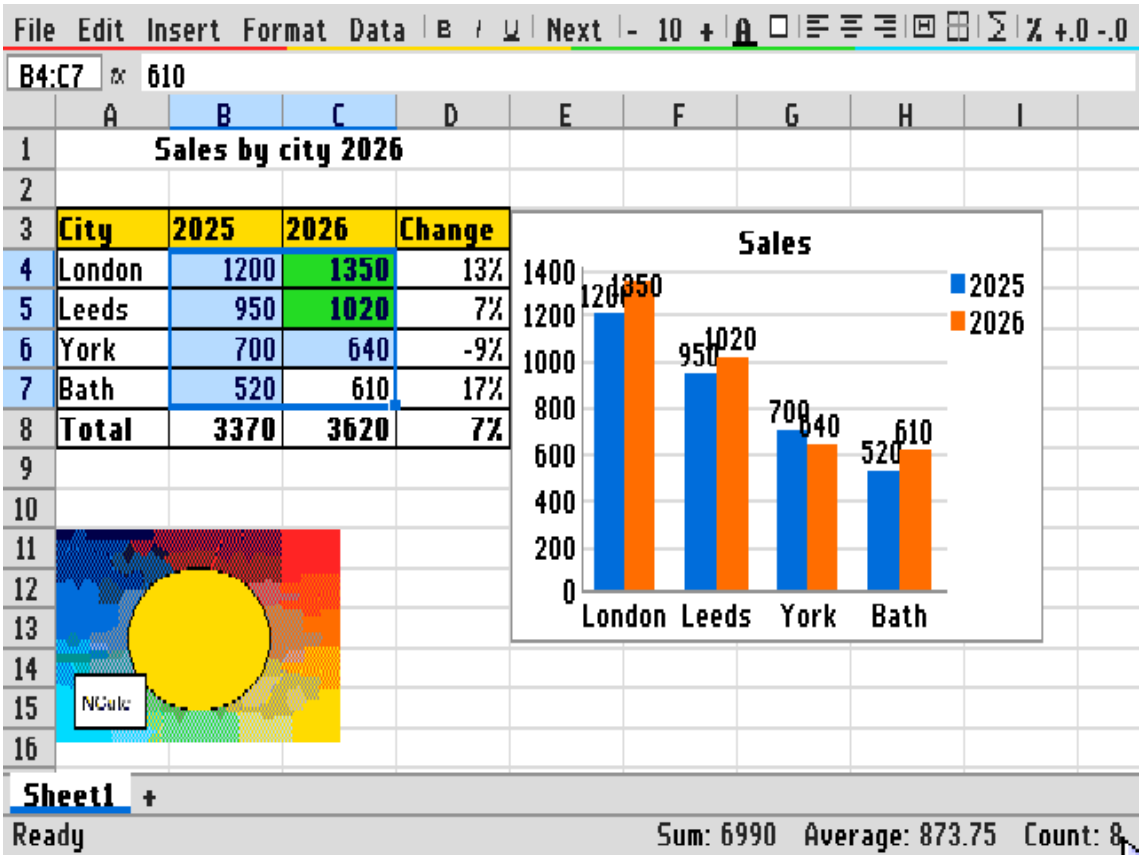


NCalc

Spreadsheet for the ZX Spectrum Next User Guide



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Introduction

NCalc is a graphical spreadsheet for the ZX Spectrum Next. It runs in the 640 × 256 graphics mode, works with both keyboard and mouse, and offers what you know from big spreadsheet programs: formulas with 101 functions, cell formatting, multiple sheets, charts, pictures, conditional formatting and export to PDF, HTML, XLSX and CSV.

What you need

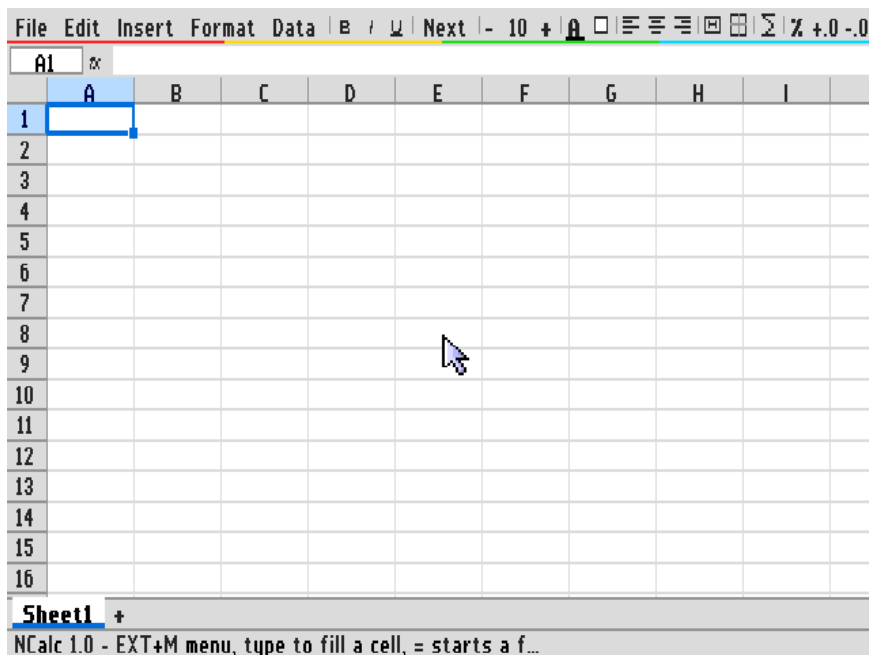
- A ZX Spectrum Next with **2 MB** of memory and an SD card with NextZXOS.
- The file `ncalc.nex` on the SD card – start it from the NextZXOS Browser.
- A mouse is recommended (Kempston / PS/2), but everything also works from the keyboard.

Keys in this guide

EXT is the EXTEND MODE key (CAPS SHIFT and SYMBOL SHIFT pressed together). **EXT+S** means press EXTEND MODE, then S. The arrows are **CAPS+5** to **CAPS+8**, **EDIT** is **CAPS+1**, **DELETE** is **CAPS+0**, **GRAPH** is **CAPS+9** and **BREAK** is **CAPS+SPACE**.

