, 1-2-3 looks for TOTALS in file SALES and NEXT_TASK in the macro library file.

*   If you use a macro library with a specific worksheet file, create in that file an autoexecute macro that selects File Open and specifies the macro library as the file to open. For example, to open a macro library named MACROS.WK3 (stored in directory 123W on drive C) whenever you open a file named SALES.WK3, create the following autoexecute macro in file SALES.WK3:

    {ALT}fo{CE}c:\123w\macros.wk3~

* To have 1-2-3 open a macro library file automatically whenever you start the program, name the file AUTO123.WK3 and save the file in the <u>default directory</u>.

See also:

<u>Macro Basics</u>
<u>Naming a Macro</u>

Writing a Macro

A macro must include instructions for every step of the task or procedure it automates. After planning a macro and choosing its location, you must write the macro instructions.   A macro can consist of underlined keystroke instructions and macro commands.

Organizing Macro Instructions

*   Enter the macro instructions in consecutive cells in a column. 1-2-3 reads a macro by starting at the first cell and moving down the column until it reaches a blank cell, a cell that contains a numeric value, or the macro command {QUIT}.

*   Enter macro instructions as labels. You can either create the entire set of macro instructions (up to a total of 512 characters) as one label or divide the instructions among a series of labels.

    To make the macro easier to read and debug, divide the macro instructions among a series of labels.

*   Type a label-prefix character ('   "   or ^) if the first keystroke is a number, numeric character, \ (backslash), / (slash), : (colon), or < (less than) symbol. Then type the keystrokes.

Using Macro Commands

*   Enter macro commands and macro key names surrounded by { } (braces). The format for a macro command is {KEYWORD} or {KEYWORD arg1,arg2,...,argn}.

*   Begin and end any instruction in { } (braces), such as {DOWN}, in the same cell. Splitting such an instruction between two or more cells results in an error.

*   You can type any instruction in braces, such as {DOWN}, in uppercase or lowercase letters.

*   When entering instructions in { } (braces), such as {PGUP} and {DOWN}, specify two or more repetitions of the same instruction with a number following the key name within the braces. For example, {DOWN 5} tells 1-2-3 to move the cell pointer down one cell five times. Separate the number from the key name with a space.

    Or, instead of a number, include a cell reference after the key name. For example, {DOWN SOME} moves the cell pointer down the number of rows specified by the value in cell SOME.

*   You can use { } (open and close braces with nothing inside them) as placeholders in a macro. 1-2-3 ignores empty braces when executing a macro.

To Enter Macro Commands Using F3 (NAME)

1. Type { (open brace).
2. Press F3 (NAME).

    1-2-3 displays a list of the macro commands.

3. Select the macro command you want.
4. Double-click or press ENTER.

    1-2-3 inserts the macro command name into the edit line.

5. Enter the arguments and the } (close brace).
6. Click the Confirm button or press ENTER.

Specifying Locations in a Macro

*   When specifying a cell or range in a macro, use a file reference unless the cell or range is in the file that will be current when you run the macro.

*   Although you can use cell addresses when specifying worksheet locations in a macro, Lotus recommends that you use range names. If you move a range (for example, if you insert some rows

above the range), a macro that refers to the range by name will continue to work correctly, but a macro that refers to the range by address will no longer work correctly.

Selecting Menu Commands and Dialog Box Options

* To choose a command from a menu, use {ALT}*x,* where *x* is the underlined letter of the command. For example, to choose File Save As, use {ALT}FA.

* To select an <u>option button</u>, <u>command button</u>, <u>check box</u>, <u>list box</u>, <u>drop-down box</u>, or <u>text box</u>, use {ALT "x"}, where *x* is the underlined letter of the option button or check box. For example, to select the Password protect check box in the File Save As dialog box, use {ALT "P"}.

* Once you select a list box or drop-down box, you can move to an item in the list with the first letter or number of the item. If there is more than one item with the same first letter, 1-2-3 moves to the first item that begins with that letter.

You can also move through the list with {DOWN} or {RIGHT} (to move from top to bottom), and {UP} or {LEFT} (to move from bottom to top). For example, {DOWN 4} moves down four items in a list.

Use {HOME} to select the first item in a list and use {END} to select the last item in a list.

* When you finish making selections in a dialog box, use ~ (tilde) to complete the command. Using ~ (tilde) is equivalent to selecting OK.

Note If your current location is a command button other than OK, use {TAB} to move to OK and then use ~ (tilde) to complete the command. For example, in the Style Font Replace dialog box, if your current location is the Save button, use {TAB 2}~ to move to OK and complete the command.

See also:

<u>Macro Basics</u>

<u>Macro Command Format</u>

<u>Macro Command Rules</u>

<u>Macro Key Names</u>

<u>Sample Macros</u>

Naming a Macro

After you enter a macro, name the first cell of the macro with <u>Range Name Create</u> or <u>Range Name Label Create</u>. Macro names follow all the rules for <u>range names</u>.

1-2-3 accepts two kinds of macro names:

*   Backslash names consist of a \ (backslash) followed by a single keyboard character, such as \D. When you use a backslash name, you can use CTRL to run the macro. For example, to run the macro named \D, press CTRL+d.

*   Multiple-character names are ordinary <u>range names</u>. This type of name lets you use a name that reminds you of what the macro does and makes it easy to avoid duplicating names. When you use a multiple-character name, you must use ALT+F3 (RUN) to run the macro.

Using \ (Backslash) in Macro Names

*   If you store macros in a worksheet file that contains other named ranges, start all the macro range names in the file, including multiple-character range names, with \ (backslash). This lets you quickly distinguish your macro range names from the other range names in the file when 1-2-3 displays them all together in list boxes, for example, when you select Tools Macro Run.

*   For any macro with a backslash-letter name, you can run the macro with CTRL when 1-2-3 prompts you for information during a command. For example, suppose the macro

    ABSOLUTE ENTERPRISES, INC.

    is named \A. After selecting File Page Setup Header, you can run the macro, by pressing CTRL+A, to specify ABSOLUTE ENTERPRISES, INC. as the document header.

Autoexecute Macros

An autoexecute macro is a macro that 1-2-3 runs automatically when you open the worksheet file that contains it. Autoexecute macros are especially useful in custom applications and for worksheet files that you use often.

An autoexecute macro is like any other macro, except that you give it a special name: \0 (backslash zero).

For 1-2-3 to run an autoexecute macro when you open the worksheet file that contains it, you must have previously selected the Run autoexecute macros <u>check box</u> in <u>Tools User Setup</u>.

If you run a macro that uses File Open and the opened file contains an autoexecute macro, 1-2-3 runs the autoexecute macro (as a <u>subroutine</u>) if the Run autoexecute macros check box in Tools User Setup is selected. If the box is not selected, 1-2-3 continues to execute the original macro.

Naming a Branch or Subroutine Location

If you use <u>branching</u> and subroutine calls in a macro, assign range names to the branch locations and subroutines as well as to the main macro. You can use any valid range names; there is no advantage to using backslash names for branch locations and subroutines.

See also:

<u>Macro Basics</u>
<u>Running a Macro</u>

Documenting a Macro

After you enter and name a macro, document both the macro's range name and the macro instructions. Documenting a macro quickly identifies which range name belongs to the macro, clarifies the macro's purpose, and describes the steps of the macro procedure. Documentation can be extremely helpful when you or someone else needs to revise the macro.

*   Document the macro's range name by entering the name as a <u>label</u> to the left of the macro's first cell. If the name starts with a backslash, such as \N, be sure to type a <u>label-prefix character</u> before you type the name.

*   Document the macro instructions by entering comments to the right of the cell or cells containing the macro. Do not enter documentation in the same cell as macro instructions. 1-2-3 considers anything in a cell within a macro to be part of the macro and thus will try to run the documentation as part of the macro.

See also:

<u>Macro Basics</u>

<u>Sample Macros</u>

Running a Macro

You can run a macro in any mode. For example, you can use a macro to enter data in a dialog box.

Note Before you run the macro, use <u>File Save</u> to save any files that will be affected by the macro.

To Run a Macro with CTRL

If the macro's name consists of a backslash and a single letter (for example, \N), you can use CTRL to run the macro.

1. Make sure the file that contains the macro is <u>active</u>. If the file that contains the macro is not the current file, make sure no other active file contains a macro with the same range name.

2. Hold down CTRL and then press the letter that names the macro. For example, to run a macro named \N, press CTRL+n.

To Run a Macro with Tools Macro Run

If the macro's name consists of any other combination of characters (for example, NEW_SHEET), you must use Tools Macro Run to run the macro.

1. Choose Tools Macro Run.

2. Select a macro from the Macro name <u>list box</u>.

    The list box displays all range names in the current file and the names of other active files.

    If the macro is in another active file, select the name of that file to see the range names from that file. Then select the macro name from the list.

3. Select OK.

See also:

<u>Macro Basics</u>
<u>Debugging a Macro</u>

Debugging a Macro

If the macro does not do what you expect when you run it, it probably contains an incorrect instruction or sequence of instructions, or a format or typing error. You can correct obvious errors by editing the instruction just as you edit any cell entry.

If 1-2-3 cannot run a macro because instructions are wrong or incomplete, it displays an error message when the macro fails. (Press F1 (HELP) for an explanation of the message.) The error message indicates the location and the instruction that 1-2-3 was executing at the time it encountered the error.

Common Errors

* Typing or spelling errors, including incorrect spelling of <u>keywords</u> and <u>range names</u>.

* Spaces where there shouldn't be any, for example, between arguments in an <u>@function</u> or <u>macro command</u>.

* Missing steps in a command sequence.

* A <u>blank cell</u> or a cell that contains a <u>value</u> before the end of the macro.

* Missing braces, or brackets or parentheses instead of braces.

* Incorrect cell or range references, such as <u>undefined range names,</u> or references to ranges in another worksheet file that don't specify the correct file name.

* Range names that duplicate keyword names or function-key names.

Note Do not use macro keywords as names for ranges, macros, or subroutines.

STEP Mode and the Macro Trace Window

Finding an error in a lengthy or complicated macro is sometimes difficult. To help diagnose problems in a macro, use STEP mode and/or the Macro Trace window. STEP mode executes a macro one instruction at a time. The Macro Trace window shows the current macro command about to be executed. If the macro fails, the Macro Trace window shows which step failed.

You can use STEP mode and the Macro Trace window separately, but these features are most effective when used together; then you can step through a macro and see it as it executes.

To start STEP mode without opening the Macro Trace window, press ALT+F2 (STEP).

To Use STEP and the Macro Trace Window

1. Choose Tools Macro Debug.

2. Select Single step.

3. Select Trace.

4. Select OK.

   The STEP indicator appears at the bottom of the window, and 1-2-3 displays the Macro Trace window.

5. <u>Start</u> the macro.

6. Press any key to execute one instruction at a time until you encounter the instruction that caused the error.

   The SST indicator replaces the STEP indicator each time 1-2-3 executes a macro instruction in STEP mode. The Macro Trace window displays the current location and the macro instruction 1-2-3 is currently executing.

Correcting an Error

When you find the error, end the macro by pressing CTRL+BREAK and then pressing ESC or ENTER. This

does not end STEP mode or close the Macro Trace window. 1-2-3 still displays the STEP indicator and the Macro Trace window.

You do not need to turn STEP mode off or close the Macro Trace window before you edit the macro. Edit the cells that contain the macro instructions you want to change. After you edit the macro, run through it again to ensure that there are no other problems.

To turn STEP mode off, press ALT+F2 (STEP) or choose Tools Macro Debug and remove the check from Single step.

To close the Macro Trace window, choose Tools Macro Debug and remove the check from Trace.

See also:

Macro Basics
Tools Macro Debug

Saving a Macro

When the macro is running correctly, save it for future use. Use <u>File Save</u> to save the file in which you entered the macro. Then. any time the file is active, you can run the macro.

See also:

<u>Macro Basics</u>

Using the Transcript Window

The Transcript window records keystrokes you type during a 1-2-3 session. The Transcript window automates entering data and creating <u>macros</u>.

<u>About the Transcript Window</u>
Provides information about the way 1-2-3 records keystrokes.

<u>Creating a Macro with the Transcript Window</u>
Explains how to enter a macro by performing the task you want to automate and then copying the keystrokes from the Transcript window into the worksheet.

See also:

<u>Macro Basics</u>

<u>Tools Macro Show Transcript</u>

About the Transcript Window

The Transcript window records tasks you perform during a 1-2-3 session. The Transcript window automates entering data and creating <u>macros</u>.

Maximum Number of Keystrokes

The Transcript window holds up to 512 bytes. (Most characters use one byte.) Characters stored in the Transcript window include { } (braces) that 1-2-3 adds, as well as spaces you type. When the 512-byte limit is reached, 1-2-3 discards keystrokes from the beginning of the transcript (the earliest keystrokes you made since the last time you erased all the keystrokes in the Transcript window) to make room for recent keystrokes. To avoid losing keystrokes, cut and paste them into the worksheet.

Transcript Window Conventions

The Transcript window records most keystrokes in macro-instruction format. Nonprinting keystrokes are enclosed in { } (braces), for example, {DEL}. Menu choices are the underlined letter of the menu item, for example, f for <u>F</u>ile and a for Save <u>A</u>s.

The Transcript window uses 1-2-3 names for function keys, not generic names. For example, it records F9 (CALC) as {CALC}, not {F9}.

To fit the maximum number of keystrokes, the Transcript window abbreviates <u>keystroke instructions</u> with an abbreviation of the key name, for example, {D} instead of {DOWN}, and a repetition number for duplicate keystrokes, for example, {D 2} instead of {D}{D}.

Backslash Macros in the Transcript Window

When you use CTRL to start a macro named \A - \Z, the Transcript window records the action as {\A}, {\B}, and so on. It does not record the keystrokes that the macro plays back.

Excluded Keystrokes

The Transcript window does not record the following keys: ALT+BACKSPACE (UNDO); ALT+F1 (COMPOSE), but it does record composed characters; ALT+F2 (STEP); ALT+F3 (RUN); CTRL+BREAK; and INS. When you use CTRL+BREAK to leave a menu, 1-2-3 records the equivalent number of {ESC} keystrokes instead of {BREAK}.

See also:

<u>Macro Basics</u>
<u>Tools Macro Show Transcript</u>
<u>Using the Transcript Window</u>

Creating a Macro with the Transcript Window

You can create a macro by performing the task you want to automate and then copying keystrokes from the <u>Transcript window</u> into the worksheet.

Once you record the keystrokes for a task, you can have 1-2-3 repeat the keystrokes by playing them back from the Transcript without copying them to the worksheet.

To Record Keystrokes

1. Choose Tools Macro Show Transcript.
2. Select Edit Clear All to delete all keystrokes from the Transcript window.
3. Perform the task you want to record.

Note The Transcript window records mouse actions as their keystroke equivalents.

To Edit Keystrokes

1. When you finish the task, choose Tools Macro Show Transcript.
2. To correct mistakes, edit the keystrokes.

    You can also edit instructions after you copy them into the worksheet file.

To Create a Macro by Copying Keystrokes

1. Select the recorded keystrokes you want to copy using the mouse or SHIFT and the arrow keys.
2. Choose Edit Copy or press CTRL+INS to copy the selected keystrokes to the <u>Clipboard</u>.
3. Select the worksheet cell in which you want to enter the first keystroke.
4. Choose <u>Edit Paste</u>.

    1-2-3 copies keystrokes into the cells in a single column, beginning with the cell you selected.
5. Name the macro as described in <u>Naming a Macro</u>.

The keystrokes are recorded as a macro in the worksheet file.

To Play Back Keystrokes as a Macro

1. Select the cell in which you want 1-2-3 to begin the tasks recorded in the Transcript window.
2. Choose Tools Macro Show Transcript.
3. Select the recorded keystrokes you want to play back using the mouse or SHIFT and the arrow keys.
4. Choose Macro Run.

1-2-3 plays back the selected keystrokes as a macro. To stop the macro, press CTRL+BREAK. The macro stops automatically if 1-2-3 encounters an error.

See also:

<u>About the Transcript Window</u>

<u>Macro Basics</u>

<u>Tools Macro Transcript</u>

Macro Command Format

Each macro command has a specific format. Unless you follow this format exactly, 1-2-3 cannot interpret the macro command. The format for a macro command is

{KEYWORD}

or

{KEYWORD *arg1,arg2,...,argn*}

KEYWORD represents the verb in the macro command. It tells 1-2-3 which action to perform.

arg1,arg2,...,argn represent arguments. Arguments supply the information 1-2-3 needs to complete the command. For example, in the {LET} command

{LET TOTAL,@SUM(EXPENSES)}

the first argument, TOTAL, tells 1-2-3 where to enter the data (in cell TOTAL) and the second argument, @SUM(EXPENSES), tells 1-2-3 what data to enter (the result of the @SUM formula).

The arguments in a macro command can be any length, providing the total number of characters in the cell that contains the macro command does not exceed 512.

Note In Help, an italicized argument indicates that you must substitute something else when you write the command. For example, {BRANCH *location*} means you must include an actual location in the command. When an argument is not italicized, you must include that exact word as the argument in the command. For example, {PANELOFF [clear]} means that if you choose to use the optional [clear] argument, you must type the command as {PANELOFF clear}.

Optional Arguments

Optional arguments, displayed in [ ] (brackets) in Help, are arguments you can omit from a macro command. For example {BEEP [*tone-number*]} works even if you don't specify a *tone-number* argument.

Argument Separators

If a macro command includes two or more arguments, separate the arguments from one another with argument separators. Initially , (comma) and ; (semicolon) are the valid argument separators for macro commands, but you can use Tools User Setup International to set semicolons only or semicolons and periods as the valid argument separators.

Argument Types

Macro commands use four types of information as arguments: values, strings, locations, and conditions.

Value
A number, a numeric formula, or the address or name of a cell that contains a number or formula.

String
Text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or a formula that results in a label.

Location
A range name, address, or any formula that evaluates to a range name or address.

Condition
Usually a logical formula or the address or name of a cell that contains a logical formula. However, you can also use any numeric or text formula, text enclosed in " " (quotation marks), or cell reference as a condition argument.

See also:

Macro Basics

Macro Command Rules

Observe the following rules when you enter macro commands:

* Enter the entire macro command (keyword and arguments, if any) in a single cell. For example, this {GETLABEL} command is entered correctly:

{GETLABEL "Enter today's totals: ",TOTALS}

but this {GETLABEL} command is entered incorrectly:

{GETLABEL "Enter today's totals: ",

TOTALS}

* The total number of characters in the cell that contains the macro command must not exceed 512.

* Start the command with { (open brace) and end it with } (close brace).

* Immediately after the open brace, type the keyword. You can type it in uppercase or lowercase letters.

* If the command includes arguments, separate the keyword from the first argument with one space. Do not include any other spaces in the command, unless they are part of an argument. For example, the prompt in a {GETLABEL} command can include spaces between the words in the prompt. If the command includes no arguments, the command should include no spaces.

See also:

Macro Basics
Macro Command Format
Writing a Macro

Macro Command Index

{*subroutine*}

{?}

{ADDIN}

{APP-ADJUST}

{APPENDBELOW}

{APPENDRIGHT}

{APP4}

{APP-STATE}

{BEEP}

{BLANK}

{BORDERSOFF}

{BORDERSON}

{BRANCH}

{BREAK}

{BREAKOFF}

{BREAKON}

{CLOSE}

{COMMIT}

{CONTENTS}

{DDE-ADVISE}

{DDE-CLOSE}

{DDE-EXECUTE}

{DDE-OPEN}

{DDE-POKE}

{DDE-REQUEST}

{DDE-UNADVISE}

{DDE-USE}

{DEFINE}

{DISPATCH}

{EDIT-CLEAR}

{EDIT-COPY}

{EDIT-COPY-GRAPH}

{EDIT-CUT}

{EDIT-PASTE}

{EDIT-PASTE-LINK}

{FILESIZE}

{FOR}

{FORBREAK}

{FORM}

{FORMBREAK}

{FRAMEOFF}

{FRAMEON}

{GET}

{GETLABEL}

{GETNUMBER}

{GETPOS}

{GRAPH}

{GRAPHOFF}

{GRAPHON}

{IF}

{IFKEY}

{INDICATE}

{LAUNCH}

{LET}

{LINK-ASSIGN}

{LINK-CREATE}

{LINK-DEACTIVATE}

{LINK-DELETE}

{LINK-REMOVE}

{LINK-TABLE}

{LINK-UPDATE}

{LOOK}

{MENUBRANCH}

{MENUCALL}

{ONERROR}

{OPEN}

{PANELOFF}

{PANELON}

{PUT}

{QUIT}

{READ}

{READLN}

{RECALC}

{RECALCCOL}

{RESTART}

{RETURN}

{ROLLBACK}

{SETPOS}

{SYSTEM}

{WAIT}

{WINDOW-ADJUST}

{WINDOW-SELECT}

{WINDOWSOFF}

{WINDOWSON}

{WINDOW-STATE}

{WRITE}

{WRITELN}

See also:

Macro Key Names

Macro Command Categories

1-2-3 has eleven categories of macro commands.

Clipboard
Clipboard commands cut and copy data to the Clipboard, and paste data from the Clipboard.

Data manipulation
Enter data, edit existing entries, erase entries, and recalculate formulas.

Dynamic Data Exchange
Manipulate conversation-level (low-level) links between 1-2-3 for Windows and other Windows applications.

External table control
Commit (finalize) or roll back (cancel) pending transactions with external databases.

File manipulation
Work with text files.

Flow-of-control
Direct the path of macro execution, using branches, subroutine calls, loops, and conditional processing.

Interactive
Suspend macro execution for user input, control macro interruption and the timing of macro execution, and create custom   menus.

Link
Manipulate link-level (high-level) links between 1-2-3 for Windows and other Windows applications.

Macro key names
Replicate actions of the nonprinting keys.

Screen control
Control different parts of the screen display, including the mode indicator and the worksheet window, and sound the computer's bell.

Window control
Activate, move, and size 1-2-3 windows.

See also:

Macro Basics
Macro Command Index

Clipboard Macro Commands Category

Clipboard commands cut and copy data to theWindows Clipboard, and paste data from the Clipboard.

{EDIT-CLEAR}
Deletes selected types of data (cell contents, cell format, formatting, or graphs) permanently without using the Clipboard.

{EDIT-COPY}
Copies data and related formatting from the worksheet to the Clipboard.

{EDIT-COPY-GRAPH}
Copies the contents of the active Graph window to the Clipboard.

{EDIT-CUT}
Cuts data and related formatting from the worksheet to the Clipboard.

{EDIT-PASTE}
Pastes data and related formatting from the Clipboard into the worksheet.

{EDIT-PASTE-LINK}
Creates a link between the current worksheet file and the file referred to on the Clipboard.

Data Manipulation Macro Commands Category

Data manipulation commands enter data, edit existing entries, erase entries, and recalculate formulas.

{APPENDBELOW}
Copies data in one range to the bottom of another range, automatically extending the destination range to include the copied data.

{APPENDRIGHT}
Copies data in one range to the right of another range, automatically extending the destination range to include the copied data.

{BLANK}
Erases a cell or range.

{CONTENTS}
Copies the contents of one cell to another cell as a label.

{LET}
Enters a label or number in a cell.

{PUT}
Enters a label or number in a range.

{RECALC}
Recalculates formulas in a range row by row.

{RECALCCOL}
Recalculates formulas in a range column by column.

Dynamic Data Exchange Macro Commands Category

Dynamic Data Exchange (DDE) commands manipulate conversation-level (low-level) links between 1-2-3 for Windows and other Windows applications. For information about macro commands that manipulate link-level (high-level) links between 1-2-3 for Windows and other Windows applications, see Link Macro Commands Category.

{DDE-ADVISE}
Specifies the macro that is executed when data changes in the server application.

{DDE-CLOSE}
Terminates a conversation with a Windows application.

{DDE-EXECUTE}
Sends a command to an application.

{DDE-OPEN}
Initiates a conversation with a Windows application, making that the current conversation.

{DDE-POKE}
Sends data to an application.

{DDE-REQUEST}
Transfers data from an application.

{DDE-UNADVISE}
Terminates a {DDE-ADVISE} command.

{DDE-USE}
Selects the current conversation that is used by other DDE macro commands.

External Table Control Macro Commands Category

External table control commands commit (finalize) or roll back (cancel) pending transactions with <u>external databases</u>.

<u>{COMMIT}</u>
Commits pending external database transactions.

<u>{ROLLBACK}</u>
Cancels pending external database transactions.

File Manipulation Macro Commands Category

File manipulation commands work with <u>text files</u>.

<u>{CLOSE}</u>
Closes the open text file.

<u>{FILESIZE}</u>
Records in a cell the number of bytes in the open text file.

<u>{GETPOS}</u>
Records in a cell the location in the open text file at which data is read from or written to.

<u>{OPEN}</u>
Opens a new or existing text file so you can use other file manipulation commands with that text file.

<u>{READ}</u>
Copies a series of bytes from the open text file to a cell.

<u>{READLN}</u>
Copies an entire line from the open text file to a cell.

<u>{SETPOS}</u>
Changes the location in the open text file at which data is read from or written to.

<u>{WRITE}</u>
Writes text to the open text file.

<u>{WRITELN}</u>
Writes text to the open text file and adds an end-of-line sequence.

Flow-of-Control Macro Commands Category

Flow-of-control commands direct the path of macro execution.

{*subroutine*}
Performs a subroutine call.

{BRANCH}
Performs a branch.

{DEFINE}
Evaluates and stores arguments that you pass to a subroutine in a {*subroutine*} command.

{DISPATCH}
Performs an indirect branch by directing 1-2-3 to a cell that contains the name or address of the branch location.

{FOR}
Creates a for loop, that is, repeats a subroutine a specified number of times.

{FORBREAK}
Cancels a for loop.

{IF}
Sets up a condition that 1-2-3 evaluates to determine whether to continue with the macro instructions that follow {IF} in the same cell or to go directly to the instructions in the next cell.

{LAUNCH}
Starts a Windows application.

{ONERROR}
Performs a branch if an error occurs while a macro is running, so macro execution continues instead of terminating in an error.

{QUIT}
Ends a macro, returning control to the user.

{RESTART}
Keeps 1-2-3 from returning to the location from which the subroutine call was issued after completing the instructions in a subroutine.

{RETURN}
Ends a subroutine and returns control to the instruction following the command that called the subroutine. In a for loop, ends the current repetition immediately and starts the next repetition.

{SYSTEM}
Temporarily suspends the 1-2-3 session and executes the operating system command you specify. When the operating system command is completed, automatically resumes the 1-2-3 session and continues the macro.

Interactive Macro Commands Category

Interactive macro commands suspend macro execution for user input, control macro interruption and the timing of macro execution, and create custom menus.

{?}
Suspends macro execution to let you move the cell pointer or enter data.

{BREAKOFF}
Disables CTRL+BREAK while a macro is running, protecting the macro from interruption.

{BREAKON}
Restores the use of CTRL+BREAK, undoing a {BREAKOFF}.

{FORM}
Suspends macro execution so you can enter data in a specified range.

{FORMBREAK}
Ends a {FORM} command.

{GET}
Suspends macro execution until you press a key, and then records that key in a cell.

{GETLABEL}
Displays a prompt in the 1-2-3 Classic window, waits for a response, and enters the response as a label in a cell.

{GETNUMBER}
Displays a prompt in the 1-2-3 Classic window, waits for a response, and enters the response as a number in a cell.

{LOOK}
Checks the computer's typeahead buffer and enters the first keystroke in the buffer (if any) in a cell.

{MENUBRANCH}
Displays a customized menu in the 1-2-3 Classic window, waits for you to select a menu item, and then branches to the macro instructions associated with that menu item.

{MENUCALL}
Displays a customized menu in the 1-2-3 Classic window, waits for you to select a menu item, and then performs a subroutine call to the macro instructions associated with that menu item.

{WAIT}
Suspends macro execution and displays the WAIT indicator until a specified time.

Link Macro Commands Category

Link macro commands manipulate link-level (high-level) links between 1-2-3 for Windows and other Windows applications. For information about commands that manipulate conversation-level (low-level) links between 1-2-3 for Windows and other Windows applications, see Dynamic Data Exchange Macro Commands Category.

{LINK-ASSIGN}
Specifies a destination range for a link.

{LINK-CREATE}
Creates a DDE link to another Windows application.

{LINK-DEACTIVATE}
Turns off a specified link.

{LINK-DELETE}
Deletes a DDE link previously created between 1-2-3 and another Windows application.

{LINK-REMOVE}
Removes the currently used destination range for a link.

{LINK-TABLE}
Creates a table of links.

{LINK-UPDATE}
Refreshes a manual DDE link.

Macro Key Names

The table below lists the macro key names that correspond to the 1-2-3 function keys, pointer-movement keys, and a few keyboard keys. For explanations of what the 1-2-3 keys do, see Keyboard Index.

1-2-3 Key	Macro Instruction
~ (tilde)	{~}
{ (open brace)	{{}
} (close brace)	{}}
/ (slash) or < (less than)	/, <, or {MENU}
ALT+F6 (ZOOM)	{ZOOM}
ALT+F7 (APP1)	{APP1}
ALT+F8 (APP2)	{APP2}
ALT+F9 (APP3)	{APP3}
BACKSPACE	{BACKSPACE} or {BS}
CTRL+END	{FILE}
CTRL+END CTRL+PG DN	{PREVFILE}, {PF}, or {FILE}{PS}
CTRL+END CTRL+PG UP	{NEXTFILE}, {NF}, or {FILE}{NS}
CTRL+END END	{LASTFILE}, {LF}, or {FILE}{END}
CTRL+END HOME	{FIRSTFILE},{FF}, or {FILE}{HOME}
CTRL+HOME	{FIRSTCELL} or {FC}
CTRL+LEFT	{BACKTAB} or {BIGLEFT}
CTRL+PG UP	{NEXTSHEET} or {NS}
CTRL+PG DN	{PREVSHEET} or {PS}
CTRL+RIGHT	{BIGRIGHT}
DEL	{DELETE} or {DEL}
DOWN	{DOWN} or {D}
END	{END}
END CTRL+HOME	{LASTCELL} or {LC}
ESC	{ESCAPE} OR {ESC}
F1 (HELP)	{HELP}
F2 (EDIT)	{EDIT}
F3 (NAME)	{NAME}
F4 in READY mode	{ANCHOR}
F4 (ABS)	{ABS}
F5 (GOTO)	{GOTO}
F6 (PANE)	{WINDOW}
F7 (QUERY}	{QUERY}
F8 (TABLE)	{TABLE}

F9 (CALC)	{CALC}
F10 (MENU)	{ALT}, {MB}, or {MENUBAR}
HOME	{HOME}
INS	{INSERT} or {INS}
LEFT	{LEFT} or {L}
PG DN	{PGDN}
PG UP	{PGUP}
RIGHT	{RIGHT} or {R}
TAB	{TAB}
UP	{UP} or {U}

Note 1-2-3 does not have macro key names for the following keys: ALT+BACKSPACE (UNDO), ALT+F1 (COMPOSE), ALT+F2 (STEP), ALT+F3 (RUN), CAPS LOCK, NUM LOCK, PRINT SCREEN, SCROLL LOCK, and SHIFT. Therefore, you cannot use these keystrokes in a macro.

See also:

Macro Command Index
Special Keystroke Instructions

Screen Control Macro Commands Category

Screen control macro commands control different parts of the screen display, including the <u>mode indicator</u> and the worksheet window, and sound the computer's bell.

<u>{BEEP}</u>
Sounds the computer's bell.

<u>{BREAK}</u>
During data entry or selection of a 1-2-3 command, returns 1-2-3 to READY <u>mode</u>.

<u>{FRAMEOFF}</u>
Turns off display of the <u>worksheet frame</u>.

<u>{FRAMEON}</u>
Restores display of the worksheet frame, undoing {FRAMEOFF}.

<u>{GRAPHOFF}</u>
Removes a graph displayed by {GRAPHON} and redisplays the current worksheet.

<u>{GRAPHON}</u>
Without suspending macro execution, displays a full-screen view of the <u>current graph</u> or makes a named graph the current graph and optionally displays it.

<u>{INDICATE}</u>
Changes the mode indicator to the text you specify or restores the standard mode indicator.

<u>{PANELOFF}</u>
Freezes the <u>control panel</u> and <u>status line</u> either in their current states or after clearing them.

<u>{PANELON}</u>
Unfreezes the control panel and status line, undoing {PANELOFF}.

<u>{WINDOWSOFF}</u>
Freezes the worksheet window.

<u>{WINDOWSON}</u>
Unfreezes the worksheet window, undoing {WINDOWSOFF}.

Window Control Macro Commands Category

Activate, move, and size windows.

{APP-ADJUST}
Moves and changes the size of the 1-2-3 window.

{APP-STATE}
Minimizes, maximizes, or restores the 1-2-3 window.

{WINDOW-ADJUST}
Moves and changes the size of the active window.

{WINDOW-SELECT}
Makes a window the active window.

{WINDOW-STATE}
Minimizes, maximizes, or restores the active window.

Special Keystroke Instructions

The ENTER Keystroke Instruction

The only single-character keystroke instruction not identical to the key it represents is the ~ (tilde). The tilde is the keystroke instruction for ENTER. For example, in the macro instructions

{ALT}kir~

the tilde inserts a row to complete the Worksheet Insert command.

The {CLEARENTRY} Keystroke Instruction

{CLEARENTRY} or {CE} represents an internal 1-2-3 keystroke; it does not have a corresponding key on the keyboard.

{CE} clears the current data from the edit line or a text box.

For example, the macro

{ALT}fo{CE}testfile.wk3~

brings up the File Open dialog box and clears the default path, and then enters the name of the file to open and opens it.

{CE} works similarly to {ESC}, but with the following differences:

*   While you sometimes need more than one {ESC} instruction to clear all prompted data from the edit line during a command, one {CE} instruction clears the edit line of all data.

*   When the edit line contains no data, an {ESC} instruction returns 1-2-3 to READY mode. In the same situation, a {CE} instruction keeps 1-2-3 in EDIT mode.

See also:

Macro Basics
Macro Key Names

Sample Macros

These short, general-purpose macros provide concrete examples of concepts presented elsewhere in Help. Although the macros are short and simple, they illustrate programming techniques that you can apply to any macro you create.

Date Macro (\D)
Enters today's date in the current cell.

Rounding Macro (\R)
Rounds a column of values to the number of decimal places you specify.

See also:

Macro Basics
Sample DDE Macros
Writing a Macro

Date Macro (\D)

Macro \D enters today's date in the <u>current cell</u> by converting the result of @TODAY to a value. Use the macro to document the data in a worksheet, insert the date in a memo, or create an entry to use as a print header or footer.

```
\D      {PANELOFF}{WINDOWSOFF}
        {ALT}rf1~
        @TODAY{CALC}~
        {WINDOWSON}{PANELON}
```

Explanation of Macro \D

The macro instructions in \D perform the following tasks:

{PANELOFF}{WINDOWSOFF} freezes the <u>control panel</u> and <u>Worksheet window</u>, preventing flashing on the screen as the macro executes and allowing the macro to work at maximum speed.

{ALT}rf1~ uses Range Format Date 1 to format the current cell as Date 1 format (DD-MMM-YY).

@TODAY{CALC}~ types @TODAY, converts @TODAY to its current value, and enters the value in the current cell.

{WINDOWSON}{PANELON} unfreezes the control panel and worksheet window before ending the macro.

Note When you use this macro, 1-2-3 may display *** (asterisks) instead of the date if the current cell's column width is too small or its font is too large. To remove the asterisks and display the date, use <u>Worksheet Global Column width</u> or <u>Worksheet Column Set width</u>.

See also:

<u>Macro Basics</u>
<u>Writing a Macro</u>

Rounding Macro (\R)

Macro \R rounds a column of values by converting the values to <u>@ROUND</u> formulas, using the number of decimal places you specify.

\R	{GETLABEL "Round to what place? ",PLACE}
R_LOOP	{EDIT}{HOME}@ROUND({END},{PLACE})~ {DOWN} {IF @CELLPOINTER("type")="v"}{BRANCH R_LOOP} {QUIT}
PLACE	1 {RETURN}

Before you start the macro, move the <u>cell pointer</u> to the first cell in the column of values you are rounding.

Explanation of Macro \R

The macro instructions in \R perform the following tasks:

{GETLABEL "Round to what place?",PLACE} prompts you for the number of decimal places to which you want to round the values, waits for you to type a number and press ENTER, and then enters that number as a label in a cell with the range name PLACE for use later in the macro.

The next part of the macro is the rounding loop. It converts the value in the current cell to an @ROUND formula, for example, 24.759 to @ROUND(24.759,1), as follows:

{EDIT}{HOME}@ROUND(presses F2 (EDIT) to begin editing the current cell's contents, moves the cursor to the beginning of the entry, and inserts @ROUND(in front of the entry.

{END}, moves the cursor to the end of the entry and types a comma.

{PLACE} calls <u>subroutine</u> PLACE. Subroutine PLACE contains two macro instructions. The first instruction is the number you specified in the {GETLABEL} command, so the macro types that number as the *decimal-place* argument in the @ROUND formula. **{RETURN}** ends the subroutine, so macro control shifts back to the main macro where **)~** completes and enters the @ROUND formula.

{DOWN} moves the cell pointer down one cell.

{IF @CELLPOINTER("type")="v"} tests the new cell's contents. If the cell contains a value, the macro continues to the next instruction following {IF} in the same cell; in this case the instruction is **{BRANCH R_LOOP}**, which branches macro control back to cell R_LOOP (the second cell in the macro). The macro then repeats the value-to-@ROUND-formula conversion.

If the cell is blank or contains a label, the macro skips the {BRANCH R_LOOP} instruction and goes immediately to the next cell in the column of macro instructions, where **{QUIT}** ends the macro.

See also:

<u>Macro Basics</u>
<u>Writing a Macro</u>

Sample DDE Macros

These macros provide concrete examples of DDE concepts presented elsewhere in Help.

Note These examples show how you might write 1-2-3 macros that use DDE. The files used in these macros are not sample files included with either 1-2-3 for Windows or Ami Pro.

Example 1: AMI_OPR

```
AMI_OPR        {LAUNCH "D:\AMIPRO\AMIPRO"}
               {DDE-OPEN "AMIPRO","SYSTEM"}
               {DDE-EXECUTE "[FileOpen(""D:\AMIPRO\DOCS\LOAN.SAM"",1,"""")]"}{ERROR}
               {DDE-EXECUTE "[FilePrint(1,1,9999,1537)]"}{ERROR}
               {DDE-CLOSE}
               {DDE-OPEN "AMIPRO","D:\AMIPRO\DOCS\LOAN.SAM"}
               {DDE-REQUEST LOANPAYMENT,"PAYMENT"}
               {DDE-CLOSE}

ERROR          {GOTO}ERROR~{R 2}ERROR OCCURRED~
               {DDE-CLOSE}
```

This macro performs the following tasks:

{LAUNCH "D:\AMIPRO\AMIPRO"} starts an Ami Pro session.

{DDE-OPEN "AMIPRO","SYSTEM"} initiates a conversation with Ami Pro.

{DDE-EXECUTE "[FileOpen(""D:\AMIPRO\DOCS\LOAN.SAM"",1,"""")]"} opens the Ami Pro file D:\AMIPRO\DOCS\LOAN.SAM. **{DDE-EXECUTE "[FilePrint(1,1,9999,1537)]"}** prints the file. If 1-2-3 cannot open or print the file, the subroutine **ERROR** displays the message ERROR OCCURRED and terminates the conversation.

{DDE-CLOSE} terminates the system-topic conversation.

{DDE-OPEN "AMIPRO","D:\AMIPRO\DOCS\LOAN.SAM"} initiates a conversation with Ami Pro, with the file D:\AMIPRO\DOCS\LOAN.SAM as the topic.