The screen

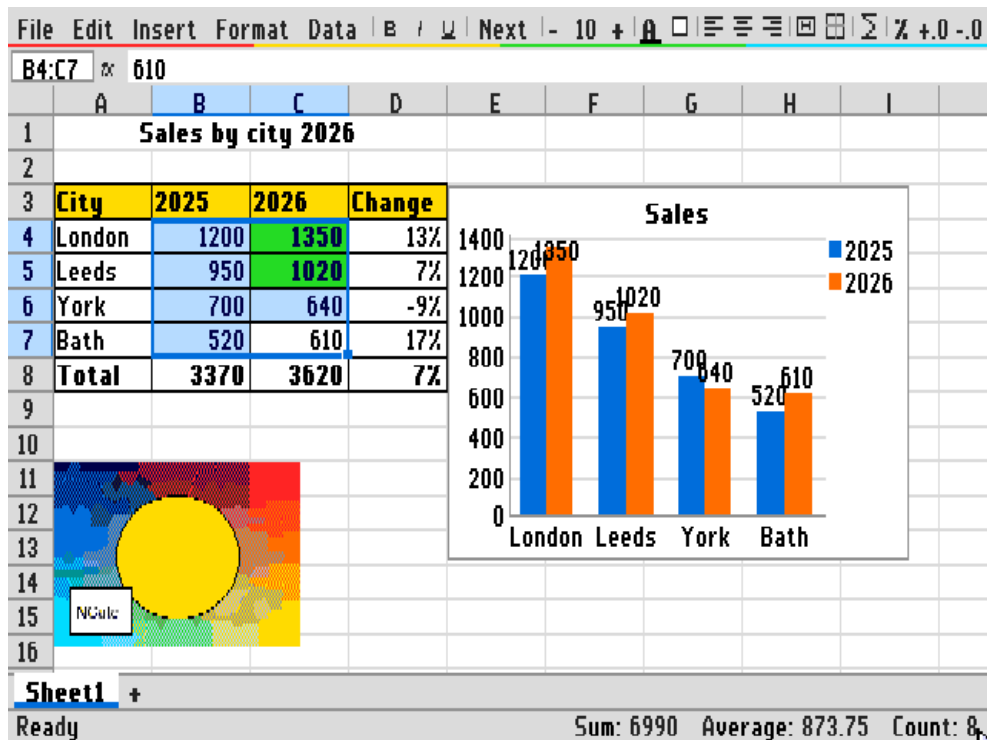
When it starts, NCalc opens an empty workbook with one sheet.



An empty workbook after start-up

- **Menu and toolbar** (top): the File, Edit, Insert, Format and Data menus, then buttons for bold, italic, underline, font, size (– and +), font colour, fill colour, align left / centre / right, merge cells, borders, AutoSum Σ , percent and decimal places (+.0, –.0).
- **Formula bar**: the address of the active cell or selection and the cell contents – the formula text for a formula.
- **Grid** with column (A, B, ...) and row (1, 2, ...) headers.
- **Sheet tabs** at the bottom; the + tab adds a sheet.

- **Status line:** messages on the left; for a selected range the sum, average and count of numbers on the right.

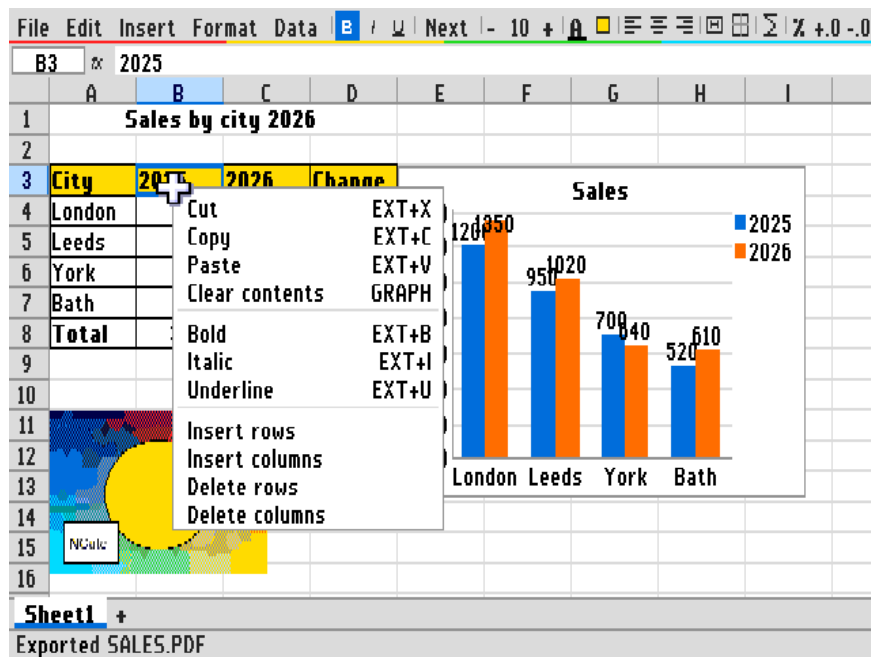


A workbook with a formatted table, conditional format, chart and picture. The status line shows the sum, average and count of the selected numbers.

Moving and selecting

Keys / mouse	Action
arrows	move one cell
EXT + arrow	extend the selection
CAPS+3 / CAPS+4	page up / down
EXT+3 / EXT+4	to A1 / to the last used cell
EXT+E	to the end of the row
EXT+G	go to a cell (type e.g. C12)
EXT+A	select all
click / drag	select a cell / range; the sheet scrolls at the edge
CAPS + click	extend the selection to the cell
click a header	select a column, a row or (corner) the whole sheet
mouse wheel	scroll the sheet
right button	context menu

The mouse pointer changes with what is under it: a white cross over cells, a double arrow on a header edge (column width or row height), a plus sign on the fill handle in the bottom right corner of the selection and a move cross over a chart or picture. While NCalc is busy it shows an hourglass. After a few idle seconds a glint runs over the arrow.



Context menu (right mouse button)

Entering data

Just start typing – the cell enters **Enter** mode (shown in the status line). **ENTER** confirms and moves down, **EXT+SPACE** right, **EXT+ENTER** confirms and stays, an arrow confirms and moves that way. **BREAK** cancels.

- EDIT** or a double click opens the cell in **Edit** mode – the arrows then move the text cursor. **EDIT** switches between Enter and Edit.
- DELETE** clears the cell and starts a new entry; **GRAPH** clears the whole selection.
- Click into the formula bar to edit the cell there.
- Long text spills over empty neighbouring cells.

What NCalc recognises

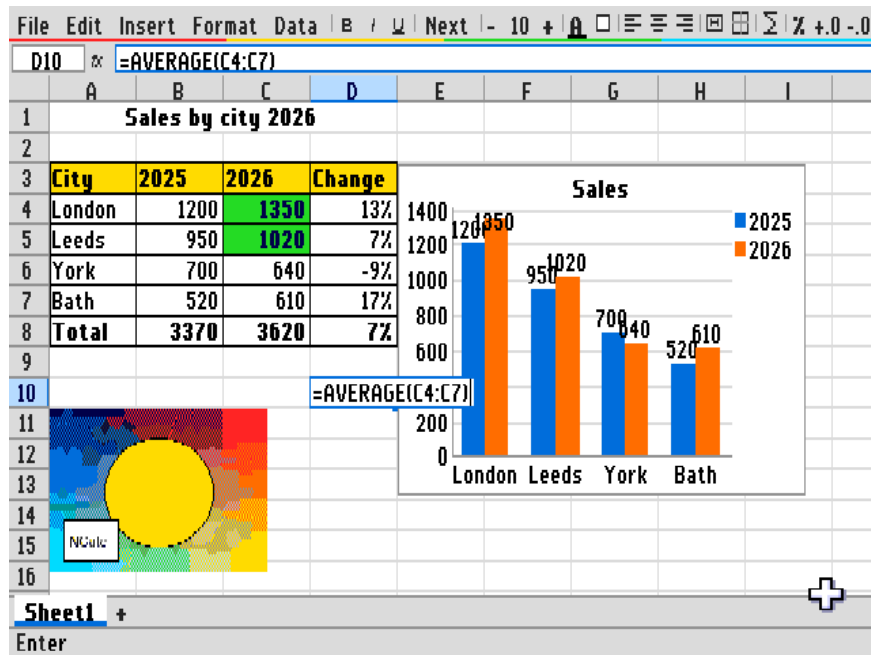
- numbers** with a decimal point or comma (3.14, 3,14), exponents (1e6), percentages (15%),
- dates** 28.10.2026, 28.10. (this year) or 2026-10-28, **times** 14:30 or 14:30:15,
- the logical values TRUE and FALSE,
- text** – everything else; a leading apostrophe (' 2026) forces text even for a number.