{DDE-REQUEST LOANPAYMENT,"PAYMENT"} transfers data from a bookmark named PAYMENT in LOAN.SAM to the range named LOANPAYMENT in the current 1-2-3 file.

{DDE-CLOSE} terminates the conversation.

Example 2: AMI_OPA

```
AMI_OPA        {LAUNCH "D:\AMIPRO\AMIPRO"}
               {DDE-OPEN "AMIPRO","SYSTEM"}
               {DDE-EXECUTE "[FileOpen(""D:\AMIPRO\DOCS\LOAN.SAM"",1,"""")]"}{ERROR}
               {DDE-EXECUTE "[FilePrint(1,1,9999,1537)]"}{ERROR}
               {DDE-CLOSE}
               {DDE-OPEN "AMIPRO","D:\AMIPRO\DOCS\LOAN.SAM"}
               {REQUEST}
               {DDE-ADVISE REQUEST,"PAYMENT"}
               {IF @ISERR(LOANPAYMENT)}{BREAKLINK}

REQUEST        {DDE-REQUEST LOANPAYMENT,"PAYMENT"}

ERROR          {GOTO}ERROR~{R 2}ERROR OCCURRED~
               {DDE-CLOSE}

BREAKLINK      {DDE-UNADVISE "PAYMENT"}
               {DDE-CLOSE}
```

This macro performs the following tasks:

{LAUNCH "D:\AMIPRO\AMIPRO"} starts an Ami Pro session.

{DDE-OPEN "AMIPRO","SYSTEM"} initiates a conversation with Ami Pro.

{DDE-EXECUTE "[FileOpen(""D:\AMIPRO\DOCS\LOAN.SAM"",1,"""")]"} opens the Ami Pro file D:\AMIPRO\DOCS\LOAN.SAM. **{DDE-EXECUTE "[FilePrint(1,1,9999,1537)]"}** prints the file. If 1-2-3 cannot open

or print the file, the subroutine **ERROR** displays the message ERROR OCCURRED and terminates the conversation.

{DDE-CLOSE} terminates the system-topic conversation.

{DDE-OPEN "AMIPRO","D:\AMIPRO\DOCS\LOAN.SAM"} initiates a conversation with Ami Pro, with the file D:\AMIPRO\DOCS\LOAN.SAM as the topic.

The subroutine **REQUEST** transfers data from a bookmark named PAYMENT in LOAN.SAM to the range named LOANPAYMENT in the current 1-2-3 file.

{DDE-ADVISE REQUEST,"PAYMENT"} branches to the subroutine **REQUEST** each time the data in PAYMENT changes.

{IF @ISERR(LOANPAYMENT)} tests the contents of LOANPAYMENT. If the cell contains the value ERR, the macro continues to the next instruction following {IF} in the same cell; in this case the instruction is **{BREAKLINK}**, which ends the {DDE-ADVISE} command and terminates the conversation.

Example 3: AMI_LC

```
AMI_LC          {ALT}eo{TAB 1}c
                {TAB 4}LOANPAYMENT{TAB 1}
                AMIPRO{TAB 2}
                D:\AMIPRO\DOCS\LOAN.SAM{TAB 2}
                PAYMENT~
                {ESC}
```

This macro performs the following tasks:

{ALT}eo{TAB 1}c opens the Edit Link Options Create dialog box.

{TAB 4}LOANPAYMENT{TAB 1} enters LOANPAYMENT in the Range text box and moves to the Application text box. **AMIPRO{TAB 2}** enters AMIPRO in the Application text box and moves to the Topic name text box. **D:\AMIPRO\DOCS\LOAN.SAM{TAB 2}** enters file name LOAN.SAM, including the path, in the Topic name text box and moves to the Item name text box. **PAYMENT~** enters PAYMENT in the Item name text box and selects OK.

{ESC} closes the Edit Link Options dialog box.

Note This link remains inactive until you open Ami Pro and use Edit Link Options Update.

Example 4: AMI_H_LINK

```
AMI_H_LINK      {LINK-CREATE "AMILINK1","AMIPRO","D:\AMIPRO\DOCS\LOAN.SAM","PAYMENT"}
                {LINK-ASSIGN "AMILINK1",LOANPAYMENT}
                {IF @ISERR(LOANPAYMENT)}{STOP}
                {UPDATE}

UPDATE{LINK-UPDATE "AMILINK1"}

STOP            {LINK-DEACTIVATE "AMILINK1"}
                {QUIT}
```

This macro performs the following tasks:

{LINK-CREATE "AMILINK1","AMIPRO","D:\AMIPRO\DOCS\LOAN.SAM","PAYMENT"} creates an automatically updated link between the current worksheet file and Ami Pro. The name of the link is AMILINK1. The topic is the file name D:\AMIPRO\DOCS\LOAN.SAM and the item is a bookmark named PAYMENT from that file. Since no update mode is specified, 1-2-3 uses automatic.

{LINK-ASSIGN "AMILINK1",LOANPAYMENT} specifies the range named LOANPAYMENT as the destination range. Whenever the Ami Pro data specified by PAYMENT changes, 1-2-3 updates the contents of the range LOANPAYMENT with the new data.

{IF @ISERR(LOANPAYMENT)} tests the contents of LOANPAYMENT. If the cell contains the value ERR, the macro continues to the next instruction following {IF} in the same cell; in this case the instruction is **{STOP}**, which deactivates the link AMILINK1 and ends the macro.

If LOANPAYMENT does not contain the value ERR, the macro skips the {STOP} instruction and goes immediately to the next cell in the column of macro instructions, where **{UPDATE}** updates the link AMILINK1.

Example 5: AMI_C_LINK

AMI_C_LINK　　　　{LINK-CREATE "AMILINK2","AMIPRO","D:\AMIPRO\DOCS\LOAN.SAM","PAYMENT","TEXT","MANUAL"}
　　　　　　　　　　{LINK-ASSIGN "AMILINK2",LOANPAYMENT}

This macro performs the following tasks:

{LINK-CREATE "AMILINK2","AMIPRO","D:\AMIPRO\DOCS\LOAN.SAM","PAYMENT","TEXT","MANUAL"} creates a link between the current worksheet file and Ami Pro. The name of the link is AMILINK2. The topic is the file name D:\AMIPRO\DOCS\LOAN.SAM and the item is a bookmark named PAYMENT from that file. Since manual is the specified update mode, you must use {LINK-UPDATE} to update this link.

{LINK-ASSIGN "AMILINK2",LOANPAYMENT} specifies the range named LOANPAYMENT as the destination range.

See also:

   Dynamic Data Exchange Macro Commands Category
   Edit Link Options Create
   Link Macro Commands Category
   Macro Basics
   Writing a Macro

{ADDIN} is reserved for internal use only.

{BORDERSOFF} is reserved for internal use only.

{BORDERSON} is reserved for internal use only.

{GRAPH} is reserved for internal use only.

{IFKEY} is reserved for internal use only.

{APP4} is reserved for internal use only.

{*subroutine*}

{*subroutine* [*arg1*],[*arg2*],...,[*argn*]} performs a subroutine call.

Arguments

subroutine is the range name of the subroutine that you want the macro to call. The range name can refer to the first cell of the subroutine or to the entire subroutine. If you specify a range for *subroutine*, 1-2-3 begins executing in the upper left corner of the range.

Although you can use a range address for *subroutine*, Lotus recommends that you use a range name. If you move a *subroutine* (for example, if you insert some rows above the range), a {*subroutine*} command that refers to *subroutine* by name will continue to work correctly, but one that refers to *subroutine* by address will no longer work correctly.

arg1,arg2,...,argn are optional arguments. You can include up to 31 optional arguments. Arguments can be values or text, including formulas and the names or addresses of cells. {*subroutine*} passes the arguments to the subroutine, which must begin with a {DEFINE} command if arguments are specified. {DEFINE} evaluates and stores the optional arguments in worksheet cells.

Uses

Use subroutines to divide long macros into smaller, more specific tasks. If these tasks are shared by several macros, using a subroutine means you have to write the shared task only once. You can call it from all macros that use it. 1-2-3 can transfer macro execution from one subroutine to another to perform many different tasks during a macro.

Notes

To call a subroutine, use a {*subroutine*} command in the calling macro where you want 1-2-3 to begin executing the subroutine. Specify the address or name of the subroutine as {*subroutine*}. 1-2-3 temporarily passes control from the calling macro to the subroutine when it encounters a {*subroutine*} command. A subroutine ends when 1-2-3 executes a {RETURN} command or encounters a blank cell. A {QUIT} command in the subroutine ends the macro.

One subroutine can call another subroutine. This is known as nesting. Using nested subroutines lets you create large macro applications that are clearly structured, accessible, and easy to revise. The number of subroutines you can nest is limited only by the amount of available memory.

When 1-2-3 encounters a {*subroutine*} command in a subroutine, it immediately starts executing the new subroutine. When the second subroutine ends, 1-2-3 returns to the subroutine that called it and finishes executing that subroutine, and then returns control to the original calling macro. If there is more than one nested subroutine, 1-2-3 keeps returning to the previous subroutine until it finally returns to the original calling macro.

If you don't want 1-2-3 to return from a particular subroutine, use {RESTART} in that subroutine. {RESTART} cancels the return sequence that 1-2-3 tracks as it executes nested subroutines. When 1-2-3 finishes executing the subroutine that contains {RESTART}, macro execution ends.

Examples

The FORMAT1 macro calls the subroutine CURRSUB four times. Each time, it formats a range (Q_1, Q_2, Q_3, or Q_4) that it selects with {GOTO}. After each subroutine call, 1-2-3 returns to the next {GOTO} command in FORMAT1.

```
FORMAT1        {GOTO}Q_1~
               {CURRSUB}
               {GOTO}Q_2~
               {CURRSUB}
               {GOTO}Q_3~
               {CURRSUB}
               {GOTO}Q_4~
```

```
                    {CURRSUB}

CURRSUB       {ALT}rfc{TAB}2~
                    {RETURN}
```

The {*subroutine*} command in macro \B passes three arguments to SUBR1. The {DEFINE} command at the beginning of SUBR1 evaluates the arguments before storing them. Thus, it stores the value of the first argument, today's date, as a number in cell ONE; the second argument, the string Closing Price:, as a label in cell TWO; and the value of the third argument, the contents of the cell named CLOSE, as a number in cell THREE.

The macro then formats the current cell as day-month and enters the number stored in cell ONE; moves right one cell and enters the label stored in cell TWO; moves right one cell again, formats the cell as Currency with two decimal places, and enters the number stored in cell THREE.

```
\B                    {SUBR1 @TODAY,"Closing Price:",CLOSE}

                    ...
SUBR1   {DEFINE ONE:V,TWO,THREE:V}
                    {ALT}rf2~{LET @CELLPOINTER("coord"),ONE}{R}
                    {LET @CELLPOINTER("coord"),TWO}{R}
                    {ALT}rfc{TAB}2~{LET @CELLPOINTER("coord"),THREE}
```

The result is a row that reads (depending on the date and closing price)

17-Dec   Closing Price $9.32.

Similar Commands

{BRANCH} transfers macro execution one way only; 1-2-3 does not return to the calling macro unless the subroutine contains a {BRANCH} command that branches to the calling macro. {DISPATCH} transfers macro execution indirectly, branching to the cell specified in *location* instead of branching directly to *location*.

See also:

Macro Basics

{?}

{?} suspends macro execution until the user presses ENTER, letting the user type any number of keystrokes.

Uses

Use {?} to stop the macro temporarily and return control of the work session to the user. The user can then move the cell pointer or menu pointer, complete part of a command, or enter data for the macro to process. The macro continues when the user presses ENTER.

Notes

When the user presses ENTER, 1-2-3 ends the {?} command and continues the macro; it does not enter data or complete a menu command unless the next character in the macro is a ~ (tilde) or a cursor movement key name (for example, {DOWN}).

If the user clicks OK with the mouse to enter data, the {?} command remains in effect, allowing further entry before proceeding with the macro.

Examples

The following example moves the cell pointer to the cell named ERR_MSG, which contains an error message, and pauses to let the user read the message. When the user presses ENTER, the macro continues.

{GOTO}ERR_MSG~
{?}

Similar Commands

{GET} suspends macro execution and retrieves a keystroke. {GETLABEL} and {GETNUMBER} suspend macro execution and retrieve particular types of information.

See also:

Macro Basics

{APP-ADJUST}

{APP-ADJUST *x,y,width,height*} moves the 1-2-3 window so that the upper left corner of the window is *x* pixels from the left and *y* pixels from the top corner of the screen, and sizes the 1-2-3 window to be *height* pixels high and *width* pixels wide.

Arguments

x specifies the horizontal position, in pixels, measured from the left side of the screen to the left side of the 1-2-3 window. *x* is a value, a formula that results in a value or the address or name of a cell that contains a value or a formula that results in a value.

y specifies the vertical position, in pixels, measured from the top of the screen to the top of the 1-2-3 window. *y* is a value, a formula that results in a value or the address or name of a cell that contains a value or a formula that results in a value.

width specifies the window width, in pixels, from the left border to the right border. *width* is a value, a formula that results in a value or the address or name of a cell that contains a value or a formula that results in a value.

height specifies the window height, in pixels, from the top border to the bottom border. *height* is a value, a formula that results in a value or the address or name of a cell that contains a value or a formula that results in a value.

Uses

Use {APP-ADJUST} to position the 1-2-3 window on screen.

You can also use {APP-ADJUST} to reduce and enlarge the 1-2-3 window. Reducing the window lets the user see more of the other open application windows, and enlarging the window lets the user see more of the files displayed in the 1-2-3 window.

Notes

If you specify too large a value for *x* or *y*, the window moves partially or completely out of view. Use the Program Manager Window Tile command to bring the window back into view.

Examples

The following macro places the 1-2-3 window 50 pixels from the left and 30 pixels from the top of the screen, and makes the window 215 by 215 pixels in size:

{APP-ADJUST 50,30,215,215}

Similar Commands

{WINDOW-ADJUST} changes the size and position of the Graph window and Worksheet windows.

See also:

Macro Basics

{APPENDBELOW}

{APPENDBELOW *target-location,source-location*} copies the contents of *source-location* to the rows immediately below *target-location*.

Arguments

target-location and *source-location* are ranges of any size. If you use named ranges, the range name definition of *target-location* expands to include the rows that contain the appended data.

Uses

Use {APPENDBELOW} with {FORM} to transfer records from an entry form to a database table.

Notes

In the following situations, {APPENDBELOW} fails and the macro stops due to an error:

* When the number of rows in *source-location* exceeds the number of rows in the worksheet below *target-location*.

* When appending *source-location* to *target-location* would write over data.

* When rows below *target-location* are protected.

When *source-location* contains formulas, {APPENDBELOW} copies the current values of the formulas to *target-location*, not the formulas themselves.

Examples

The following macro lets you enter new customer information in an unprotected range named NEWCUST in an entry form named CUSTFORM. It then appends the information in NEWCUST to the customer database table named CUSTDB and expands CUSTDB to include the new record.

{FORM CUSTFORM}
{APPENDBELOW CUSTDB,NEWCUST}

Similar Commands

{APPENDRIGHT} copies the contents of *source-location* to the columns immediately to the right of *target-location*.

See also:

Macro Basics

{APPENDRIGHT}

{APPENDRIGHT *target-location,source-location*} copies the contents of *source-location* to the columns immediately to the right of *target-location*.

Arguments

target-location and *source-location* are ranges of any size. If you use named ranges, the range name definition of *target-location* expands to include the columns that contain the appended data.

Uses

Use {APPENDRIGHT} with {FORM} to transfer records from an entry form to a database table.

Notes

In the following situations, {APPENDRIGHT} fails and the macro stops due to an error:

*   When the number of columns in *source-location* exceeds the number of columns in the worksheet to the right of *target-location*.

*   When appending *source-location* to *target-location* would write over data.

*   When columns to the right of *target-location* are protected.

When *source-location* contains formulas, {APPENDRIGHT} copies the current values of the formulas to *target-location*, not the formulas themselves.

Examples

In a sales record-keeping system, the macro below copies July sales totals (JULTOT) to the right of the monthly sales totals (MONTOT), and expands MONTOT to include the appended totals.

{APPENDRIGHT MONTOT,JULTOT}

Similar Commands

{APPENDBELOW} copies the contents of *source-location* to the rows immediately below *target-location*.

See also:

Macro Basics

{APP-STATE}

{APP-STATE *state*} <u>minimizes</u>, <u>maximizes</u>, or <u>restores</u> the 1-2-3 window.

Arguments

state is one of the words from the table below, as text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a <u>label</u> or a formula that results in a label.

Argument	Action
Maximize	Maximizes the window.
Minimize	Minimizes the window.
Restore	Restores a maximized window to its previous state.

Notes

{APP-STATE} is equivalent to clicking the Maximize, Minimize, or Restore buttons.

Examples

The following excerpt from a macro minimizes the 1-2-3 window.

{APP-STATE "minimize"}

See also:

<u>Macro Basics</u>

{BEEP}

{BEEP [*tone-number*]} sounds one of four tones.

Arguments

tone-number is an optional argument that tells 1-2-3 which tone to sound. *tone-number* must be a value or the address or name of a cell that contains a value, from 1 through 4. If you use a number other than 1, 2, 3, or 4 for *tone-number*, 1-2-3 divides the number by four and uses the remainder. (If the remainder is 0, 1-2-3 sounds tone 4.) For example, {BEEP 7} is equivalent to {BEEP 3}. {BEEP} without an argument is equivalent to {BEEP 1}.

Uses

Use {BEEP} to get a user's attention: to signal the end of a macro or the end of a waiting period, to alert a user to an on-screen message, or to signal the beginning of an interactive command.

Notes

{BEEP} does not produce a tone when Beep on error is not selected in Tools User Setup or if Sound is turned off with the Windows Control Panel.

Examples

The following macro sounds two tones to draw attention to the subsequent interactive command:

{BEEP}{BEEP 4}
{?}

The following macro sounds a tone to draw attention to the information displayed in cell ERR_MSG. The tone of the bell depends on the number in the cell named ERR_TONE.

{GOTO}ERR_MSG~
{BEEP ERR_TONE}

See also:

Macro Basics

{BLANK}

{BLANK *location*} erases the contents of *location*. {BLANK} does not change the <u>cell format</u> of the cells in *location* and does not force <u>recalculation</u>.

Arguments

location is the address or name of a cell or range.

Examples

The following macro erases the contents of the range named DATARANGE.

{BLANK DATARANGE}

The following macro erases the entry in the current cell and then sets the cell format to the global format.

{BLANK @CELLPOINTER("coord")}
{ALT}rf{ALT "r"}

See also:

<u>Macro Basics</u>

{BRANCH}

{BRANCH *location*} transfers macro control from the current macro instruction to *location* and does not return to the calling macro.

Arguments

location is the address or name of a cell or range that contains macro instructions. It is often the name of another macro or <u>subroutine</u>. If you specify a range, 1-2-3 branches to the first cell in the range.

Uses

Use {BRANCH} with <u>{IF}</u> to implement <u>if-then-else</u> processing or to transfer control to another macro.

Use {BRANCH} to create a <u>loop</u> by branching to a cell above the {BRANCH} command in the same macro. This structure is useful for repetitive data entry tasks.

Notes

{BRANCH} is not the same as {GOTO}. {GOTO} moves the <u>cell pointer</u> to another cell. {BRANCH} transfers macro execution to the commands that begin in *location*.

Examples

The following macro transfers control to either the macro named BIG or the macro named SMALL, depending on the value in the cell named SIZE.

{IF SIZE>100}{BRANCH BIG}
{BRANCH SMALL}

The following macro creates a loop for data entry by entering the data you supply during the {?} command in subsequent cells down a column until you press CTRL+BREAK to end the macro.

\A   {?}{DOWN}
          {BRANCH \A}

Similar Commands

{<u>*subroutine*</u>} executes a specified subroutine and then returns control to the calling macro. <u>{DISPATCH}</u> transfers macro execution indirectly, branching to the cell specified in *location* instead of branching directly to *location*.

See also:

> <u>Macro Basics</u>

{BREAK}

{BREAK} clears the <u>edit line</u> when data is being entered or edited, or leaves the current dialog box during selection of a 1-2-3 command, and returns 1-2-3 to READY mode. In any other situation, {BREAK} has no effect.

Uses

Use {BREAK} at the beginning of a macro to ensure that the macro executes, even if a user runs it while entering data or selecting a 1-2-3 command.

Examples

The following macro leaves the current dialog box (if any) and displays a range named HELP_SCREEN.

{BREAK}{GOTO}HELP_SCREEN~

See also:

<u>Macro Basics</u>

{BREAKOFF} and {BREAKON}

{BREAKOFF} disables CTRL+BREAK while a macro is running.

{BREAKON} restores the use of CTRL+BREAK, undoing a {BREAKOFF} command.

Uses

Normally, you can stop a macro while it is running by pressing CTRL+BREAK. While {BREAKOFF} is in effect, however, you cannot use CTRL+BREAK to stop the macro. Use {BREAKOFF} to keep users from stopping a macro to alter data or look at restricted data in a protected application.

Notes

{BREAKOFF} stays in effect until 1-2-3 executes a {BREAKON} command or until the macro ends.

Caution Add {BREAKOFF} to a macro only after you have thoroughly tested the macro. If {BREAKOFF} is in effect and the macro goes into an infinite loop, the only way to stop the macro is to turn off and restart the computer. All data entered or changed since the last time the worksheet file was saved is lost.

Examples

The following macro disables CTRL+BREAK before starting the PAYROLL subroutine, preventing the user from gaining access to proprietary information by stopping the macro when the payroll file is open. When the PAYROLL subroutine ends, {BREAKON} restores CTRL+BREAK for the rest of the macro.

{BREAKOFF}
{PAYROLL}
{BREAKON}

See also:

Macro Basics

{CLOSE}

{CLOSE} closes the <u>text file</u> opened with an <u>{OPEN}</u> command and saves any changes made to the file.

Notes

Only one text file can be open at one time. If a text file is already open when 1-2-3 executes an {OPEN} command, 1-2-3 automatically closes the currently open file before opening the new one -- you don't need a {CLOSE} command before the {OPEN} command. However, 1-2-3 does not automatically close a text file that is open when a macro ends. To close the last-opened text file in a macro, you must use a {CLOSE} command.

After it successfully executes a {CLOSE} command, 1-2-3 goes directly to the next cell in the macro, ignoring any macro instructions after {CLOSE} in the same cell. If {CLOSE} returns an error, the macro continues in the same cell as {CLOSE}.

Examples

The following macro opens a text file named STOCKS with append access, adds a line to the file to report the day's volume for a stock, and closes the file before ending the macro. Without the {CLOSE} command, STOCKS would remain open at the end of the macro, and you could continue processing STOCKS in a subsequent macro without using an {OPEN} command.

{OPEN STOCKS,A}
{WRITELN VOLUME}
{CLOSE}
{QUIT}

Similar Commands

{OPEN} opens a text file.

See also:

<u>Macro Basics</u>

{COMMIT}

{COMMIT [*driver-name*],[*database-name*]} commits (finalizes) pending external database transactions.

Arguments

driver-name is an optional argument that specifies the name of the driver. *driver-name* is any text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or formula that results in a label.

database-name is an optional argument that specifies the name of the external database. *database-name* is any text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or formula that results in a label.

You must use both arguments or no arguments. {COMMIT} with arguments commits only the transaction pending for the driver and database you specify. {COMMIT} with no arguments commits all pending transactions.

Notes

{COMMIT} works with the SQL Server driver only.

To learn more about using macros for transaction control, see **Chapter 5** of *DataLens Drivers for 1-2-3*.

Examples

The following excerpt from a macro commits the transaction pending for the driver SQL_SERVER and the database named PAYROLL.

{COMMIT "SQL_SERVER","PAYROLL"}

Similar Commands

{ROLLBACK} cancels pending external database transactions.

See also:

Macro Basics

{CONTENTS}

{CONTENTS *target-location,source-location,*[*width*],[*cell-format*]} copies the contents of *source-location* to *target-location* as a label.

Arguments

target-location and *source-location* are the addresses or names of cells or ranges. If you specify ranges, 1-2-3 uses the first cells of the ranges.

width is an optional argument that specifies the width of the label 1-2-3 creates. *width* is a value, or the address or name of a cell that contains a value, from 1 through 240.

cell-format is an optional argument that specifies the format of the label 1-2-3 creates. *cell-format* must be a code number from the list below, or the address or name of a cell that contains a code number.

Code number	Format
0 to 15	Fixed, 0 to 15 decimal places
16 to 31	Scientific, 0 to 15 decimal places
32 to 47	Currency, 0 to 15 decimal places
48 to 63	Percent, 0 to 15 decimal places
64 to 79	Comma, 0 to 15 decimal places
112	+/-
113	General
114	Day-month-year (31-Dec-90)
115	Day-month (31-Dec)
116	Month-year (Dec-90)
117	Text
118	Hidden
119	Hour-minutes seconds AM/PM (11:59:59 AM)
120	Hour-minutes AM/PM (11:59 AM)
121	Long Intl Date
122	Short Intl Date
123	Long Intl Time
124	Short Intl Time
127	Worksheet's global cell format (specified with Worksheet Global Settings Format)

Uses

Use {CONTENTS} to store a value as a label so you can use it in a text formula. Use {CONTENTS} with the Text format number 117 to retrieve a formula rather than its result.

Notes

If you do not include *width* and *cell-format*, the label 1-2-3 creates in *target-location* has the same width and format as *source-location*.

To include a *cell-format* argument without a *width* argument, use this syntax:

{CONTENTS *target-location,source-location,,cell-format*}

The extra <u>argument separator</u> between *source-location* and *cell-format* tells 1-2-3 that you omitted *width*.

Although {CONTENTS} changes the contents of cells, 1-2-3 does not automatically recalculate formulas after executing a {CONTENTS} command when worksheet recalculation is set to Automatic. To force recalculation after a {CONTENTS} command, follow the command with ~ (tilde) or {CALC}.

Examples

In the examples below, the cell named INCOME contains the formula +GROSSEXP, which results in $167.24. INCOME is formatted as Currency with two decimal places, and its column width is 9.

{CONTENTS REPORT,INCOME}
+"Today we earned"&REPORT~

Enters the label $167.24 (with a leading and trailing space) in cell REPORT, and then creates the sentence, "Today we earned $167.24" and enters it in the current cell.

{CONTENTS REPORT,INCOME,11,117}
+"The formula we use to calculate earnings is: "&REPORT&"~"

Enters the label +GROSSEXP (with a trailing space) in REPORT (Code 117 is Text format), and then creates the sentence, "The formula we use to calculate earnings is: +GROSSEXP " and enters it in the current cell.

{CONTENTS REPORT,INCOME,3,}

Places the three-character label *** in REPORT, because the specified width is not wide enough to display $167.24.

{CONTENTS REPORT,INCOME,,113}

Places the 167.24 (with two leading spaces and one trailing space) in REPORT. Code 113 formats $167.24 in General format.

See also:

<u>Macro Basics</u>

{DDE-ADVISE}

{DDE-ADVISE *branch-location,item-name,*[*format*]} specifies the macro that is executed when data changes in the server application.

Arguments

branch-location is the address or name of a cell or range that contains macro instructions. It is often the name of another macro or <u>subroutine</u>. If you specify a range, 1-2-3 branches to the first cell in the range.

item-name is the name of the topic item to link to. This is the item in the application file whose data you want transferred through the link. *item-name* is text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or formula that results in a label.

format is an optional argument that specifies one of the Clipboard formats (for example, Text, Metafilepict, or Bitmap). *format* is any text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or formula that results in a label.

If you do not include the *format* argument, 1-2-3 uses the Clipboard Text format.

See your Windows 3.0 documentation for information about Clipboard formats.

Notes

1-2-3 executes the macro at *branch-location* each time the item specified by *item-name* is updated by the server application, and then returns to the main macro.

After it successfully executes a {DDE-DDE-ADVISE} command, 1-2-3 goes directly to the next cell in the macro, ignoring any macro instructions after {DDE-ADVISE} in the same cell. If the server application could not respond, the macro continues in the same cell as {DDE-ADVISE}.

Examples

See {DDE-ADVISE} in Example 2 of <u>Sample DDE Macros</u>.

See also:

<u>Linking Files</u>
<u>Macro Basics</u>

{DDE-CLOSE}

{DDE-CLOSE} terminates the current <u>conversation</u> with a Windows application.

Notes

If no conversation is open, or if multiple conversations are open but none is the current conversation, {DDE-CLOSE} does nothing.

Similar Commands

<u>{DDE-OPEN}</u> initiates a conversation with a Windows application, making that the current conversation. <u>{DDE-USE}</u> makes an open conversation the current conversation.

Examples

See {DDE-CLOSE} in Example 1 of <u>Sample DDE Macros</u>.

See also:

<u>Linking Files</u>
<u>Macro Basics</u>

{DDE-EXECUTE}

{DDE-EXECUTE *execute-string*} sends a command to an application.

Arguments

execute-string represents any command from the application, including macros. *execute-string* is any text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or formula that results in a label.

Notes

{DDE-EXECUTE} returns an error if no conversation is open.

After it successfully executes a {DDE-EXECUTE} command, 1-2-3 goes directly to the next cell in the macro, ignoring any macro instructions after {DDE-EXECUTE} in the same cell. If the server application times out, is busy, or cannot complete the command, the macro continues in the same cell as {DDE-EXECUTE}.

Examples

See {DDE-EXECUTE} in Example 1 of Sample DDE Macros.

See also:

Linking Files
Macro Basics

{DDE-OPEN}

{DDE-OPEN *app-name,topic-name,*[*location*]} initiates a conversation with a Windows application, making that the current conversation; optionally, enters in *location* the unique decimal identification number Windows assigns to the conversation.

Arguments

app-name is the name of an open Windows application that supports DDE. *app-name* is any text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or formula that results in a label.

topic-name is the name of the application file to link to. *topic-name* is any text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or formula that results in a label.

location is an optional argument that specifies the address or name of a cell or range. If you specify a range, 1-2-3 enters the identification number in the first cell of the range.

Notes

You must start an application before using {DDE-OPEN}. You can start an application either with the Windows Program Manager or with the {LAUNCH} command

You can use more than one {DDE-OPEN} command in a macro; to make a particular conversation current, use {DDE-USE}.

Although *location* is an optional argument, you should include it if you plan to use more than one {DDE-OPEN} command in a macro.

After it successfully executes a {DDE-OPEN} command, 1-2-3 goes directly to the next cell in the macro, ignoring any macro instructions after {DDE-OPEN} in the same cell. If {DDE-OPEN} returns an error (for example, if 1-2-3 could not establish the conversation), the macro continues in the same cell as {DDE-OPEN}.

Examples

See {DDE-OPEN} in Example 1 of Sample DDE Macros.

Similar Commands

{DDE-CLOSE} closes the current conversation.

See also:

> Linking Files
> Macro Basics

{DDE-POKE}

{DDE-POKE *range,item-name*,[*format*]} sends a range of data to a server application during the current conversation.

Arguments

range is the the address or name of the range that contains the data you want to send to the server application.

item-name is the name of the topic item to link to. This is the item in the application file whose data you want transferred through the link. *item-name* is text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or formula that results in a label.

format is an optional argument that specifies one of the Clipboard formats (for example, Text, Metafilepict, or Bitmap). *format* is any text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or formula that results in a label.

If you do not include the *format* argument, 1-2-3 uses the Clipboard Text format.

See your Windows 3.0 documentation for information about Clipboard formats.

Notes

Many Windows applications that support DDE as servers do not support {DDE-POKE} functionality. See your application's documentation to find out what level of DDE server support the application provides.

Examples

The following line from a macro transfers the data from the range named LOANPAYMENT to the item named PAYMENT in Text format.

{DDE-POKE LOANPAYMENT,"PAYMENT","Text"}

See also:

Linking Files
Macro Basics

{DDE-REQUEST}

{DDE-REQUEST *range,item-name,*[*format*]} transfers data from a Windows application to 1-2-3.

Arguments

range is a range address or range name. 1-2-3 enters the requested data in *range*.

item-name is the name of the topic item to link to. This is the item in the application file whose data you want transferred through the link. *item-name* is text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or formula that results in a label.

format is an optional argument that specifies one of the Clipboard formats (for example, Text, Metafilepict, or Bitmap). *format* is any text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or formula that results in a label.

If you do not include the *format* argument, 1-2-3 uses the Clipboard Text format.

See your Windows 3.0 documentation for information about Clipboard formats.

Notes

{DDE-REQUEST} returns an error if no conversation is open.

After it successfully executes a {DDE-REQUEST} command, 1-2-3 goes directly to the next cell in the macro, ignoring any macro instructions after {DDE-REQUEST} in the same cell. If *item-name* or *format* is not supported by the server application, the macro continues in the same cell as {DDE-REQUEST}.

{DDE-REQUEST} does not clear data, cell formats, or formatting from *range* before entering data. Use {EDIT-CLEAR} to clear data, cell formats, and formatting from *range* before using {DDE-REQUEST}.

Examples

See {DDE-REQUEST} in Example 1 of Sample DDE Macros.

See also:

Linking Files
Macro Basics

{DDE-UNADVISE}

{DDE-UNADVISE *item-name,*[*format*]} ends a {DDE-ADVISE} command.

Arguments

item-name is the name of the topic item to link to. This is the item in the application worksheet or file whose data you want transferred through the link. *item-name* is text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or formula that results in a label.

format is an optional argument that specifies one of the Clipboard formats (for example, Text, Metafilepict, or Bitmap). *format* is any text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or formula that results in a label.

If you do not include the *format* argument, 1-2-3 uses the Clipboard Text format.

See your Windows 3.0 documentation for information about Clipboard formats.

Notes

If the original {DDE-ADVISE} command used a *format* argument, {DDE-UNADVISE} must use the same *format* argument.

Examples

See {DDE-UNADVISE} in Example 2 of Sample DDE Macros.

See also:

Linking Files
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{DDE-USE}

{DDE-USE *conversation-number*} makes the conversation specified by *conversation-number* the current conversation.

Arguments

conversation-number is the unique identification number Windows assigns to the conversation. If you use the optional *location* argument in {DDE-OPEN}, 1-2-3 enters the identification number in the worksheet.

Uses

You can open more than one conversation in a macro; to make a particular conversation current, use {DDE-USE}.

Notes

{DDE-USE} returns an error if *conversation-number* is invalid or refers to a terminated conversation.

Examples

The following excerpt from a macro opens two DDE conversations with Ami Pro, makes the first conversation current, and transfers data from a bookmark named PAYMENT in LOAN.SAM to the range named LOANPAYMENT in the current 1-2-3 file.

```
{DDE-OPEN "AMIPRO","D:\DOCS\LOAN.SAM",NUM_1}
{DDE-OPEN "AMIPRO","C:\DOCS\INTEREST.SAM",NUM_2}
{DDE-USE NUM_1}
{DDE-REQUEST LOANPAYMENT,"PAYMENT"}
```

See also:

Linking Files
Macro Basics

{DEFINE}

{DEFINE *location1,location2,...,locationn*} specifies where to store <u>arguments</u> passed to a <u>subroutine</u> in a {*subroutine*} command. You must include a {DEFINE} command in any subroutine to which you pass arguments, and the {DEFINE} command must come before the point in the subroutine where the arguments are used.

Arguments

location is the address or name of a cell or range. If *location* is a range, 1-2-3 uses the first cell of the range as the storage location.

Specify a *location* argument for each argument in the {*subroutine*} command. If you do not, the macro terminates with an error when 1-2-3 reaches the {DEFINE} command.

Notes

You can add one or two suffixes -- :string or :value (or an abbreviation of string or value, as long as the first letter is s or v, respectively) -- to each *location* argument in a {DEFINE} command. The suffix tells 1-2-3 how to process the corresponding argument in the {*subroutine*} command. Omitting the suffix is equivalent to specifying :string.

The :string suffix tells 1-2-3 to store the argument as a left-aligned label, even if the argument looks like a number, formula, or cell or range address.

The :value suffix tells 1-2-3 to evaluate the argument before storing it. If the argument is a number, 1-2-3 stores it as a number. If the argument is a formula, 1-2-3 evaluates the formula, and stores the result either as a left-aligned label (for a <u>text formula</u>) or a number (for a <u>numeric formula</u>). If the argument is a cell address or range name, 1-2-3 evaluates the contents of the referenced cell and stores the result as a label or number.

Although {DEFINE} changes the contents of cells, 1-2-3 does not automatically recalculate formulas after executing a {DEFINE} command when worksheet recalculation is set to Automatic. To force recalculation after a {DEFINE} command, follow the command with ~ (tilde) or {CALC}.

When you use {DEFINE}, it should be the first command in the subroutine.

Examples

The {*subroutine*} command in macro \A passes three arguments to SUBR1. The {DEFINE} command at the beginning of SUBR1 stores the label @TODAY in cell ONE, the label "Closing Price:" in cell TWO, and the label CLOSE in cell THREE. The {LET} commands then enters the labels in three consecutive cells in a row.

```
\A                {SUBR1 @TODAY,"Closing Price:",CLOSE}

                  ...
SUBR1   {DEFINE ONE,TWO,THREE}
                  {LET @CELLPOINTER("coord"),ONE}{R}
                  {LET @CELLPOINTER("coord"),TWO}{R}
                  {LET @CELLPOINTER("coord"),THREE}
```

The result is a row that reads:

@TODAY   Closing Price: CLOSE

The {*subroutine*} command in macro \B passes three arguments to SUBR1. The {DEFINE} command at the beginning of SUBR1 evaluates the arguments before storing them. Thus, it stores the value of the first argument, today's date, as a number in cell ONE; the second argument, the string Closing Price:, as a label in cell TWO; and the value of the third argument, the contents of the cell named CLOSE, as a number in cell THREE.

The macro then formats the current cell as day-month and enters the number stored in cell ONE; moves right one cell and enters the label stored in cell TWO; moves right one cell again, formats the cell as

Currency with two decimal places, and enters the number stored in cell THREE.

```
\B              {SUBR1 @TODAY,"Closing Price:",CLOSE}

              ...
SUBR1  {DEFINE ONE:V,TWO,THREE:V}
              {ALT}rf2~{LET @CELLPOINTER("coord"),ONE}{R}
              {LET @CELLPOINTER("coord"),TWO}{R}
              {ALT}rfc{TAB}2~{LET @CELLPOINTER("coord"),THREE}
```

The result is a row that reads (depending on the date and closing price)

17-Dec   Closing Price $9.32.

See also:

Macro Basics

{DISPATCH}

{DISPATCH *location*} performs an indirect branch by transferring macro control to the cell whose name or address is entered in *location*.

location is a single cell containing the address or name of the cell to which macro control is transferred. If *location* is a multiple-cell range, 1-2-3 branches to *location* instead of to the cell whose name or address is entered in the first cell of *location*.

Uses

Use {DISPATCH} to have 1-2-3 branch to one of several possible macros, depending on the contents of *location*. {DISPATCH} is particularly useful in macros that change depending on conditions in the worksheet.

Notes

{DISPATCH} does not return control to the calling macro. If you want to return control to the calling macro, use {BRANCH} or another {DISPATCH} in the called macro.

Examples

The following excerpt from a macro sets the label in the cell named SWITCH and then transfers macro control to the macro whose name is in SWITCH.

```
{IF BALANCE<0}{LET SWITCH,NEGATIVE:s}~
{IF BALANCE=0}{LET SWITCH,ZERO:s}~
{IF BALANCE>0}{LET SWITCH,POSITIVE:s}~
{DISPATCH SWITCH}
```

Similar Commands

{BRANCH} transfers macro execution directly to a specified location. {*subroutine*} executes a specified subroutine and then returns control to the calling macro.

See also:

> Macro Basics

{EDIT-CLEAR}

{EDIT-CLEAR [*selection*],[*property*]} deletes data and related <u>formatting</u> from the worksheet without moving it to the <u>Clipboard</u>.

Arguments

selection is an optional argument that specifies the range whose contents you want to delete.