Accented letters

Accented letters use dead keys as in NWord: **SYM+Q** then a letter gives an acute accent (á é í ó ú ý), **SYM+W** a caron (č ď ě ě ř š ť ž) and **SYM+E** a ring (ű). Capitals with CAPS SHIFT. Text uses the Windows-1250 (Central European) character set.

Formulas

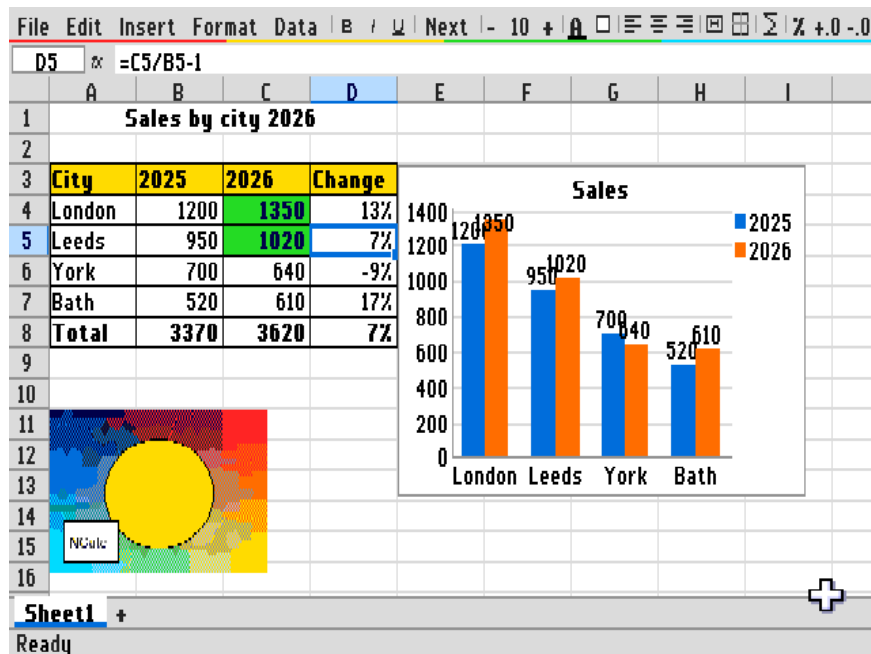
A formula starts with =. While typing you can click a cell and NCalc inserts its reference. The formula bar shows the formula text, the cell shows the result.



Typing a formula – the cell is in Enter mode

- operators + - * / ^ (power), & (join text), %, comparisons = < > <= >=;
- precedence as in Excel, e.g. -2^2 is 4; parentheses;
- references A1, absolute \$A\$1, ranges A1:B5;
- other sheets: Sheet2!B3, a name with spaces in apostrophes: 'My sheet'!A1;
- text in quotes "..."; separate function arguments with a comma or semicolon.

Results recalculate automatically after every change, `EXT+9` recalculates everything. NCalc calculates to about 16 digits, shows 15 significant digits and rounds in decimal like Excel ($0.1+0.2$ is exactly 0.3).



The active cell D5 shows the formula `=C5/B5-1` in the formula bar; the cell shows the result as a percentage.

Error values

Value	Meaning
#DIV/0!	division by zero
#VALUE!	wrong argument type (e.g. text instead of a number)
#REF!	reference to a deleted row, column or sheet
#NAME?	unknown function
#N/A	value not available (e.g. VLOOKUP found nothing)
#NUM!	invalid number (e.g. square root of a negative number)
#CIRC!	circular reference – the formula depends on itself
#NULL!	empty intersection of ranges

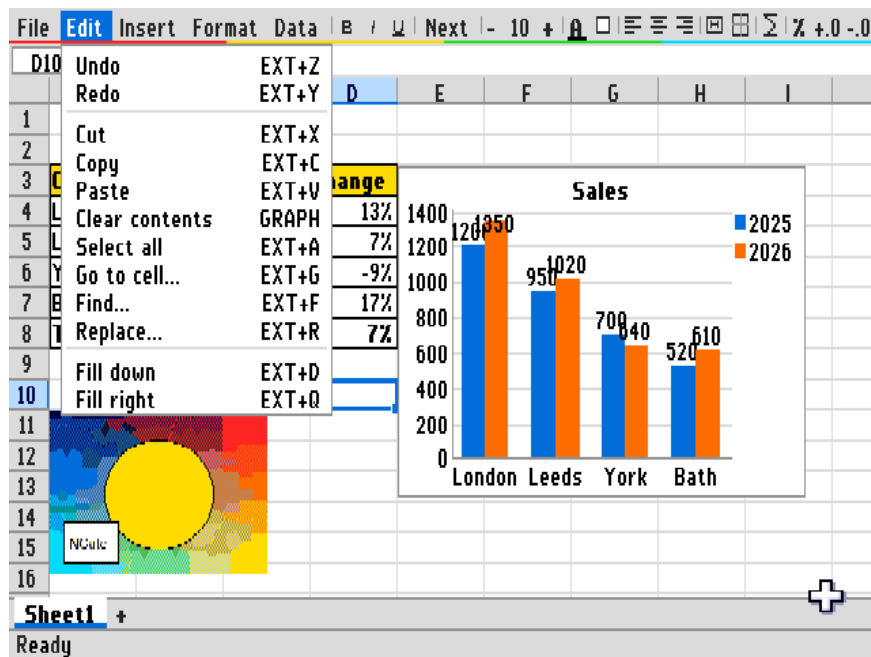
Functions

NCalc has 101 functions. Names and arguments match Excel.