If you do not include the *selection* argument, 1-2-3 deletes the contents of the <u>current selection</u>.

property is an optional argument that is one of the words from the table below, as text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or a formula that results in a label.

If you do not include a *property* argument, 1-2-3 clears only the <u>cell contents</u> of the cells in the selected range.

Argument	Action
contents	Deletes the contents of all cells in the selected range but leaves cell format intact.
formats	Deletes all cell formats created with <u>Range Format</u> for the selected range and resets the cell formats to the default set for the worksheet with <u>Worksheet Global Settings Format</u>.
styles	Deletes all formatting done with the <u>Style</u> commands (except left, center, and right label alignment) for the selected range; returns the font settings to the default font set for the worksheet file with <u>Style Font</u>; and returns the color settings to the defaults set for the worksheet window with <u>Window Display Options</u>.
graphs	Deletes a graph from the selected range, but does not delete the graph name from memory or from disk, and does not affect the data on which the graph is based.

Notes

{EDIT-CLEAR} is equivalent to choosing <u>Edit Clear Special</u>. When you remove the contents of a range with {EDIT-CLEAR}, you cannot paste them back to the worksheet since they aren't on the Clipboard.

{EDIT-CLEAR} does not clear protected cells or change their format.

Examples

The following {EDIT-CLEAR} command removes the contents of the range LOCAL and returns the <u>cell format</u> to the default.

{EDIT-CLEAR LOCAL,"FORMATS"}

Similar Commands

<u>{BLANK}</u> erases the contents of a range but does not affect formatting.

See also:

<u>Macro Basics</u>

{EDIT-COPY}

{EDIT-COPY [*selection*],[*format*]} copies data and related <u>formatting</u> from the worksheet to the <u>Clipboard</u>.

Arguments

selection is an optional argument that specifies the range whose contents you want to copy to the Clipboard. If you do not include the *selection* argument, 1-2-3 copies the contents of the <u>current selection</u>.

format is an optional argument that specifies one of the Clipboard formats (for example, Text, Metafilepict, or Bitmap). *format* is any text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or formula that results in a label.

If you do not include the *format* argument, 1-2-3 places all appropriate formats on the Clipboard.

See your Windows 3.0 documentation for information about Clipboard formats.

Notes

{EDIT-COPY} is equivalent to choosing <u>Edit Copy</u>. After copying the contents of a range with {EDIT-COPY}, you can paste them repeatedly with <u>{EDIT-PASTE}</u> commands.

Examples

The following {EDIT-COPY} command copies the contents of the range SALES to the Clipboard:

{EDIT-COPY SALES}

Similar Commands

<u>{EDIT-CUT}</u> cuts data and related formatting from the worksheet to the Clipboard.

See also:

<u>Macro Basics</u>

{EDIT-COPY-GRAPH}

{EDIT-COPY-GRAPH} copies the contents of the active Graph window to the <u>Clipboard</u>.

Notes

If the active window is not a Graph window, {EDIT-COPY-GRAPH} returns an error.

You cannot undo an {EDIT-COPY-GRAPH} command.

Examples

The following excerpt from a macro makes the Graph window named SALES.CNF the active window and then copies the graph to the Clipboard:

{WINDOW-SELECT SALES.CNF}
{EDIT-COPY-GRAPH}

Similar Commands

<u>{EDIT-COPY}</u> copies data and related formatting from the worksheet to the Clipboard.

See also:

<u>Macro Basics</u>

{EDIT-CUT}

{EDIT-CUT [*selection*],[*format*]} cuts data and related <u>formatting</u> from the worksheet to the <u>Clipboard</u>.

Arguments

selection is an optional argument that specifies the range whose contents you want to cut to the Clipboard. If you do not include the *selection* argument, 1-2-3 cuts the contents of the <u>current selection</u>.

format is an optional argument that specifies one of the Clipboard formats (for example, Text, Metafilepict, or Bitmap). *format* is any text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or formula that results in a label.

If you do not include the *format* argument, 1-2-3 places all appropriate formats on the Clipboard.

See your Windows 3.0 documentation for information about Clipboard formats.

Notes

{EDIT-CUT} is equivalent to choosing <u>Edit Cut</u>. After cutting the contents of a range with {EDIT-CUT}, you can paste them repeatedly with <u>{EDIT-PASTE}</u> commands.

{EDIT-CUT} does not cut protected cells or change their format.

Examples

The following {EDIT-CUT} command cuts the contents of the range TAX:

{EDIT-CUT TAX}

Similar Commands

<u>{EDIT-COPY}</u> copies data and related formatting from the worksheet to the Clipboard.

See also:

    <u>Macro Basics</u>

{EDIT-PASTE}

{EDIT-PASTE [*selection*],[*format*]} copies data and related <u>formatting</u> from the <u>Clipboard</u> into the active worksheet file.

Arguments

selection is an optional argument that specifies the range where you want to paste the contents of the Clipboard. If you do not include the *selection* argument, 1-2-3 pastes the contents of the Clipboard into the <u>current selection</u>.

format is an optional argument that specifies one of the Clipboard formats (for example, Text, Metafilepict, or Bitmap). *format* is any text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or formula that results in a label.

If you do not include the *format* argument, 1-2-3 pastes using its own private format (Lotus123Private).

See your Windows 3.0 documentation for information about Clipboard formats.

Notes

{EDIT-PASTE} is equivalent to choosing <u>Edit Paste</u>.

You cannot paste data into protected cells.

Examples

The following macro cuts the contents of cell A:C3 and pastes them into each of the cells B:A1, C:A1, and D:A1.

{EDIT-CUT A:C3}
{EDIT-PASTE B:A1}
{EDIT-PASTE C:A1}
{EDIT-PASTE D:A1}

Similar Commands

<u>{EDIT-COPY}</u> copies data and related formatting from the worksheet to the Clipboard. <u>{EDIT-CUT}</u> cuts data and related formatting from the worksheet to the Clipboard.

See also:

<u>Macro Basics</u>

{EDIT-PASTE-LINK}

{EDIT-PASTE-LINK [*range*]} creates a <u>link</u> between a 1-2-3 for Windows worksheet file and the file referenced on the <u>Clipboard</u>.

Arguments

range is an optional argument that specifies the

Notes

{EDIT-PASTE-LINK} is equivalent to choosing <u>Edit Paste Link</u>.

You can use {EDIT-PASTE-LINK} only when the Clipboard contains data copied from a valid source file -- that is, from another worksheet file or from a file created with another Windows application that supports <u>DDE</u>.

When you copy data from a valid source file to the Clipboard, 1-2-3 also stores the link reference (for example, a range address) on the Clipboard. {EDIT-PASTE-LINK} links the active worksheet file to the source file from which you copied the data. Initially, 1-2-3 creates this new link with the update mode set to Automatic (updates the link automatically whenever the source file changes).

{FILESIZE}

{FILESIZE *location*} counts the number of bytes in an open <u>text file</u> and enters the number in *location*.

Arguments

location is the address or name of a cell or a range. If you specify a range, 1-2-3 enters the number in the first cell of the range.

Notes

You must open a text file with <u>{OPEN}</u> before using {FILESIZE}

After it successfully executes a {FILESIZE} command, 1-2-3 goes directly to the next cell in the macro, ignoring any macro instructions after {FILESIZE} in the same cell. If {FILESIZE} returns an error, the macro continues in the same cell as {FILESIZE}.

Although {FILESIZE} changes the contents of cells, 1-2-3 does not automatically recalculate formulas after executing a {FILESIZE} command when worksheet recalculation is set to Automatic. To force recalculation after a {FILESIZE} command, follow the command with ~ (tilde) or {CALC}.

Examples

The following macro enters in cell BYTES the number of bytes in the open text file. The {READ} command then copies the contents of the text file into cell FILECONTENTS. If no text file is open, 1-2-3 branches to cell NO_OPEN_FILE for further instructions.

{FILESIZE BYTES}{BRANCH NO_OPEN_FILE}
{READ BYTES,FILECONTENTS}

Similar Commands

<u>{GETPOS}</u> determines the current position of the <u>byte pointer</u> in the open text file and enters the position in a cell. <u>{SETPOS}</u> moves the byte pointer to a specified position in the open text file.

See also:

<u>Macro Basics</u>

{FOR}

{FOR *counter,start,stop,step,subroutine*} creates a <u>for loop</u>; it repeatedly performs a <u>subroutine call</u> to *subroutine*.

Arguments

counter is the address or name of a cell that keeps track of *subroutine* execution during the for loop. *counter* should be a blank cell, since anything in *counter* is replaced.

start is the initial <u>value</u> for *counter*.

stop is the value that tells 1-2-3 when to terminate the for loop.

step is the value added to *counter* each time 1-2-3 executes the subroutine.

start, *stop*, and *step* are numbers, <u>numeric formulas</u>, or the addresses or names of cells that contains numbers or formulas.

subroutine is the range address or name of the subroutine that 1-2-3 executes in the for loop.

Notes

When 1-2-3 encounters a {FOR} command, it does the following:

1. Enters *start* in *counter*.

2. Compares the number in *counter* with *stop*. If the number in *counter* is less than or equal to *stop*, 1-2-3 performs a subroutine call to *subroutine* and goes to step 3.

   If the number in *counter* is greater than *stop*, 1-2-3 does not perform a subroutine call to *subroutine*. Instead, 1-2-3 returns to the location of the {FOR} command and continues the macro at the instruction following {FOR}.

3. Increases the number in *counter* by *step* and returns to step 2.

If *step* is 0, the number in *counter* can never exceed *stop*, and the for loop becomes an infinite loop. Press CTRL+BREAK to stop an infinite for loop.

1-2-3 stores *start*, *stop*, and *step* internally. You cannot have *subroutine* modify these values once it starts.

Although {FOR} changes the contents of cells, 1-2-3 does not automatically recalculate formulas after executing a {FOR} command when worksheet recalculation is set to Automatic. To force recalculation after a {FOR} command, follow the command with {CALC}.

Examples

The following examples show different ways of using a for loop to call a subroutine named FORMAT. The *counter* is the cell named REP_NUM.

Repeat FORMAT 10 times:
{FOR REP_NUM,1,10,1,FORMAT}

Repeat FORMAT indefinitely:
{FOR REP_NUM,1,10,0,FORMAT}

FORMAT is never called because *start* (10) is larger than *stop* (1), and *step* (2) is positive:
{FOR REP_NUM,10,1,2,FORMAT}

See also:

<u>Macro Basics</u>

{FORBREAK}

{FORBREAK} cancels a <u>for loop</u> created by a <u>{FOR}</u> command.

Notes

After executing a {FORBREAK} command, 1-2-3 returns to the calling macro and executes the instruction immediately following the {FOR} command.

Use {FORBREAK} only within a for loop. Using {FORBREAK} anywhere else causes the macro to terminate with an error.

Examples

In macro \A below, 1-2-3 repeats subroutine ENTRY up to ten times, to let you enter names in a roster. If you press ENTER at the {GETLABEL} command instead of typing a name, the {FORBREAK} command terminates the for loop and 1-2-3 continues immediately to the instructions following the {FOR} command.

```
\A          {BLANK ROSTER}
            {GOTO}ROSTER~
            {FOR J,1,10,1,ENTRY}
            ...

ENTRY       {GETLABEL "Enter name:",@CELLPOINTER("coord")}
            {IF @CELLPOINTER("contents")=""}{FORBREAK}
            {DOWN}
```

The following excerpt from a macro uses {FORBREAK} to end a for loop if the cell named TOTAL contains <u>ERR</u>. If TOTAL contains a value greater than 500, 1-2-3 executes {RETURN} and begins the next repetition of the loop. If TOTAL contains anything else, 1-2-3 continues executing the subroutine.

```
{IF @ISERR(TOTAL)}{FORBREAK}
{IF TOTAL>500}{RETURN}
```

See also:

<u>Macro Basics</u>

{FORM}

{FORM *input-location,*[*call-table*],[*include-list*],[*exclude-list*]} suspends macro execution temporarily so you can enter and edit data in the unprotected cells in *input-location*.

Arguments

input-location is a range of any size that contains cells you unprotected with Range Unprotect. This is the range where you enter data. *input-location* cannot include any hidden columns or worksheets.

call-table is an optional argument that specifies a two-column range. Each cell in the first column contains the macro name of a key on the keyboard. Each adjacent cell in the second column contains a set of macro instructions that 1-2-3 performs when the user presses the key listed in the first column.

include-list is an optional argument that specifies a range that contains a list of allowable keystrokes.

exclude-list is an optional argument that specifies a range that contains a list of keystrokes to ignore. If you specify an *include-list*, do not specify an *exclude-list*, and vice-versa. If you specify both an *include-list* and an *exclude-list*, 1-2-3 uses the *include-list* and ignores the *exclude-list*.

You can use any of the optional arguments without using the ones that precede it by inserting an extra argument separator as a placeholder. For example, to use a *call-table* and an *exclude-list* without an *include-list*, use this syntax:

{FORM *input-location,call-table,,exclude-list*}

The extra argument separator between *call-table* and *exclude-list* tells 1-2-3 that you omitted *include-list*.

Notes

When 1-2-3 encounters a {FORM} command in a macro, it moves the cell pointer to the first unprotected cell in *input-location*, suspends macro execution, and waits for you to press a key. What happens when you press a key depends on whether the {FORM} command uses optional arguments.

If the {FORM} command does not use optional arguments, you can press any typewriter key or pointer-movement key, and any of the following keys: ENTER, ESC, F1 (HELP), F2 (EDIT), HOME, END, and, while typing or editing an entry, BACKSPACE and (if the entry is a value) F9 (CALC). If *input-location* is a 3-D range, you can also use CTRL+PG UP and CTRL+PG DN. If you are typing or editing a formula, you can use F4 (ABS) and F3 (NAME).

When you end the {FORM} command (by pressing either ENTER or ESC when the mode indicator displays READY), 1-2-3 continues the macro, leaving the cell pointer wherever it was when you pressed ENTER or ESC.

If the {FORM} command includes one or more optional arguments, 1-2-3 proceeds as follows:

1. If the {FORM} command uses a *call-table* argument, 1-2-3 checks the first column of the call table. If the keystroke is listed, 1-2-3 executes the instructions in the second column as a subroutine, and then returns to the {FORM} command and waits for you to press another key.

   Note Including {ESC} or ~ (tilde) in a *call-table* subroutine, at a point in the subroutine when the mode indicator displays READY, temporarily suspends the {FORM} command, letting you move the cell pointer out of the *input-range* unprotected area and use all 1-2-3 keys and menus for their standard functions for the rest of the subroutine.

   When the *call-table* subroutine ends, 1-2-3 moves the cell pointer back to wherever it was when the *call-table* subroutine started (unless the cell pointer is within the *input-range* unprotected area when the subroutine ends, in which case 1-2-3 leaves the cell pointer where it is) and reinstates use of 1-2-3 keys as defined by the {FORM} command.

   To end a macro from within a *call-table* subroutine, use {RESTART} or {QUIT} in the subroutine. To end a {FORM} command from within a *call-table* subroutine but continue the macro, use {FORMBREAK} to leave the {FORM} command and continue macro execution at the instruction immediately following the {FORM} command.

2. If the keystroke is not in *call-table* and the {FORM} command uses an *include-list* argument, 1-2-3 checks *include-list*. If the keystroke appears in *include-list*, 1-2-3 performs the keystroke. Otherwise, 1-2-3 ignores the keystroke.

3. If there is no *include-list* argument and the {FORM} command uses an *exclude-list* argument, 1-2-3 checks *exclude-list*. If the keystroke appears in *exclude-list*, 1-2-3 ignores the keystroke. Otherwise, 1-2-3 performs the keystroke.

call-table, *include-list*, and *exclude-list* are case-sensitive for letters typed at the keyboard. For example, if *include-list* contains an uppercase B but not a lowercase b, 1-2-3 allows only uppercase B's during the {FORM} command; lowercase b's are ignored.

Examples

The {FORM} command in the following example uses a *call-table* and an *exclude-list*. This {FORM} command processes inventory orders in a database table using an entry form in a range named ENTRYFORM.

{FORM ENTRYFORM,SIGKEYS,,BADKEYS}

stops the macro temporarily so the user can enter an order in the entry form. The *call-table*, SIGKEYS, includes two key names: {INS} and {QUERY}.

* If you press INS during the {FORM} command, 1-2-3 appends the data in INPUT to the order database table (ORDERS), erases INPUT, and returns to the {FORM} command.

* If you press F7 (QUERY) during the {FORM} command, 1-2-3 branches to subroutine CONFIRM, which uses a {GETLABEL} command to confirm that you want to stop entering orders. If you enter y at the {GETLABEL} prompt, the {QUIT} command ends the macro. If you enter any other letter, 1-2-3 returns to the {FORM} command.

Similar Commands

{?} suspends macro execution while you use commands or enter or edit data. {GET} suspends macro execution and retrieves a keystroke. {GETLABEL} and {GETNUMBER} suspend macro execution and retrieve particular types of information.

See also:

Macro Basics

{FORMBREAK}

{FORMBREAK} ends a {FORM} command.

Notes

After executing a {FORMBREAK} command, 1-2-3 continues macro execution at the instruction immediately following the {FORM} command.

If you use {FORMBREAK} to end a nested {FORM} command, 1-2-3 returns you to the location from which the {FORM} command you are ending was issued and continues the macro there.

Use {FORMBREAK} only within a call-table subroutine or a subroutine to which you transfer control with {BRANCH} or {DISPATCH}. Using {FORMBREAK} anywhere else causes the macro to terminate with an error.

Examples

The {FORM} command in the following example uses a *call-table* and an *exclude-list*. This {FORM} command processes inventory orders in a database table using an entry form in a range named ENTRYFORM.

{FORM ENTRYFORM,SIGKEYS,,BADKEYS}

stops the macro temporarily so you can enter an order in the entry form. The *call-table*, SIGKEYS, includes two key names: {INS} and {END}.

{INS}   {APPENDBELOW ORDERS,INPUT}{BLANK INPUT}

{END}   {FORMBREAK}

*   If you press INS during the {FORM} command, 1-2-3 appends the data in INPUT to the order database table (ORDERS), erases INPUT, and returns to the {FORM} command.

*   If you press END during the {FORM} command, the {FORMBREAK} command ends the {FORM} command and 1-2-3 continues to any instructions that immediately follow the {FORM} command.

See also:

Macro Basics

{FRAMEOFF} and {FRAMEON}

{FRAMEOFF} suppresses display of the <u>worksheet frame</u>. The worksheet frame remains hidden until 1-2-3 reaches a {FRAMEON} command or the macro ends.

{FRAMEON} redisplays the worksheet frame hidden by a {FRAMEOFF} command.

Uses

Use {FRAMEOFF} to display a larger area of the worksheet during macro execution. For example, if the displayed area is not large enough to accommodate a data entry form, use {FRAMEOFF} to increase the available area.

Use {FRAMEOFF} and {FRAMEON} when the worksheet frame might distract users.

Notes

If a <u>{WINDOWSOFF}</u> command was executed earlier in the macro, be sure to precede {FRAMEOFF} or {FRAMEON} with a <u>{WINDOWSON}</u> command. The effects of {FRAMEOFF} or {FRAMEON} will not be visible until you turn screen redrawing back on.

Examples

The following excerpt from a macro turns off display of the worksheet frame during a {FORM} command and then redisplays the frame.

{FRAMEOFF}
{FORM ORDERFORM}
{FRAMEON}

Similar Commands

<u>{PANELOFF}</u> and <u>{PANELON}</u> suppress and restore the <u>control panel</u> and <u>status line</u>. <u>{WINDOWSOFF}</u> and <u>{WINDOWSON}</u> freeze and restore the worksheet window.

See also:

   <u>Macro Basics</u>

{GET}

{GET *location*} suspends macro execution until you press a key, and then records the keystroke as a left-aligned label in *location*.

Arguments

location is the address or name of a cell or range. If you specify a range, 1-2-3 records the keystroke in the first cell of the range.

Notes

After executing a {GET} command, 1-2-3 continues to the cell immediately below the {GET} command, ignoring any instructions in the same cell as the {GET} command.

There is no time limit on a {GET} command; the macro waits indefinitely for a keystroke.

{GET} records APP1 (ALT+F7), APP2 (ALT+F8), and APP3 (ALT+F9) keystrokes only if a 1-2-3 for Windows add-in is attached to the corresponding key.

You must use two {GET} commands to record any of the following keystrokes: CTRL+END HOME, END CTRL+HOME, CTRL+END END, CTRL+END CTRL+PG UP, and CTRL+END CTRL+PG DN.

Although {GET} changes the contents of cells, 1-2-3 does not automatically recalculate formulas after executing a {GET} command when worksheet recalculation is set to Automatic. To force recalculation after a {GET} command, follow the command with ~ (tilde) or {CALC}.

Examples

The following macro prompts you to choose Daily or Monthly (by typing D or M) and stores the keystroke in the cell named CHOICE. If the keystroke in CHOICE is D, 1-2-3 branches to DAY; if it is M, 1-2-3 branches to MONTH. If the keystroke is anything else, 1-2-3 beeps and starts the macro again.

```
\A      {GOTO}EXPENSES~
        {INDICATE "Choose (D)aily or (M)onthly"}
        {GET CHOICE}
        {IF CHOICE="d"}{BRANCH DAYS}
        {IF CHOICE="m"}{BRANCH MONTHS}
        {BEEP}{BRANCH \A}
```

Similar Commands

{?} suspends macro execution while you use commands or enter or edit data. {FORM} suspends macro execution while you enter data in a form. {GETLABEL} and {GETNUMBER} suspend macro execution and retrieve particular types of information.

See also:

   Macro Basics

{GETLABEL}

{GETLABEL *prompt,location*} displays a prompt in the 1-2-3 Classic window and suspends macro execution while you type a response. When you click OK or press ENTER, 1-2-3 stores whatever you typed as a left-aligned label in *location*.

Arguments

prompt is any text enclosed in " " (quotation marks), or the address or name of a cell that contains a label, or a formula that results in the prompt. {GETLABEL} returns an error if you use any of the following for *prompt*: the address or name of a multiple-cell range, a <u>blank cell</u>, or a cell that contains a value.

location is the address or name of a cell or range. If you specify a range, 1-2-3 stores the response in the first cell of the range.

Notes

The response to the prompt can include up to 511 characters. If you press ENTER without typing anything, 1-2-3 enters the ' (apostrophe) <u>label-prefix character</u> in *location*.

There is no time limit on a {GETLABEL} command; the macro waits indefinitely for a response.

Although {GETLABEL} changes the contents of cells, 1-2-3 does not automatically recalculate formulas after executing a {GETLABEL} command when worksheet recalculation is set to Automatic. To force recalculation after a {GETLABEL} command, follow the command with ~ (tilde) or {CALC}.

Examples

The following {GETLABEL} command prompts the user to type a product name and then stores the name in a cell named PRODUCT.

{GETLABEL "Type a product name and press ENTER   ",PRODUCT}

In the following {GETLABEL} command, the macro gets the prompt from ZIP_PROMPT and then enters your response as a label in cell ZIP.

{GETLABEL ZIP_PROMPT,ZIP}

Similar Commands

<u>{?}</u> suspends macro execution while you use commands or enter or edit data. <u>{FORM}</u> suspends macro execution while you enter data in a form. <u>{GET}</u> suspends macro execution and retrieves a keystroke. <u>{GETNUMBER}</u> suspends macro execution and retrieves a value.

See also:

<u>Macro Basics</u>

{GETNUMBER}

{GETNUMBER *prompt*,*location*} displays *prompt* in the 1-2-3 Classic window and suspends macro execution while you type a response. When you click OK or press ENTER, 1-2-3 evaluates your response and stores the resulting number in *location*.

Arguments

prompt is any text enclosed in " " (quotation marks), or the address or name of a cell that contains a label, or a formula that results in the prompt. {GETLABEL} returns an error if you use any of the following for *prompt*: the address or name of a multiple-cell range, a <u>blank cell</u>, or a cell that contains a value.

location is the address or name of a cell or range. If you specify a range, 1-2-3 stores the response in the first cell of the range.

Notes

The response to the prompt can include up to 511 characters, and must be a number, a <u>numeric formula</u>, or the address or name of a cell that contains a value.

If you enter text, a text formula, the address or name of a cell that contains a label or text formula, or press ENTER without typing anything, 1-2-3 enters <u>ERR</u> in location.

There is no time limit on a {GETNUMBER} command; the macro waits indefinitely for a response.

Although {GETNUMBER} changes the contents of cells, 1-2-3 does not automatically recalculate formulas after executing a {GETNUMBER} command when worksheet recalculation is set to Automatic. To force recalculation after a {GETNUMBER} command, follow the command with ~ (tilde) or {CALC}.

Examples

The following {GETNUMBER} command prompts you for your age and then enters the response in the current cell.

{GETNUMBER "Enter your age: ",@CELLPOINTER("coord")}

The following macro stores your response to the prompt in cell NEWSALES and then checks the contents of NEWSALES. If NEWSALES contains ERR (you entered a non-numeric response), the macro branches to RETRY. If NEWSALES contains a number, the macro adds the number to the current value in YTD_SALES and stores the result in YTD_SALES.

```
\S       {GETNUMBER "Enter month's sales:    ",NEWSALES}
         {IF @ISERR(NEWSALES)}{BRANCH RETRY}
         {LET YTD_SALES,YTD_SALES+NEWSALES}

RETRY  {BEEP}{BRANCH \S}
```

Similar Commands

<u>{?}</u> suspends macro execution while you use commands or enter or edit data. <u>{FORM}</u> suspends macro execution while you enter data in a form. <u>{GET}</u> suspends macro execution and retrieves a keystroke. <u>{GETLABEL}</u> suspends macro execution and retrieves a label.

See also:

   <u>Macro Basics</u>

{GETPOS}

{GETPOS *location*} enters a number in *location*. This number reports the current byte-pointer position in the open text file.

Arguments

location is the address or name of a cell or a range. If you specify a range, 1-2-3 enters the number in the first cell of the range.

Uses

Use {GETPOS} to track how much data has been read from a text file. For example, if you want to read the first 100 bytes from a text file when you are not sure how many bytes at a time will be read, use {GETPOS} in the loop that reads and processes the bytes. When *location* contains a number greater than 100, branch out of the loop.

Notes

After it successfully executes a {GETPOS} command, 1-2-3 goes directly to the next cell in the macro, ignoring any macro instructions after {GETPOS} in the same cell. If {GETPOS} returns an error (for example, if no text file is open), the macro continues in the same cell as {GETPOS}.

You must open a text file with the {OPEN} command before using {GETPOS}.

The first position in a text file is reported as 0, not 1. Thus, if the byte pointer is on the first byte in the file, {GETPOS} enters 0 in *location*; if the byte pointer is on the tenth byte, {GETPOS} enters 9, and so on.

Although {GETPOS} changes the contents of cells, 1-2-3 does not automatically recalculate formulas after executing a {GETPOS} command when worksheet recalculation is set to Automatic. To force recalculation after a {GETPOS} command, follow the command with ~ (tilde) or {CALC}.

Examples

The following line from a macro records the current position of the byte pointer in cell POINTER. If the {GETPOS} command succeeds, the macro continues in the next cell. If a text file is not open, the macro branches to FAIL, which contains further instructions.

{GETPOS POINTER}{BRANCH FAIL}

Similar Commands

{FILESIZE} determines the number of bytes in an open text file. {SETPOS} moves the byte pointer to a specified position in an open text file.

See also:

Macro Basics

{GRAPHOFF} and {GRAPHON}

{GRAPHON [*named-graph*],[nodisplay]} has three possible results, depending on the syntax you use:

*   {GRAPHON} with no arguments displays a full-screen view of the <u>current graph</u> while the macro continues to run.

*   {GRAPHON *named-graph*} makes *named-graph* the current graph, and displays a full-screen view of *named-graph* while the macro continues to run.

*   {GRAPHON *named-graph*,nodisplay} makes *named-graph* the current graph without displaying it.

{GRAPHON} remains in effect until 1-2-3 reaches {GRAPHOFF}, <u>{INDICATE}</u>, <u>{?}</u>, <u>{GETLABEL}</u>, <u>{GETNUMBER}</u>, <u>{MENUBRANCH}</u>, <u>{MENUCALL}</u>, or the end of the macro.

{GRAPHOFF} removes a graph displayed by a {GRAPHON} command from the screen.

Arguments

named-graph is an optional argument that specifies an available, named graph.

nodisplay is an optional argument that specifies that you want *named-graph* to be current, but not displayed.

Examples

The following macro displays three named graphs (LINE, BAR, and PIE) at two-second intervals.

```
{GRAPHON LINE}
{WAIT @NOW+@TIME(0,0,2)}
{GRAPHON BAR}
{WAIT @NOW+@TIME(0,0,2)}
{GRAPHON PIE}
{WAIT @NOW+@TIME(0,0,2)}
{GRAPHOFF}
```

See also:

<u>Macro Basics</u>

{IF}

{IF *condition*} evaluates *condition* as true or false. If *condition* is true, 1-2-3 continues with the next instruction immediately following the {IF} command in the same cell. If *condition* is false, 1-2-3 goes immediately to the next cell in the column, skipping any further instructions in the same cell as the {IF} command.

Arguments

condition is usually a <u>logical formula</u> or the name or address of a cell that contains a logical formula. However, you can use any formula, number, text, or cell name or address as *condition*. 1-2-3 evaluates any *condition* that does not equal 0 as false. <u>Blank cells</u>, text, and <u>ERR</u> and <u>NA</u> values all equal 0 when used as *condition*.

Uses

Use the {IF} command to implement <u>if-then-else</u> processes like those in programming languages.

Notes

If you use {IF} to implement if-then-else processing in a macro, be sure to include a <u>{BRANCH}</u> or <u>{RETURN}</u> command at the end of the "then" instructions (the instructions that follow the {IF} command in the same cell). This keeps 1-2-3 from continuing to the "else" instructions (the instructions that start in the cell below the {IF} command).

Examples

In the following macro, if the entry in the cell named DATE is between 21002 and 31959 (the <u>date numbers</u> for July 1, 1957, and July 1, 1987, respectively), the macro copies the contents of DATE to the current cell and ends. If not, the macro continues to the {BRANCH} command in the cell below.

```
{IF DATE>21002}{IF DATE<31959}{ALT}eqDATE~{QUIT}
{BRANCH INVALID_DATE}
```

The following macro creates mailing labels from the records in a database table. First, the macro checks to see whether the current cell is blank. (A blank cell indicates the end of the database table.) If so, the macro branches to <u>subroutine</u> PRINT, which contains the macro instructions for printing the mailing labels. If not, it calls subroutine MAKE_A_LABEL, which contains the macro instructions for creating a mailing label, then moves the <u>cell pointer</u> down one cell and repeats macro \A from the beginning.

```
\A      {IF @CELLPOINTER("type")="b"}{BRANCH PRINT}
        {MAKE_A_LABEL}
        {DOWN}{BRANCH \A}
```

See also:

<u>Macro Basics</u>

{INDICATE}

{INDICATE [*string*]} displays *string* as the <u>mode</u> indicator. The indicator continues to display *string* until 1-2-3 reaches another {INDICATE} command or until you end the 1-2-3 session.

Arguments

string is an optional argument that specifies any text that fits in the <u>format line</u>, the address or name of a cell that contains a label, or a <u>text formula</u>.

Notes

Using an empty string as *string* -- {INDICATE ""} -- removes the mode indicator entirely.

{INDICATE} with no argument restores standard operation of the mode indicator. The indicator displays READY, EDIT, WAIT, and so on, depending on the current operation.

Examples

The following command displays Database Maintenance Macro as the mode indicator; the mode indicator's width expands to 26 characters.

{INDICATE "Database Maintenance Macro"}

The following command displays the contents of a cell named MSG as the mode indicator:

{INDICATE MSG}

See also:

<u>Macro Basics</u>

{LAUNCH}

{LAUNCH *command,*[*window*]} starts a Windows application.

Arguments

command is the command string that starts the Windows application, including the <u>path</u> and any command-line arguments. *command* is text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or formula that results in a label.

For example, to start Lotus Notes from the directory \NOTES on drive C:, *command* is "C:\NOTES\NOTES".

window is an optional argument that controls the initial state of the application. *window* is any integer from 0 to 9, or the address or name of a cell that contains an integer from 0 to 9.

The following table shows the possible values of *window* and their effects on the application you want to start.

Note Not all values for *window* are supported by all Windows applications.

Argument	Action
0	Hides the application window and activates another window.
1	Activates and displays the application window. If the window is minimized or maximized, restores it to its original size and position.
2	Activates and minimizes the application window.
3	Activates and maximizes the application window.
4	Displays the application window in its most recent size and position. 1-2-3 remains the active application.
5	Activates the application window and displays it in its current size and position.
6	Minimizes the application window and activates the top-level window in the window-manager's list.
7	Minimizes the application window. 1-2-3 remains the active application. This is the value 1-2-3 uses if you do not include a *window* argument.
8	Displays the application window in its current state. 1-2-3 remains the active application.
9	Activates and displays the application window. If the window is minimized or maximized, restores it to its original size and position.

Examples

The following excerpt from a macro starts and minimizes Ami Pro, and opens the Ami Pro file UPDATE.DOC.

{LAUNCH "C:\AMI\AMIPRO c:\AMI\DATA\UPDATE.DOC"}

See also:

<u>Macro Basics</u>

{LET}

{LET *location,entry*} enters a number or left-aligned label in *location*.

Arguments

location is the address or name of a cell or a range. If you specify a range, 1-2-3 enters the number or label in the first cell of the range.

entry is a number, text, a formula, or address or name of a cell that contains a number, a label, or a formula.

Uses

Use {LET} with {IF} to vary cell contents depending on a condition or to change entries in a database table when you know the actual cell address of the entries you want to change.

Notes

If you use a formula for *entry*, 1-2-3 evaluates the formula and enters the result in *location*. {LET} does not enter formulas.

You can add one or two suffixes -- :string or :value (or an abbreviation of string or value, as long as the first letter is s or v, respectively) -- to *entry*. The suffix tells 1-2-3 explicitly whether to treat the argument as a literal string (enter the argument verbatim) or to evaluate the argument before entering it.

The :string suffix tells 1-2-3 to store the argument as a left-aligned label, even if the argument looks like a number, formula, or cell or range address.

The :value suffix tells 1-2-3 to evaluate the argument before storing it. If the argument is a number, 1-2-3 stores it as a number. If the argument is a formula, 1-2-3 evaluates the formula, and stores the result either as a left-aligned label (for a text formula) or a number (for a numeric formula). If the argument is a cell address or range name, 1-2-3 evaluates the contents of the referenced cell and stores the result as a label or number.

Although {LET} changes the contents of cells, 1-2-3 does not automatically recalculate formulas after executing a {LET} command when worksheet recalculation is set to Automatic. To force recalculation after a {LET} command, follow the command with ~ (tilde) or {CALC}.

Examples

In the following macro, the {LET} command enters the result of 1.5 times the value in QTR_1 in the cell named QTR_2 if QTR_1 is a defined range name. If it is not, the {LET} command enters ERR in the cell named QTR_2.

{LET QTR_2,1.5*QTR_1:v}

The following macro enters 1.5*QTR_1 as a label in the cell named QTR_2:

{LET QTR_2,"1.5*QTR_1"}

The following macro enters the result of the text formula +"Ms." &NAME in the cell named CUSTOMER. If NAME is not a defined range name, the macro enters ERR in the cell named CUSTOMER.

{LET CUSTOMER,+"Ms. "&NAME:v}

Similar Commands

{PUT} enters a number or label in a cell according to the cell's row and column position within a range.

See also:

Macro Basics

{LINK-ASSIGN}

{LINK-ASSIGN *link-name,range,*[*property1*]*,*[*property2*]*,*[*property3*]]} specifies a range to link to (a destination range).

Arguments

link-name is the name for the link specified in {LINK-CREATE}, entered as text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or formula that results in a label.

If *link-name* does not refer to an existing link, {LINK-ASSIGN} returns an error.

range is a range address or name that specifies the destination range.

Caution When the destination range is not big enough to hold the incoming data, 1-2-3 clips the incoming data that does not fit into the destination range and resizes a graph that only partially fits into the destination range.

property1, property2, and *property3* are optional arguments that specify what to clear from the destination range before every update.

If you do not include *property* arguments, 1-2-3 clears all properties in the destination range.

property arguments are words from the table below, entered as text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or a formula that results in a label.

Argument	Action
contents	Deletes the contents of all cells in the selected range but leaves cell format intact.
formats	Deletes all cell formats created with Range Format for the selected range and resets the cell formats to the default set for the worksheet with Worksheet Global Settings Format.
styles	Deletes all formatting done with the Style commands (except left, center, and right label alignment) for the selected range; returns the font settings to the default font set for the worksheet file with Style Font; and returns the color settings to the defaults set for the worksheet window with Window Display Options.
graphs	Deletes a graph from the selected range, but does not delete the graph name from memory or from disk, and does not affect the data on which the graph is based.

Notes

If *link-name* refers to an active link, 1-2-3 updates data from the server application when it reaches a {LINK-ASSIGN} command, even if the link-update mode is manual.

You cannot assign more than one destination range to any one link.

Examples

See {LINK-ASSIGN} in Example 4 of Sample DDE Macros.

See also:

    Linking Files
    Macro Basics

{LINK-CREATE}

{LINK-CREATE *link-name,app-name,topic-name,item-name*,[*format*],[*mode*],[*branch-location*]]}, without using the Clipboard, creates a link between the current worksheet file and another Windows application that supports DDE as a server.

Arguments

link-name is a name you specify to identify the link, entered as text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or formula that results in a label.

Keep the following rules in mind when you enter *link-name*:

* *link-name* can be up to 15 characters long. 1-2-3 does not distinguish between uppercase and lowercase letters in link names.

* Do not start *link-name* with ! (exclamation point), and do not include spaces, commas, semicolons, periods, or any of the following characters in *link-name*:

   +   *   -   /   &   >   <   @   #   {   ?

* Do not create names that look like cell addresses, such as P12 or EX100, or names that begin with numbers, such as 20DEC. Do not use @function names, key names, or macro command keywords as link names.

* If the *link-name* you specify is already in use, {LINK-CREATE} returns an error.

app-name is the name of a Windows application. *app-name* is any text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or formula that results in a label.

topic-name is the name of the application worksheet or file to link to. *topic-name* is any text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or formula that results in a label.

item-name is the name of the topic item to link to. This is the item in the application worksheet or file whose data you want transferred through the link. *item-name* is text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or formula that results in a label.

format is an optional argument that specifies one of the Clipboard formats (for example, Text, Metafilepict, or Bitmap). *format* is any text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or formula that results in a label.

If you do not include the *format* argument, 1-2-3 uses the Clipboard Text format.

See your Windows 3.0 documentation for information about Clipboard formats.

mode is an optional argument that specifies when data is updated. *mode* is one of the words from the table below, entered as text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or formula that results in a label.

Argument	Action
automatic	Updates data in the destination range each time the source item is updated.
manual	Updates data in the destination range only when you use {LINK-UPDATE}.

If the server application file does not support the requested mode, data is updated in the mode supported by the server file.

If you do not include the *mode* argument, 1-2-3 uses automatic.

branch-location is an optional argument that specifies a location where macro execution will start when the data from the link is updated. *branch-location* is the address or name of a cell or range.

You can use any of the optional arguments without using the ones that precede it by inserting an extra argument separator as a placeholder. For example, to use *format* and *branch* without *mode*, use this syntax:

{LINK-CREATE *link-name,app-name,topic-name,item-name,format,,branch*}

The extra argument separator between *format* and *branch* tells 1-2-3 that you omitted *mode*.

Notes

If the DDE section of your 123W.INI file contains the line

AUTOSTART=1

and the application specified by *app-name* is not active, {LINK-CREATE} tries to launch the application with a concatenation of *app-name* and *topic-name*.

After it successfully executes an {LINK-CREATE} command, 1-2-3 goes directly to the next cell in the macro, ignoring any macro instructions after {LINK-CREATE} in the same cell. If {LINK-CREATE} cannot establish a conversation, the macro continues in the same cell as {LINK-CREATE}.

Examples

See {LINK-CREATE} in Examples 4 and 5 of Sample DDE Macros.

See also:

>   Linking Files
>   Macro Basics

{LINK-DEACTIVATE}

{LINK-DEACTIVATE *link-name*} deactivates a link in the current worksheet, but leaves the link intact. When a link is inactive, 1-2-3 does not update values in the destination range.

Arguments

link-name is the name for the link specified in {LINK-CREATE}, entered as text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or formula that results in a label.

If *link-name* does not refer to an existing link, {LINK-DEACTIVATE} returns an error.

Notes

In addition to the link specified by *link-name*, {LINK-DEACTIVATE} deactivates all the links in the same conversation. To deactivate a single link, set its update mode to manual.

Use {LINK-UPDATE} to reactivate a link.

Examples

See {LINK-DEACTIVATE} in Example 5 of Sample DDE Macros.

See also:

> Linking Files
> Macro Basics

{LINK-DELETE}

{LINK-DELETE *link-name*} erases a link in the <u>current worksheet</u>, but leaves the values obtained through the link in the worksheet.

Arguments

link-name is the name for the link specified in <u>{LINK-CREATE}</u>, entered as text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or formula that results in a label.

If *link-name* does not refer to an existing link, {LINK-DELETE} returns an error.

Notes

If a destination range was specified for the link you want to delete, 1-2-3 automatically disassociates the destination range from the link, but does not delete the data in the destination range.

When the last link on a conversation is deleted, the conversation ends.

Examples

The following macro deletes a link between 1-2-3 and Ami Pro named AMILINK2.

{LINK-DELETE "AMILINK2"}

See also:

<u>Linking Files</u>
<u>Macro Basics</u>

{LINK-REMOVE}

{LINK-REMOVE *link-name*} removes the currently used destination range for a <u>DDE</u> link, but does not delete the data in the range.

Arguments

link-name is the name for the link specified in <u>{LINK-CREATE}</u>, entered as text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or formula that results in a label.

If *link-name* does not refer to an existing link, {LINK-REMOVE} returns an error.

Notes

{LINK-REMOVE} does not delete links. Use <u>{LINK-DELETE}</u> to delete links.

If no destination range has been assigned to the link with a <u>{LINK-ASSIGN}</u> command, {LINK-REMOVE} returns an error.

Examples

The following macro changes the current destination range for the link AMILINK2 to MAY_PAYMENT.

{LINK-REMOVE "AMILINK2"}
{LINK-ASSIGN "AMILINK2","MAY_PAYMENT"}

See also:

<u>Linking Files</u>
<u>Macro Basics</u>

{LINK-TABLE}

{LINK-TABLE *location*} creates a table of all <u>DDE</u> links associated with the <u>current file</u>.

Arguments

location is the address or name of the the top left cell of the range to receive the table. The table will occupy eight columns and as many rows as there are links associated with the file plus one blank row.

Caution 1-2-3 writes over any existing data when it creates the table, so make sure the range does not contain data you need.

Notes

The table contains the following information for each link: link name, application, topic, item, format, update mode, link status, and destination range. For example:

AMILINK1	Ami Pro	D:\DOCS\LOAN_A.SAM	PAYMENT	Text	Automatic	Active	B32..B32
AMILINK2	Ami Pro	D:\DOCS\LOAN_B.SAM	PAYMENT	Text	Manual	Active	B35..B35

Examples

The following macro creates a table of links associated with the current file. The table starts in cell LINKS.

{LINK-TABLE "LINKS"}

See also:

<u>Linking Files</u>
<u>Macro Basics</u>

{LINK-UPDATE}

{LINK-UPDATE *link-name*} updates DDE links, or activates and updates links deactivated with {LINK-DEACTIVATE}.

Arguments

link-name specifies the name for a link specified in {LINK-CREATE}. *link-name* is text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or formula that results in a label.

If *link-name* does not refer to an existing link, {LINK-UPDATE} returns an error.

Notes

If you assigned a destination range to the link with {LINK-ASSIGN}, 1-2-3 updates the destination range with current information from the source file.

Examples

See {LINK-UPDATE} in Example 5 of Sample DDE Macros.

See also:

> Linking Files
> Macro Basics

{LOOK}

{LOOK *location*} checks the <u>typeahead buffer</u> for keystrokes and records the first keystroke (if any) as a left-aligned label in *location*. If the buffer is empty, 1-2-3 enters ' (apostrophe <u>label-prefix character</u>) in *location*.

Arguments

location is the address or name of a cell or range. If you specify a range, 1-2-3 records the keystroke in the first cell in the range.

Uses

Use {LOOK} to stop a long macro, break out of an infinite <u>loop</u>, or tell a macro to branch elsewhere. The macro keeps running unless the {LOOK} command records a character that tells the macro to do something else.

Notes

{LOOK} records ALT+F7 (APP1), ALT+F8 (APP2), and ALT+F9 (APP3) keystrokes only if a 1-2-3 for Windows <u>add-in</u> is attached to the corresponding key.

1-2-3 does not remove a keystroke it records with {LOOK} from the typeahead buffer, so a subsequent {LOOK} command will record the same keystroke. To remove the first keystroke from the typeahead buffer, follow the {LOOK} command with a {GET} command. For example, the sequence {LOOK LOC1} {GET LOC2}{LOOK LOC2} records the first keystroke in the typeahead buffer in cell LOC1, removes that keystroke from the typeahead buffer, and records the next keystroke in the typeahead buffer in cell LOC2.

Although {LOOK} changes the contents of cells, 1-2-3 does not automatically recalculate formulas after executing a {LOOK} command when worksheet recalculation is set to Automatic. To force recalculation after a {LOOK} command, follow the command with ~ (tilde) or {CALC}.

Examples

The TASK macro below is part of a longer macro that requires a user to perform specific tasks. The macro begins by erasing the contents of the cell named KEYCELL. Later, the macro beeps twice and checks whether the user has typed a character. If the typeahead buffer is empty, the macro loops back to the beginning of TASK. If the typeahead buffer contains a character, the macro branches to the subroutine NEWTASK.

TASK   {BLANK KEYCELL}
                    ...
                    {BEEP 4}{BEEP 2}
                    {LOOK KEYCELL}
                    {IF KEYCELL=""}{BRANCH TASK}
                    {BRANCH NEWTASK}

Similar Commands

<u>{GET}</u> suspends macro execution and retrieves a keystroke.

See also:.

   <u>Macro Basics</u>

{MENUBRANCH} and {MENUCALL}

{MENUBRANCH *location*} displays in the 1-2-3 Classic window the macro menu that starts in the first cell of *location*, waits for you to select an item from the menu, and then branches to the macro instructions associated with the menu item you select.

{MENUCALL *location*} displays in the 1-2-3 Classic window the macro menu that starts in the first cell of *location*, waits for you to select an item from the menu, and then performs a subroutine call to the macro instructions associated with the menu item you select.

Arguments

location is the address or name of the first cell of a row that contains the menu items (branch or subroutine names).

Notes

A macro menu is a menu you set up for use during a macro (the setup procedure is described below). When the macro menu is activated, the menu items appear in the first line of the window and the description of the highlighted menu item appears in the second line. A macro menu can include up to eight items.

After you select an item from a macro menu that {MENUBRANCH} activated, macro control branches to the associated macro instructions in the third line of the macro menu. Because this is a branch, macro control does not return to the original macro location when 1-2-3 completes the macro menu instructions.

After you select an item from a macro menu that {MENUCALL} activated, 1-2-3 performs the associated macro instructions as a subroutine; macro control returns to the original macro location when 1-2-3 completes the instructions.

Pressing ESC when a macro menu appears cancels the {MENUBRANCH} or {MENUCALL} command that activated the menu. Macro control returns to the location from which the {MENUBRANCH} or {MENUCALL} command was issued, and the macro continues at the instruction that follows the {MENUBRANCH} or {MENUCALL} command.

A macro menu appears in the 1-2-3 Classic window even after a {PANELOFF} command.

To Create a Macro Menu

1. Decide on a location for the macro menu. The menu does not have to be in the same file as the macro that uses it, but the file it is in must be active when you run the macro that uses it. If you put the menu in a different file from the macro that uses it, remember to include a file reference in the {MENUBRANCH} or {MENUCALL} *location* argument.

2. Enter up to eight menu items in consecutive cells in the first row of *location*. Leave the cell after the final menu item blank.

    You can enter labels, numbers, or formulas as the menu items. If you enter a formula, 1-2-3 displays the formula's result as the menu item.

    Make sure each menu item starts with a different letter or number so you can select an item by pressing the first character. If two or more menu items have the same first character, 1-2-3 selects the first item (reading from left to right) when you press that character.

    Try to make each menu item a single word. If you use multiple-word items, connect the words with a - (hyphen), for example, First-Quarter. Otherwise, a user might think the words are separate menu items.

    Each menu item can include up to 512 characters. However, if the total characters in all the menu items, plus the spaces on either side of each item, exceed the width of the window, 1-2-3 displays as many of the menu items as possible and uses an arrow at the end of the menu line to indicate that more items are off to the right. Also, if the number of characters in any single menu item exceeds the

screen width, 1-2-3 truncates the item when displaying the menu.

3. Enter the description for each menu item in the cell directly below the menu item. You can enter labels, numbers, or formulas as menu-item descriptions.

    A menu-item description can include up to 512 characters. However, you should limit the description to the width of the window because 1-2-3 truncates descriptions whose length exceeds the width of the window.

4. Immediately below the menu-item descriptions (that is, starting in the third row of the macro menu range), enter the macro instructions that 1-2-3 performs if you select that menu item. Or, enter a {BRANCH} or {*subroutine*} command that directs 1-2-3 to a set of macro instructions.

5. Use Range Name Create to assign a range name to *location* (the first cell of the macro menu).

Examples

The following macro displays the macro menu that starts in cell MACROMENU. When you select one of the menu items, 1-2-3 branches to the macro instructions associated with that item. 1-2-3 executes the {BEEP} command only of you press ESC instead of selecting a menu item.

{MENUBRANCH MACROMENU}
{BEEP}

The following macro displays the macro menu that starts in cell MACROMENU. When you select one of the menu items, 1-2-3 performs a subroutine call to the macro instructions associated with that menu item. When it completes those instructions, 1-2-3 saves the revised file, and then the macro ends. If you press ESC instead of selecting a menu item, 1-2-3 saves the file and the macro ends.

{MENUCALL MACROMENU}
{ALT}fs
{QUIT}

See also:

Macro Basics

{ONERROR}

{ONERROR *branch-location*,[*message-location*]]} traps and handles errors that occur while a macro is running.

Normally, when an error occurs while a macro is running, 1-2-3 displays an error message and, except for background errors, changes the mode indicator to ERROR and ends the macro. However, if an {ONERROR} command is in effect when the error occurs, 1-2-3 returns to READY mode and branches to *branch-location* for further macro instructions. If the {ONERROR} command includes the optional *message-location* argument, 1-2-3 records the error message in *message-location*.

Arguments

branch-location is the address or name of the cell or range that contains the macro instructions to which 1-2-3 branches after an error occurs. If you specify a range, 1-2-3 branches to the first cell in the range.

message-location is an optional argument that specifies the address or name of a cell or range you specify to store the error message. If you specify a range, 1-2-3 uses the first cell in the range.

Uses

Use {ONERROR} before any point at which there is a possibility of an error. To continue trapping errors, include another {ONERROR} command in the instructions at *branch-location*.

Notes

Each {ONERROR} command can handle only one error. An {ONERROR} command remains in effect until an error occurs, until 1-2-3 executes another {ONERROR} command, or until the macro ends.

{ONERROR} traps all types of errors except macro syntax errors (typing errors in macro instructions that prevent 1-2-3 from interpreting the instructions). When 1-2-3 encounters a macro syntax error, it ends the macro and displays an error message that describes the error.

{ONERROR} clears the subroutine stack. This means that if the error occurs in a subroutine, 1-2-3 does not return to the location from which the subroutine call was issued after completing the instructions in *branch-location*.

When you are using {ONERROR} to trap an error other than the one that results from pressing CTRL+BREAK, you may want to precede the {ONERROR} command with {BREAKOFF}.

Although {ONERROR} changes the contents of cells, 1-2-3 does not automatically recalculate formulas after executing a {ONERROR} command when worksheet recalculation is set to Automatic. To force recalculation after a {ONERROR} command, follow the command with ~ (tilde) or {CALC}.

Examples

The following excerpt from a macro branches to a subroutine named CHOICE2 if an error occurs and stores the error message in a cell named ERR_MSG.

{ONERROR CHOICE2,ERR_MSG}

See also:

Macro Basics

{OPEN}

{OPEN *file-name,access-type*} opens a <u>text file</u> for read-only processing or for read-and-write processing, depending on the type of access you specify.

Arguments

file-name is the full name of a text file, including the extension, or the address or name of a cell that contains a text file name. Unless the text file is in the <u>current directory</u>, you must specify the path as part of *file-name* and enclose the argument in " (quotation marks), for example, "C: \PERSONAL\JOBMEMO.PRN".

access-type is one of the four characters r, w, m, or a (in uppercase or lowercase), or the address or name of a cell that contains one of those characters. The character specifies the type of access you have to the file once it is open:

r   Read access opens an existing file for reading only, placing the <u>byte pointer</u> at the beginning of the file. You can use {READ} and {READLN} but not {WRITE} and {WRITELN} with a file opened with read access.

w   Write access opens a new file for reading and writing. You can use {READ}, {READLN}, {WRITE}, and {WRITELN} with a file opened with write access.

    Caution If you open an existing file with write access, 1-2-3 erases the current contents of the file when it opens the file. To open an existing file for writing and retain the existing file contents, use modify or append access.

m   Modify access opens an existing file for reading and writing, placing the byte pointer at the beginning of the file. You can use {READ}, {READLN}, {WRITE}, and {WRITELN} with a file opened with modify access.

a   Append access opens an existing file for reading and writing, placing the byte pointer at the end of the file. You can use {READ}, {READLN}, {WRITE}, and {WRITELN} with a file opened with append access.

Uses

Use {OPEN} before you use any of the other file manipulation macro commands: <u>{CLOSE}</u>, <u>{FILESIZE}</u>, <u>{GETPOS}</u>, <u>{READ}</u>, <u>{READLN}</u>, <u>{SETPOS}</u>, <u>{WRITE}</u>, and <u>{WRITELN}</u>.

Notes

Only one text file can be open at a time. If a text file is open when 1-2-3 reaches an {OPEN} command, 1-2-3 automatically closes that text file before opening the new one. If a text file is open when a macro ends, however, 1-2-3 does not automatically close the text file. You must include a <u>{CLOSE}</u> command in the macro to close the file.

After it successfully executes an {OPEN} command, 1-2-3 goes directly to the next cell in the macro, ignoring any macro instructions after {OPEN} in the same cell. If {OPEN} returns an error the macro continues in the same cell as {OPEN}.

An open text file does not appear on screen. It is open only in the sense that 1-2-3 can use it.

When opening a new file (a file that does not yet exist in the specified directory), you can use write access only. If you try to open a new file with read, modify, or append access, the {OPEN} command will fail.

Examples

The following macro opens a new text file named PASTDUE.PRN in the root directory on drive C, enters the contents of the cell named OVERDUE as the first line of the file, and closes the file; then the macro ends. If unable to open PASTDUE.PRN on drive C, 1-2-3 branches to CONTINUE for further instructions.

{OPEN "C:\PASTDUE.PRN",w}{BRANCH CONTINUE}
{WRITELN OVERDUE}
{CLOSE}

In the following macro, if the working directory contains a file named PASTDUE.PRN, 1-2-3 opens the file with read access, enters the first line of the file in the cell named OVERDUE, closes the file, and ends the macro. If the working directory does not contain a file named PASTDUE.PRN, 1-2-3 branches to CONTINUE.

{OPEN PASTDUE.PRN,r}{BRANCH CONTINUE}
{READLN OVERDUE}
{CLOSE}

See also:

Macro Basics

{PANELOFF} and {PANELON}

{PANELOFF [clear]} freezes the <u>control panel</u> and <u>status line</u> until 1-2-3 encounters a {PANELON} command or the macro ends.

{PANELON} unfreezes the control panel and the status line.

Arguments

clear is an optional argument. If you include clear, 1-2-3 clears the control panel and status line (except the SST indicator when a macro is running in STEP mode) before freezing them.

Uses

Use {PANELOFF} in interactive macros to freeze or clear the control panel and status line when activity in that area would confuse users.

Notes

<u>{INDICATE}</u> unfreezes and displays the mode indicator after a {PANELOFF} command.

Examples

The following macro freezes the control panel, status line, and worksheet area so that you don't see the series of prompts and dialog boxes that normally appear during F5 (GOTO) commands.

```
{PANELOFF}
{GOTO}DATA_ONE~
{ALT}rfc{TAB}2{TAB 2}~
{GOTO}DATA_TWO~
{ALT}rfc{TAB}2{TAB 2}~
{PANELON}
```

Similar Commands

<u>{FRAMEOFF}</u> and <u>{FRAMEON}</u> suppress and restore the worksheet frame. <u>{WINDOWSOFF}</u> and <u>{WINDOWSON}</u> freeze and restore the Worksheet window.

{PUT}

{PUT *location*,*column-offset*,*row-offset*,*entry*} enters a number or left-aligned label in a cell within *location*.

Arguments

location is the address or name of a range of any size that contains the cell where you want to enter data.

column-offset and *row-offset* are <u>offset numbers</u> that identify the column and row position of a cell within *location*.

entry is a number, text, formula, or address or name of a cell that contains a number, label, or formula. If *entry* is a <u>text formula</u>, precede it with a + (plus sign).

Uses

Use {PUT} to change entries in a <u>database table</u> when you know the relative position in the table but not the specific cell address.

Notes

If you use a formula for *entry*, 1-2-3 evaluates the formula and enters the result in *location*.

You can add one or two suffixes -- :string or :value (or an abbreviation of string or value, as long as the first letter is s or v, respectively) -- to *entry*. The suffix tells 1-2-3 explicitly whether to treat the argument as a literal string (enter the argument verbatim) or to evaluate the argument before entering it.

The :string suffix tells 1-2-3 to store the argument as a left-aligned label, even if the argument looks like a number, formula, or cell or range address.

The :value suffix tells 1-2-3 to evaluate the argument before storing it. If the argument is a number, 1-2-3 stores it as a number. If the argument is a formula, 1-2-3 evaluates the formula, and stores the result either as a left-aligned label (for a text formula) or a number (for a <u>numeric formula</u>). If the argument is a cell address or range name, 1-2-3 evaluates the contents of the referenced cell and stores the result as a label or number.

Although {PUT} changes the contents of cells, 1-2-3 does not automatically recalculate formulas after executing a {PUT} command when worksheet recalculation is set to Automatic. To force recalculation after a {PUT} command, follow the command with ~ (tilde) or {CALC}.

Examples

The following examples refer to a range named COSTS (A1..D5) in the current worksheet.

{PUT COSTS,3,2,45}

places the number 45 in cell D3.

{PUT COSTS,2,0,MONTH}

copies the contents of the cell named MONTH to cell C1. If MONTH contains a formula, the macro copies the current value of the formula to cell C1.

{PUT COSTS,0,8,500}

results in an error. Range COSTS has only five rows, so a *row-offset* of 8 is invalid.

Similar Commands

<u>{LET}</u> specifies the target cell by its address or name.

See also:

<u>Macro Basics</u>

{QUIT}

{QUIT} ends a macro immediately, returning keyboard control to the user. 1-2-3 never executes any instructions that follow a {QUIT} command.

Notes

If you use {QUIT} in a <u>subroutine</u>, the command ends the entire macro, not just the subroutine.

Examples

In the following line from a macro, if the cell named YEAR contains the value 1991, the macro ends; otherwise, 1-2-3 continues to the next cell for further macro instructions.

{IF YEAR=1991}{QUIT}

In the following macro, if the value in the cell named YEAR is less than 1991, 1-2-3 branches to OLD; otherwise, the macro ends.

{IF YEAR<1991}{BRANCH OLD}
{QUIT}

Similar Commands

<u>{RESTART}</u> clears the subroutine stack, ending the macro when the current subroutine ends. <u>{RETURN}</u> ends the current subroutine and returns control to the calling macro.

See also:

<u>Macro Basics</u>

{READ}

{READ *byte-count*,*location*} starts at the current <u>byte-pointer</u> position in the open <u>text file</u>, copies the number of bytes specified by *byte-count* to *location*, and advances the byte-pointer *byte-count* bytes.

Arguments

byte-count is a value or the address or name of a cell that contains a value from 0 through 511. If the value of *byte-count* is greater than the number of bytes remaining in the file, 1-2-3 copies all of the remaining bytes to *location*. Using a negative number or a number greater than 511 as *byte-count* is equivalent to using 511.

location is the address or name of a cell or range. If you specify a range, 1-2-3 enters the data in the first cell of the range.

Notes

After it successfully executes a {READ} command, 1-2-3 goes directly to the next cell in the macro, ignoring any macro instructions after {READ} in the same cell. If {READ} returns an error (for example, if no text file is open), the macro continues in the same cell as {READ}.

You must open a text file with the <u>{OPEN}</u> command before using {READ}.

The first byte-pointer position in a text file is reported as 0, not 1.

{READ} copies the carriage-return and line-feed characters at the end of text lines.

Although {READ} changes the contents of cells, 1-2-3 does not automatically recalculate formulas after executing a {READ} command when worksheet recalculation is set to Automatic. To force recalculation after a {READ} command, follow the command with ~ (tilde) or {CALC}.

Examples

In an open text file, the byte pointer is at the first byte (position 0) of the text:

Total Sales for the Year Ending 1990

The following {READ} command copies the word Total and the space that follows it to the cell named CHARS, and moves the byte pointer forward to the S in Sales.

{READ 6,CHARS}

Similar Commands

<u>{READLN}</u> works like {READ}, but does not copy carriage-return and line-feed characters.

See also:

<u>Macro Basics</u>

{READLN}

{READLN *location* } starts at the current <u>byte-pointer</u> position in the open <u>text file</u>, copies the remainder of the current line to *location*, and advances the byte-pointer to the beginning of the next line in the file.

Arguments

location is the address or name of a cell or range. If you specify a range, 1-2-3 enters the data in the first cell of the range.

Notes

After it successfully executes a {READLN} command, 1-2-3 goes directly to the next cell in the macro, ignoring any macro instructions after {READLN} in the same cell. If {READLN} returns an error (for example, if no text file is open), the macro continues in the same cell as {READLN}.

You must open a text file with the <u>{OPEN}</u> command before using {READ}.

{READLN} does not copy the carriage-return and line-feed characters at the end of text lines.

Although {READLN} changes the contents of cells, 1-2-3 does not automatically recalculate formulas after executing a {READLN} command when worksheet recalculation is set to Automatic. To force recalculation after a {READLN} command, follow the command with ~ (tilde) or {CALC}.

Examples

In an open text file, the byte pointer is at the beginning of the line that contains the word January. Each line ends with a carriage-return.

January
February

The first {READLN} command copies the word January to cell MONTH1. The next {READLN} command copies the word February to the cell MONTH2.

{READLN MONTH1}
{READLN MONTH2}

Similar Commands

<u>{READ}</u> works like {READLN}, but copies carriage-return and line-feed characters.

See also:

<u>Macro Basics</u>

{RECALC} and {RECALCCOL}

{RECALC *location*,[*condition*],[*iterations*]} recalculates the values in *location*, proceeding row by row.

{RECALCCOL *location*,[*condition*],[*iterations*]} recalculates the values in *location*, proceeding column by column.

Arguments

location is the address or name of the cell or range you want to recalculate.

condition is an optional argument that tells 1-2-3 to repeat the recalculation until *condition* is true. *condition* is usually a <u>logical formula</u> or the address or name of a cell that contains a logical formula, but it can also be a <u>numeric formula</u> or <u>text formula</u>, a number, or the address or name of a cell.

1-2-3 evaluates any *condition* that does not equal 0 as true and any condition that does equal 0 as false. A numeric formula or number is considered a true *condition* unless its value is 0; a text formula is always a true *condition*; and a reference to a cell that contains the value <u>ERR</u> or <u>NA</u>, a text formula, or a label is always a true *condition*. A reference to a <u>blank cell</u> is always a false *condition*.

If *condition* is the address or name of a cell that contains a formula, and the formula needs to be recalculated for the {RECALC} or {RECALCCOL} command to work correctly, be sure the cell is inside *location*.

iterations is an optional argument that tells 1-2-3 to perform the specified number of recalculation passes. *iterations* is a value, or the address or name of a cell that contains a value. This argument overrides the iterations setting in <u>Tools User Setup Recalculation Manual</u>. If *iterations* is 0, 1-2-3 performs the recalculation once.

If you include both *condition* and *iterations*, 1-2-3 repeats the recalculation until *condition* is true or until it has performed the specified number of *iterations*, whichever happens first.

You can use the *iterations* argument without the *condition* argument. To do so, use this syntax:

{RECALC *location,,iterations*} or {RECALCCOL *location,,iterations*}

The extra argument separator between the *location* and *iterations* arguments tells 1-2-3 that you omitted *condition*.

Uses

Use {RECALC} to recalculate formulas located below and to the left of cells on which they depend.

Use {RECALCCOL} to recalculate formulas located above and to the right of cells on which they depend.

Notes

Use {RECALC} or {RECALCCOL} only if recalculation is set to Manual (with Tools User Setup Recalculation).

When 1-2-3 recalculates with {RECALC} or {RECALCCOL}, it does not update formulas outside the range. To ensure that all your formulas are up to date at the end of a macro that uses {RECALC} or {RECALCCOL}, include a {CALC} instruction in the macro, change worksheet recalculation to Automatic, or press F9 (CALC) when the macro ends.

Examples

The following excerpt from a macro first sets recalculation to Manual. Other macro instructions change the value in cell D4. (The formula in cell A9 is dependent on the value in D4.) The {RECALC} command at the end tells 1-2-3 to recalculate the range named NEWPRICES, which includes cells D4 and A9. Recalculation proceeds row by row, so 1-2-3 recalculates D4 before A9, and the result is accurate.

{ALT}turm~{ESC}
...

{RECALC NEWPRICES}

The following command recalculates the range named PAYMENT, column by column, until the value in the cell named VAL falls below 100 or the number of recalculations equals 50.

{RECALCCOL PAYMENT,VAL<100,50}

See also:

Macro Basics

{RESTART}

{RESTART} clears the <u>subroutine stack</u>, ending the macro when the current <u>subroutine</u> ends.

Uses

Use {RESTART} to control where macro execution continues or ends after certain subroutine tasks are performed.

Notes

When 1-2-3 encounters a {RESTART} command, it executes the remaining instructions in the current subroutine, but instead of returning control to the original macro location after it completes the current subroutine, the macro ends. If the instructions that follow {RESTART} in the subroutine transfer macro control elsewhere, however, the macro does not end.

Examples

The following excerpt from a subroutine combines {RESTART} with {IF} to clear the subroutine stack and branch to NEXTPLAN if the cell named STATUS contains the label Not OK. If STATUS contains anything else or is blank, macro control returns to the original macro location after 1-2-3 completes the remainder of the subroutine.

{IF STATUS="Not OK"}{RESTART}{BRANCH NEXTPLAN}

In the following example, the {FOR} command calls the subroutine BALANCE. The subroutine stores the number entered in cell PURCHASE and enters the new balance in cell BAL. If the new balance is 0 or less, {RESTART} branches to BROKE; otherwise, 1-2-3 repeats the subroutine BALANCE ten times, as specified in the {FOR} command. When the for loop is complete, 1-2-3 returns to the instruction that follows the {FOR} command in the original macro.

	{FOR COUNT,1,10,1,BALANCE}
BALANCE	{GETNUMBER "Cost of purchase?",PURCHASE}
	{LET BAL,BAL-PURCHASE}
	{IF BAL<=0}{RESTART}{BRANCH BROKE}

Similar Commands

<u>{QUIT}</u> ends macro execution.

See also:

<u>Macro Basics</u>

{RETURN}

{RETURN} returns macro control from a <u>subroutine</u> to the calling macro.

Uses

Use {RETURN} in a subroutine that was called by a <u>*{subroutine}*</u>, <u>{MENUCALL}</u>, or <u>{FOR}</u> command.

Notes

In a subroutine called by {*subroutine*} or {MENUCALL}, {RETURN} immediately returns macro control from the subroutine to the location in the calling macro from which {*subroutine*} or {MENUCALL} was issued. In a subroutine called by a {FOR} command, {RETURN} ends the current iteration of the subroutine and immediately starts the next iteration.

If the subroutine ends with a blank cell, {RETURN} is unnecessary; macro control automatically returns to the calling macro.

When used in the main body of macro instructions rather than in a subroutine, {RETURN} is equivalent to {QUIT}: it ends the macro immediately.

Examples

In the SAVE subroutine below, {GETLABEL} prompts you to type a response. If you type N or n, 1-2-3 returns immediately to the location from which the subroutine call {SAVE} was issued. If you type Y or y, 1-2-3 saves the current version of the file and then returns to the location from which the subroutine call {SAVE} was issued. If you type any other character, 1-2-3 repeats subroutine SAVE from the beginning.

```
SAVE           {GETLABEL,"Save file? (Y/N)",INPUT}~
               {IF INPUT="N"}{RETURN}
               {IF INPUT="Y"}{ALT}fs{RETURN}
               {BRANCH SAVE}
```

Similar Commands

<u>{QUIT}</u> ends macro execution. <u>{RESTART}</u> clears the subroutine stack, ending the macro when the current subroutine ends.

See also:

<u>Macro Basics</u>

{ROLLBACK}

{ROLLBACK [*driver-name*],[*database-name*]} cancels pending <u>external database</u> transactions.

Arguments

driver-name is an optional argument that specifies the name of the driver. *driver-name* is any text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or formula that results in a label.

database-name is an optional argument that specifies the name of the external database. *database-name*   is any text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or formula that results in a label.

You must use both arguments or no arguments. {ROLLBACK} with arguments cancels only the transaction pending for the driver and database you specify. {ROLLBACK} with no arguments cancels all pending transactions.

Notes

{ROLLBACK} works with the SQL Server driver only.

To learn more about using macros for transaction control, see **<u>Chapter 5</u>** of *DataLens Drivers for 1-2-3*.

Examples

The following excerpt from a macro cancels the transaction pending for the driver SQL_SERVER and the database named PAYROLL.

{ROLLBACK "SQL_SERVER","PAYROLL"}

Similar Commands

<u>{COMMIT}</u> commits (finalizes) pending external database transactions.

See also:

<u>Macro Basics</u>

{SETPOS}

{SETPOS *offset-number*} moves the <u>byte pointer</u> in an open <u>text file</u> *offset-number* bytes from the first byte in the file.

Arguments

offset-number is an <u>offset number</u> that specifies the position in the file to which you want to move the byte pointer, relative to the first byte in the file.

Notes

After it successfully executes a {SETPOS} command, 1-2-3 goes directly to the next cell in the macro, ignoring any macro instructions after {SETPOS} in the same cell. If {SETPOS} returns an error (for example, if no text file is open), the macro continues in the same cell as {SETPOS}.

You must open a text file with the <u>{OPEN}</u> command before using {SETPOS}.

The first byte-pointer position in a text file is reported as 0, not 1.

Caution 1-2-3 does not prevent you from placing the byte pointer past the end of a file. If necessary, use {FILESIZE} to determine the size of a file before using {SETPOS}.

Examples

If the byte pointer is at the beginning of a text file that consists of 250 bytes and begins with the text

This report contains information based on last year's performance

the command

{SETPOS 10}

moves the byte pointer to the letter t at the end of the word report.

The following command, acting on the same text file, enters the value 250 in the cell named BYTES and then moves the byte pointer to the position after the last character in the file. If no text file is open, the macro branches to NEXT.

{FILESIZE BYTES}{BRANCH NEXT}
{SETPOS BYTES}

Similar Commands

<u>{FILESIZE}</u> determines the number of bytes in an open text file. <u>{GETPOS}</u> determines the byte pointer's current position in an open text file.

See also:

<u>Macro Basics</u>

{SYSTEM}

{SYSTEM *command*} temporarily suspends the 1-2-3 session and executes the specified operating system command.

Arguments

command represents any DOS command, including commands that run batch files or other programs. *command* is any text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or formula that results in a label.

Notes

After the operating system executes *command*, the 1-2-3 session automatically resumes, and the macro continues.

If *command* sets an error level, follow {SYSTEM} with @INFO("osreturncode") to test whether *command* was completed successfully.

Caution Do not use {SYSTEM} to load memory-resident programs. If you do so, you may not be able to resume 1-2-3.

Examples

The following command suspends the 1-2-3 session, executes a batch file called COPYFILE, and returns to 1-2-3. The macro continues after the batch file is finished.

{SYSTEM COPYFILE}

See also:

Macro Basics

{WAIT}

{WAIT *time-number*} suspends macro execution and displays WAIT as the <u>mode</u> indicator until the time specified by *time-number*. When the specified time arrives, 1-2-3 removes the WAIT indicator and continues the macro.

Arguments

time-number is a <u>time number</u>, or the address or name of a cell that contains a time number. If *time-number* represents a nonexistent time or a time that has already passed, 1-2-3 ignores the {WAIT} command and continues to the next macro instruction in the same cell. In most cases, use <u>time @functions</u> to specify *time-number*.

Uses

Use {WAIT} to let the user read what is on the screen before moving to a new location.

Notes

1-2-3 uses your computer's date and time settings to keep track of time. Be sure these settings are correct before you use {WAIT}.

During a {WAIT} command, the only keystroke 1-2-3 responds to is CTRL+BREAK. If you press CTRL+BREAK during a {WAIT} command, 1-2-3 ends the macro immediately, unless you used <u>{BREAKOFF}</u> earlier in the macro.

Examples

The macro READCOL displays the message "Press CTRL+BREAK to stop" as the mode indicator, moves the cell pointer down one row, pauses 5 seconds, and beeps. It repeats this process until you press CTRL+BREAK. This macro is useful to examine a long column of entries or to scroll through a long document while you are reading it.

```
READCOL        {INDICATE "Press CTRL+BREAK to stop"}

PAUSE          {DOWN}
               {WAIT @NOW+@TIME(0,0,5)}
               {BEEP}{BRANCH PAUSE}
```

The following macro suspends macro execution for the amount of time specified by @TIMEVALUE(0.012), about 17.3 minutes:

{WAIT @NOW+@TIMEVALUE(0.012)}

See also:

   <u>Macro Basics</u>

{WINDOW-ADJUST}

{WINDOW-ADJUST *x,y,width,height*} moves the active window so that the upper left corner of the window is *x* pixels from the left and *y* pixels from the top corner of the 1-2-3 window, and sizes the active window to be *height* pixels high and *width* pixels wide.

Arguments

x specifies the horizontal position, in pixels, measured from the left side of the 1-2-3 window to the left side of the window being moved. *x* is a value, a formula that results in a value or the address or name of a cell that contains a value or a formula that results in a value.

y specifies the vertical position, in pixels, measured from the top of the 1-2-3 window to the top of the window being moved. *y* is a value, a formula that results in a value or the address or name of a cell that contains a value or a formula that results in a value.

width specifies the window width, in pixels, from the left border to the right border. *width* is a value, a formula that results in a value or the address or name of a cell that contains a value or a formula that results in a value.

height specifies the window height, in pixels, from the top border to the bottom border. *height* is a value, a formula that results in a value or the address or name of a cell that contains a value or a formula that results in a value.

Uses

Use {WINDOW-ADJUST} to position a window in the 1-2-3 window. For example, you can move a Worksheet window to see the Graph window, perform some formatting tasks in the Graph window, then move the Worksheet window back.

You can also use {WINDOW-ADJUST} to reduce and enlarge windows. Reducing a window lets the user see more of the other open windows, and enlarging a window lets the user see more of the file shown in the enlarged window.

Notes

If you specify too large a value for *x* or *y*, the window moves partially or completely out of view. Use Window Tile to bring the window back into view.

Examples

The following macro makes the Graph window SALES active, places it 50 pixels from the left and 30 pixels from the top of the 1-2-3 window, and makes it 215 by 215 pixels in size:

{WINDOW-SELECT "SALES"}
{WINDOW-ADJUST 50,30,215,215}

See also:

Macro Basics

{WINDOW-SELECT}

{WINDOW-SELECT *window-name*} makes the window specified by *window-name* the <u>active window</u>.

Arguments

window-name is the name of an open window, as it appears in the <u>title bar</u>, entered as text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or formula that results in a label.

You do not need to include the file extension or path as part of *window-name* unless files with the same name but different extensions are open (for example, SALES.WK1 and SALES.WK3).

If you specify a window that is not open, {WINDOW-SELECT} returns an error.

Notes

When {WINDOW-SELECT} occurs in a macro, 1-2-3 activates a window and then continues executing the macro. The menu that the macro uses after a {WINDOW-SELECT} command depends on whether the active window is a Worksheet window, a Graph window, or the Transcript window.

Commands in the 1-2-3 for Windows main menu, Graph window menu, and Transcript window menu may have the same underlined letter; if the available menu is not the menu you intend, command sequences in the macro may produce unexpected results.

Examples

The following macro activates the Graph window EXPENSES.WK3 GRAPH1.

{WINDOW-SELECT "EXPENSES.WK3 GRAPH1"}

The following excerpt from a macro activates the Graph window SALES, uses Chart Type Bar to change the graph type from a line graph to a bar graph, and then activates the Worksheet window EARNINGS.WK3.

{WINDOW-SELECT "SALES"}
{ALT}ctb~
{WINDOW-SELECT "EARNINGS.WK3"}

See also:

<u>Macro Basics</u>

{WINDOWSOFF} and {WINDOWSON}

{WINDOWSOFF} suppresses screen updates while a macro is running.

{WINDOWSON} cancels {WINDOWSOFF} and restores normal worksheet display.

Uses

Use {WINDOWSOFF} to suppress visible noninteractive macro activity (changes flashing on the screen), especially in a long macro. {WINDOWSOFF} also speeds up macro execution because 1-2-3 does not update the display.

Notes

{WINDOWSOFF} remains in effect until 1-2-3 executes a {WINDOWSON} command or the macro ends.

Examples

The following macro uses {WINDOWSOFF} before recalculating all the active worksheet files and then uses {WINDOWSON} when recalculation is complete. The macro continues, resuming screen updating.

{WINDOWSOFF}
{CALC}
{WINDOWSON}

Similar Commands

{FRAMEOFF} and {FRAMEON} suppress and restore display of the worksheet frame. {PANELOFF} and {PANELON} freeze and restore the control panel and status line.

See also:

Macro Basics

{WINDOW-STATE}

{WINDOW-STATE *state*} <u>minimizes</u>, <u>maximizes</u>, or <u>restores</u> the active window.

Arguments

state is one of the words from the table below, as text enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or formula that results in a label.

Argument	Action
Maximize	Maximizes the window.
Minimize	Minimizes the window.
Restore	Restores a maximized window to its previous state.

Notes

{WINDOW-STATE} is equivalent to clicking the Maximize, Minimize, or Restore buttons.

Examples

The following excerpt from a macro minimizes the active Worksheet window before displaying the graph named SALES in the Graph window.

{WINDOW-STATE "minimize"}
{ALT}gv{ALT "g"}SALES~

See also:

<u>Macro Basics</u>

{WRITE}

{WRITE *string*} copies text to the open <u>text file</u>, starting at the current <u>byte-pointer</u> position.

Arguments

string is text, a <u>text formula</u>, or the address or name of a cell that contains a label or a text formula. If *string* is a text formula, 1-2-3 evaluates the formula and writes the resulting text in the file. If *string* is a value, the macro terminates with an error.