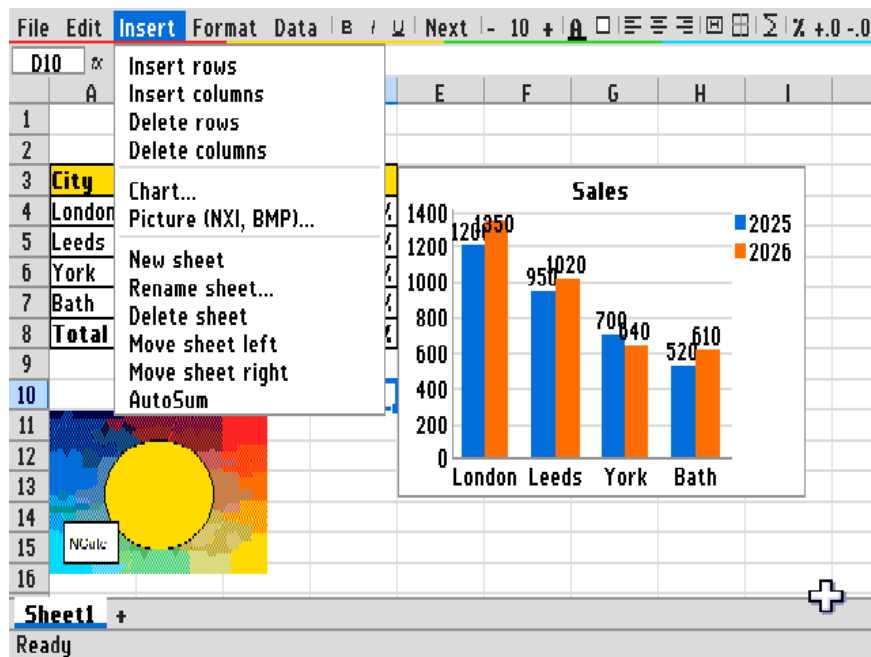
Group	Functions
Math	SUM, PRODUCT, ABS, INT, ROUND, ROUNDUP, ROUNDDOWN, TRUNC, MOD, SQRT, POWER, EXP, LN, LOG, LOG10, PI, SIGN, FACT, CEILING, FLOOR, EVEN, ODD, RAND, RANDBETWEEN, SUMPRODUCT
Trigonometry	SIN, COS, TAN, ASIN, ACOS, ATAN, ATAN2, DEGREES, RADIANS
Statistics	AVERAGE, MIN, MAX, COUNT, COUNTA, COUNTBLANK, COUNTIF, SUMIF, AVERAGEIF, MEDIAN, STDEV, STDEVP, VAR, VARP, LARGE, SMALL, RANK
Logical	IF, AND, OR, NOT, IFERROR, CHOOSE, TRUE, FALSE
Text	LEN, LEFT, RIGHT, MID, CONCATENATE, CONCAT, UPPER, LOWER, PROPER, TRIM, FIND, SEARCH, SUBSTITUTE, REPT, TEXT, VALUE, CHAR, CODE, EXACT
Lookup	VLOOKUP, HLOOKUP, INDEX, MATCH, ROW, COLUMN, ROWS, COLUMNS
Date and time	TODAY, NOW (NextZXOS clock), DATE, TIME, YEAR, MONTH, DAY, HOUR, MINUTE, SECOND, WEEKDAY
Information	ISBLANK, ISNUMBER, ISTEXT, ISERROR, NA

Editing

- **Clipboard:** **EXT+C** copy, **EXT+X** cut, **EXT+V** paste. Relative references in pasted formulas shift as in Excel.
- **Fill down** **EXT+D** and right **EXT+Q** copies the first cell of the selection.
- **Fill handle** in the bottom right corner of the selection: drag down or right. Two or more numbers continue as a series (1, 2 → 3, 4, ...), formulas are copied with shifted references.
- **Σ AutoSum** (toolbar or Insert) adds the numbers above or to the left of the cell.
- **Insert / delete rows and columns** (Insert menu) – references in all formulas of the workbook are adjusted; references to deleted cells become #REF!.
- **Column width and row height:** drag the edge in the header.
- **Undo / redo:** **EXT+Z** / **EXT+Y** – entries, formats, rows and columns, sorting, merges, charts and sheets.



The Edit menu



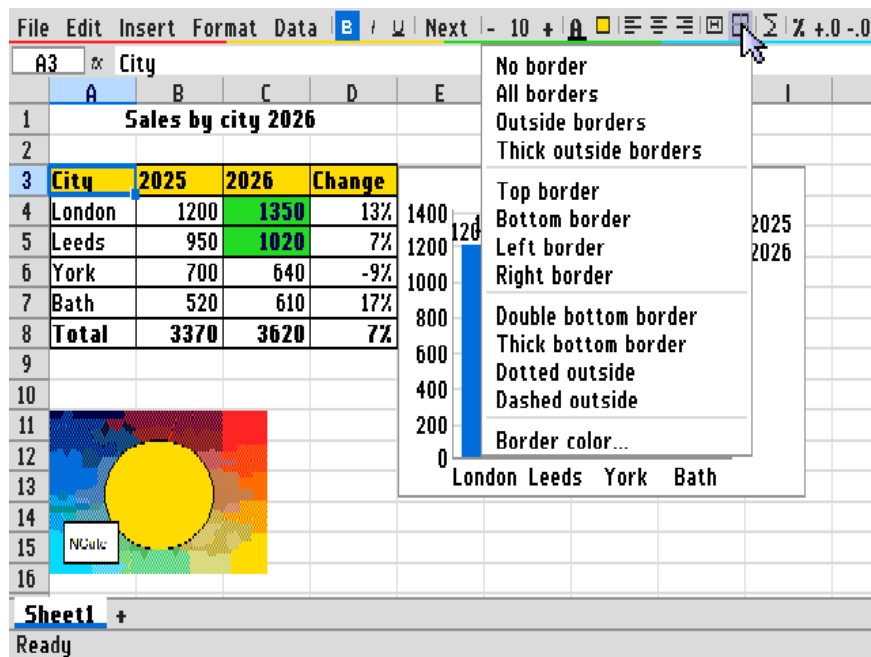
The Insert menu

Formatting

Formatting applies to the whole selection – with toolbar buttons, keys or the Format menu.

- **Font** Next (default), Sans, Serif or ZX (the button with the font name; each click switches to the next one). Sans and Serif come in 6 sizes (EXT+K larger, EXT+J smaller). Row height follows the font.
- **Style:** bold EXT+B , italic EXT+I , underline EXT+U .
- **Font and fill colour** from the palette (the A and fill buttons on the toolbar).
- **Alignment** left / centre / right (toolbar, EXT+L cycles), vertically top / middle / bottom and **wrap text** at word boundaries (Format menu).