Notes

1-2-3 evaluates *string* and converts the result from <u>LMBCS</u> codes to <u>ASCII</u> codes. It then copies the converted result to the file, starting at the current position of the byte pointer, and advances the byte pointer to the position just beyond the last character written. If necessary, 1-2-3 extends the length of the file to accommodate the incoming *string*.

1-2-3 for Windows maps LMBCS characters to Windows ANSI characters (using the closest match available), because Windows can only display and print ANSI characters. 1-2-3 for Windows accepts all LMNCS characters, but the actual character displayed or printed is limited by the Windows ANSI character set.

A subsequent {WRITE} or {WRITELN} command begins writing where this command stopped, unless you change the position of the byte pointer with a <u>{SETPOS}</u> command. If the byte pointer is in the middle of the file, the incoming *string* writes over existing data.

After it successfully executes a {WRITE} command, 1-2-3 goes directly to the next cell in the macro, ignoring any macro instructions after {WRITE} in the same cell. If {WRITE} returns an error (for example, if no text file is open), the macro continues in the same cell as {WRITE}.

You must open a text file with the <u>{OPEN}</u> command before using {WRITE}.

The first byte-pointer position in a text file is reported as 0, not 1.

Examples

The following line from a macro copies the text

McGuill's Dairy

to the open text file. If no text file is open, or if the file was opened with read-only access, the macro branches to FAIL.

{WRITE "McGuill's Dairy"}{BRANCH FAIL}

The following {WRITE} command copies the label from the cell named FULLNAME to a text file opened with append access earlier in the macro.

{WRITE FULLNAME}

Similar Commands

<u>{WRITELN}</u> works like {WRITE}, but adds carriage-return and line-feed characters.

See also:

  <u>Macro Basics</u>

{WRITELN}

{WRITELN *string*} copies text to the open <u>text file</u>, starting at the current <u>byte-pointer</u> position, and adds a carriage return and line feed.

Arguments

string is text, a <u>text formula</u>, or the address or name of a cell that contains a label or a text formula. If *string* is a text formula, 1-2-3 evaluates the formula and writes the resulting text in the file. If *string* is a value, the macro terminates with an error.

Notes

1-2-3 evaluates *string* and converts the result from <u>LMBCS</u> codes to <u>ASCII</u> codes. It then copies the converted result to the file, starting at the current position of the byte pointer, and advances the byte pointer to the position just beyond the last character written. If necessary, 1-2-3 extends the length of the file to accommodate the incoming *string*.

1-2-3 for Windows maps LMBCS characters to Windows ANSI characters (using the closest match available), because Windows can only display and print ANSI characters. 1-2-3 for Windows accepts all LMNCS characters, but the actual character displayed or printed is limited by the Windows ANSI character set.

A subsequent {WRITE} or {WRITELN} command begins writing where this command stopped, unless you change the position of the byte pointer with a <u>{SETPOS}</u> command. If the byte pointer is in the middle of the file, the incoming *string* writes over existing data.

After it successfully executes a {WRITELN} command, 1-2-3 goes directly to the next cell in the macro, ignoring any macro instructions after {WRITELN} in the same cell. If {WRITELN} returns an error (for example, if no text file is open), the macro continues in the same cell as {WRITELN}.

You must open a text file with the <u>{OPEN}</u> command before using {WRITELN}.

The first byte-pointer position in a text file is reported as 0, not 1.

Examples

The following macro writes a line to the open text file, adds a carriage return and line feed to start a new line, and writes four more lines that each end with a carriage return and line feed. If no text file is open, or if the text file was opened with read-only access, the macro branches to FAIL.

{WRITE "Musical Instruments in My Band"}{BRANCH FAIL}
{WRITELN " "}
{WRITELN "Keyboard"}
{WRITELN "Saxophone"}
{WRITELN "Drums"}
{WRITELN "Guitar"}

Similar Commands

<u>{WRITE}</u> works like {WRITELN}, but does not add carriage-return and line-feed characters.

See also:

   <u>Macro Basics</u>

Using Help

Help provides information about all aspects of 1-2-3 for Windows.

Selecting a Help Topic

To select a Help topic using the mouse, point to green text with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

When 1-2-3 is in READY mode, you can choose a Help command in the Help pulldown menu in 1-2-3 to gain access to broad categories of Help topics, such as Keyboard, @Functions, and Macros.

Viewing a Definition

To view the definition of a term using the mouse, point to green text with a dotted underline. When the mouse pointer changes to a hand icon, press the mouse button. Using the keyboard, press TAB until the definition is highlighted, and then press ENTER.

The definition appears in a pop-up box and stays visible until you click the mouse button or press ENTER -- or any other key -- again.

F1 (HELP)

When you are not in the Help window, you can press F1 (HELP) to open the Help window and get Help on what you are doing in 1-2-3.

Note When the Help window is the active window, pressing F1 (HELP) closes 1-2-3 for Windows Help and opens How to Use Help. To return to 1-2-3 for Windows Help Contents, select the Contents button.

Help Features

Cross-References
You can select a Help topic that gives information related to the current topic.

Definitions and Examples
You can view definitions and examples in pop-up boxes throughout Help.

Help Buttons
You can use Help buttons to go directly to Help Contents, backtrack through Help topics you viewed, browse through sets of related Help topics, and search for information.

Help Window Commands
You can print Help topics and open the Help of other Windows applications; copy Help topics to the Clipboard; add notes to Help topics; and add topics to a pulldown menu so you can get to them quickly.

Search
You can use Search to find topics associated with the keyword or phrase you specify.

Viewing 1-2-3 and Help Together on the Screen
You can keep Help visible while you work in 1-2-3.

See also:

Help Keys

Viewing 1-2-3 and Help Together on the Screen

You can arrange the 1-2-3 window and the Help window so that they overlap as little as possible and both windows remain fully visible while you work.

Note 1-2-3 window is the term used to refer to the window whose title bar contains the name of the application: 1-2-3 for Windows. You must manipulate the 1-2-3 window -- not a Worksheet, Graph, or Transcript window -- in the following procedures.

It's likely that at some point in this procedure, the Help window will be partly or completely hidden. You can choose File Print Topic in the Help window to print this topic.

▶ About Cell References (4:10) **To Arrange the 1-2-3 Window and the Help Window**
1. If the Help window fills the whole screen, click the Restore button.

   If the Maximize button of the Help window is visible, skip this step.

2. Move the Help window to the left side of the screen by pointing to its title bar and dragging it.

3. Resize the Help window to fill the left half of the screen.

   Drag a top, bottom, or side border to resize in one direction only. Drag a corner of the border to resize vertically and horizontally at the same time. The mouse pointer changes to a white two-headed arrow when you are pointing to a border.

4. Click the 1-2-3 window to make it the active window.

   The active window always appears in the foreground, so the 1-2-3 window may hide part or all of the Help window at this point.

5. If the 1-2-3 window fills the whole screen, click the Restore button.

   If the Maximize button of the 1-2-3 window is visible, skip this step.

6. Move the 1-2-3 window to the right side of the screen by pointing to its title bar and dragging it.

7. Resize the 1-2-3 window to fill the right half of the screen.

⌨ **To Arrange the 1-2-3 Window and the Help Window**
1. If the Help window fills the whole screen, restore the Help window to a smaller size by pressing ALT+ space bar to open the Control menu and then choosing Restore.

   If the Maximize button of the Help window is visible, skip this step.

2. Move the Help window to the left side of the screen.

   Choose Move in the Control menu, use the arrow keys to move the outline of the window, and then press ENTER.

3. Resize the Help window to fill the left half of the screen.

   Choose Size in the Control menu, press an arrow key to indicate which border you want to move, use the arrow keys to move the border, and then press ENTER.

4. Make the 1-2-3 window the active window by pressing ALT+ESC until the 1-2-3 window is the active window.

   The active window always appears in the foreground, so the 1-2-3 window may hide part or all of the Help window at this point.

5. If the 1-2-3 window fills the whole screen, restore it to a smaller size by pressing ALT+ space bar to open the Control menu and then choosing Restore.

   If the Maximize button of the 1-2-3 window is visible, skip this step.

6. Move the 1-2-3 window to the right side of the screen.

Choose Move in the Control menu, use the arrow keys to move the outline of the window, and then press ENTER.

7. Resize the 1-2-3 window to fill the right half of the screen.

Choose Size in the Control menu, press an arrow key to indicate which border you want to move, use the arrow keys to move the border, and then press ENTER.

See also:

Help and Online Books Window Commands
Using Help

Displaying Definitions and Examples

In Help topics, you will see words and phrases that are green and have a dotted underline: Help provides definitions for these words and phrases. You will also see the word Example followed by a word or phrase that is green and has a dotted underline: Help provides an example of the item under discussion.

To Display a Definition or Example

1. Point to a term with a dotted underline.

    The mouse pointer changes to a hand icon.

2. Press the mouse button.

    The pop-up box that contains the definition or example is displayed.

The pop-up box disappears when you press the mouse button again.

To Display a Definition or Example

1. Press TAB to highlight a term with a dotted underline.

2. Press ENTER.

    The pop-up box is displayed.

The pop-up box disappears when you press any key.

See also:

Help and Online Books Window Commands
Using Cross-References
Using Search

Help Buttons

Help has seven buttons, located in the button bar, that let you move around easily in Help. If the feature is not available, its button is dimmed.

To choose a Help button, <u>click</u> it or press the underlined letter in the button name.

Contents
Displays 1-2-3 Help Contents.

Search
Lists all the keywords for Help. By typing or selecting a keyword, you can search for and go to a specific Help topic.

Back
Displays the last topic you viewed in Help or in Online Books. You can move back one topic at a time in the order you viewed each topic until you return to the first topic you viewed. Then the button is dimmed. The record of which topics you have viewed is erased each time you minimize or close the Help window.

History
Displays the last 40 Help and Online Books topics selected during the Windows session. The record of which topics you have selected is erased each time you minimize or close the Help window.

Books
Displays a list of online books. You can open a book by selecting it from this list.

<<
Displays the previous topic in a series of related topics until you reach the first topic in the series. Then the button is dimmed.

>>
Displays the next topic in a series of related topics until you reach the last topic in the series. Then the button is dimmed.

See also:

<u>Help Keys</u>
<u>Help and Online Books Window Commands</u>
<u>Using Search</u>

Help Keys

The following is a list of the keys you use in 1-2-3 for Windows Help.

ALT+F4
> Closes the Help window. Help saves any <u>annotations</u> or <u>bookmarks</u> you created, and saves the current size and position of the Help window.

ALT+ space bar
> Opens the Control menu for the Help window.

CTRL+END
> Scrolls to the end of the Help topic.

CTRL+HOME
> Scrolls to the beginning of the Help topic.

CTRL+INS
> Copies a Help topic onto the <u>Clipboard</u> so you can paste it into a worksheet file or another Windows application.

F1 (HELP)
> Starts 1-2-3 for Windows Help and displays 1-2-3 Help Contents, or displays Help about what you are doing in 1-2-3. If Help is an <u>icon</u>, pressing F1 (HELP) restores Help to a window and displays the last topic you viewed.

See also:

<u>Help Buttons</u>
<u>Help and Online Books Window Commands</u>
<u>Using Help</u>

Using Search

You can have Help or Online Books search for topics associated with a keyword or phrase. For example, if you want information about ranges, select "Ranges" from the list of keywords. All the topics associated with the keyword "Ranges" are displayed. You then choose the topic you want to view.

1. Select Search in the Help or Online Books button bar.

2. Select a word or phrase from the list of keywords in the search <u>list box</u>.

   You can use the keyboard to scroll quickly to different parts of the list. When you type a letter in the text box, the list box scrolls automatically to the keyword that most closely matches what you are typing.

   For example, if you type pr in the text box, the list box scrolls to the first keyword beginning with the letters pr (or to the closest match alphabetically). To select the keyword you want, type the entire word, or press TAB to move to the list box and select the keyword.

3. Select Show Topics.

   All the topics associated with the selected keyword are displayed in the topics list box.

4. Select the topic you want to view. If necessary, use the <u>scroll bar</u> to view more topics.

5. Select Go To or press ENTER.

   The topic is displayed.

See also:

<u>Help and Online Books Window Commands</u>
<u>Using Cross-References</u>

Using Cross-References

In Help and Online Books, you will often see words and phrases that are green and have a solid underline, phrases that are blue, and phrases that are purple. Green words and phrases are cross-references to Help topics related to the current topic. Blue phrases are cross-references to Show Me movies. And purple phrases are cross-references to Online Books topics.

To Go to a Cross-Reference

1. Point to a cross-reference.

   The <u>mouse pointer</u> changes to a hand icon.

2. Click the mouse button.

   If you select a green or purple cross-reference, the topic for the cross-reference replaces the current topic in the Help or Online Books window.

   If you select a blue cross-reference, the movie for the cross-reference begins playing.

To Go to a Cross-Reference

1. Press TAB to highlight a cross-reference.

2. Press ENTER.

   If you select a green or purple cross-reference, the topic for the cross-reference replaces the current topic in the Help or Online Books window.

   If you select a blue cross-reference, the movie for the cross-reference begins playing.

See also:

<u>Help and Online Books Window Commands</u>
<u>Using Search</u>

Help and Online Books Window Commands

File Commands

Open

Print Topic

Printer Setup

Exit

Edit Commands

Copy

Annotate

Bookmark Commands

Define

(Bookmark Name)

More

Help Commands

How to Use Help

About Help

File Open (Help and Online Books Windows)

Reads a Help or Online Books (.HLP) file into memory, replacing the Help or Online Books file you previously had open.

You can open the .HLP file for any application that uses Windows Help. You do not have to be using the application to open its .HLP file. For example, you can be working in 1-2-3 and open the .HLP file for Program Manager and read about basic Windows skills.

1. Choose File Open.

2. Specify the name of the .HLP file you want to open.

   You can enter the name of the .HLP file in the File name text box, or you can use the Files and Directories list boxes to select the file you want.

3. Select Open.

See also:

Help and Online Books Window Commands

File Print Topic (Help and Online Books Windows)

Prints the topic in the Help or Online Books window. You can print entire topics only.

1. Choose File Print Topic.

See also:

File Printer Setup
Help and Online Books Window Commands

File Printer Setup (Help and Online Books Windows)

Identifies the printer for Help and Online Books, which is the default printer you set up in Windows, in Control Panel Printers. If you have installed more than one printer in Windows, you can make any of your installed printers the default printer. You can also change the default printer options.

1. Choose File Printer Setup.

2. Select the printer that you want to change to in the Printer <u>list box</u>.

3. Select Setup to change the default printer options.

   A dialog box containing options for the printer you chose is displayed.

4. Select the options you want, and then select OK.

   The File Printer Setup dialog box is redisplayed.

5. Select OK.

When you choose <u>File Print Topic</u>, Help and Online Books will use the printer and options you specified.

See also:

   <u>Help and Online Books Window Commands</u>

File Exit (Help and Online Books Windows)

Closes Help and Online Books, saves any <u>annotations</u> or <u>bookmarks</u> you created, and saves the current size and position of the Help and Online Books window.

1. Choose File Exit.

See also:

<u>Help and Online Books Window Commands</u>

Edit Copy (Help and Online Books Windows)

Copies the entire text of the current Help or Online Books topic to the <u>Clipboard</u>.

From the Clipboard, you can paste the text into a worksheet file or another Windows application by using Edit Paste.

1. Choose Edit Copy.

See also:

<u>Help and Online Books Window Commands</u>

Edit Annotate (Help and Online Books Windows)

Adds a note to the current Help or Online Books topic. Annotations are marked with a paper clip <u>icon</u>, which appears to the left of the topic heading.

1. Choose Edit Annotate.

2. Enter the text you want to add in the Annotation <u>text box</u>.

   If you make a mistake, press BACKSPACE to erase any unwanted characters and then continue typing.

   Text wraps automatically in the text box, but you can end a line before it wraps by pressing CTRL+ENTER.

3. Select OK when you have finished the annotation.

To View an Annotation

1. Go to the topic that contains the annotation.

2. Click the paper clip icon, or press TAB to highlight the paper clip icon and then press ENTER.

3. Select OK or Cancel to close the Annotation dialog box.

To Remove an Annotation

1. Go to the topic that contains the annotation.

2. Click the paper clip icon, or press TAB to highlight the paper clip icon and then press ENTER.

3. Select Delete.

See also:

<u>Help and Online Books Window Commands</u>

Bookmark Define (Help and Online Books Windows)

Places a bookmark at the current topic or removes a bookmark from any topic. Once you have placed a bookmark at a topic, you can get that topic quickly from the Bookmark menu.

1. Choose Bookmark Define.

2. Specify the name of the bookmark in the Bookmark Name <u>text box</u>.

    You can accept the name of the current topic as it appears in the text box, or you can enter a name you create.

3. Select OK.

    The bookmark name you specified now appears in the Bookmark pulldown menu.

To Remove a Bookmark

1. Choose Bookmark Define.

2. Select the bookmark you want to remove.

3. Select Delete.

4. Select OK.

See also:

<u>Bookmark (Bookmark Name)</u>
<u>Bookmark More</u>
<u>Help and Online Books Window Commands</u>

Bookmark (Bookmark Name) (Help and Online Books Windows)

Replaces the current Help or Online Books topic with the bookmarked topic. A bookmark name appears only after you have defined a bookmark with <u>Bookmark Define</u>. As many as nine bookmark names can appear in the Bookmark pulldown menu.

1. Choose Bookmark.

2. In the Bookmark pulldown, select the bookmark name of the topic you want to see.

See also:

<u>Bookmark More</u>
<u>Help and Online Books Window Commands</u>

Bookmark More (Help and Online Books Windows)

Displays the complete list of names given to bookmarked topics. Bookmark More appears only when you have defined more than nine bookmarks.

1. Choose Bookmark More.

2. Select the topic you want in the Go To Bookmark <u>list box</u>.

3. Select OK.

See also:

> <u>Bookmark (Bookmark Name)</u>
> <u>Bookmark Define</u>
> <u>Help and Online Books Window Commands</u>

How to Use Help (Help and Online Books Windows)

Closes 1-2-3 for Windows Help and displays Using Help, or closes Online Books and displays Using Online Books. Choosing this command is the same as pressing F1 (HELP) while in Help or Online Books.

To return to 1-2-3 Help Contents or to the Table of Contents for the current book, select Contents in the button bar.

1. Choose How to Use Help.

See also:

Help and Online Books Window Commands

Help About Help (Help and Online Books Windows)

Displays information about Windows Help, including the version number and copyright notice.

1. Choose Help About Help.

2. Select OK.

See also:

Help and Online Books Window Commands

For Upgraders: 1-2-3 Classic

1-2-3 Classic is the command menu of 1-2-3 Release 3.1, available in 1-2-3 for Windows.

Note Users who are upgrading from a previous release of 1-2-3 and are familiar with 1-2-3 can read ***Quick Start for 1-2-3 Upgraders*** for a complete introduction to 1-2-3 for Windows.

Using 1-2-3 Classic

When 1-2-3 for Windows is in READY mode and the <u>active window</u> is a Worksheet window, you can use 1-2-3 Classic by pressing **/** (slash) or **<** (less-than symbol). To use Wysiwyg, press **:** (colon). To use add-ins, press ALT+F10.

Note Wysiwyg is read into memory automatically whenever you start 1-2-3 for Windows.

1-2-3 Classic Window

The 1-2-3 Classic window contains the following:

* Title bar. On the left, the <u>Control menu box</u> contains commands to move and close 1-2-3 Classic, and to switch to another Windows application. For more information, see <u>Control Menu.</u>

* Control panel. The 1-2-3 Classic control panel is the 1-2-3 Release 3.1 control panel, except that you enter and edit data in the edit line of the graphical interface. For information about entering data in 1-2-3 for Windows, see <u>Entering Data.</u>

When you complete a command, 1-2-3 Classic disappears.To close the 1-2-3 Classic window without completing a command, do one of the following:

* Press ESC until you reach the main menu, and then press ESC again.

* Press CTRL+BREAK.

* Press ALT+F4.

1-2-3 Classic Commands

You work with 1-2-3 Classic commands just as you work when you use 1-2-3 Release 3.1.

Some Release 3.1 commands are not operable in 1-2-3 for Windows. When you highlight a command that is not operable, the following message is displayed below the 1-2-3 Classic menu: Obsolete menu option -- has no effect in 1-2-3 for Windows.

Running 1-2-3 Release 3.1 Macros

1-2-3 for Windows can execute all 1-2-3 Release 3.1 keystroke macros by using 1-2-3 Classic. 1-2-3 for Windows ignores inoperable commands in a macro, but continues execution of the macro.

For more information about running macros created in other releases of 1-2-3, see **"Macro compatibility"** in Chapter 4 of *Quick Start for 1-2-3 Upgraders.*

Pressing F1 (HELP) in 1-2-3 Classic

When you press F1 (HELP) in 1-2-3 Classic, the Help window opens and displays a table.

In the left column of the table, find the command you chose in 1-2-3 Classic. Opposite this command, in the right column, is information telling you how to complete this command in 1-2-3 for Windows.

To view a table without opening the 1-2-3 Classic window, select a main menu, Wysiwyg, or add-in command from the lists that follow. You can browse to the next topic by pressing **o** or clicking Browse >> in the Help icon bar. Browse to the previous topic by pressing **r** or clicking Browse <<.

Main Menu

<u>/Worksheet</u>
<u>/Range</u>

/Copy
/Move
/File
/Print
/Graph
/Data
/System
/Quit

Wysiwyg Commands

:Worksheet
:Format
:Graph
:Print
:Display
:Special
:Text
:Named-Style
:Quit

Add-in Commands

Add-in Commands

1-2-3 Classic Main Menu

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

<u>Worksheet commands</u>

<u>Range commands</u>

<u>Copy command</u>

<u>Move command</u>

<u>File commands</u>

<u>Print commands</u>

<u>Graph commands</u>

<u>Data commands</u>

<u>System command</u>

<u>Quit command</u>

See also:

    <u>For Upgraders: 1-2-3 Classic</u>

/Copy

To select a Help topic using the mouse, point to green text with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose /Copy. In 1-2-3 for Windows, choose Edit Quick Copy.

/Data

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose /D	In 1-2-3 for Windows, choose
Distribution	<u>Data Distribution</u>
External	<u>Data Connect to External</u> or <u>Data External Options</u>
Fill	<u>Data Fill</u>
Matrix	<u>Data Matrix</u>
Parse	<u>Data Parse</u>
Query	<u>Data Query</u>
Regression	<u>Data Regression</u>
Sort	<u>Data Sort</u>
Table	<u>Data What-if Table</u>

/Data External

To select a Help topic using the mouse, point to green text with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose /DE	In 1-2-3 for Windows, choose
Create	Data External Options Create Table
Delete	/Data External Delete
List Fields	Data External Options Paste Fields
List Tables	/Data External List Tables
Other Command	Data External Options Send Command
Other Refresh	/Data External Other Refresh
Other Translation	/Data External Other Translation
Quit	/Data External Quit
Reset	Data External Options Disconnect
Use	Data Connect to External

/Data Matrix

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose /DM   **In 1-2-3 for Windows, choose**

Invert   <u>Data Matrix Invert</u>

Multiply   <u>Data Matrix Multiply</u>

/Data Query

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose /DQ	In 1-2-3 for Windows, choose
Criteria	<u>Data Query</u>
Del	<u>Data Query Delete</u>
Extract	<u>Data Query Extract</u>
Find	<u>Data Query Find</u>
Input	<u>Data Query</u>
Modify	<u>Data Query Modify</u>
Output	<u>Data Query</u>
Quit	<u>/Data Query Quit</u>
Reset	<u>Data Query</u>
Unique	<u>Data Query Extract</u>

/Data Query Modify

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose /DQM	In 1-2-3 for Windows, choose
Cancel	<u>/Data Query Modify Cancel</u>
Extract	<u>Data Query Modify Extract</u>
Insert	<u>Data Query Modify Insert</u>
Replace	<u>Data Query Modify Replace</u>

/Data Table

To select a Help topic using the mouse, point to green text with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose /DT	In 1-2-3 for Windows, choose
1	Data What-if Table 1-Way
2	Data What-if Table 2-Way
3	Data What-if Table 3-Way
Labeled	/Data Table Labeled
Reset	Data What-if Table Reset

/File

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose /F	In 1-2-3 for Windows, choose
Admin	<u>File Administration</u>
Combine	<u>File Combine From</u>
Dir	<u>Tools User Setup</u>
Erase	<u>/File Erase</u>
Import	<u>File Import From</u>
List	<u>/File List</u>
New	<u>File New</u>
Open	<u>File Open</u>
Retrieve	<u>File Open</u>
Save	<u>File Save As</u>
Xtract	<u>File Extract To</u>

/File Admin

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose /FA	In 1-2-3 for Windows, choose
Link-Refresh	<u>File Administration Update Links</u>
Reservation	<u>File Administration Network Reserve</u>
Seal	<u>File Administration Seal File</u>
Table	<u>File Administration Paste Table</u>

/File Import

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose /FI	In 1-2-3 for Windows, choose
Numbers	<u>File Import From Numbers</u>
Text	<u>File Import From Text</u>

/Graph

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose /G	In 1-2-3 for Windows, choose
A - F	<u>Chart Ranges</u>
Group	<u>Chart Ranges Group Range</u>
Name	<u>/Graph Name</u> for more information
Options	<u>/Graph Options</u> for more information
Quit	<u>/Graph Quit</u>
Reset	<u>Chart Clear</u>
Save	<u>Obsolete</u>
Type	<u>Chart Type</u> or <u>Chart Ranges</u>
View	<u>Graph View</u>
X	<u>Chart Ranges</u>

/Graph Name

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose /GN	In 1-2-3 for Windows, choose
Create	<u>Graph New</u>
Delete	<u>Graph Name Delete</u>
Reset	<u>Graph Name Delete</u>
Table	<u>Graph Name Paste Table</u>
Use	<u>Graph View</u>

/Graph Options

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose /GO	In 1-2-3 for Windows, choose
Advanced	<u>/Graph Options Advanced</u> for more information
B&W	<u>/Graph Options B&W</u>
Color	<u>/Graph Options Color</u>
Data-Labels	<u>/Graph Options Data-Labels</u> for more information
Format	<u>Chart Options Lines</u>
Grid	<u>Chart Borders/Grids</u>
Legend	<u>Chart Legend</u>
Quit	<u>/Graph Options Quit</u>
Scale	<u>Chart Axis</u>
Titles	<u>/Graph Options Titles</u> for more information

/Graph Options Advanced

To select a Help topic using the mouse, point to green text with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose /GOA	In 1-2-3 for Windows, choose
Colors	Chart Options Colors
Hatches	Chart Options Hatches
Quit	/Graph Options Advanced Quit
Text	Chart Options Fonts or Chart Options Colors

/Graph Options Data-Labels

To select a Help topic using the mouse, point to green text with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose /GOD	In 1-2-3 for Windows, choose
A - F	Chart Data Labels
Group	Chart Data Labels Group Range
Quit	/Graph Options Data-Labels Quit

/Graph Options Titles

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose /GO	In 1-2-3 for Windows, choose
Titles	<u>Chart Headings</u>
	<u>Chart Axis X Options</u>
	<u>Chart Axis Y Options</u>
	<u>Chart Axis 2nd Y Options</u>

/Graph Type Features

To select a Help topic using the mouse, point to green text with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose /GTF	In 1-2-3 for Windows, choose
Drop-Shadow	Chart Type
Frame	Chart Borders/Grids
Horizontal	Chart Type
100%	Chart Axis Y or Chart Axis 2nd Y
Quit	/Graph Type Features Quit
Stacked	Chart Type
2Y-Ranges	Chart Ranges
3D	Chart Type
Table	Chart Type
Vertical	Chart Type
Y-Ranges	Chart Ranges

/Move

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose /Move. In 1-2-3 for Windows, choose <u>Edit Move Cells</u>.

/Print

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

Note To make any /Print command effective in 1-2-3 for Windows, you must complete the entire print operation using only /Print commands.

You chose /P	In 1-2-3 for Windows, choose
Cancel	<u>Windows Print Manager</u>
Encoded	<u>Windows Control Panel Printers Configure</u>
File	<u>File Extract To</u>
Printer	<u>File Print</u>
Quit	<u>/Print Quit</u>
Resume	<u>Windows Print Manager</u>
Suspend	<u>Windows Print Manager</u>

/Print [Encoded, File, Printer]

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

Note To make any /Print command effective in 1-2-3 for Windows, you must complete the entire print operation using only /Print commands.

You chose /P [E,F,P]	In 1-2-3 for Windows, choose
Align	<u>/Print [E,F,P] Align</u>
Clear	<u>File Page Setup Restore</u>
Go	<u>File Print</u>
Hold	<u>Windows Print Manager</u>
Image	<u>Obsolete</u>
Line	<u>/Print [E,F,P] Line</u>
Options	<u>/Print [E,F,P] Options</u> for more information
Page	<u>/Print [E,F,P] Page</u>
Quit	<u>/Print [E,F,P] Quit</u>
Range	<u>File Print</u>
Sample	<u>Obsolete</u>

/Print [Encoded, File, Printer] Options

To select a Help topic using the mouse, point to green text with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

Note To make any /Print command effective in 1-2-3 for Windows, you must complete the entire print operation using only /Print commands.

You chose /P [E,F,P]O	In 1-2-3 for Windows, choose
Advanced AutoLF	/Print [E,P] Options Advanced AutoLF
Advanced Quit	/Print [E,P] Options Advanced Quit
Borders	File Page Setup Borders
Footer	File Page Setup Header/Footer
Header	File Page Setup Header/Footer
Margins	File Page Setup Margins
Name	File Page Setup Save and File Page Setup Retrieve
Other	/Print [E,F,P] Options Other
Pg-Length	File Printer Setup; then choose Setup
Quit	/Print [E,F,P] Options Quit
Setup	/Print [E,P] Options Setup

/Quit

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose /Quit. In 1-2-3 for Windows, choose <u>File Exit</u>.

/Range

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose /R	In 1-2-3 for Windows, choose
Erase	<u>Edit Clear</u>
Format	<u>Range Format</u>
Input	<u>/Range Input</u>
Justify	<u>Range Justify</u>
Label	<u>Style Alignment</u>
Name	<u>Range Name</u>
Prot	<u>Range Protect</u>
Search	<u>Edit Find</u>
Trans	<u>Range Transpose</u>
Unprot	<u>Range Unprotect</u>
Value	<u>Edit Quick Copy</u>

/Range Name

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose /RN	In 1-2-3 for Windows, choose
Create	<u>Range Name Create</u>
Delete	<u>Range Name Delete</u>
Labels	<u>Range Name Label Create</u>
Note	<u>/Range Name Note</u>
Reset	<u>Range Name Delete</u>
Table	<u>Range Name Paste Table</u>
Undefine	<u>Range Name Delete</u>

/System

You chose /System. This 1-2-3 Classic command has no equivalent in the graphical interface. You can choose this command only from 1-2-3 Classic. Help is not available for this command.

/Worksheet

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose /W	In 1-2-3 for Windows, choose
Column	<u>/Worksheet Column</u> for more information
Delete	<u>/Worksheet Delete</u> for more information
Erase	<u>File Close</u>
Global	<u>/Worksheet Global</u> for more information
Hide	<u>/Worksheet Hide</u> for more information
Insert	<u>Worksheet Insert</u>
Page	<u>Worksheet Page Break</u>
Status	<u>Obsolete</u>
Titles	<u>Worksheet Titles</u>
Window	<u>/Worksheet Window</u> for more information

/Worksheet Column

To select a Help topic using the mouse, point to green text with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose /WC	In 1-2-3 for Windows, choose
Column-Range	Worksheet Column Width
Display	Worksheet Unhide
Hide	Worksheet Hide
Reset-Width	Worksheet Column Width
Set-Width	Worksheet Column Width

/Worksheet Delete

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose /WD   **In 1-2-3 for Windows, choose**

Column   <u>Worksheet Delete</u>

File   <u>File Close</u>

Row   <u>Worksheet Delete</u>

Sheet   <u>Worksheet Delete</u>

/Worksheet Global

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose /WG	In 1-2-3 for Windows, choose
Col-Width	<u>Worksheet Global Settings Column Width</u>
Default	<u>/Worksheet Global Default</u> for more information
Format	<u>Worksheet Global Settings Format</u>
Group	<u>Worksheet Global Settings Group Mode</u>
Label	<u>Worksheet Global Settings Align Labels</u>
Prot	<u>Worksheet Global Settings Protection</u>
Recalc	<u>Tools User Setup Recalculation</u>
Zero	<u>Worksheet Global Settings Zero Display</u>

/Worksheet Global Default

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose /WGD	In 1-2-3 for Windows, choose
Autoexec	<u>Tools User Setup</u>
Dir	<u>Tools User Setup</u>
Ext	<u>/Worksheet Global Default Ext</u>
Graph	<u>/Worksheet Global Default Graph</u>
Other	<u>/Worksheet Global Default Other</u> for more information
Printer	<u>File Page Setup</u> or <u>File Printer Setup</u>
Quit	<u>/Worksheet Global Default Quit</u>
Status	<u>Obsolete</u>
Temp	<u>Obsolete</u>
Update	<u>Tools User Setup</u>

/Worksheet Global Default Other

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose /WGDO	In 1-2-3 for Windows, choose
Beep	<u>Tools User Setup</u>
Clock	<u>Tools User Setup</u>
Help	<u>Obsolete</u>
International	<u>Tools User Setup International</u>
Undo	<u>Tools User Setup</u>

/Worksheet Hide

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose /WH	In 1-2-3 for Windows, choose
Enable	<u>Worksheet Hide</u>
Disable	<u>Worksheet Unhide</u>

/Worksheet Window

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose /WW	**In 1-2-3 for Windows, choose**
Clear	<u>Window Split</u>
Display	<u>Obsolete</u>
Graph	<u>Graph View</u>
Horizontal	<u>Window Split</u>
Map	<u>Obsolete</u>
Perspective	<u>Window Split</u>
Sync	<u>Window Split</u>
Unsync	<u>Window Split</u>
Vertical	<u>Window Split</u>

Wysiwyg Commands

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

<u>:Worksheet commands</u>

<u>:Format commands</u>

<u>:Graph commands</u>

<u>:Print commands</u>

<u>:Display commands</u>

<u>:Special commands</u>

<u>:Text commands</u>

<u>:Named-Style commands</u>

<u>:Quit command</u>

See also:

<u>For Upgraders: 1-2-3 Classic</u>

:Display

To select a Help topic using the mouse, point to green text with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose :D	In 1-2-3 for Windows, choose
Colors	Window Display Options Colors
Default	Window Display Options
Font-Directory	Obsolete
Mode	Window Display Options
Options	:Display Options for more information
Quit	:Display Quit
Rows	Obsolete
Zoom	Window Display Options Zoom

:Display Options

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose :DO	In 1-2-3 for Windows, choose
Cell-Pointer	<u>:Display Options Cell-Pointer</u>
Frame	<u>Window Display Options Frame</u>
Grid	<u>Window Display Options Options</u>
Intensity	<u>Obsolete</u>
Page-Breaks	<u>Window Display Options Options</u>
Quit	<u>:Display Options Quit</u>

:Format

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose :F	In 1-2-3 for Windows, choose
Bold	<u>Style Font</u>
Color	<u>Style Color</u>
Font	<u>Style Font</u>
Italics	<u>Style Font</u>
Lines	<u>Style Border</u>
Quit	<u>:Format Quit</u>
Reset	<u>Edit Clear Special</u>
Shade	<u>Style Shading</u>
Underline	<u>Style Font</u>

:Graph

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose :G	In 1-2-3 for Windows, choose
Add	<u>:Graph Add</u> for more information
Compute	<u>Graph Refresh</u>
Edit	<u>:Graph Edit</u> for more information
Goto	<u>Graph Go To</u>
Move	<u>Graph Size</u>
Quit	<u>:Graph Quit</u>
Remove	<u>Edit Clear Special</u>
Settings	<u>Style Display Options</u>
View	<u>:Graph View</u>
Zoom	<u>:Graph Zoom</u>

:Graph Add

To select a Help topic using the mouse, point to green text with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose :GA	In 1-2-3 for Windows, choose
Blank	Range Annotate
Current	Graph Add to Sheet
Metafile	Graph Import
Named	Graph Add to Sheet
PIC	Graph Import

:Graph Edit

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose :GE	In 1-2-3 for Windows, choose
Add	<u>:Graph Edit Add</u> for more information
Color	<u>Style Color</u>
Edit	<u>:Graph Edit Edit</u> for more information
Options	<u>:Graph Edit Options</u> for more information
Quit	<u>:Graph Edit Quit</u>
Rearrange	<u>:Graph Edit Rearrange</u> for more information
Select	<u>Edit Select</u>
Transform	<u>:Graph Edit Transform</u> for more information
View	<u>:Graph Edit View</u> for more information

:Graph Edit Add

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose :GEA	In 1-2-3 for Windows, choose
Arrow	<u>Draw Arrow</u>
Ellipse	<u>Draw Ellipse</u>
Freehand	<u>Draw Freehand</u>
Line	<u>Draw Line</u>
Polygon	<u>Draw Polygon</u>
Rectangle	<u>Draw Rectangle</u>
Text	<u>Draw Text</u>

:Graph Edit Edit

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose :GEE	**In 1-2-3 for Windows, choose**
Arrowheads	<u>Style Lines</u>
Centering	<u>Style Alignment</u>
Font	<u>Style Font</u>
Line-Style	<u>Style Lines</u>
Smoothing	<u>Style Lines</u>
Text	<u>Obsolete</u>
Width	<u>Style Lines</u>

:Graph Edit Options

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose :GEO	In 1-2-3 for Windows, choose
Cursor	<u>:Graph Edit Options Cursor</u>
Font-Magnification	<u>Style Font</u>
Grid	<u>Style Display Options</u>

:Graph Edit Rearrange

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose :GER	In 1-2-3 for Windows, choose
Back	<u>Layout Fall Back</u>
Copy	<u>Edit Replicate</u>
Delete	<u>Edit Delete</u>
Front	<u>Layout Send Forward</u>
Lock	<u>Layout Lock</u>
Move	<u>Obsolete</u>
Restore	<u>Edit Undelete</u>
Unlock	<u>Layout Unlock</u>

:Graph Edit Transform

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose :GET	In 1-2-3 for Windows, choose
Clear	<u>Rearrange Clear</u>
Horizontal	<u>Rearrange Skew Horizontal</u>
Quarter-Turn	<u>Rearrange Quarter-Turn</u>
Rotate	<u>Rearrange Turn</u>
Size	<u>Rearrange Adjust Size</u>
Vertical	<u>Rearrange Skew Vertical</u>
X-Flip	<u>Rearrange Flip Vertical</u>
Y-Flip	<u>Rearrange Flip Horizontal</u>

:Graph Edit View

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose :GEV	In 1-2-3 for Windows, choose
Down	<u>Window Enlarge</u>, <u>Window Reduce</u>, or <u>Window Zoom</u>; then use the vertical scroll bar
Full	<u>Window Full</u>
In	<u>Window Zoom</u>
Left	<u>Window Enlarge</u>, <u>Window Reduce</u>, or <u>Window Zoom</u>; then use the horizontal scroll bar
-	<u>Window Reduce</u>
Pan	<u>Window Enlarge</u> and <u>Window Reduce</u>
+	<u>Window Enlarge</u>
Right	<u>Window Enlarge</u>, <u>Window Reduce</u>, or <u>Window Zoom</u>; then use the horizontal scroll bar
Up	<u>Window Enlarge</u>, <u>Window Reduce</u>, or <u>Window Zoom</u>; then use the vertical scroll bar

:Named-Style

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose :N	In 1-2-3 for Windows, choose
Define	<u>Style Name</u>
1 - 8	<u>Style (Named Style)</u>

:Print

To select a Help topic using the mouse, point to green text with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose :P	In 1-2-3 for Windows, choose
Configuration	:Print Configuration for more information
File	Windows Control Panel Printers Configure
Go	File Print
Info	:Print Info
Layout	File Page Setup
Preview	File Preview
Quit	:Print Quit
Range	File Print
Settings	:Print Settings for more information

:Print Configuration

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose :PC	In 1-2-3 for Windows, choose
Bin	<u>File Printer Setup</u>; then choose Setup
1st-Cart	<u>File Printer Setup</u>; then choose Setup
Interface	<u>Windows Control Panel Printers</u>
Orientation	<u>File Page Setup Orientation</u>
Printer	<u>File Printer Setup</u>
Quit	<u>:Print Configuration Quit</u>
Resolution	<u>File Printer Setup</u>; then choose Setup
2nd-Cart	<u>File Printer Setup</u>; then choose Setup

:Print Settings

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose :PS	In 1-2-3 for Windows, choose
Begin	<u>File Print</u>
End	<u>File Print</u>
Frame	<u>File Page Setup Options</u>
Grid	<u>File Page Setup Options</u>
Quit	<u>:Print Settings Quit</u>
Reset	<u>File Page Setup Restore</u>
Start-Number	<u>File Print</u>
Wait	<u>Obsolete</u>

:Special

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose :S	In 1-2-3 for Windows, choose
Copy	<u>Edit Quick Copy</u>
Export	<u>:Special Export</u>
Import	<u>:Special Import</u>
Move	<u>Edit Move Cells</u>

:Text

To select a Help topic using the mouse, point to green text with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose :T	In 1-2-3 for Windows, choose
Align	Style Alignment
Clear	:Text Clear
Edit	:Text Edit
Reformat	Range Justify
Set	:Text Set

:Worksheet

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose :W   **In 1-2-3 for Windows, choose**

Column   <u>Worksheet Column Width</u>

Page   <u>Worksheet Page Break</u>

Row   <u>Worksheet Row Height</u>

:Quit

You chose :Quit. The 1-2-3 Classic command you chose has no equivalent in the graphical interface. You can choose this command only from 1-2-3 Classic. Help is not available for this command.

Add-in Commands

To select a <u>Help topic</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

You chose ALT+F10	In 1-2-3 for Windows, choose
Clear	<u>Tools Add-in Remove All</u>
Invoke	<u>ALT+F10 Invoke</u>
Load	<u>Tools Add-in Load</u>
Quit	<u>ALT+F10 Quit</u>
Remove	<u>Tools Add-in Remove</u>
Settings	<u>ALT+F10 Settings</u>
Table	<u>ALT+F10 Table</u>
Table Applications	<u>ALT+F10 Table Applications</u>
Table @Functions	<u>ALT+F10 Table @Functions</u>
Table Macros	<u>ALT+F10 Table Macros</u>

This command has no effect in 1-2-3 for Windows.

See also:

For Upgraders: 1-2-3 Classic

The 1-2-3 Classic command you chose has no equivalent in the graphical interface. You can use this command only in 1-2-3 Classic.

Help is not available for this command.

See also:

For Upgraders: 1-2-3 Classic

For more information about Windows operations, see the *Microsoft Windows User's Guide,*or choose Help in the group or program item window.

See also:

Control Menu
Exiting and Ending 1-2-3 for Windows
For Upgraders: 1-2-3 Classic

Error Message Index

To see Help for a specific error message, select a letter and then select the error message. To move through the alphabet, use Browse.

To select a letter using the mouse, point to a green letter with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

A   B   C   D   E

F   G   H   I   J

K   L   M   N   O

P   Q   R   S   T

U   V   W   X   Y

Z

A   Error Message Index

To select an <u>error message</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

<u>A range name cannot begin with <<>></u>

<u>Add-in "add_in_name" already in memory</u>

<u>Add-in "add_in_name" not in memory</u>

<u>"Add-in error message"</u>

<u>Add-in not listed on settings sheet</u>

<u>Add-ins nested too deeply</u>

<u>Adjustable cell entry is invalid</u>

<u>Advise is already in effect for this DDE item</u>

<u>Advise is not in effect for this DDE item</u>

<u>All constraints are binding for this answer</u>

<u>All constraints are satisfied, but optimal cell equals ERR or NA</u>

<u>All modified files must be reserved before saving</u>

<u>Ambiguous field reference in query</u>

<u>Application not found</u>

<u>At least one variable range must be specified</u>

B   Error Message Index

To select an <u>error message</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

<u>Backup file exists in memory</u>

<u>Backup unsuccessful due to file error</u>

<u>Bad DDE link name</u>

<u>Bin range cannot span worksheets</u>

<u>Break</u>

C   Error Message Index

To select an <u>error message</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

<u>Cannot add graphic</u>

<u>Cannot convert extension. File already exists in memory.</u>

<u>Cannot create file</u>

<u>Cannot create format file</u>

<u>Cannot create names from a range of labels that is not in memory</u>

<u>Cannot create temporary file</u>

<u>Cannot create the report file</u>

<u>Cannot define a named style from a graphic</u>

<u>Cannot delete all visible worksheets</u>

<u>Cannot delete all worksheets</u>

<u>Cannot erase file</u>

<u>Cannot erase file. It is in use or has read-only access</u>

<u>Cannot execute query with a circular reference</u>

<u>Cannot export to this format from a multiple-worksheet file</u>

<u>Cannot find an optimal answer</u>

<u>Cannot find an optimal answer -- the optimal cell is unbounded</u>

<u>Cannot find any more answers</u>

<u>Cannot find "file_name"</u>

<u>Cannot find library file "library_file_name"</u>

<u>Cannot finish solving this problem</u>

<u>Cannot finish solving this problem -- an @function has too many arguments</u>

<u>Cannot finish solving this problem -- formula is too complicated</u>

<u>Cannot finish solving this problem -- formula is too long</u>

<u>Cannot finish solving this problem -- it is too complicated</u>

<u>Cannot go to a range that is not in memory</u>

<u>Cannot have more than 256 worksheets in memory</u>

<u>Cannot hide all columns</u>

<u>Cannot hide last visible worksheet</u>

<u>Cannot import - file is in use</u>

<u>Cannot invert matrix</u>

<u>Cannot invoke operating system</u>

<u>Cannot justify text if worksheet protection enabled</u>

<u>Cannot launch application</u>

<u>Cannot load driver "L1WEM"</u>

Cannot load driver "L1WRT"

Cannot modify a range that is not in memory

Cannot move data between files

Cannot move graph beyond worksheet boundaries

Cannot move or copy data beyond worksheet boundaries

Cannot move or copy formats beyond worksheet boundaries

Cannot open printer driver

Cannot optimize a constraint cell

Cannot paste DDE link

Cannot print ranges that are not in memory

Cannot read "file_name"

Cannot read Help file

Cannot read locked Symphony worksheet file

Cannot retrieve library file

Cannot search range

Cannot solve this problem

Cannot solve this problem -- @LOOKUP function offset is not constant

Cannot solve this problem -- formulas are contradictory

Cannot solve this problem -- unsupported @function in cell "cell address"

Cannot undo this operation

Cannot undo this series of add-in operations

Cannot use both Edit Undo and /Data External Refresh Automatic

Cannot use computed columns with Data Query Modify

Cannot use ranges that are not in memory

Cannot use :Text Edit on a hidden range

Cannot use this command in text display mode

Cannot write a value into protected cell "cell address"

Cannot write over data with APPEND commands

Cell "cell address" refers to an unsupported string

Cell format not available for Answer table report

Cell format not available for How solved report

Column hidden

Constraint cell entry is invalid

Constraints and the optimal cell must not refer to constraint cells

Could not find a solution -- try changing By changing cell value

Criteria and output ranges cannot overlap

Criteria must contain field reference

Criteria range must be in an active file

Criteria too complex

D   <u>Error Message Index</u>

To select an <u>error message</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

<u>Data Parse ranges cannot span worksheets</u>

<u>Data Query Find works only in active files</u>

<u>Data Query Modify Extract canceled or not performed</u>

<u>Data range and sort keys must be in memory</u>

<u>Data What-if Table and Data Query commands are disabled</u>

<u>Database @functions more than 8 levels deep in criteria</u>

<u>DDE conversation not open</u>

<u>DDE link is already assigned</u>

<u>DDE protocol error, can't post messages to server application</u>

<u>DDE server not responding</u>

<u>Destination range full or invalid</u>

<u>Difference amount must be a number</u>

<u>Directory does not exist</u>

<u>Directory entry update error</u>

<u>Disk drive not ready</u>

<u>Disk error</u>

<u>Disk full</u>

<u>Disk is write-protected</u>

<u>Driver cannot perform this database operation</u>

E <u>Error Message Index</u>

To select an <u>error message</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

<u>Each variable must have an input cell</u>

<u>ERR values are not allowed in the output range</u>

<u>Error accessing temporary file</u>

<u>Error initializing add-in "file_name"</u>

<u>Error loading add-in "file_name"</u>

<u>Error loading add-in resource file</u>

<u>Error loading driver file</u>

<u>Error loading fallback table</u>

<u>Error reading file</u>

<u>Error reading format file</u>

<u>Error replacing extracted records</u>

<u>Error running add-in macro</u>

<u>Error saving file</u>

<u>Error storing the By changing cell value</u>

<u>Error while writing file</u>

<u>Error writing file</u>

<u>Error writing 123W.INI file</u>

<u>Estimated number of answers must be an integer between 1 and 999</u>

<u>External database data type not allowed in worksheet</u>

<u>External table ranges not allowed</u>

<u>External table was not created</u>

F   <u>Error Message Index</u>

To select an <u>error message</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

G   <u>Error Message Index</u>

To select an <u>error message</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

<u>General spooler error</u>

<u>Global protection is enabled</u>

<u>Graph error - not enough memory to draw graph</u>

<u>Graph name already exists</u>

<u>Graph name does not exist</u>

<u>Graph not found</u>

<u>Graph too big to be edited</u>

<u>Guess value must be a number</u>

H   Error Message Index

To select an <u>error message</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

<u>Hidden columns not allowed in title region</u>

I

To select an error message using the mouse, point to green text with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

J <u>Error Message Index</u>

To select an <u>error message</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

<u>Justify range is full or line too long</u>

K   <u>Error Message Index</u>

To select an <u>error message</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

<u>Key column outside sort range</u>

L   <u>Error Message Index</u>

To select an <u>error message</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

<u>Left margin equals or exceeds right margin</u>

M   <u>Error Message Index</u>

To select an <u>error message</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

<u>Macro: missing argument</u>

<u>Margins equal or exceed page size</u>

<u>Margins, header and footer equal or exceed page length</u>

<u>Matrix too large for inversion</u>

<u>Matrixes incompatible for multiplication</u>

<u>Matrixes too large for multiplication</u>

<u>Maximum command line length exceeded</u>

<u>Memory full</u>

<u>Missing sort key</u>

<u>More than one file has the same range name</u>

<u>More than 75 X variables</u>

<u>Must specify a down or across variable range</u>

N   <u>Error Message Index</u>

To select an <u>error message</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

<u>Name too long</u>

<u>Named field does not exist</u>

<u>Named range not found in worksheet file</u>

<u>Named table does not exist</u>

<u>No active file to get reservation</u>

<u>No add-in application assigned</u>

<u>No add-in applications in memory</u>

<u>No add-ins in memory</u>

<u>No answers exist to put in the worksheet</u>

<u>No application in add-in "add_in_name"</u>

<u>No criteria range specified</u>

<u>No external database drivers are loaded</u>

<u>No external databases are in use</u>

<u>No external table specified for creation</u>

<u>No external tables are available</u>

<u>No files of specified type on disk</u>

<u>No input range specified</u>

<u>No macro file for custom icon</u>

<u>No more matching strings</u>

<u>No output range specified</u>

<u>No print range specified</u>   (:Print)

<u>No print range specified</u>   (/Print)

<u>No printer driver installed</u>

<u>No significant difference exists between these two answers</u>

<u>No table definition range exists to create table</u>

<u>No unprotected cells in input range</u>

<u>No valid adjustable cells were specified</u>

<u>No valid constraint cells were specified</u>

<u>Not a square matrix</u>

<u>Not a valid icon palette file</u>

<u>Not a valid worksheet file</u>

<u>Not enough memory to load driver file</u>

<u>Not enough memory to print</u>

<u>Not enough worksheets in To range</u>

Number is too large

Number too large/small to pass to external table

Number is too small

O   <u>Error Message Index</u>

To select an <u>error message</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

<u>Only one input range is allowed</u>

<u>Optimal cell must be a single cell that depends on an adjustable cell</u>

<u>Out of memory</u>

<u>Out of memory</u> (Solver)

<u>Out of memory. Edit Undo disabled.</u>

<u>Output range must contain more than one row</u>

P   <u>Error Message Index</u>

To select an <u>error message</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

<u>Parse format line can only be created for labels</u>

<u>Parse input range must start with format line</u>

<u>Part of combine file lost</u>

<u>Part of file is missing</u>

<u>Passwords do not match</u>

<u>Print job canceled from spooler</u>

<u>Print settings name does not exist</u>

<u>Problem refers to undefined range name or a worksheet on disk</u>

<u>Protected cell</u>

<u>Protected cell</u>

R <u>Error Message Index</u>

To select an <u>error message</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon,</u> click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

<u>Range cannot span worksheets</u>

<u>Range name already exists</u>

<u>Range name does not exist</u>

<u>Range specified is outside variable range</u>

S   <u>Error Message Index</u>

To select an <u>error message</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

<u>Second answer number is either non-numeric or invalid</u>

<u>Settings sheet is empty</u>

<u>Settings sheet is full</u>

<u>Solver cannot create its work files</u>

<u>Solver cannot delete its work files</u>

<u>Solver cannot read its work files</u>

<u>Spooler out of disk space</u>

<u>Spooler out of memory</u>

<u>Stack overflow in "file_name"</u>

<u>String not found</u>

<u>Syntax error in macro key/range name</u>

<u>System error</u>

T   <u>Error Message Index</u>

To select an <u>error message</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

U   <u>Error Message Index</u>

To select an <u>error message</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

<u>Unable to access output device</u>

<u>Unable to locate the database</u>

<u>Unable to print</u>

<u>Unable to reserve file: it has read-only access</u>

<u>Unable to reserve file: it is already reserved</u>

<u>Undo not enabled, or no operation to undo</u>

<u>Unrecognized key/range name</u>

<u>Unsupported character set</u>

V   Error Message Index

To select an error message using the mouse, point to green text with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

Variable ranges and formula labels overlap

W   Error Message Index

To select an <u>error message</u> using the mouse, point to green text with a solid underline. When the mouse pointer changes to a <u>hand icon</u>, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

<u>What-if limits couldn't be computed</u>

<u>Window not found or not unique</u>

<u>Worksheet full</u>

<u>Worksheet hidden</u>

Add-in "add_in_name" already in memory

You attempted to read into memory an add-in file that was already loaded.

Add-in "add_in_name" not in memory

You attempted to invoke an add-in application or remove an add-in that you have not read into memory.

Choose <u>Tools Add-in Load</u> and specify the add-in file to read into memory.

"Add-in error message"

An error occurred while loading or invoking the add-in you specified.

See the documentation for this add-in or contact the add-in developer.

Add-in not listed on settings sheet

You tried to cancel an add-in file that is not on a settings sheet.

Add-ins nested too deeply

You used a macro in your add-in that invokes another add-in, that itself invokes another add-in, and so on.

If you are a developer, rewrite your add-in so that it does not nest add-ins so deeply. Otherwise, contact the add-in developer.

Cannot find "file_name"

1-2-3 cannot find the add-in file (a file with an .ADW or .DLL extension).

Make sure you typed the file name correctly and that 1-2-3 can find the file. 1-2-3 looks for add-in files in the path you specify. Otherwise, 1-2-3 looks first in the default add-in directory (if you set one up).

Cannot find library file "library_file_name"

You did not copy a library file included in your application into the 1-2-3 directory.

If you are a developer and "library_file_name" is a library you wrote, the library file may have an invalid header format and cannot be identified; you must correct the header format. If you are a user and you copied the file, or the file was not included with the add-in, contact the add-in developer.

Cannot load driver "L1WEM"

The following conditions could have caused this error:

*   Not enough memory was available to read L1WEM into memory.

*   L1WEM was damaged or deleted from your hard disk.

*   You are already using the maximum number of files your operating system allows.

Cannot load driver "L1WRT"

The following conditions could have caused this error:

*   Not enough memory was available to read L1WRT into memory.

*   L1WRT was damaged or deleted from your hard disk.

*   You are already using the maximum number of files your operating system allows.

Cannot read "file_name"

The file may have been damaged, or a hardware error occurred -- for example, the door of your disk drive was open while you attempted to read a file from the disk.

Error initializing add-in "file_name"

This error occurred during execution of AdnInitialize.

Contact the add-in developer.

Error loading add-in "file_name"

The following conditions could have caused this error:

*   Not enough memory was available to read into memory the file named in the error message.

*   The file named in the error message was damaged or deleted from your hard disk.

*   You are already using the maximum number of files your operating system allows.

Error loading add-in resource file

The following conditions could have caused this error:

*   Not enough memory was available to read the add-in resource file into memory.

     Free some memory and try the add-in operation again.

*   You are already using the maximum number of files that your operating system allows.

Error running add-in macro

1-2-3 could not run an add-in macro command to completion.

If you are a developer, use the macro command procedure in an add-in application to generate a more specific error message. Otherwise, contact the add-in developer.

No add-in application assigned

You pressed ALT+F7, ALT+F8, or ALT+F9 to invoke an application, but no application was assigned to the key.

Select Load or Settings System from the ALT+F10 (ADDIN) menu to assign the application to a key.

No add-in applications in memory

You attempted to invoke an application when none was loaded.

Choose Tools Add-in Load and specify the add-in file to read into memory.

No add-ins in memory

You attempted to remove an add-in from memory when no add-ins were loaded.

No application in add-in "add_in_name"

You attempted to invoke an add-in application using an add-in file that contains only @functions or macro commands.

Settings sheet is empty

You selected Settings System Cancel or Settings File Cancel when there were no add-in files listed on the settings sheet.

Settings sheet is full

You attempted to add the name of an add-in file to a full settings sheet.

Use Settings File or Settings System from the ALT+F10 (ADDIN) menu to delete files from the settings sheet you want to modify.

Stack overflow in "file_name"

Your add-in uses too much program memory to run in 1-2-3.

If you are a developer, you must edit your program so it requires less memory, or use compiler option stack Size, which makes more memory available to your program. Otherwise, contact the add-in developer.

Bin range cannot span worksheets

You specified a three-dimensional bin range when using <u>Data Distribution</u>.

Specify a single-sheet, single-column bin range.

Cannot invert matrix

The following conditions could have caused this error:

*   You chose <u>Data Matrix Invert</u> or <u>Data Regression</u> X-range and entered a range that contains two identical columns of values.

    Change a value in one of the two columns.

*   You chose Data Matrix Invert or Data Regression X-range and entered a range that contains a column or row of zeros.

    Enter a value that is greater than or less than zero in the row or column.

*   You chose Data Matrix Invert or Data Regression X-range and entered a range that contains a column of values, all of which would equal the values in another column in the range, if multiplied by a constant. For example, if column A in range A:A1..A:C3 contains the values 2, 6, and 8, and column C contains the values 4 (2*2), 12 (6*2), and 16 (8*2), 1-2-3 cannot invert the matrix.

    Change a value in one of the two columns.

*   You chose Data Matrix Invert or Data Regression X-range and entered a range that it is not mathematically possible to invert or a range that 1-2-3 cannot invert without producing inaccurate results.

    Specify another range, or change the values in the current range.

Cannot use ranges that are not in memory

The following conditions could have caused this error:

*	You specified a range in a file on disk or the range name of an external table. For this command, the range you specify must be in an active file.

	Specify a range in an active file.

*	You specified an undefined range name.

	Use Range Name Create to create the range name you used in the command.

Data Parse ranges cannot span worksheets

You specified a 3-D range when using Data Parse Input column.

Specify a single-sheet, single-column range.

Data range and sort keys must be in memory

The following conditions could have caused this error:

*   You specified a primary, secondary, or extra sort key that was in a file on disk.

    Use <u>Data Sort</u> Primary key, Secondary key, or Extra keys and specify a sort key in the range you are sorting.

*   You specified a primary, secondary, or extra sort key that was in an active file, but you used a file reference that did not include a path.

    Choose Data Sort Primary key, Secondary key, or Extra keys again. Press F3 (NAME) and select the file name from the list box. 1-2-3 automatically includes the path when you use this method to create the file reference.

Error loading driver file

The following conditions could have caused this error:

*   Not enough memory was available to load the printer or database driver you specified. To free memory, do one or more of the following:

    Use <u>File Save As</u> to save your active worksheet files, close the files, and then use <u>File Open</u> to read the files back into memory.

    If the undo feature is turned on, use <u>Tools User Setup</u> to turn the undo feature off.

    Delete worksheets, files, and data that you no longer need in memory.

    If you have programs in memory besides 1-2-3, end one or more of those programs. For additional information on freeing memory, see Appendix C of the *User's Guide.*

*   You tried to use a <u>Data External</u> command and specified an invalid or nonexistent database driver name. You may have misspelled the name of the database driver.

    Specify the name of an existing database driver and make sure you use the correct spelling.

*   You tried to use a Data External command, and the driver file for the database driver you specified with the command was missing.

    See the documentation for the database driver for the name of the driver file, then make sure the file is on your hard disk.

External table ranges not allowed

You specified the range name of an external table. For this command, the range you specify must be in an active file.

Specify a range in an active file.

Note You may also be able to specify a range in a file on disk. See Help for the command you are using for information on the types of ranges you can specify.

Formula reference overlaps split layer

Invalid date

The following conditions could have caused this error:

* You tried to use <u>Data Fill</u> to fill a range with dates and specified a date with a <u>date number</u> less than 1 (January 1, 1900) or greater than 73050 (December 31, 2099) as the start value.

   Specify a date that has a date number from 1 to 73050 as the start value.

* You tried to use a date that does not exist, such as February 29, 1990, with a Data Query command. You may have typed a date incorrectly.

   Specify an actual date and use the Data Query commands again.

Invalid format line

You chose <u>Data Parse</u> and the input column you specified contained an invalid format line. After the |
(vertical bar), format lines can contain only the following characters:

L V D T S > *

Use F2 (EDIT) and the editing keys to correct the invalid format line.

Note 1-2-3 accepts uppercase and lowercase letters in format lines.

Invalid matrix

You specified a matrix that contains blank cells or labels.

Specify a matrix that contains only numbers or formulas that evaluate to numbers.

Invalid output range

The following conditions could have caused this error:

*   You used <u>Data Regression</u> and did not specify an output range or specified an output range that is too small.

    Choose Data Regression Output range and specify either a single-cell output range or a multiple-cell output range that has nine rows and a minimum of four columns, with an additional column for each X variable after the second X variable.

*   You used <u>Data Distribution</u> and specified a bin range that is in the rightmost column of a worksheet or whose bottommost cell is in the last row of a worksheet.

    Specify a bin range that is separated from the right and bottom edges of a worksheet by at least one column and one row.

*   You used <u>Data Parse</u> Output range and specified the range name of an external table.

    Specify a range in an active file.

Invalid sort range or sort key

Invalid X range

The following conditions could have caused this error:

*   You did not specify an X range.

    Choose Data Regression X-range and specify an X range.

*   You selected OK in the Data Regression dialog box without specifying any of the necessary ranges (the X, Y, and output ranges).

    Choose Data Regression and specify an X range, Y range, and output range.

*   You specified an X range that contained labels, formulas, or blank cells, for which 1-2-3 cannot calculate a value.

Invalid Y range

The following conditions could have caused this error:

*   You did not specify a Y (dependent variable) range.

    Choose <u>Data Regression</u> Y-range and specify a Y range.

*   You specified a Y range more than one column wide.

    Choose Data Regression Y-range and specify a single-column Y range.

*   The number of rows (number of observations) in the Y range does not equal the number of rows in the X range.

    Choose Data Regression Y-range and specify a Y range with the correct number of rows.

*   You specified a Y range that contains labels, formulas, or blank cells, for which 1-2-3 cannot calculate a value.

Key column outside sort range

* You used <u>Data Sort</u> Primary key, Secondary key, or Extra keys to specify one or more sort-key fields that were not in the data range you were sorting.

Choose Data Sort Data range and specify a data range that includes the fields you want to sort by.

Or, choose Data Sort Primary key, Secondary key, or Extra keys and specify sort-key fields that are in the data range you are sorting.

Matrixes incompatible for multiplication

You chose <u>Data Matrix Multiply</u> and specified two matrix ranges that are incompatible.

Specify the ranges so that the number of columns in the first matrix equals the number of rows in the second matrix.

Matrixes too large for multiplication

You chose Data Matrix Multiply and specified two matrix ranges that are too large.

Specify the ranges so that the number of rows in the first matrix multiplied by the number of columns in the second matrix is less than or equal to 6553.

Matrix too large for inversion

You chose <u>Data Matrix Invert</u> and specified a range with more than 80 columns or rows.

Specify a range with no more than 80 columns or rows.

Missing sort key

You tried to specify a secondary sort key without a primary sort key, or an extra key field without a primary key and/or secondary sort key.

Choose <u>Data Sort</u> and specify both a primary and secondary sort key.

More than 75 X variables

You chose <u>Data Regression</u> X-range and specified an X range that has more than 75 columns (the maximum number of independent variables).

Choose Data Regression X-range and specify an X range with no more than 75 columns.

Not a square matrix

You chose <u>Data Matrix Invert</u> and specified a range in which the number of columns does not equal the number of rows.

Specify a range with the same number of columns and rows.

Parse format line can only be created for labels

The cell pointer was in a blank cell or a cell containing a value when you chose <u>Data Parse</u> Create and entered a label in the Format line text box to create a format line.

Move the cell pointer to a cell containing a label, or enter a label prefix (' " or ^) in the current cell. Then choose Data Parse Create and enter a label in the Format line text box.

Parse input range must start with format line

You selected OK in the Data Parse dialog box and the first cell in the input column does not contain a format line.

Choose Data Parse Create to create a format line above the first long label you want to parse. Then choose Data Parse Input column and specify an input column that includes the new format line.

Too few observations for number of variables

*   After you chose <u>Data Regression</u> X-range, you specified an X (independent variable) range with an insufficient number of rows (number of observations). The X range must have at least one row more than the number of its columns and must have an additional row if you plan to select Y-intercept Compute.

Choose Data Regression X-range and specify an X range of sufficient size.

Data Query Modify Extract canceled or not performed

You chose Data Query Modify Extract, canceled the command or chose another Data Query command, and then chose Data Query Modify Replace.

To use Data Query Modify Replace, you must first use Data Query Modify Extract.

Ambiguous field reference in query

You tried to extract records from two or more database tables, and the criteria or output range contains a field name that appears in two or more database tables in the input range.

Precede the field name in the criteria or output range with the range name of one of the tables in which it appears. For example, if the output range contains the field name SALES, and tables REGION1 and REGION2 in the input range both contain a field with the name SALES, enter REGION1.SALES or REGION2.SALES in place of SALES in the output range.

Note If two database tables in the input range have the same range name, and if a field name in the criteria or output range appears in both database tables, precede the field name in the criteria or output range with a file name and range name. For example, <<QUARTER1.WK3>>REGION1.SALES refers to the field SALES in the range REGION1 in the file QUARTER1.WK3.

At least one variable range must be specified

You tried to create a data table labeled without specifying a variable range. You need at least one variable range to create a data table labeled.

Use /Data Table Labeled Down, Across, or Sheets to specify a row, column, or worksheet variable range, and the corresponding input cells.

Then choose /Data Table Labeled Go to create the data table.

Cannot create a table with EXTENDED data types

Cannot execute query with a circular reference

A formula in the criteria range contained a circular reference.

Choose Help About 1-2-3 to identify the circular reference, and correct it before you use Data Query.

Cannot open database input range

Cannot read or write LONG data

Cannot reset database when tables are in use

Cannot retrieve records from input range

Cannot unload driver when databases are in use

Cannot update a database with a nonunique record

Cannot use computed columns with Data Query Modify

You tried to use <u>Data Query Modify</u> Extract or Insert when the first row of the output range contained a formula.

Specify an output range that does not contain a formula and choose Data Query Modify Extract again.

Criteria and output ranges cannot overlap

You specified overlapping criteria and output ranges when using Data Query.

Choose Data Query again and select criteria or output ranges so that they do not overlap.

Criteria must contain field reference

The following conditions could have caused this error:

*   You tried to perform a data query operation when the criteria range contained a formula that was missing a field name or valid cell address.

    Edit the formula so that it includes either a field name or the address of a cell immediately below a field name in the input range.

*   You tried to perform a data query operation when the criteria range contained a formula that used the cell address of a field name in the input range.

    Edit the formula so that it refers to a cell immediately below a field name in the input range.

*   You tried to perform a data query operation when the criteria range contained a formula that used a field name that is also a range name.

    Precede the field name in the formula with the range name of the input range. For example, JAN.SALES refers to field SALES in the input range JAN.

Criteria range must be in an active file

The following conditions could have caused this error:

*   You chose <u>Data Query</u> and specified a criteria range that was not in an active file.

     Either open the file you want to use or specify a criteria range in an active file.

*   You chose Data Query and specified a criteria range in an active file, but you used a file reference that did not include a path.

     Choose Data Query Criteria range. Press F3 (NAME) and select the file name from the list box. 1-2-3 automatically includes the path when you use this method to create the file reference.

Criteria too complex

You tried to perform a data query operation when the criteria range contained more AND or OR statements than 1-2-3 could calculate, or when the criteria range contained more rows or columns of search criteria than 1-2-3 could process.

Use multiple queries to extract, find, or delete records. For example, edit the criteria range to simplify the search criteria, and perform the query. Then specify the remaining search criteria in a second query operation, using the output range from the first query as the input range for the second.

Data Query Find works only in active files

The following conditions could have caused this error:

* You specified an input range that was an external table or was in a file on disk.

Either open the file you want to use or specify an input range that is in an active file. You cannot use Data Query Find with external tables.

* You specified an input range that was in an active file, but you used a file reference that did not include a path.

Choose Data Query Input range, press F3 (NAME) and select the file name from the list box.   1-2-3 automatically includes the path when you use this method to create the file reference.

Data What-if Table and Data Query commands are disabled

You could not change <u>Data What-if Table</u> or <u>Data Query</u> settings because you chose /Data External Other Refresh Automatic.

Choose /Data External Other Refresh Manual and then change your Data What-if Table or Data Query settings.

Database has read-only access

Database is full

Database name is not in the correct format

Database not correctly positioned

Database @functions more than 8 levels deep in criteria

You have nested more than eight database @functions in a criteria range.

Edit the formula in the criteria range so that you have no more than eight database @functions nested in the criteria range.

Datatype mismatch on output

Delete works only on database with one table

Destination range full or invalid

You tried to enter a table, table definition, or list of information in one of the following types of locations:

*   A range too close to the bottom or right edge of a worksheet to accommodate the entire table, table definition, or list.

    Choose the command again and specify a range beginning far enough away from the bottom or right edge of the worksheet to accommodate all the information.

*   A range in a file on disk. 1-2-3 cannot enter data in a file on disk.

    Choose the command again and specify a range in an active file as the range in which you want 1-2-3 to enter the table, table definition, or list.

*   A protected range.

    1-2-3 cannot enter data in a protected range. Reselect the command and specify an unprotected range as the range in which you want 1-2-3 to enter the table, table definition, or list.

*   You specified an external range name as a location for a table definition or list.

    Specify a range in an active file.

Driver cannot perform this database operation

While you were working with an external table, you tried to perform a task that the database driver could not support.

Not all database drivers can perform all the Data External Options and Data Query commands. For information on the capabilities of your database driver, see the documentation for the driver.

Each variable must have an input cell

The following conditions could have caused this error:

*   You entered a variable range and then used ESC to return to the previous menu without specifying all the input cells for the range.

    Specify input cells for the variable range, and then select Go or press F8 (TABLE) to create the data table.

*   You inserted additional rows or columns in one or more variable ranges after you specified the variable ranges for a data table labeled.

    Specify input cells for the new input values in the variable range or ranges, and then select Go or press F8 (TABLE) to create the data table.

ERR values are not allowed in the output range

The following conditions could have caused this error:

*   You have <u>ERR</u> values in the output range.

    Examine the output range and remove any ERR values.

*   The external database contained unsupported data types. This caused 1-2-3 to return ERR in the output range.

    When using <u>Data Query Modify Extract</u> and <u>Data Query Modify Replace</u>, do not specify columns in the external database that use unsupported data types.

Error accessing temporary file

1-2-3 creates and uses temporary files to perform some types of <u>Data Query</u> or <u>Data Sort</u> commands.

The following conditions could have caused this error:

*   You tried to perform a Data Query or Data Sort command, and the disk containing the directory you designated as your temporary file directory was full.

    Free disk space on that disk and repeat the Data Query or Data Sort command.

*   You tried to perform a Data Query or Data Sort command, and 1-2-3 encountered a hard disk failure when it tried to access the temporary file.

    See your technical support person for assistance.

*   The door to the disk drive was open.

    Close the drive door and try the operation again.

External database data type not allowed in worksheet

You tried to extract records from an external table that has a data type 1-2-3 does not recognize.

Be sure that 1-2-3 can recognize the data types in the external table before trying to extract records.

End of database input range reached

External table was not created

You cannot create a table in this external database.

External table was not deleted

Field names must be unique within an input table

The following conditions could have caused this error:

* You tried to extract records from, or delete or find records in, a database table that contained duplicate field names.

  Edit the duplicate field names to create unique names, and if necessary, change the corresponding field names in the output and criteria ranges. Repeat the data query operation by pressing F7 (QUERY) or choosing a Data Query command.

* You tried to extract records from, or delete or find records in, a database table that has a field name that is a formula, for example, @AVG(SALES).

  Enter a field name that is not a formula and repeat the data query operation.

Formula label range cannot be blank

You tried to create a data table labeled without entering formula labels in the formula label range.

You must have at least one formula label in the formula label range. Copy the formula label or labels from the formula range to the formula label range, and then choose /Data Table Labeled Go to create the data table.

Formula range and formula label range are required

The following conditions could have caused this error:

* You tried to create a data table labeled without specifying a formula range and formula label range.

    Choose /Data Table Labeled Formulas to specify the formula and formula label range, and then /Data Table Labeled Go to create the data table.

* You tried to create a data table labeled without specifying any of the necessary ranges.

    Choose /Data Table Labeled Formulas and /Data Table Labeled Down, Across, or Sheets to specify the ranges for the data table, and then choose Go to create the data table.

Incompatible database driver

You tried to specify a database driver with a version number that 1-2-3 does not support.

Use a database driver with a version number that 1-2-3 supports.

Input and output ranges cannot overlap

You specified overlapping input and output ranges when using Data Query.

Choose Data Query and specify the input and output ranges so that they do not overlap.

Input and output ranges must be different

Input field names cannot be qualified

Insert works only on databases with one table

Insufficient privilege to perform database operation

Invalid criteria range

You tried to perform a data query operation using a single-cell or single-row criteria range.

Specify a criteria range that contains a row of field names and at least one row of search criteria.

Invalid external database data type

You tried to create a table definition for a new external table using a model table range that contained a data type that the database driver does not support.

For information on the data types you can use in a table definition with the current database driver, see the documentation for the database driver.

Invalid extra sort key number

You specified an extra sort key number greater than the number of existing extra sort keys.

Specify a number that is one greater than the number of the previous extra sort key.

Invalid field name

Invalid field name

The following conditions could have caused this error:

* You tried to perform a data query operation when the first row of the output range was blank.

    Copy some or all of the field names in the input range to the first row of the output range.

* You tried to perform a data query operation when the first row of the input range was blank.

    Enter field names in the first row of the range.

* You tried to perform a data query operation when none of the field names in the first row of the output range matched a field name in the input range.

    Copy some or all of the field names in the input range to the first row of the output range.

Invalid formula in query

The following conditions could have caused this error:

*   You tried to perform a data query operation when the criteria or output range contained an invalid formula.

    Edit the formula or formulas in the criteria or output range.

*   You tried to perform a data query operation when the output range contained a computed column and an aggregate column, but the field name or names used in the formula in the computed column did not appear in the output range as field names that were not part of formulas.

    Enter the field names in the output range.

*   You tried to use Data Query Extract unique only when the output range contained a computed column, but the field name or names used in the formula in the computed column did not appear in the output range as field names that were not part of formulas.

    Enter the field names in the output range.

*   You tried to perform a data query operation when a formula in an aggregate column in the output range referred to a field and was not in the form @FUNCTION_NAME(FIELD_REFERENCE).

    A field reference can be a field name, range name, or cell address. Edit the formula in the output range.

*   You tried to perform a data query operation when the output range contained a formula that used one of the following @functions: @@, @CELL, @COLS, @HLOOKUP, @INDEX, @INFO, @IRR, @N, @NPV, @ROWS, @S, @SHEETS, @STD, @STDS, @VAR, @VARS, @VLOOKUP, and the database @functions.

    Do not use these @functions in the output range.

*   You tried to perform a data query operation when a formula in the criteria range contained the address of a range within a database table in a file on disk.

    Either read the file containing the database table into memory or use field names in place of range addresses in the formula.

*   You tried to perform a data query operation when a formula in the criteria range contained the address of a range within a database table and the input range contained more than one database table.

    You must use one or more field names in place of the range address in the formula.

Invalid formula label range

The following conditions could have caused this error:

* You tried to create a data table labeled using a formula label range that did not contain as many cells as there were columns in the column variable range, if the formula label range was in a row; as many cells as there were rows in the row variable range, if the formula label range was in a column; or as many cells as there were worksheets in the worksheet variable range, if the formula label range was in a three-dimensional range.

   Specify a formula label range that has the correct number of cells.

* You tried to create a data table labeled using a formula label range that contained more than one row, column, or three-dimensional group of cells.

   Specify a formula label range that is in one row or column or, if the formula label range is a three-dimensional range, includes no more than one cell in each worksheet in the range. For example, A:A1..C:A1 is a valid three-dimensional formula label range; A:A1..C:B1 is not.

Invalid input range specified

The following conditions could have caused this error:

*   You used <u>Data External Options Create Table</u> and specified a model range that was a single-cell or one-row range in an active file or a range in a file on disk. The model range must be either an external table or a range that is in an active file and contains a row of field names and at least one row of data.

    Respecify the model range and the location for the table definition.

*   You selected OK in the <u>Data Parse</u> dialog box after you specified an input column that was an undefined range name or the range name of an external table, or after you specified a range in a file on disk and used a nonexistent or invalid file name.

    Choose Data Parse and specify a range in an active file or, if you tried to specify a range in a file on disk, specify the path and file name, using the correct spelling.

*   You tried to perform a data query operation when the input range was an external table, but the input range you specified with Data Query was no longer in use.

    Choose <u>Data Connect to External</u> to reassign the range name to the external table you want to use as the input range name, or use <u>Data Query</u> to specify an input range name that is currently in use.

*   You specified a range in a file on disk, but the range was too large to fit in memory.

    Read the file containing the range into memory or specify a smaller range.

Invalid name for field or table

Invalid use of database @function in criteria

You tried to perform a data query operation when the criteria range contained a database @function that used an invalid input range, <u>offset number</u> or field name, or criteria range.

Edit the input range, offset number or field name, or criteria range in the database @function and repeat the data query operation.

Invalid worksheet variable range

You specified a worksheet variable range in which the input values were arranged incorrectly.

To set up a valid worksheet variable range, you must enter the input values so that the input values in any one worksheet in the worksheet variable range are in adjacent cells in a single row or column. For example, A:A1..C:D1 and A:A1..A:A4 are valid worksheet variable ranges, but A:A1..C:B2 is not.