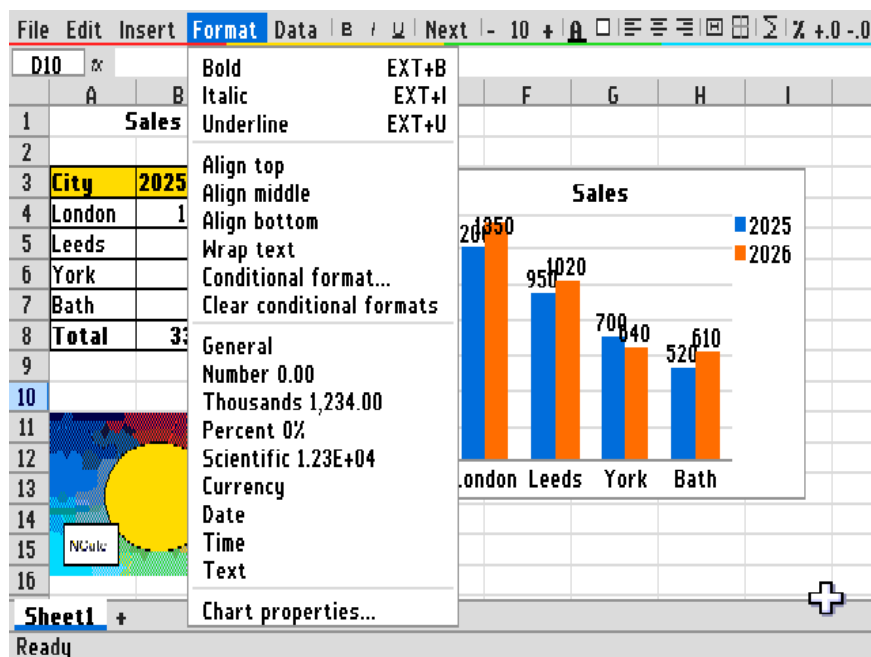
- **Merge cells** (toolbar button): the first cell's contents are centred across the range; press again to unmerge.
- **Borders** (the toolbar button opens a list): all, outside, thick, single sides, double and thick bottom, dotted, dashed and line colour.



The borders list from the toolbar

Number formats

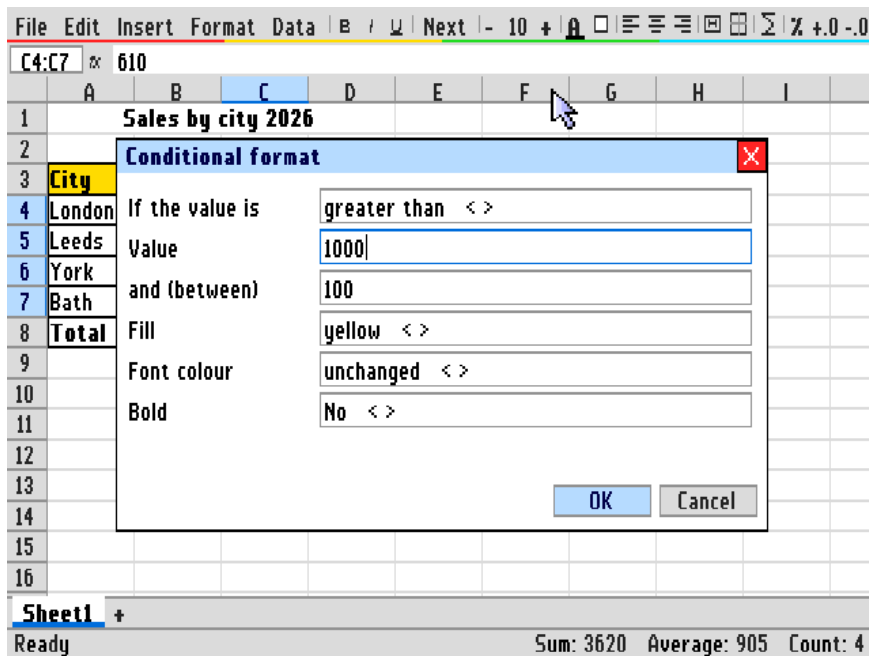
The Format menu offers General, Number 0.00, Thousands 1,234.00, Percent, Scientific, Currency (\$, in Czech Kč), Date, Time and Text. The %, +.0 and -.0 toolbar buttons switch to percent and add or remove a decimal place. General drops digits so the number fits the column; if it cannot, it shows ###. The decimal and thousands separators follow the language.



The Format menu

Conditional formatting

Select a range and choose **Format > Conditional format...** A rule compares the cell value (greater than, less than, equal to, not equal to, at least, at most, between) and when it matches changes the fill, font colour and bold. A sheet can have up to 16 rules; the first matching rule applies. **Clear conditional formats** removes the rules that overlap the selection.



The rule “value greater than 1000” – here with a green fill and bold font

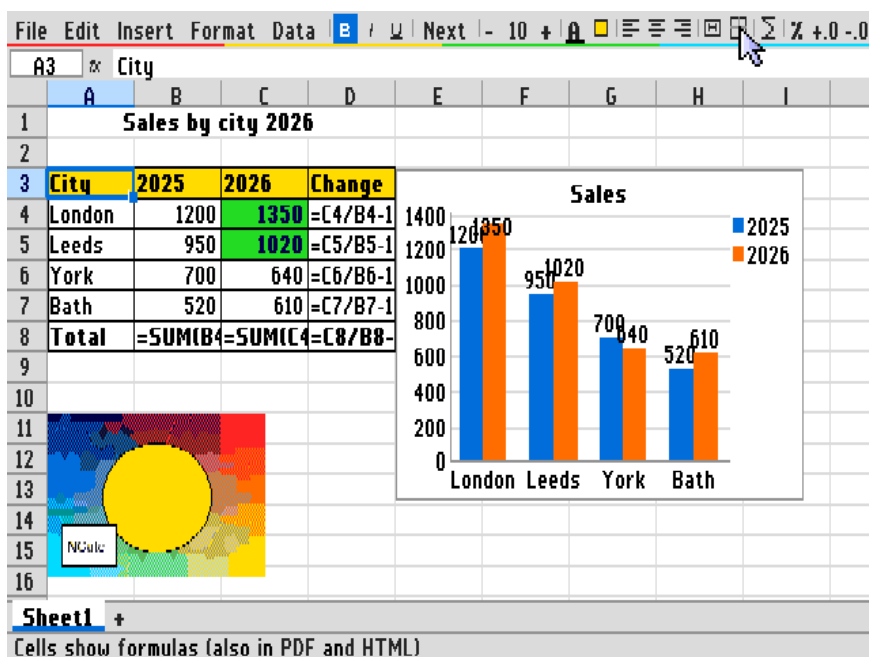
Conditional formats also appear in PDF and HTML exports and are saved with the workbook. In forms, **ENTER** moves to the next field, space or the arrows change a choice, and **ENTER** on the last field is OK.

Sheets

- A workbook has up to **8 sheets**. The **+** tab adds one, clicking a tab shows it.
- Double-click a tab or use **Insert > Rename sheet...** – up to 31 characters, without ! or an apostrophe.
- **Delete sheet** – references to it become #REF!.
- **Move sheet left / right** – sheet references in formulas and chart data are renumbered.

Data

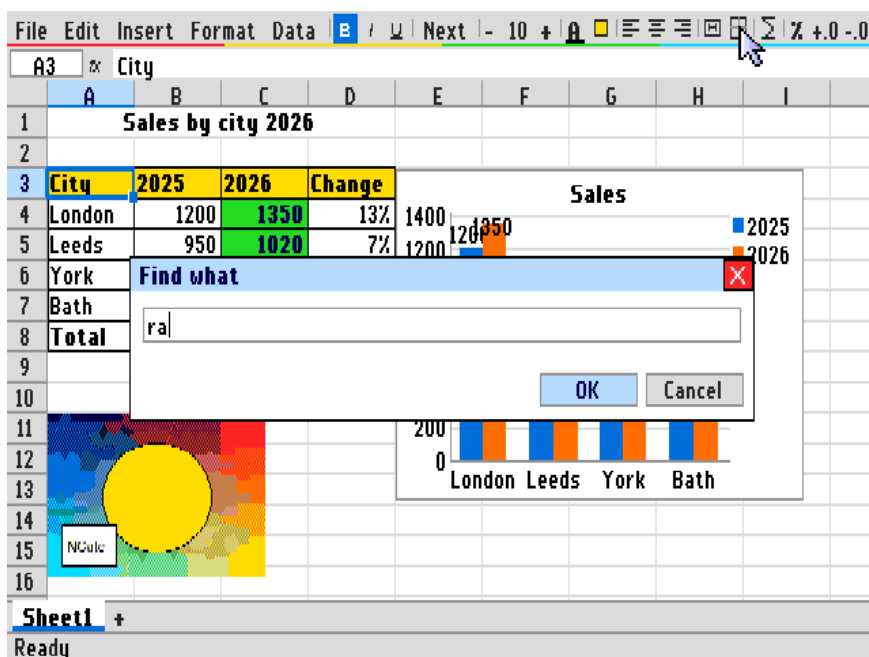
- **Sort ascending / descending**: the rows of the selection are sorted by the column of the active cell. Formulas in moved rows shift their relative references.
- **Freeze panes**: the rows above and the columns to the left of the active cell stay in place while scrolling. The same command unfreezes them.
- **Show formulas / values**: cells with a formula show the formula text instead of the result – on screen and in PDF and HTML exports. This is how you print formulas.
- **Recalculate** **EXT+9**.



Showing formulas instead of values

Find and replace

EXT+F finds the next cell whose displayed value contains the text (ignoring case, including formula results; at the end of the sheet it continues from the top). **EXT+R** replaces the text in all text cells of the sheet – one undo step reverts it.



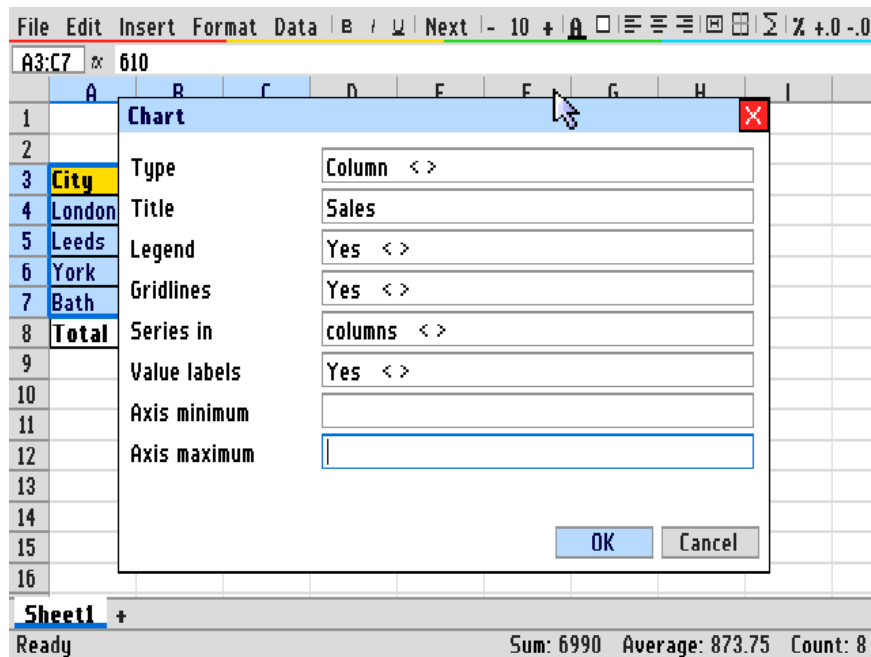
Finding text

Charts

Select the data including labels and choose **Insert > Chart....** Text in the first row of the selection gives the series names; text in the first column gives the categories. The chart window sets:

- **Type:** column, stacked column, bar, line, area, pie, XY scatter,
- the **title**, **legend**, **gridlines** and whether **series are in columns or rows**,

- **value labels** on columns, bars and points,
- the value **axis minimum and maximum** – an empty field means automatic scaling; values outside the range are clipped at the chart edge.

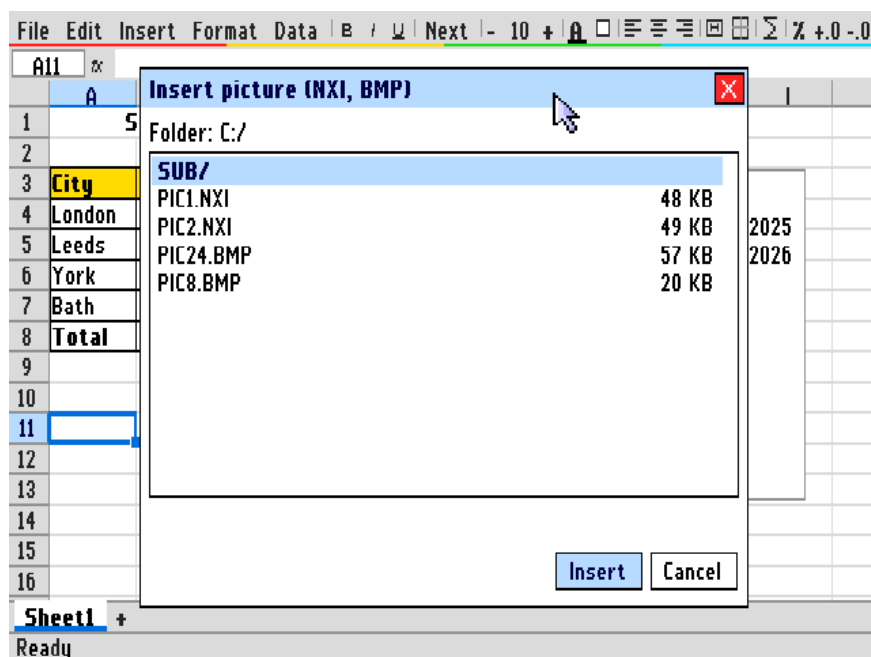


The chart properties window

A chart floats over the sheet. Click it to select it, drag to move it (it snaps to a cell), drag the corner to resize it. A double click or **ENTER** opens the properties, **GRAPH** deletes it. The chart is redrawn whenever its data changes and is saved with the workbook. A sheet holds up to 8 charts and pictures together.