Must specify a down or across variable range

You tried to create a data table labeled that had a formula range, a worksheet variable range, and a single-cell formula label range. 1-2-3 cannot determine where to place the data table results when the data table contains only these ranges with these dimensions.

Enter input values in a column or row, specify a row (down) or column (across) variable range with /Data Table Labeled Down or Across, and then select Go to create the data table.

Named field does not exist

A formula in the criteria range contained a field name that did not match a field name in the input range.

Edit the formula in the criteria range and repeat the data query operation.

Named table does not exist

The following conditions could have caused this error:

* You tried to connect to or delete an external table that did not exist.

  You may have misspelled the table name. When you specify the table name again, make sure you use the correct spelling.

* You tried to connect to, delete, or use as a model range an external table that you did not have access privileges to.

  Do not connect to, delete, or use as a model range an external table to which you do not have rights of access.

* You tried to connect to, delete, or use as a model range an external table that was a hidden or protected file.

  Specify an external table that is not a hidden or protected file.

No criteria range specified

You tried to perform a data query operation without specifying a criteria range.

Set up a criteria range, choose <u>Data Query</u>, specify the criteria range, and then repeat the data query operation by pressing F7 (QUERY) or choosing a Data Query command.

No external database drivers are available

No external databases are available

No external databases are in use

You tried to use <u>Data External Options Send Command</u> or /Data External Other Translation when no external database was in use.

Do not send a command to or select a character set for an external database that is not in use. Choose <u>Data Connect to External</u> to connect to a table in the external database you want to send a command to or select a character set for, and then choose Data External Options Send Command or /Data External Other Translation.

No external database drivers are loaded

You tried to use Data External Options Send Command or /Data External Other Translation without first using Data Connect to External to connect to an external table in the database you wanted to send a command to or select a character set for.

Use Data Connect to External to connect to a table in an external database and then choose Data External Options Send Command or /Data External Other Translation.

No external table specified for creation

The following conditions could have caused this error:

*   You chose <u>Data External Options Create Table</u> to create an external table, but did not specify a name for the external table.

    Use Data External Options Create Table to specify a table name.

*   You selected OK in the Data External Options Create Table dialog box without specifying the table name.

    Specify the table name before selecting OK.

No external tables are available

You tried to use <u>Data Connect to External</u> to connect to an external table, but the external database you specified did not contain any tables.

Choose Data Connect to External and specify another external database.

No external tables are in use

No input range specified

The following conditions could have caused this error:

*   You tried to perform a data query operation without specifying an input range.

   Choose <u>Data Query</u> and specify an input range, then repeat the data query operation by pressing F7 (QUERY) or choosing a Data Query command.

*   You tried to parse a column of long labels without specifying an input column.

   Choose <u>Data Parse</u>, specify the column of labels you want to parse in the Input column text box, and then select OK.

No output range specified

The following conditions could have caused this error:

*   You tried to perform a data query operation without specifying an output range.

    Choose <u>Data Query</u> to specify an output range, and repeat the data query operation by pressing F7 (QUERY) or choosing a Data Query command.

*   You tried to parse a column of long labels without specifying an output range.

    Choose <u>Data Parse</u>, specify an output range, and then select OK.

No records found for this database operation

No table definition range exists to create table

You tried to create an external table without specifying a table definition.

Choose <u>Data External Options Create Table</u> to create a table definition or <u>Data External Options Paste Fields</u> to specify an existing table definition.

Null field values not allowed in this database

Number too large/small to pass to external table

You tried to modify an external table with a record containing a number that was either too small or too large for 1-2-3 to send to the database driver.

Edit the number to make it larger or smaller and repeat the data query operation.

Only one input range is allowed

You specified more than one database table in the input range and then used Data Query Delete, Data Query Find, or Data Query Modify. You cannot use more than one table with these commands.

Choose Data Query and specify one external table or a 1-2-3 database table as the input range.

Output range must contain more than one row

You specified a one-row output range and then chose Data Query Modify Insert. Data Query Modify Insert requires an output range that contains a row of field names and at least one row of data.

Choose Data Query and respecify the output range.

Range cannot span worksheets

You specified an input, criteria, or output range that spans more than one worksheet.

Choose Data Query and respecify the input, criteria, and output ranges so that each one is on a single worksheet and they do not overlap.

Range name already exists

You chose <u>Data Connect to External</u> and specified a range name that you have already assigned to an external table or to a range in a worksheet.

Specify a range name that you have not already assigned to an external table or to a range in a worksheet.

Range specified is outside variable range

You chose /Data Table Labeled Down, Across, Sheets, or Input-Cells and tried to specify a set of input values that was not in the variable range or ranges.

If you chose /Data Table Labeled Down, specify a set of input values within the column variable range. If you chose /Data Table Labeled Across, specify a set of input values within the row variable range. If you chose /Data Table Labeled Sheets, specify a set of input values within the worksheet variable range. If you chose /Data Table Labeled Input-Cells, specify a set of input values within any of the variable ranges you specified for the data table.

Syntax error in database driver registration file

Table definition range contains invalid information

You tried to use Data External Options Create Table to create an external table, and the table definition contains a data type, field width, column label, field description, or field creation string that the database driver does not recognize.

Check the spelling or format of the entries in the table definition, make the necessary changes, and then choose Data External Options Create Table to create the table. For information on the data types, field widths, column labels, field descriptions, and field creation strings you can use in a table definition, see the documentation for the database driver.

Table definition range must contain six columns

You tried to create an external table using a table definition that contains fewer than six columns.

Use Data External Options Create Table to specify a six-column table definition.

Table name is not in the correct format

Table results area not fully defined

You tried to create a data table labeled when the bottom row of the column variable range, the rightmost column of the row variable range, or the bottom or rightmost group of cells in the worksheet variable range did not contain input values.

Enter input values in the bottom row of the column variable range, the rightmost column of the row variable range, or the bottom or rightmost group of cells in the worksheet variable range; or specify a column, row, or worksheet variable range that does not include a row, column, or group of blank cells.

Temporary file record too long

1-2-3 creates and uses temporary files to perform some types of data query operations. The temporary file 1-2-3 created for the data query operation you tried to perform was not large enough to accommodate one of the records in the database table you were using.

If you are running low on memory, make more memory available and repeat the data query operation. If you are not running low on memory, specify an input or output range that contains fewer fields or, if one field contains a very long entry, shorten that entry. Then repeat the data query operation.

Error replacing extracted records

The following conditions could have caused this error:

*   You chose <u>Data Query Modify Extract</u>, edited the contents of any row in the input or criteria range or the contents of the first row of the output range, and then chose <u>Data Query Modify Replace</u>.

Choose Data Query Modify Extract again, edit only those records in the output range that you want to change, and then choose Data Query Modify Replace.

*   You chose Data Query Modify Replace when the range address of the output range included more rows than there were records in the output range.

Specify a one-row output range in the Data Query dialog box, select Modify, select Extract, edit the records in the output range, then choose Data Query Modify Replace again.

Too many computed-column formulas in output range

Too many records for output range

You specified a multiple-row output range for a data query operation, but did not specify enough rows to accommodate all the records that match the criteria in the criteria range.

Specify an output range containing more rows or, if it is safe to do so, specify a one-row output range. Keep in mind that 1-2-3 erases all data below the output range if you specify a one-row output range.

Unable to locate the database

The following conditions could have caused this error:

*   You chose a Data External command and specified an external database that did not exist. You may have misspelled the external database name.

    When you specify the external database again, make sure you use the correct spelling.

*   You chose <u>Data External Options Send Command</u> or /Data External Other Translation and specified the name of an external database that did not exist or was not in use.

    Specify the name of an existing external database or, if the database exists but is not in use, choose <u>Data Connect to External</u> to connect to an external table in that database and then choose Data External Options Send Command or /Data External Other Translation.

Unable to locate the table

Cannot use both Edit Undo and /Data External Refresh Automatic

You tried to choose /Data External Other Refresh Automatic when the undo feature was on, or you tried to turn on the undo feature after you chose /Data External Other Refresh Automatic.

Do not have the undo feature turned on and /Data External Other Refresh set to automatic at the same time. Use Tools User Setup to disable Edit Undo.

Unsupported character set

You tried to select a character set that the database driver does not support.

Choose /Data External Other Translation again and select a character set from the list on the screen.

Unsupported database function call

Variable ranges and formula labels overlap

You tried to create a data table labeled when the formula label range or all or part of a variable range was in a row or column that also contained part of another variable range. 1-2-3 cannot enter the results of a data table calculation in a cell at the intersection of a row containing an input value or formula label and a column containing an input value or formula label if that cell also contains an input value or formula label.

Move the ranges so that none is in a column or row that contains all or part of another range, or expand one of the ranges by one row or column and rearrange the input values or formula labels in the range so that the cell that is in the same row or column as the formula label range or part of another variable range is blank. For example, if the formula label range is in A:B4..A:C4 and the row variable range is in A:D2..A:D9, you can expand the row variable range to A:D2..A:D10 and move the values in A:D4..A:D9 to A:D5..A:D10, leaving A:D4 blank. Then recalculate the data table using /Data Table Labeled Go or F8 (TABLE).

Error loading driver file

The DataLens driver you are attempting to use was designed for a previous version of Windows. You should obtain an updated version of the driver that is compatible with Windows 3.0 386 Enhanced Mode.

To use the current driver press ESC. Then save your work and restart Windows 3.0 in Real Mode or Standard Mode by typing WIN R or WIN S.

Advise is already in effect for this DDE item

You used {DDE-ADVISE} to link a 1-2-3 macro to a data item in the source application, but the data item is already linked to another macro.

To unlink the data item from the macro to which it is already linked, use {DDE-UNADVISE}. Then use {DDE-ADVISE} to link the data item to a new macro.

Advise is not in effect for this DDE item

You used {DDE-UNADVISE} to remove a link between a 1-2-3 macro and a data item in the source application, but the link does not exist.

Remove the {DDE-UNADVISE} command from the macro.

Application not found

An error occurred when 1-2-3 tried to start the application specified in a {LAUNCH} command. The following conditions could have caused this error:

* The application is not installed in Windows.

   Install the application and try again.

* You specified the application name incorrectly.

   Specify the application again, making sure to use the correct application name.

* You did not specify the correct command string for starting the application.

   Specify the command string again, making sure to include all required information.

Bad DDE link name

You specified an invalid link name in an Edit Link Options Create, Edit Link Options Edit, {LINK-ASSIGN}, {LINK-CREATE}, {LINK-DEACTIVATE}, {LINK-DELETE}, {LINK-REMOVE}, or {LINK-UPDATE} command.

Specify the macro command again and include a valid link name.

Cannot launch application

An error occurred when 1-2-3 tried to start the application specified in a {LAUNCH} command. The following conditions could have caused this error:

* The application is not installed in Windows.

  Install the application and try again.

* You specified the application name incorrectly.

  Specify the application again, making sure to use the correct application name.

* There is not enough memory to start the application.

  Remove unnecessary files from memory and try again.

Cannot paste DDE link

You tried to create a link by using {EDIT-PASTE-LINK}, but 1-2-3 was unable create the link for one of the following reasons:

*   There was no link information on the Clipboard.

    Access the source application and copy the information you want to the Clipboard. Then return to 1-2-3 and specify the macro again.

*   The source application you specified does not support DDE paste linking through the Clipboard.

    Use Edit Link Options Create to create a link to the source application.

*   The source application you specified does not support DDE as a server.

    You cannot use {EDIT-PASTE-LINK} to copy information from the source application to 1-2-3.

DDE advise request failed, server application busy

DDE protocol error. For more information, see the documentation for the source application.

DDE advise request failed, server did not acknowledge

DDE protocol error. For more information, see the documentation for the source application.

DDE advise request failed, server refused request

DDE protocol error. For more information, see the documentation for the source application.

DDE conversation not open

The following conditions could have caused this error:

* You specified a {DDE-ADVISE}, {DDE-EXECUTE}, {DDE-POKE}, {DDE-REQUEST}, or {DDE-UNADVISE} command, which can execute only when a DDE conversation is open, but no conversation was open.

   Make sure the source application is installed in Windows, or use {LAUNCH} to start the application. Then open the conversation you want with a {DDE-OPEN} command, and specify the {DDE-ADVISE}, {DDE-EXECUTE}, {DDE-POKE}, {DDE-REQUEST}, or {DDE-UNADVISE} command.

* You specified a {DDE-USE} command and then a {DDE-ADVISE}, {DDE-EXECUTE}, {DDE-POKE}, {DDE-REQUEST}, or {DDE-UNADVISE} command, but the conversation you referred to in the {DDE-USE} command is not open.

   Open the conversation you want with a {DDE-OPEN} command or change the reference in the {DDE-USE} command to an open conversation, and then specify the {DDE-ADVISE}, {DDE-EXECUTE}, {DDE-POKE}, {DDE-REQUEST}, or {DDE-UNADVISE} command.

DDE data request failed, server application busy

DDE protocol error. For more information, see the documentation for the source application.

DDE data request failed, server did not acknowledge

DDE protocol error. For more information, see the documentation for the source application.

DDE data request failed, server refused request

DDE protocol error. For more information, see the documentation for the source application.

DDE execute string failed, server application busy

DDE protocol error. For more information, see the documentation for the source application.

DDE execute string failed, server did not acknowledge

DDE protocol error. For more information, see the documentation for the source application.

DDE execute string failed, server refused request

DDE protocol error. For more information, see the documentation for the source application.

DDE link is already assigned

You used {LINK-ASSIGN} to assign a link name to a destination range, but the link name is already assigned to another range.

To unassign the link name from the range to which it is already assigned, use {LINK-REMOVE}. Then use {LINK-ASSIGN} to assign the link name to a new range.

DDE poke request failed, server application busy

DDE protocol error. For more information, see the documentation for the source application.

DDE poke request failed, server did not acknowledge

DDE protocol error. For more information, see the documentation for the source application.

DDE poke request failed, server refused request

DDE protocol error. For more information, see the documentation for the source application.

DDE protocol error, can't post messages to server application

The source application cannot process DDE messages.

Check the source application for problems.

DDE server not responding

An error occurred when 1-2-3 tried to start the application specified in a {DDE-OPEN} command. The following conditions could have caused this error:

*   The application is not installed in Windows.

    Install the application and try again.

*   You specified the application name incorrectly.

    Specify the application again, making sure to use the correct application name.

*   The topic you specified is not available in the application.

    Specify a topic that is available in the application, or open the topic in the application.

DDE termination request failed, extra server did not acknowledge

DDE protocol error. For more information, see the documentation for the source application.

DDE termination request failed, server did not acknowledge

DDE protocol error. For more information, see the documentation for the source application.

DDE unadvise request failed, server application busy

DDE protocol error. For more information, see the documentation for the source application.

DDE unadvise request failed, server did not acknowledge

DDE protocol error. For more information, see the documentation for the source application.

DDE unadvise request failed, server refused request

DDE protocol error. For more information, see the documentation for the source application.

Invalid application or topic name

In a {DDE-OPEN} command, you specified an invalid application or topic name, or you specified the name of an application or topic that is not open or is not available.

Specify the {DDE-OPEN} command again, making sure to use the correct application and topic names. If the named application is not open, open it and then specify the command again, or use the {LAUNCH} command to start the application.

Invalid application, topic or item

You used <u>Edit Link Options Create</u>, <u>Edit Link Options Edit</u>, or <u>{LINK-CREATE}</u> and specified an invalid application, topic, or data item name or the name of an application that is not open or is not available.

Specify Edit Link Options Create, Edit Link Options Edit, or {LINK-CREATE} again, making sure to use the correct application, topic, and data item names. If the named application is not open, open it and then specify the command again.

Invalid DDE update mode

In a {LINK-CREATE} command, you specified an invalid update mode.

The two valid modes are AUTOMATIC, which updates data in the destination range each time the source item is updated, and MANUAL, which updates data in the destination range only when you use {LINK-UPDATE} or Edit Link Options Update.

Invalid item

In a {DDE-ADVISE}, {DDE-POKE}, {DDE-REQUEST}, or {DDE-UNADVISE} command, you specified an invalid data item name.

Specify the macro command again, making sure to use a valid data item name.

All modified files must be reserved before saving

You used <u>File Save As</u> and selected Save All, but you did not have the reservation for one or more of the files you tried to save. 1-2-3 cannot save a file with its existing name if you do not have the reservation.

Choose <u>File Administration Paste Table</u> to check the reservation status of each active file.

When you identify the read-only (RO) files, move the cell pointer to each file and choose <u>File Administration Network Reserve</u> and select Get to try to get the reservation. If you get the reservation for a file, the RO indicator disappears from the title bar of the Worksheet window.

If you get reservations for all files, choose File Save As and select Save All. If you do not get the reservation for every file, you can save individual files for which you have the reservation.

Backup file exists in memory

You chose <u>File Open</u> to read a .BAK file into memory and then tried to save the file using File Save As Backup. You cannot use File Save As Backup with a file whose extension is already .BAK.

Use <u>File Save As Replace</u> to save a file whose extension is .BAK.

Backup unsuccessful due to file error

You used <u>File Save As Backup</u> to save and backup a file that was marked read-only on disk. You cannot delete or save data in a read-only file.

Choose <u>File Administration Network Reserve</u> and select Get to try to get the reservation. If you get the reservation, choose File Save As Backup to save the file. If you cannot get the reservation, you can use File Save As to save the file under a different file name, or you can go to the operating system, use the operating system ATTRIB command to clear the read-only attribute from the file and then return to 1-2-3, and save the file.

Cannot convert extension. File already exists in memory.

* You used <u>File Open</u> to read a 1-2-3 Release 1A or Symphony file into memory, and the file name matched the name of an active file. 1-2-3 could not convert the file to .WK3 format because you had an active file by that name. Before you try to read the file into 1-2-3, you can do one of the following:

Delete the active file from memory with <u>File Close</u>.

Use <u>File Save As</u> to save the active file with a different name.

Rename the Release 1A or Symphony file on disk.

Cannot create file

The following conditions could have caused this error:

* You tried to save too many files on a disk.

  Save the file on another disk or in another directory.

* The file you specified was hidden on disk.

  Save the file on another disk or in another directory.

* You used File New and specified a directory that did not exist.

  Respecify the directory.

* You tried to save a file with the disk drive door open.

  Close the disk drive door and try again.

* You entered an invalid character in a file name. Your operating system determines the characters allowed in a file name.

  See Naming a 1-2-3 File or your operating system manual for more information.

Cannot erase file. It is in use or has read-only access.

The following conditions could have caused this error:

*   You tried to erase a file on disk when the file was active and you had the reservation.

    Choose <u>File Administration Network Reserve</u> and select Release to release the reservation, and then use /File Erase to erase the file on disk.

*   You tried to erase a file on disk when the file was marked read-only on disk. You cannot erase or save a read-only file.

    Choose File Administration Network Reserve and select Get to try to get the reservation. If you get the reservation, then you can erase the file on disk using /File Erase. If you cannot get the reservation, you can use <u>File Save As</u> to save the file under a different file name, or you can go to the operating system, use the operating system ATTRIB command to clear the read-only attribute from the file, and then return to 1-2-3 and use /File Erase.

Cannot import - file is in use

You used <u>File Import From</u> to copy data from a text file that was not closed on disk. Someone else may have been saving changes to the file on disk.

Wait for 1-2-3 to close the file and then repeat File Import From.

Cannot read Help file

The Help file (123W.HLP) may be damaged or may not be in the 1-2-3 for Windows program directory.

Check that 123W.HLP is in your 1-2-3 for Windows program directory.

If you cannot locate the file, or the file is damaged, use the Install program to reinstall your program files. For information on how to start Install, see the booklet that came with your CD-ROM package.

Cannot read locked Symphony worksheet file

1-2-3 for Windows cannot read a Symphony file that has been locked using the Services Settings Security Lock command within Symphony.

Use Symphony to unlock the file, and then use <u>File Open</u> to read the file into 1-2-3.

Directory does not exist

The following conditions could have caused this error:

* You specified a directory that did not exist.

 Respecify the directory name or path.

* You entered an invalid character in a file name. Your operating system determines the characters allowed in a file name.

 See Naming a 1-2-3 File or your operating system manual for more information.

Disk drive not ready

You tried to read from or save a file on a disk drive that did not contain a disk or had its door open.

Correct the problem and try again.

Disk error

1-2-3 was unable to save a file on or read a file from disk. The disk may be damaged, or the disk-drive head may be out of alignment.

If you are trying to save a file on a disk, try another formatted disk.

If you cannot save the file on the second disk, have the alignment of the disk-drive head checked.

If you are trying to read the file, try using another computer.

Disk full

You tried to save a file on a disk that did not have enough room for the file.

Caution If you selected Replace after choosing <u>File Save As</u> or <u>File Extract To</u>, 1-2-3 erased the version of this file on disk. You must save the file on another disk so you do not lose the file.

Either use File Extract To to save a portion of the file on the disk, or save the entire file on another formatted disk.

Disk is write-protected

You tried to save a file on a disk with a write-protect tab, or on a disk manufactured without a write-protect notch. This error can occur during File Save, File Save As, File Extract To, File Page Setup, Style Font Replace, Window Display Options, or Tools User Setup operations.

Remove the tab or replace the disk with one that is not write-protected.

Error reading file

The following conditions could have caused this error:

*   1-2-3 cannot open a blank file. 1-2-3 creates a blank file on disk when you use <u>File New</u>, or when you use <u>File Open</u> with a 1-2-3 Release 1A or Symphony file. The blank file acts as a place holder on disk until you save the file.

    Use DOS or the Windows File Manager to check the size of the file on disk to ensure that you are not trying to read a blank file into memory.

*   1-2-3 could not read the file from disk because the file may have been corrupted. Clear the error message by pressing ESC and then press ENTER to see if 1-2-3 has read any of the file.

Error saving file

You were running a macro with the {OPEN} command. 1-2-3 could not write data to the file because the file was in a directory that contained the maximum number of files.

Either delete some files from the directory or move the file to a directory that contains fewer files.

File already exists

You used /File New and specified a file name that already existed on disk.

Specify a different file name.

File already exists in memory

You used <u>File Open</u>, <u>File Save As</u>, or <u>File Extract To</u> and specified a file that was already active. If you used File Save As, the file was active but it was not the current file.

To replace an active file with the version of the file on disk, choose <u>File Close</u> and select No to close the file without saving your changes. Then use File Open to read the version of the file on disk into memory.

File and/or extension converted

When you use <u>File Open</u> to read a 1-2-3 Release 1A or Symphony file into memory, 1-2-3 for Windows converts the file by creating a blank worksheet file with the same name and a .WK3 extension on disk and in memory. When 1-2-3 converts the file to .WK3 format, it leaves the original file unchanged on disk.

Note You cannot read the converted .WK3 file on disk into memory because it is a place holder for the file and has no data in it. You must save the converted file before you can read it into memory.

File close error

You were printing a text or encoded file to a disk and opened the drive door or removed the disk from the drive before you closed the print job.

Before you remove the disk, you must select Print [E,F,P] Quit, or press CTRL+BREAK or ESC to close the print job.

File contention prevented accessing the file

The following conditions could have caused this error:

* You tried to read or save a file at the same time that someone else was using the file. This error can occur during File Combine From, File Open, File Save, or File Extract To operations.

    Wait a few minutes and then try to complete the operation.

* You used a file name that is reserved by the operating system when you were saving or extracting a file.

    See your operating system manual for a list of reserved file names. Save the file with a different name.

File does not exist

The following conditions could have caused this error:

*   You specified a file on disk that did not exist in the specified directory.

   Use DOS or the Windows File Manager to find out what files are in the current directory, or use <u>File Administration Paste Table</u> to list active files.

*   You specified an active file that is not stored in the current directory.

   Choose the command again and enter the path and the file name.

File is already sealed

You chose <u>File Administration Seal File</u> when the file or the reservation setting was already sealed.

File is not sealed

You chose <u>File Administration Seal File</u> and selected Disable all restrictions when the file was not sealed.

File is read-only

You tried to save a file that was marked read-only on disk. You cannot save data in a read-only file.

Choose <u>File Administration Network Reserve</u> and select Get to try to get the file reservation. If you get the reservation, choose <u>File Save</u> or <u>File Save As</u> to save the file. If you cannot get the reservation, you can use File Save As to save the file under a different file name, or you can go to the operating system, use the operating system ATTRIB command to clear the read-only attribute from the file, and then return to 1-2-3 and save the file.

File is sealed

The following conditions could have caused this error:

*   You tried to change a sealed file. When a file is sealed using File Administration Seal File, you cannot change the reservation setting and you cannot use any of the following commands to change the file: Graph Name Delete, Graph Add to Sheet, Graph New, Range [Format, Protect, Unprotect], Range Name [Create, Delete, Label Create], Style Alignment, Worksheet [Column Width, Hide, Unhide], Worksheet Global Settings.

    Choose File Administration Seal File and select Disable all restrictions to unseal the file. You must know the password that was used to seal the file in order to unseal it.

*   You tried to extract data from a sealed file.

    Choose File Administration Seal File and select Disable all restrictions to unseal the file before using File Extract To. You must know the password that was used to seal the file in order to unseal it.

File name already exists on disk

You tried to read a 1-2-3 Release 1A or Symphony file into memory when a 1-2-3 for Windows file with the same name already existed on disk. When 1-2-3 reads a Release 1A or Symphony file into memory, it converts the file to 1-2-3 for Windows format by creating a blank new file with the same file name and a .WK3 extension. You cannot have two files with the same file name and extension in the same directory.

Copy the 1-2-3 Release 1A or Symphony file to a different directory or rename the file before you read it into memory.

Incompatible worksheet information lost during saving

You saved a 1-2-3 for Windows file in Release 2 (.WK1) format, but the file contained new 1-2-3 for Windows features that could not be saved in the file.

Save the file as a .WK3 file to retain all data in the file.

For more information, see <u>Saving Files in 1-2-3 Release 2 (.WK1) Format</u>.

Incompatibility with previous versions of 1-2-3

The following conditions could have caused this error:

*   You could not save a 1-2-3 for Windows file as a .WK1 file because the file contained more than one worksheet.

    Use the Translate utility to convert the file to .WK1 format. See **Appendix A** of the *User's Guide* for information on Translate.

*   You could not save a 1-2-3 for Windows file as a .WK1 file because the file was sealed.

    Choose File Administration Seal File and select Disable all restrictions to unseal the file before you try to save it. To unseal the file, you must know the password that was used to seal the file.

Incorrect file name or path syntax

You entered an incorrect file name or an incorrect path for a file on disk.

Respecify the file name or the path. If you do not specify a path, 1-2-3 searches the current directory for the file you specify. Use <u>Tools User Setup</u> to change the current directory to the directory that contains the file, or specify the entire path when you enter the file name.

Incorrect password

The following conditions could have caused this error:

*	You entered the wrong password when you tried to read a password-protected file using <u>File Combine From</u> or <u>File Open</u>.

	Re-enter the password.

*	You entered the wrong password when you chose <u>File Administration Seal File</u> and selected Disable all restrictions to unseal a file.

	Re-enter the password.

A password can include up to 15 characters. 1-2-3 is case-sensitive for passwords, so you must remember the exact combination of uppercase and lowercase letters you used to create the password.

Input line too long

The following conditions could have caused this error:

* You used <u>File Import From</u> with a text file that had a line longer than 511 characters. This error occurs when the file you are importing does not have a carriage return at the end of each line. As a result, 1-2-3 cannot find the end of the file's lines.

  Use the text editor with which the file was created to shorten the lines by entering carriage returns.

* You used <u>Edit Find</u> to replace a string of text with a longer string, but making that replacement in the highlighted cell would have created an entry longer than 511 characters. Do one of the following:

  Use a shorter replacement string.

  Specify a search range that does not include that cell.

  Select Find Next in the Edit Find dialog box when 1-2-3 highlights that cell to skip the replacement in that cell.

Input range must be in an active file

You used <u>File Extract To</u> and specified a range that was in a file on disk.

You can only extract data from an active file.

Invalid character in extension

You entered an invalid character in the extension. Your operating system determines the characters allowed in an extension.

See <u>Naming a 1-2-3 File</u> or your operating system manual for more information.

Invalid character in file name

You entered an invalid character in a file name. Your operating system determines the characters allowed in a file name.

See Naming a 1-2-3 File or your operating system manual for more information.

Invalid disk name

The following conditions could have caused this error:

* You specified a disk drive name that either was not between A and Z (uppercase or lowercase) or did not exist on your computer.

  Specify a valid disk drive name.

* You tried to save a file on an unformatted disk.

  Format the disk.

* You specified a disk drive that was not ready.

  Check that you inserted the disk correctly and that the drive door is closed.

Invalid file operation

You were trying to save a file to a network that has read-only access.

No active file to get reservation

You cannot choose <u>File Administration Network Reserve</u> and select Get to get a reservation for the worksheet because it has never been saved in a file.

Save the worksheet and then choose the command again.

Note If file reservation is set to automatic, you will automatically get the reservation when you save the file.

No files of specified type on disk

1-2-3 could not find any files of the type you specified.

Use DOS or the Windows File Manager to see a complete list of files in the directory you specified.

Not a valid worksheet file

You specified an invalid worksheet file when you used <u>File Combine From</u> or <u>File Open</u>.

Use only worksheet files created with 1-2-3 or Symphony.

Part of combine file lost

You used <u>File Combine From</u> to combine a range from a file on disk, and the data in the specified range extended beyond the worksheet boundaries. When you selected OK, 1-2-3 combined the data that fit in the available rows and columns, but the data that did not fit in the worksheet was lost.

When you use File Combine From, select an area of the worksheet that is large enough to hold all the incoming data.

Part of file is missing

The following conditions could have caused this error:

*   The file you specified may have been truncated.

*   The file you specified may be missing the end-of-file character.

*   Your disk may be damaged.

*   The disk-drive head may not be properly aligned.

Clear the error message by pressing ESC. Press ENTER. If possible, 1-2-3 will read some or all of the file into memory.

Password required

Passwords do not match

You used <u>File Save As</u> or <u>File Administration Network Seal</u> and tried to password-protect the file or seal, but the password you entered to verify your password did not match the first one you entered.

Repeat the command and enter the password again. A password can include up to 15 characters. 1-2-3 is case-sensitive for passwords, so you must remember the exact combination of uppercase and lowercase letters you used to create the password.

The file on disk is different from the one retrieved

You chose <u>File Administration Network Reserve</u> and selected Get to try to get a reservation for the current file, but the version of the file on disk has changed since you retrieved it. 1-2-3 will not give you the reservation if the file on disk is different from the file you are using.

Use <u>File Open</u> to read the most recent version of the file into memory. If the file is read-only, use File Administration Network Reserve again to try to get the reservation.

The worksheet file is already reserved

You chose <u>File Administration Network Reserve</u> and selected Get to get a reservation when you already had the reservation for the file.

The worksheet file has no reservation

The following conditions could have caused this error:

* You tried to save a file and you did not have the reservation. You must have the reservation to save a file.

   Choose <u>File Administration Network Reserve</u> and select Get to try to get the reservation.

* You tried to release the reservation by choosing File Administration Network Reserve and selecting Release when you did not have the reservation. You are already using a read-only file.

For more information on file reservations, see <u>Reserving a File</u>.

The worksheet file has not been named

Too many characters in extension

You entered more than the allowed number of characters in the file extension. Your operating system determines the number of characters allowed in an extension.

Make sure you have not specified a default extension that is too long.

See Naming a 1-2-3 File or your operating system manual for more information on file extensions.

Too many characters in file name

You specified too many characters in the file name. Your operating system determines the number of characters allowed in a file name.

See Naming a 1-2-3 File or your operating system manual for more information.

Too many characters in path

You specified too many characters in the path. Your operating system determines the number of characters allowed in the path.

See your operating system manual for more information.

Too many open files

You had too many files in memory with reservations when you used a File, Graph, Print, or Database command that creates or opens files, or when you chose <u>Style Font Replace Save</u> or <u>File Page Setup Save</u>.

Save your work, and either use <u>File Close</u> to delete some active files or choose <u>File Administration Network Reserve</u> and select Release to release the reservation for one or more active files.

Unable to reserve file: it is already reserved

You chose <u>File Administration Network Reserve</u> and selected Get when someone else was using the file with the reservation.

You can get the reservation if no one else has it and if the file has not changed on disk since you read it into memory. Try again later to get the reservation.

Unable to reserve file: it has read-only access

You chose File Administration Network Reserve and selected Get to try to get a reservation for a file that was marked read-only on disk, or you tried to save a file that is marked read-only on disk.

You can clear the read-only attribute from the file on disk by using the operating system ATTRIB command. Then you can read the file into 1-2-3, get the file's reservation, and save the file.

Worksheet file revision out of date

Cannot use offset number for field

Directory entry update error

You used <u>File Save As</u> or <u>File Extract To</u> to save a file on disk, and the network software did not update the directory.

Reconfigure the network so that directory updates are not deferred.

Formula too complex

You tried to enter a formula that was too long or too complicated.

Break the formula into one or more smaller formulas.

Invalid number input

You specified an invalid number for the command you were using.

Enter a number within the range indicated, or see Help for specific information.

Number is too large

You specified a number that was too large for the command you were using.

Enter a number within the range indicated, or see Help for specific information.

Number is too small

You specified a number that was too small for the command you were using.

Enter a number within the range indicated, or see Help for specific information.

System error

You entered a formula that contained too many nested levels or an @function that contained too many arguments.

Break the formula into one or more smaller formulas.

Worksheet full

One of the following conditions could have caused this error:

*   You used a command that copies or moves data, but the range you specified to copy or move did not fit within the worksheet borders.

    Make sure the destination range is large enough to hold the data you want to copy or move.

*   You tried to insert a column or columns using <u>Worksheet Insert</u>, but 1-2-3 could not complete the command because the number of columns you tried to insert exceeded the number of blank columns at the right worksheet border.

    A blank column contains no data, formatted cells, or unprotected cells. Delete unneeded data, formatting, and protection to increase the number of blank columns or try to insert fewer columns.

Internal error - invalid command parameter

Graph name already exists

You used Graph New to create a new graph, but specified a graph name that is already in use.

Specify the graph name again, making sure the name is not already in use.

Graph name does not exist

You chose Graph View or Graph Name Delete and specified a nonexistent graph name.

Choose Graph View or Graph Name Delete again to see a complete list of graph names in the current file and the names of other active files. If you are trying to view or delete a named graph in the current file, select the appropriate name from the list. If you are trying to view or delete a named graph in another active file, select the file name from the list and then specify the appropriate graph name.

Too many graph names; cannot create new one

You tried to create a named graph with <u>Graph New</u>, but the current file already contains the maximum number of named graphs.

Use <u>Graph Name Delete</u> to delete an existing named graph in the current file and then reselect Graph New.

Name too long

The following conditions could have caused this error:

*   You chose <u>Graph New</u> or /Print [E, F, P] Options Name Create and specified a graph or page settings name longer than 15 characters.

    Choose Graph New or /Print [E, F, P] Options Name Create again and specify a name that does not exceed 15 characters.

*   When specifying a range for a command, you typed a name of more than 15 characters. Range names cannot exceed 15 characters. Either you misspelled the range name you wanted to use or, if you were specifying multiple ranges, you left out an argument separator between two or more ranges.

*   For a <u>Data External</u> command, you specified an external table name of more than 80 characters. A full table name (which includes a driver name, database name, and table name) cannot exceed 80 characters.

    Use a shorter driver, database, and/or table name for the external table. To shorten the driver name, edit the DN="drivername" statement in your LOTUS.BCF file.

Graph error - not enough memory to draw graph

*   You tried to view a graph, but not enough memory was available for 1-2-3 to display it. To solve this problem, do one or more of the following:

Free some memory and then try to display the graph. For ways to free memory, see <u>Increasing Available Memory</u>.

Use <u>Graph View</u> to display another named graph that is less complex.

Cannot add graphic

There is not enough memory to add the specified graphic. For information on increasing memory, see Increasing Available Memory or **Appendix C** in the *User's Guide.*

Cannot create format file

1-2-3 cannot create a format file (.FM3) because there is not enough disk space, the directory has read-only access, or the disk is write-protected.

Cannot create temporary file

There is not enough disk space to create the temporary files 1-2-3 uses for printing.

Cannot define a named style from a graphic

You cannot define a named style from the specified cell.

Specify a cell outside the graphic.

Cannot erase file

1-2-3 cannot erase the specified file because it has read-only access.

Cannot export to this format from a multiple-sheet file

You tried to use :Special Export to export to an .FMT or .ALL file from a multiple-sheet file. You can save only an .FM3 file from a multiple-sheet file.

Cannot move graph beyond worksheet boundaries

You tried to move a graph in the worksheet using :Graph Move, but the To range you specified would place the graphic beyond the last column or row in the worksheet.

Cannot move or copy formats beyond worksheet boundaries

One of two conditions caused this error:

* You tried to move or copy formats, but the range you specified to copy or move occupied either more rows or columns than the total number of remaining rows or columns in the worksheet or more worksheets than the total number of remaining worksheets in the file.

* You chose <u>File Import From Styles</u> and specified a format file that contains more worksheets than the total number of remaining worksheets in the file.

Cannot retrieve library file

1-2-3 could not open a file on disk containing named page settings or a named font set because the file is damaged.

Cannot use :Text Edit on a hidden range

The range you specified is hidden or is in a hidden worksheet.

Use <u>Worksheet Unhide</u> to redisplay the hidden range or worksheet.

Cannot use this command in text display mode

You must use graphic display mode for <u>File Preview</u>, <u>Graph View</u>, :Text Edit, and :Graph Zoom.

To turn graphic display mode on, choose <u>Window Display Options Options</u> and remove the check from the Draft check box, or choose :Display Mode Graphics Quit.

Directory does not exist

You specified the name of a directory that does not exist.

Error reading format file

Either the format file 1-2-3 tried to read into memory is damaged, or you chose <u>File Import From Styles</u> and specified the name of a format file that does not exist.

Error writing file

1-2-3 cannot save the file containing named page settings or a named font set because there is not enough disk space, the directory has read-only access, or the disk is write-protected.

File already in use

You tried to use :Special Export to export to a format file that is not closed on disk.

File is sealed

You tried to change a sealed file. When a file is sealed using <u>File Administration Seal File</u>, you cannot change it with any of the following commands: Graph Name Delete, Graph Add to Sheet, Graph New, Range [Format, Protect, Unprotect], Range Name [Create, Delete, Label Create], Style Alignment, Worksheet [Column Width, Hide, Unhide], Worksheet Global Settings.

Choose File Administration Seal File and select Disable all restrictions to unseal the file. You must know the password that was used to seal the file in order to unseal it.

Global protection is enabled

You cannot use <u>File Import From Styles</u> if global protection is turned on.

Use <u>Worksheet Global SettingsProtection</u> to turn global protection off.

Graph not found

You specified the name of a graph that does not exist, or you specified a range that does not contain a graph.

Graph too big to be edited

You tried to edit a graphic in the worksheet, but the graphic is too large.

Choose <u>Graph Size</u> and specify a smaller range for the graphic to occupy. Then try to edit the graphic again.

Invalid library file

You used <u>File Page Setup Retrieve</u> or <u>Style Font Replace Retrieve</u> and specified an incorrect file name for a file containing named page settings or a named font set.

Invalid print range

You specified a print range that is not in an active file.

Specify one or more ranges in an active file as the print range, or open the file containing the range you tried to print.

Invalid range

You specified a range that is not in an active file.

Margins equal or exceed page size

1-2-3 cannot print if the combined left and right margin settings are greater than the width of the paper or if the combined top and bottom margin settings are greater than the length of the paper.

Use <u>File Page Setup Margins</u> and change the left and/or right margins or the top and/or bottom margins.

No print range specified

Specify a print range with :Print Go and :Print Preview.

Not enough memory to print

Not enough memory is available to print.