Pictures

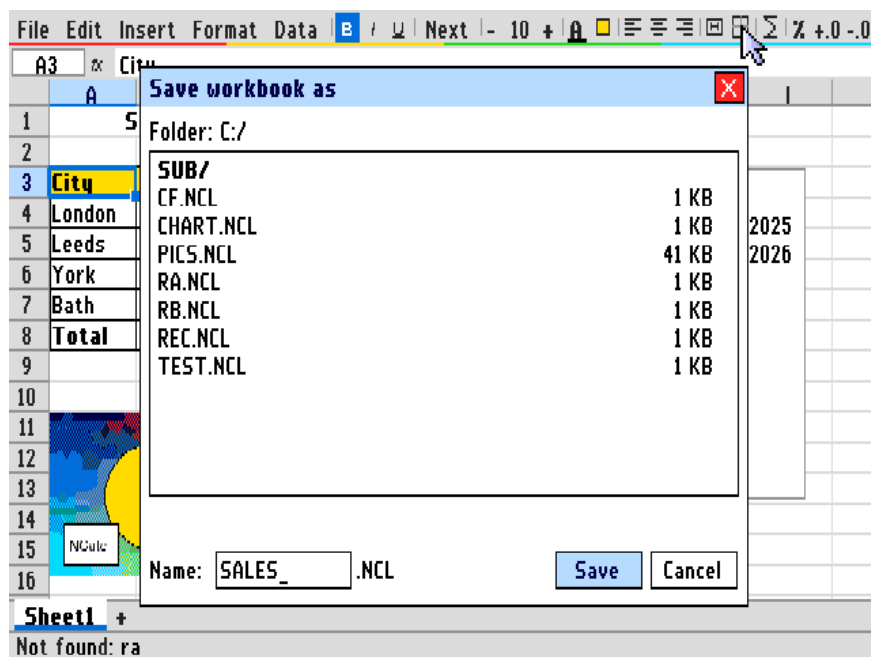
Insert > Picture (NXI, BMP)... places a picture at the active cell. NCalc reads NXI 256 × 192 (with or without a palette) and BMP with 4, 8 or 24 bits per pixel up to 640 × 512. Pictures move, resize and delete like charts. On screen they are dithered to the 16 interface colours; PDF, HTML and XLSX get the full colours. All pictures in a workbook can take up to 144 KB together.



Choosing a picture

Files

NCalc saves workbooks in its own **.NCL** format – with all sheets, formats, charts, pictures and conditional formats. **New** EXT+N , **Open** EXT+O , **Save** EXT+S and **Save as** are in the File menu. NCalc asks before closing a workbook with unsaved changes.

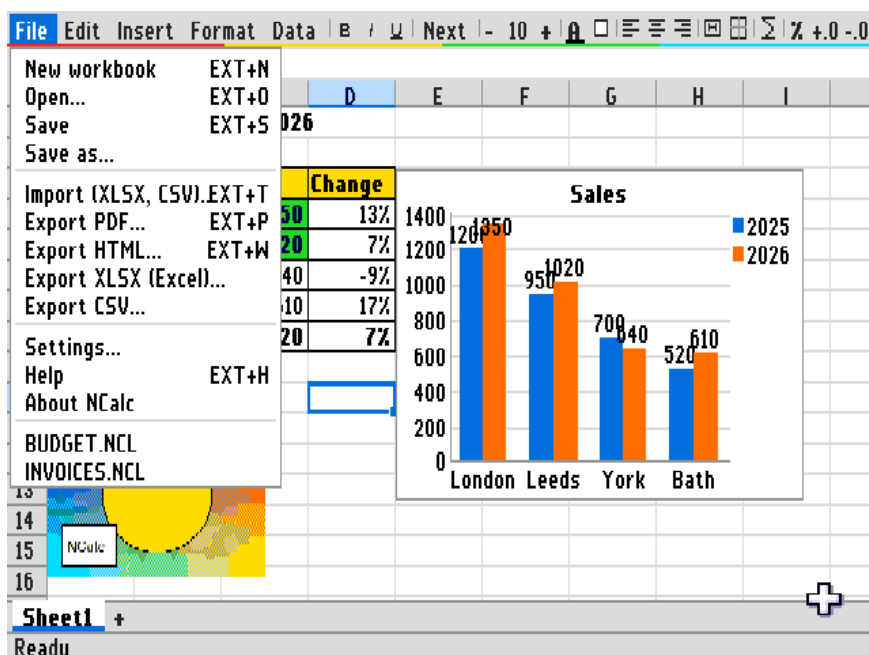


The save dialog – type a name, the .NCL extension is added

In the file dialog, move with the arrows; **ENTER** opens a folder or file; folder names end with a slash.

Recent files

The end of the File menu lists the last four workbooks you opened or saved. They keep the full path, so they open from any folder.



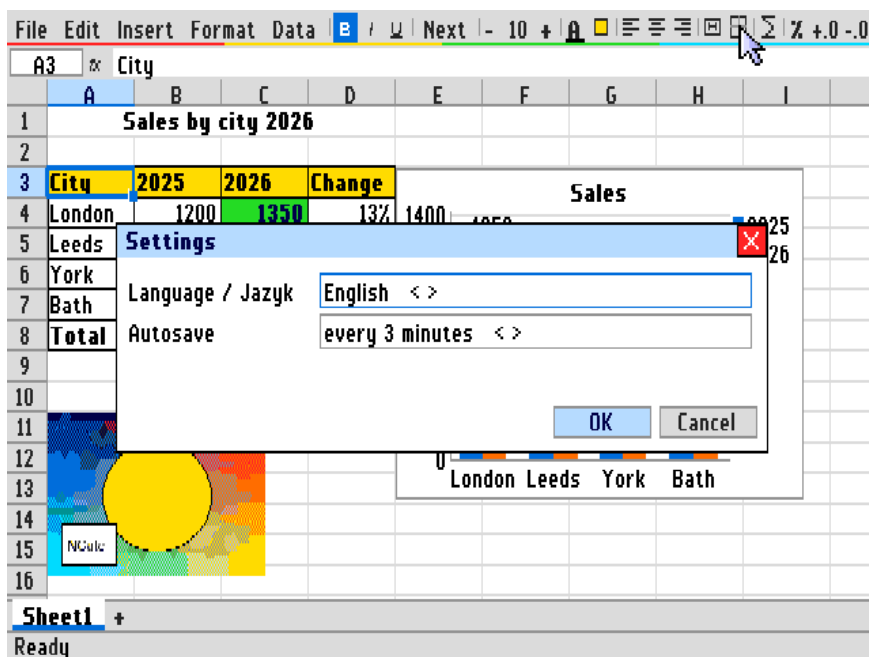
The File menu with recent workbooks

Autosave

When a workbook has unsaved changes, NCalc saves it at the chosen interval to NCalc.BAK in the folder it was started from – always after a short pause in typing, so it does not interrupt you. After a power cut or reset, NCalc finds the backup on start-up and offers to recover it. Saving the workbook or discarding the changes deletes the backup.

Settings

File > Settings... – the interface language (English or Czech, which also sets the decimal separator) and the autosave interval (off, 1, 3, 5 or 10 minutes). Settings and the recent files list are stored in NCalc.CFG in the NCalc folder.

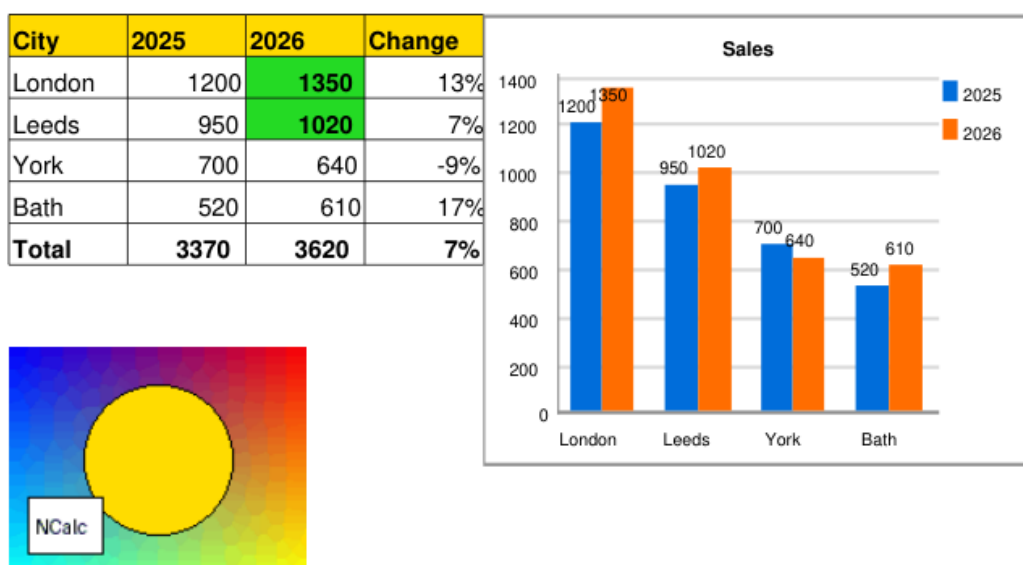


Settings

Export and import

Format	Command	Contents
PDF	EXT+P	the current sheet on A4, portrait or landscape by the width of the data, several pages; Helvetica, Times and Courier fonts with accents, fills, borders, merged cells, vector charts, pictures
HTML	EXT+W	all sheets as styled tables, charts as SVG, pictures embedded (UTF-8)
XLSX	File › Export	a workbook for Excel and LibreOffice: all sheets, values, formulas, styles, number formats, merges, widths and heights; charts as native Excel charts, pictures
CSV	File › Export	the current sheet in UTF-8; comma separator, semicolon when the decimal separator is a comma

Sales by city 2026



The sample workbook exported to PDF

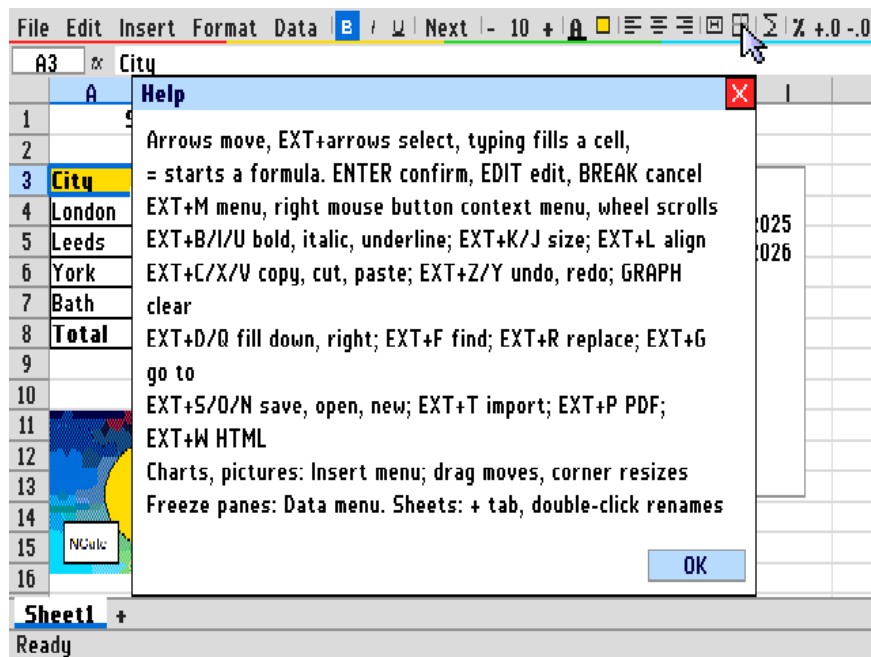
Import

EXT+T (File › Import) loads a file into a new workbook:

- **XLSX** from Excel: values, formulas (those NCalc does not know stay as values), styles, number formats including dates and percentages, merges, widths, heights and multiple sheets. Charts and pictures are not imported.
- **CSV / TXT**: the separator (semicolon, comma, tab) is detected from the first line, UTF-8 and Windows-1250 encodings, quotes; each field is entered as if typed (numbers, dates, formulas).

Keyboard shortcuts

Keys	Action	Keys	Action
ENTER / EXT+SPACE	confirm, down / right	EXT+B EXT+I EXT+U	bold, italic, underline
EXT+ENTER	confirm and stay	EXT+K / EXT+J	larger / smaller font
EDIT	edit the cell	EXT+L	next alignment
DELETE	clear and type	EXT+C EXT+X EXT+V	copy, cut, paste
GRAPH	clear selection / chart	EXT+D / EXT+Q	fill down / right
BREAK	cancel	EXT+Z / EXT+Y	undo / redo
EXT + arrows	extend selection	EXT+F / EXT+R	find / replace
CAPS+3 / CAPS+4	page up / down	EXT+N EXT+O EXT+S	new, open, save
EXT+3 / EXT+4	A1 / last cell	EXT+P / EXT+W	export PDF / HTML
EXT+E	end of row	EXT+T	import XLSX / CSV
EXT+G	go to cell	EXT+9	recalculate
EXT+A	select all	EXT+M	menu (arrows, ENTER, BREAK)
SYM+Q/W/E	acute, caron, ring	EXT+H	help



Help EXT+H – a short overview of the controls

Limits

Item	Limit
sheets in a workbook	8
sheet size	256 columns (A–IV) × 4096 rows
filled cells in a workbook	16,384
text and formulas	8192 blocks of 32 bytes (long text uses several blocks)
charts and pictures per sheet	8
pictures in a workbook	144 KB in total
conditional format rules per sheet	16
undo history	48 KB
sheet name	31 characters
number precision	15 significant digits