For information on freeing memory, see <u>Increasing Available Memory</u> or **<u>Appendix C</u>** of the *User's Guide.*

Out of memory

You must free enough memory to perform the operation that caused this error message.

For information on freeing memory, see <u>Increasing Available Memory</u> or **<u>Appendix C</u>** of the *User's Guide.*

Out of memory. Edit Undo disabled.

You must free enough memory to perform the operation that caused this error message.

For information on freeing memory, see Increasing Available Memory or **Appendix C** of the *User's Guide.* To turn on Edit Undo, use Tools User Setup.

Protected cell

You cannot use Graph Add to Sheet, Edit Clear Special, Style Display Options (Graph Window), Range Justify, or :Text Edit in a range that contains protected cells.

You must unprotect the protected cells with Range Unprotect or turn off global protection with Worksheet Global Settings Protection.

Text range full

The text range you specified for :Text Edit or :Text Set is too small.

Specify a larger text range with :Text Set.

Too many characters in path

You specified too many characters in the path. Your operating system determines the number of characters allowed in the path.

See your operating system manual for more information.

Break

You pressed CTRL+BREAK while a macro was running. 1-2-3 did not complete the macro.

Cannot invoke operating system

You chose /System or were running a macro that included a /S keystroke instruction or {SYSTEM} command, and one of the following problems occurred:

*   1-2-3 could not locate the COMMAND.COM file.

    If your COMMAND.COM file is on a floppy disk, make sure the disk is in the disk drive and then choose /System or rerun the macro.

*   1-2-3 could not access the COMMAND.COM file because you were already using the maximum number of files your operating system allowed.

    To solve this problem, use File Close to delete one or more of your active files; use File Administration Network Reserve to release the reservation of one or more active files; or end another application program, if one is running. Then choose /System or rerun the macro.

*   You have insufficient memory to invoke the operating system.

    See Increasing Available Memory for more information.

Cannot write over data with APPEND commands

You were running a macro that uses an {APPENDBELOW} or {APPENDRIGHT} command to copy data to the end of a range, but the cells to which the data would be copied already contained data. 1-2-3 does not allow {APPENDBELOW} and {APPENDRIGHT} commands to write over existing data.

Check the {APPENDBELOW} or {APPENDRIGHT} command in the macro to see what range you specified as the target location. (The target-location argument is the first argument in both of these commands.) Then either erase that range or use a different target location for the command.

Invalid expression

You were running a macro and one of the following problems occurred:

*   A repetition factor in a macro keystroke instruction did not evaluate to a number.

*   For a macro command that requires a number argument, the argument did not evaluate to a number.

*   For a {FOR} command, the start, stop, or step argument evaluated to ERR or NA.

*   For a {RECALC} or {RECALCCOL} command, the condition argument was either an invalid cell reference (for example, an undefined range name) or a literal string. The condition argument must be a formula, a number, or a reference to a cell that contains a formula, number, or label.

Invalid FORBREAK

You were running a macro and 1-2-3 encountered a {FORBREAK} command somewhere other than within a subroutine called by a {FOR} command.

{FORBREAK} commands are allowed only within {FOR} subroutines.

Remove the {FORBREAK} command from the macro, or if it is within a subroutine, use a {FOR} command instead of a {*subroutine*} command to call that subroutine.

Invalid string argument

You were running a macro and one of the following problems occurred:

*   For an {OPEN} command, the access-type argument was an empty string ("").

    You must use the letter r, w, m, or a (or a reference to a cell that contains one of those letters) as the access-type argument.

*   For a macro command that requires a string argument, the argument was a number, numeric formula, or reference to a cell that contains a number or numeric formula.

*   For a {DISPATCH} command, the range name used as the location argument was undefined or did not exist, or the specifed location was blank or contained a numeric value.

Invalid type

You were running a macro and one of the following problems occurred:

* For a macro command that uses a string argument, the argument included a colon followed by a character other than S or V and was not enclosed in quotation marks.

* For a macro command that uses a number argument, the argument included a colon followed by a character other than S or V.

* For a {DEFINE} command, one of the location arguments ended with a colon followed by a character other than S or V.

* For a macro command that requires a string argument, the argument was either a string enclosed in quotation marks and followed by :V, a string that 1-2-3 did not recognize as a range name followed by :V, or an unquoted literal string that includes a : (colon).

* An address used as a location argument in a macro command included a worksheet letter for a nonexistent worksheet (for example, C:C1 in a single-sheet file).

Invalid use of macro menu command

* You were running a macro that includes a {MENUBRANCH} or {MENUCALL} command and the first cell of the range specified as the location argument for that command was blank. The {MENUBRANCH} or {MENUCALL} location argument tells 1-2-3 where to find the macro menu for the command.

  The macro menu should start in the upper left corner of the range specified as the location argument.

  A macro menu usually consists of at least three rows: The first includes the menu items (up to eight), the second includes descriptions for each menu item, and the third includes macro instructions for each menu item.

  For more information on creating macro menus, see {MENUBRANCH} and {MENUCALL}.

Invalid value

You were running a macro and one of the following problems occurred:

*   For a macro command that requires a number argument, the argument was a string, string formula, or reference to a cell that contains a label or string formula.

*   During a /XN command in a macro, you tried to enter a label instead of a number, or you pressed ENTER without typing anything. 1-2-3 suspended the macro temporarily.

    To continue the macro, press ENTER or ESC to clear the error message and then enter a number.

Invalid /X command in macro

You were running a macro and one of the following problems occurred:

* The macro contained /X followed by a character other than the letter C, G, I, L, M, N, Q, or R. The sequence did not represent one of the /X commands (/XC, /XG, /XI, /XL, /XM, /XN, /XQ, and /XR).

* The macro used the letter X to specify a menu selection, but none of the items in that menu started with X.

Macro: missing argument

You were running a macro and one of the following problems occurred:

* A macro command that uses one or more arguments included fewer than the required number of arguments.

* A {DEFINE} command in a subroutine that was called by a {*subroutine*} command included fewer arguments than the {*subroutine*} command.

  A {DEFINE} command must include the same number of arguments as the corresponding {*subroutine*} command.

Maximum command line length exceeded

You used {SYSTEM} to execute an operating system command, but the length of the command line generated by {SYSTEM} was too long. The command line cannot exceed 128 characters.

Make the command line shorter and run the macro again.

Note Included in the 128-character limit is the following string, which {SYSTEM} appends to the command line: "<path>COMMAND.COM /C " where path is supplied by the DOS COMSPEC setting. The appended string is a reference to your COMMAND.COM file, including the path, followed by the DOS command /C surrounded by spaces. Thus, the length of the *command* argument must be no more than 128 characters minus the number of characters in the appended string.

Syntax error in macro key/range name

You were running a macro and 1-2-3 encountered an error in one of the macro instructions. Check for these possible errors:

*   No } (closing brace) in a macro key name or macro command

*   A missing argument separator in a macro command

*   No closing quotation mark in a literal string used as a macro command argument

*   Unequal number of opening and closing parentheses in a macro command argument

Too many arguments

You were running a macro that uses a {*subroutine*} command, and the {DEFINE} command in the specified subroutine included more arguments than the {*subroutine*} command.

A {DEFINE} argument in a subroutine must include the same number of arguments as the {*subroutine*} command that calls the subroutine.

Unrecognized key/range name

You were running a macro and one of the following problems occurred:

* 1-2-3 did not recognize the first word after an open brace as a macro key name, advanced macro command keyword, or subroutine range name.

  Check for these problems: An incorrectly spelled key name, keyword, or subroutine range name; a missing space between a macro command keyword and the command's first argument, or between a key name and the repetition number; or an undefined or nonexistent subroutine range name.

* For a {FORM} command, the include list, the exclude list, or the first column of the call table included something that 1-2-3 did not recognize as a key name (for example, a macro command).

Panels area has been disabled

Worksheet area has been disabled

Invalid FORMBREAK

You were running a macro and 1-2-3 encountered a {FORMBREAK} command somewhere other than within a {FORM} call-table subroutine. {FORMBREAK} commands are allowed only within a {FORM} call-table subroutine.

Remove the {FORMBREAK} command from the macro, or if it is within a subroutine, either move the {FORMBREAK} command to the {FORM} call-table subroutine or use the {BRANCH} or {DISPATCH} command to transfer control from the {FORM} call-table subroutine to the subroutine location.

Memory full

* You must free enough memory to perform the operation that caused this error message. To free memory, do one or more of the following:

Use <u>File Save As</u> to save your active worksheet files, close the files, and then use <u>File Open</u> to read the files back into memory.

If Edit Undo is turned on, use <u>Tools User Setup</u> to turn it off.

Note When 1-2-3 displays this error message, it erases the undo history.

Delete worksheets, files, and data that you no longer need in memory.

If you have programs in memory besides 1-2-3, end one or more of those programs.

For additional information on freeing memory, see **Appendix C** of the *User's Guide.*

Not enough memory to load driver file

*   Not enough memory was available to load the printer or database driver you specified. To free memory, do one or more of the following:

    Use <u>File Save As</u> to save your active worksheet files, close the files, and then use <u>File Open</u> to read the files back into memory.

    If Edit Undo is turned on, use <u>Tools User Setup</u> to turn it off.

    Delete worksheets, files, and data that you no longer need in memory.

    If you have programs in memory besides 1-2-3, end one or more of those programs.

For additional information on freeing memory, see **<u>Appendix C</u>** of the *User's Guide.*

You can prevent this error message from occurring in the future by making the driver your default driver. To make the driver your default driver:

*   If the driver is a printer driver, use <u>File Printer Setup</u> to select the correct printer and port.

Invalid or unsupported file search attribute

No license directories were found

No licenses are currently available

No licenses were found

Unable to write to log file

Cannot open printer driver

You chose File Printer Setup or File Print and selected OK. However, the Windows printer driver could not be loaded into memory.

Install the printer driver from the Windows Control Panel, or choose File Printer Setup and select another printer.

Cannot print ranges that are not in memory

The following conditions could have caused this error:

* You tried to print a range from a file that is not in memory or from an external database table.
  You can print ranges only from active files.

* You used a print range that included a file reference but did not include a path.
  You must include a path in a file reference, unless the file is stored in the 1-2-3 default directory.

Device driver not installed

Error loading fallback table

The file specified in the statement "fallback table =" in the [PRINTER] section of 123W.INI was damaged or deleted from your hard disk.

Make sure the file name is correct, and recopy the file if necessary.

General spooler error

A problem with your printer occurred.

Be sure your printer is turned on, is on line, and has paper in it. Also, be sure that you are using the correct printer cable and that the cable is firmly attached to your printer and your computer. Then try to print again.

If the problem persists, make sure that Windows is set up properly for printing. For more information, see the *Microsoft Windows User's Guide.*

Invalid \nnn code in Setup String

You entered an invalid setup string.

Be sure each backslash in the setup string is followed by at least three digits. See your printer manual to be sure the setup string you entered represents a printer control code.

Left margin equals or exceeds right margin

1-2-3 cannot print if the left margin equals or is wider than the right margin.

Select /Print [E,F,P] Options Margins and change the left and/or right margins.

Margins, header and footer equal or exceed page length

The combined length of the top and bottom margins and the header and footer equals or is longer than a full page, leaving no space on the page for the print range.

Select /Print [E,F,P] Options Margins and change the top and/or bottom margins, or select /Print [E,F,P] Options Pg-Length and change the page length. If you have not specified header or footer text, you can also select /Print [E,P] Options Other Blank-Header.

No printer driver installed

You do not have any printer drivers installed in your Windows configuration.

Install one or more printer drivers from the Windows Control Panel.

No print range specified

You selected /Print [E,F,P] Go without specifying a print range.

Before you select /Print [E,F,P] Go, use /Print [E,F,P] Range to tell 1-2-3 what to print.

Print job canceled from spooler

Windows could not complete your print job.

Make sure that Windows is set up properly for printing. For more information, see the *Microsoft Windows User's Guide.*

Print settings name does not exist

You used /Print [E,F,P] Options Name Use or Delete and entered a print settings name that does not exist.

Check to be sure you spelled the print settings name correctly. If you are not sure of the correct spelling, select /Print [E,F,P] Options Name Use or Delete and press F3 (NAME) to see a list of the print settings names in the current file. Then select the correct name.

Spooler out of disk space

There is not enough space on your disk to store the temporary files necessary for printing.

Delete any unnecessary files from your disk and then try to print again.

Spooler out of memory

Not enough memory is available to print.

For information on freeing memory, see Increasing Available Memory or **Appendix C** in the *User's Guide.*

Too many print settings names; cannot create new one

You tried to create a print settings name when you have already created the maximum number of print settings names (254).

Use /Print [E,F,P] Options Name Delete to delete any print settings names you no longer need. Then use /Print [E,F,P] Options Name Create to create the new print settings name.

Unable to access output device

The following conditions could have caused this error:

* The printer you selected is not connected to a port.

  Use the Windows Control Panel to assign the printer to a valid output port, or make the printer active on an output port.

* There are not enough Windows system resources to print. There may be other applications running in Windows.

  Exit some of the currently running applications, and try printing again.

Unable to access output device

The following conditions could have caused this error:

*   The printer you selected is not connected to a port.

    Use the Windows Control Panel to assign the printer to a valid output port, or make the printer active on an output port.

*   There are not enough Windows system resources to print. There may be other applications running in Windows.

    Exit some of the currently running applications, and try printing again.

Unable to print

The Windows printer driver file is damaged.

Install the device driver from the Windows Control Panel, or choose <u>File Printer Setup</u> and select another printer.

A range name cannot begin with << >>

The following conditions could have caused this error:

*   For <u>Range Name Create</u>, you specified a range name that started with << >> (double angle brackets).

*   For <u>Range Name Label Create</u>, the labels range you specified contained a label that started with << >>.

*   For <u>Data External Options Create Table</u> or <u>Data Connect to External</u>, you specified an external table range name that started with << >>.

Range names cannot begin with double angle brackets because 1-2-3 uses those characters to denote file references. To name a range in another active file, move the cell pointer to that file before selecting Range Name Create.

Cannot create a named range that spans files

Cannot create names from a range of labels that is not in memory

You were using <u>Range Name Label Create</u> and one of the following problems occurred:

*   You specified a range in a file on disk as the labels range. The labels range must be in an active file.

    Before you use Range Name Label Create, use <u>File Open</u> to read into memory the file that contains the labels range.

*   When specifying a labels range in another active file, you used a file reference that did not include a path or extension.

    Choose Range Name Label Create and select the Range text box. Then press (F3) NAME and select the appropriate file name from the list box. 1-2-3 automatically includes the path and extension when you use this method to create the file reference.

Cannot delete a range that is not in memory

Cannot justify text if worksheet protection enabled

You were using Range Justify and one or more worksheets in the justify range were globally protected.

Use Worksheet Global Settings to turn off global protection for all worksheets in the justify range before using Range Justify.

Cannot modify a range that is not in memory

You were using a 1-2-3 command and one of the following problems occurred:

*   Instead of specifying a range in an active file, you specified a range in a file on disk or a range name assigned to an external table.

    Specify a range in an active file.

*   You used a file reference to specify a range in another active file, but the reference did not include a path or extension.

    Choose the command, select the Range text box, press (F3) NAME and select the file name from the list box. 1-2-3 automatically includes the path and extension when you use this method to create file references.

*   One of the settings used by the selected command is an undefined range name. For example, you could have selected Data Query Extract when the range name specified as the data query output range was undefined.

    To solve the problem, either change the setting that caused the error or redefine the undefined range name with Range Name Create or Range Name Label Create.

Cannot search range

1-2-3 could not complete an <u>Edit Find</u> command for one of these reasons:

*   You specified a range in a file on disk as the search range.

    Read the file into memory before using Edit Find.

*   You specified a range name for an external table as the search range.

    Use <u>Data Query Extract</u> to extract the external table to a worksheet, and search the extracted range.

*   You specified a search range in another active file, but you omitted the path or the extension from the file reference.

    Choose Edit Find, select the Range text box, press (F3) NAME, and select the appropriate file name from the list box. 1-2-3 automatically adds both a path and an extension when you use this method to create a file reference.

Invalid cell or range address

The following conditions could have caused this error:

*   For a cell or range specification, you used a nonexistent address, such as JV4 or A1..Z9000; a range address that was syntactically incorrect, such as <<QTR_1.WK3>>D1..<<QTR_1.WK3>>G20; or a nonexistent or undefined range name.

*   When specifying an external table range name, you used a name that started with $ or !; a name that included a period; or a name that duplicated a cell address.

*   When specifying a cell or range in a file on disk, you did not include a path or extension in the file reference.

*   A cell specified as the location argument for a {DISPATCH} macro command contained an entry that did not evaluate to a location.

Invalid range

The following conditions could have caused this error:

*   The range name you specified for a <u>Data External</u> command was not an external table range name.

*   For an advanced macro command that uses a location argument, whatever you used as the argument did not evaluate to a location.

*   The range you specified as the <u>{FORM}</u> input-location argument included hidden columns or worksheets.

*   For a <u>{PUT}</u> command, the column-offset or row-offset value was either negative or represented a column or row outside of the target location.

*   When using <u>Tools Macro Run</u> or ALT+F3 (RUN), either you specified a range that is not in an active file, or you specified a range in another active file, but did not include a path or extension in the file reference.

*   When using <u>Tools SmartIcons Customize Assign Macro</u> to assign a macro to a custom icon, the range name you specified is invalid or is in an external table.

Justify range is full or line too long

1-2-3 could not complete a <u>Range Justify</u> command for one of these reasons:

*   You specified a single-row justify range, and too few rows remained in the worksheet either to hold all the justified labels or to hold subsequent data in the column that 1-2-3 had to move down in order to perform the justification.

    Choose Range Justify again and specify either a wider single-row justify range or a multiple-row justify range.

*   You specified a multiple-row justify range, and either the range is too small to hold all the justified labels or one of the labels in the justify range is too long for 1-2-3 to complete the justification.

    Choose Range Justify again and specify either a larger multiple-row justify range or a single-row justify range.

More than one file has the same range name

In a command, you tried to specify a range by typing <<?>> (the wild-card file reference) in front of a range name, but more than one active file contained that range name. You can use the wild-card file reference to specify a range only when the range name that follows it is unique among all active files.

When more than one file contains the same range name, you must type the appropriate file name in the file reference.

Named range not found in worksheet file

For File Combine From, the range name you specified as the source did not exist in the file you specified. You may have misspelled the range name.

Choose Range Name Paste Table to create a table of range names in the specified file, and check for the correct spelling of the name.

No more matching strings

You were using <u>Edit Find</u>, and 1-2-3 found no more occurrences of the search string in the search range.

No unprotected cells in input range

The following conditions could have caused this error:

*   The input range you specified for /Range Input contained no unprotected cells.

Choose Range Unprotect to unprotect some of the cells in the input range before using /Range Input.

*   The range you used as the {FORM} input-location argument in a macro contained no unprotected cells.

Choose Range Unprotect to unprotect some of the cells in the range before running the macro.

Range must contain at least one unhidden column

Range name does not exist

The following conditions could have caused this error:

*   For <u>Range Name Delete</u>, /Range Name Note Create, or /Range Name Note Delete, you specified a range name that either did not exist or was undefined.

    To delete an undefined range name, or to create or delete a note for an undefined range name, you must first reassign the name to a range with <u>Range Name Create</u> or <u>Range Name Label Create</u>.

*   You used <u>Range Go To</u> or <u>F5 (GOTO)</u>.

    The active file you specified as the cell-pointer destination is not stored in the current directory or does not have the default file save extension, or you did not include a path or extension in the file reference.

    Respecify the cell-pointer destination, adding the appropriate path or extension to the file reference.

String not found

You were using <u>Edit Find</u> and one of the following occurred:

*   You selected Labels or Formulas as the type of entry to search, and 1-2-3 found no occurrences of the search string in entries of that type in the search range.

*   You selected Both as the type of entry to search, and 1-2-3 found no occurrences of the search string anywhere in the search range.

*   All columns in the search range that contained the specified search string were hidden.

Choose <u>Worksheet Unhide</u> to redisplay the hidden columns before using Edit Find.

Solver and Backsolver Error Message Index

To select an error message below using the mouse, point to green text with a solid underline. When the mouse pointer changes to a hand icon, click the mouse button. Using the keyboard, press TAB until the topic is highlighted, and then press ENTER.

Invalid Make cell

Invalid number

Invalid use of range in cell "cell address"

No answers exist to put in the worksheet

No significant difference exists between these two answers

No valid adjustable cells were specified

No valid constraint cells were specified

Optimal cell must be a single cell that depends on an adjustable cell

Out of memory

Problem refers to undefined range name or a worksheet on disk

Second answer number is either non-numeric or invalid

Solver cannot create its work files

Solver cannot delete its work files

Solver cannot read its work files

This answer has no inconsistent constraints

This command is available only after solving

This command requires a guessable attempt in the worksheet

This command requires an answer in the worksheet

This command requires an answer or attempt in the worksheet

This command requires an attempt in the worksheet

Too many report files already exist

What-if limits couldn't be computed

Adjustable cell entry is invalid

The range of cells you specified contains a syntax error, such as an undefined range name or invalid character.

Specify the adjustable cell entry again, making sure to specify one or more cells that contain numbers (not formulas) and are unprotected.

All constraints are binding for this answer

You selected Unused constraints in the Solver Report dialog box, but there are no unused constraint cells for the current answer.

All constraints are satisfied, but optimal cell equals ERR or NA

This attempt satisfies all of the constraints you specified, but it is not considered to be an answer because the optimal cell evaluated to ERR or NA.

Cannot create the report file

The Solver is unable to create a new worksheet file for the report you specified. You may be out of memory or at the maximum number of worksheets 1-2-3 allows.

Cannot find an optimal answer "reason"

The Solver cannot find an optimal answer to the problem, either because the optimal cell is not constrained or because something else prevented the Solver from choosing an answer as optimal.

Try adding an additional constraint to the problem that limits the value of the optimal cell.

Cannot find any more answers

You selected Solve, but the Solver could not find any additional answers to the problem.

If you require additional answers to the problem, alter the value in one or more of the problem cells and then solve the problem again.

Cannot finish solving this problem "reason"

The Solver cannot finish finding answers to this problem, either because an @function in one of the problem cells has too many arguments, because a formula in one of the problem cells is too long, or because the problem itself is too complicated.

Change the problem so that it is smaller and less complex, and then try to solve it again.

Cannot optimize a constraint cell

You selected one of the problem's constraint cells as the optimal cell. You cannot use the optimal cell as a constraint cell (though you can use it as an adjustable cell).

Cannot solve this problem "reason"

The Solver cannot solve this problem, either because the formulas are contradictory, because the @LOOKUP function offset is not constant, or because there is an unsupported @function in one or more of the problem cells.

Adjust or remove the formula causing the error and then try to solve the problem again.

Cannot write a value into protected cell "cell address"

The Solver cannot display an answer it has found to the problem because one of the adjustable cells is protected and global protection is turned on.

Choose Worksheet Global Settings Protection and remove the check from Protection to disable global protection or use Range Unprotect to turn off the protection on the adjustable cells.

Cell "cell address" refers to an unsupported string

The Solver cannot use the formula in this cell because it contains a string argument or is dependent on another cell that contains a string argument or a label.

Cell format not available for Answer table report

The Answer table report is available in table format only.

Cell format not available for How solved report

The How solved report is available in table format only.

Constraint cell entry is invalid

The range of cells you specified contains a syntax error (such as an undefined range name or an invalid character), or the range does not include any cells that contain formulas that are valid constraints. Valid constraints are simple logical formulas that use the logical operators = >= <= > and < (for example, +A1+A2>=C1/D4).

Constraints and the optimal cell must not refer to constraint cells

Constraint cells and the optimal cell cannot contain formulas that refer to other constraint cells.

Difference amount must be a number

You specified a difference amount that is not a valid number.

Specify a value or a formula that results in a value in the For differences >= text box.

Estimated number of answers must be an integer between 1 and 999

You requested an invalid number of answers.

Specify an integer between 1 and 999.

First answer number is either non-numeric or invalid

You specified an answer number that is not within the range 1 to n, where n is the number of answers the Solver found.

Specify an integer that corresponds to a valid Solver answer number.

Guess value must be a number

You entered a guess containing an illegal character.

Specify a value or a formula that results in a value as the guess value.

Incorrect function syntax in cell "cell address"

The formula in the cell contains an @function that has an invalid range as an argument, for example, 3+@SIN(A1..A2).

Insufficient precision available when using cell "cell address"

The Solver cannot solve the problem because you specified a problem that uses numbers that exceed the floating point precision on your computer.

If the values in the worksheet are very large, you can express them in a different metric by dividing all the cells by 1,000 (or some other scaling amount), or you can adjust or remove the formula causing the error and then try to solve the problem again.

Internal error

The Solver could not finish solving the problem due to an internal error. Please record the error message 1-2-3 displays and contact Lotus Customer Support.

Invalid cell or range address

For a cell or range specification, you used a nonexistent address, such as JV4 or A1..Z9000; a range address that was syntactically incorrect, such as <<QTR_1.WK3>>D1..<<QTR_1.WK3>>G20; or a nonexistent or undefined range name.

Invalid use of range in cell "cell address"

The formula in the cell contains an invalid range (for example, 3+A1..A2).

No answers exist to put in the worksheet

You selected Next, First, or Original in the <u>Solver Answer</u> dialog box, but the Solver was not able to find any answers to the problem or 1-2-3 discarded the answers when a change to the worksheet file made 1-2-3 recalculate the file.

No significant difference exists between these two answers

You selected <u>Differences</u> in the Solver Report dialog box, but the two answers you specified differ by less than the value you specified for all problem cells.

Specify a lower comparison value and select Differences again.

No valid adjustable cells were specified

You selected Solve before you specified the adjustable cells in the problem, or the cells you specified were protected, blank, or did not contain values.

Specify the adjustable cells in the Adjustable cells text box before you try to solve the problem, and make sure that the cells you specify are not protected or blank and do not contain formulas or labels.

No valid constraint cells were specified

You selected Solve before you specified the constraint cells in the problem, or the cells you specified did not contain logical formulas.

Specify the constraint cells in the Constraint cells text box before you try to solve the problem and make sure the cells you specify contain logical formulas.

Optimal cell must be a single cell that depends on an adjustable cell

You specified an optimal cell that does not depend on the value in any of the adjustable cells, or you specified a multiple-cell range as the optimal cell.

Out of memory

You must free enough memory to perform the operation that caused this error message. For information on freeing memory, see Increasing Available Memory or **Appendix C** of the *User's Guide*.

Problem refers to undefined range name or a worksheet on disk

One or more of the problem cells is in a worksheet file on disk, or one or more of the problem cells is in a range whose name is no longer valid.

Make sure that all worksheet files referenced in the problem are open and that all range names contained in problem cells are defined.

Second answer number is either non-numeric or invalid

You specified an answer number that is not within the range 1 to n, where n is the number of answers the Solver found.

Specify an integer that corresponds to a valid Solver answer number.

Solver cannot create its work files

The Solver cannot create the temporary files it needs to solve the problem. You may be running low on available disk space or the Solver may be attempting to write the temporary files to a write-protected disk.

Solver cannot delete its work files

The Solver cannot erase from your disk the temporary files it uses to solve the problem. You may be running low on available disk space.

Solver cannot read its work files

The Solver cannot read the temporary files it uses to solve the problem. You may be running low on available disk space or there may be a problem with the disk.

This answer has no inconsistent constraints

You selected Inconsistent constraints in the Solver Report dialog box, but the currently displayed answer to the problem does not contain any inconsistent constraints.

This command is available only after solving

You selected a command that the Solver cannot execute until you select Solve to find answers to the problem.

This command requires a guessable attempt in the worksheet

You selected a command that the Solver cannot execute unless an attempt that requires guesses is displayed in the worksheet.

Select First or Next in the Solver Answer dialog box until an attempt that requires guesses is displayed in the worksheet. Then select the command again.

This command requires an answer in the worksheet

You selected a command that the Solver can execute only if an answer (not an attempt) is displayed in the worksheet.

Select First or Next in the Solver Answer dialog box to display an answer in the worksheet and then select the command again. Do not select the command if the Solver found attempts instead of answers.

This command requires an answer or attempt in the worksheet

You selected a command that the Solver can execute only if an answer or attempt is displayed in the worksheet.

Select First or Next in the <u>Solver Answer</u> dialog box and then select the command again.

This command requires an attempt in the worksheet

You selected a command that the Solver can execute only if an attempt (not an answer) is displayed in the worksheet.

Select First or Next in the <u>Solver Answer</u> dialog box to display an attempt in the worksheet and then select the command again. Do not select the command if the Solver found answers instead of attempts.

Too many report files already exist

The Solver cannot create another table report because you have the maximum number of worksheet files open that 1-2-3 allows.

What-if limits couldn't be computed

You selected <u>What-if limits</u> in the Solver Report dialog box, but the Solver cannot determine the minimum or maximum limits for the current answer.

Could not find a solution -- try changing By changing cell value

The Backsolver cannot find an answer to your problem. Change the value in the By changing cell and then try to solve the problem again.

Error storing the By changing cell value

The Backsolver could not replace the value in the By changing cell, either because the cell is protected or because you are out of memory.

Invalid By changing cell

You did not specify a cell in the By changing cell text box or the cell you specified is not blank or does not contain a value. The By changing cell must be blank or contain a value.

Invalid Make cell

You did not specify a Make cell or the cell that you specified does not contain a formula.

Invalid number

You did not specify the value you want the formula to return or the number you specified is not a valid 1-2-3 value.

Out of memory

You must free enough memory to perform the operation that caused this error message. For information on freeing memory, see Increasing Available Memory or **Appendix C** of the *User's Guide*.

Cannot initialize system driver

Cannot initialize Windows environment

Cannot load Clipboard driver (L1ACFTXT.DLL)

Cannot load Event Manager driver (L1WEM.DLL)

Incompatible character set

This is a .WK1 file that contains a character set other than LICS (Lotus International Character Set).

Caution Do not save the file. Saving the file could cause loss of data because 1-2-3 will overwrite your existing file using LICS.

Cannot copy data to the Clipboard

Cannot paste data from the Clipboard

Invalid Clipboard format

The format argument you specified for a {DDE-ADVISE}, {DDE-POKE}, {DDE-REQUEST}, {DDE-UNADVISE}, {EDIT-COPY}, {EDIT-CUT}, {EDIT-PASTE}, or {LINK-CREATE} command is not valid or is not supported by 1-2-3 or the server application.

Specify a valid format argument for the command. The format argument must be a supported Clipboard format (for example, BITMAP, DIB, Lotus123Graph, METAFILEPICT, TEXT, Wk1, or Wk3). If the format argument includes spaces, make sure to enclose it in " " (quotation marks). For more information about Clipboard formats, see the Microsoft Windows documentation.

The Clipboard is empty

You ran a macro that includes an {EDIT-PASTE} command, but there is nothing in the Clipboard to paste.

Make sure the Clipboard contains data and then run the macro again.

Cannot open Clipboard or desired format is unavailable

Invalid argument specified in {EDIT-CLEAR} command

The property argument you specified for an {EDIT-CLEAR} command is not valid.

Specify a valid property argument for the {EDIT-CLEAR} command. The property argument must be one of four words (contents, formats, styles, or graphs) enclosed in " " (quotation marks) or a formula that results in text, or the address or name of a cell that contains a label or a formula that results in a label.

Invalid window state

The state argument you specified for a {WINDOW-STATE} or {APP-STATE} command is not valid.

Specify a valid state argument for the {WINDOW-STATE} or {APP-STATE} command. The state argument must be one of three words (Maximize, Minimize, or Restore) enclosed in " " (quotation marks), a formula that results in text, or the address or name of a cell that contains a label or formula that results in a label.

Window not found or not unique

The window-name argument you specified for a {WINDOW-SELECT} command is not valid.

Specify a valid window-name argument. If you have more than one window with the same name open, make sure that the window-name argument includes the path and file extension. If the window-name argument includes spaces, make sure to enclose it in " " (quotation marks).

Unable to get profile string

Cannot undo this operation

1-2-3 cannot create an undo record for a formula you are erasing because the formula is too long or complex. Choosing <u>Edit Undo</u> after you erase the formula will not recover the formula.

Edit Undo not enabled, or no operation to undo

One of the following conditions could have caused this error:

*   You chose <u>Edit Undo</u> to use the undo feature, but undo is currently turned off.

To turn undo on so you can use the feature for the rest of the 1-2-3 session, choose <u>Tools User Setup</u>, select Enable Edit Undo, and then select OK.

To have 1-2-3 start up with undo automatically turned on in future sessions, select Update from the Tools User Setup dialog box after selecting Enable Edit Undo.

*   You chose Edit Undo after clearing a 'Memory full' error message.

When the memory full error occurred, 1-2-3 erased the undo history, so you cannot undo operations you performed prior to that error.

*   You chose Edit Undo without having performed an undoable operation since the last time you chose Edit Undo or since 1-2-3 last erased the undo history.

For more information about Edit Undo, see <u>Using Edit Undo</u>.

Cannot delete all worksheets

You chose <u>Worksheet Delete</u>, selected Sheet and tried to delete all the worksheets in a file. A file must contain at least one worksheet.

If you are trying to delete an entire active file from memory, use <u>File Close</u>.

Cannot delete all visible worksheets

You chose <u>Worksheet Delete</u> and selected Sheet, but the range of worksheets you specified to delete included all displayed worksheets in the file. A file must contain at least one displayed worksheet.

To delete the range of worksheets you specified, choose <u>Worksheet Unhide</u> if any worksheets are hidden.   Then respecify the range of worksheets to be deleted.   Or, specify fewer worksheets to be deleted.

Cannot go to a range that is not in memory

You were using <u>F5 (GOTO)</u> and one of the following problems occurred:

*   You specified a file that is not in memory as the cell-pointer destination.

    You can move the cell pointer to cells in active files only.

*   The active file you specified as the cell-pointer destination is not stored in the current directory, but you did not include a path in the file reference.

    Respecify the cell-pointer destination using a path in the file reference.

*   The active file you specified as the cell-pointer destination does not have the default file save extension, but you did not include an extension in the file reference.

    Respecify the cell-pointer destination using an extension in the file reference.

Cannot have more than 256 worksheets in memory

The following conditions could have caused this error:

*   You chose <u>Worksheet Insert</u> and selected Sheet, but inserting the number of worksheets you specified would have caused the total number of active worksheets to exceed 256.

*   You chose <u>File Open</u>, but reading the file you specified into memory would have caused the total number of active worksheets to exceed 256.

*   You chose <u>File New</u>, but 256 worksheets were already active.

Save your active worksheet files, and then choose <u>Worksheet Delete</u> and select Sheet to remove worksheets from memory, or choose <u>File Close</u> to remove entire worksheet files from memory.   Or, specify fewer worksheets to be added.

Cannot hide all columns

You chose <u>Worksheet Hide</u> and specified a range that included all of a worksheet's displayed columns.

A worksheet must have at least one displayed column, so before you can hide the columns you specified, you must use <u>Worksheet Unhide</u> to redisplay another column that is currently hidden (if there is one).

Cannot hide last visible worksheet

You chose <u>Worksheet Hide</u> and specified a range that includes all of a file's displayed worksheets.

A file must have at least one displayed worksheet, so before you can hide the worksheets you specified, you must use <u>Worksheet Unhide</u> to redisplay another worksheet that is currently hidden (if there is one).

Cannot move data between files

You chose <u>Edit Move Cells</u> and specified a To range that is in a different file from the From range.

To transfer data from one file to another, use <u>Edit Quick Copy</u> or <u>File Combine From</u> to copy the data to the new file, and then use <u>Edit Clear</u> to remove the data from the original file.

Cannot move or copy data beyond worksheet boundaries

The following conditions could have caused this error:

* You chose <u>Worksheet Insert</u> and selected Row, but the number of rows you specified to insert exceeded the number of blank rows at the bottom of the worksheet. (A blank row contains no data, formatted cells, or unprotected cells.)

  Repeat the command, but specify fewer rows.

* You chose /Worksheet Page, but the last row in the worksheet contains data, formatted cells, or unprotected cells, preventing a new row with a page-break symbol from being inserted.

  Make sure the last row in the worksheet is blank before using /Worksheet Page.

* You tried to move or copy data, but the range you specified to copy or move occupied either more rows than the total number of remaining rows in the worksheet or more worksheets than the total number of remaining worksheets in the file.

  Repeat the command, but specify a smaller range.

* You chose <u>File Combine From</u>, but the range you specified to combine included more worksheets than the total number of remaining worksheets in the file.

  Repeat the command, but specify a smaller range.

Column hidden

You tried to move the cell pointer to a hidden column using F5 (GOTO).

To move the cell pointer to a hidden column, you must first redisplay the column with Worksheet Unhide.

Error writing 123W.INI file

You chose <u>Tools User Setup</u> and selected Update to update the 123W.INI file, or you pressed ALT+F10 (ADDIN) and selected Settings System Update to update the 123W.INI file, and 1-2-3 could not complete the command for one of these reasons:

*   The 123W.INI file is write-protected.

    Remove write-protection from the file, if possible, and repeat the command.

*   The disk that contains the configuration file is full.

    You need to delete one or more files from that disk before you can update the 123W.INI file.

*   1-2-3 could not access the configuration file because you are already using the maximum number of files your operating system allows.

    Use <u>File Close</u> to delete one or more of your active files; use <u>File Administration Network Reserve</u> and select Release to release the reservation of one or more active files; close some active files; or end another application program, if one is running.

Hidden columns not allowed in title region

You chose Worksheet Titles and selected Vertical or Both when one or more columns between the cell pointer and the first displayed column were hidden.

Use Worksheet Unhide to redisplay any hidden columns in the titles area before using Worksheet Titles and selecting Vertical or Both. After setting the titles, you can use Worksheet Hide to hide those columns again.

Invalid configuration file

The following conditions could have caused this error:

*   When you started 1-2-3, it located a 123W.INI file that was not a valid 1-2-3 for Windows 123W.INI file.

   End 1-2-3. If the PATH statement in your AUTOEXEC.BAT file includes the program directory for a previous release of 1-2-3, you must delete that directory from the PATH statement. If you leave your previous 1-2-3 directory in the PATH statement, 1-2-3 for Windows will write over the 123W.INI file in that directory when you use Tools User Setup to change any default settings.

*   When you started 1-2-3, it located the 123W.INI file, but the directory specified in the file as the 1-2-3 default directory or the 1-2-3 temporary directory did not exist.

   To see the current default directory, choose <u>Tools User Setup</u>. If you want to change the default directory, or any other information in the Tools User Setup dialog box, make the appropriate changes and then select Update to update the 123W.INI file with the new settings.

Not enough worksheets in To range

You chose <u>Range Transpose</u>, but the transposed data required more worksheets than the total number of worksheets remaining in the file.

Use <u>Worksheet Insert</u> and select Sheet and After to add as many worksheets to the end of the file as you need to transpose the data.

Protected cell

You were working in a protected worksheet and one of the following problems occurred:

*   You tried to enter or edit data in a protected cell.

Before you can enter or edit the data, you must unprotect the cell with <u>Range Unprotect</u> or turn off worksheet protection by choosing <u>Worksheet Global Settings</u> and selecting the Protection check box to remove the check.

*   You tried to use a command that moves columns or rows, such as <u>Worksheet Delete</u>, <u>Worksheet Insert</u>, or /Worksheet Page.

Before you can use one of these commands, you must turn off worksheet protection by choosing Worksheet Global Settings and selecting the Protection check box to remove the check.

Worksheet hidden

You tried to move the cell pointer to a hidden worksheet using F5 (GOTO).

To move the cell pointer to a hidden worksheet, you must first redisplay the worksheet with Worksheet Unhide.

Cannot undo this series of add-in operations

An add-in prevented 1-2-3 from undoing the operation you requested for one of the following reasons:

*   An add-in you used since 1-2-3 was last in READY mode may not support the undo feature.

*   An action you performed since 1-2-3 left READY mode may not be undoable.