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Working with second Y-axis lines

The second Y axis is the axis line on XY scatter charts or dual-axis bar, line or area charts. The second Y axis measures a different quantity than the first Y axis. Because it's numeric; it has a scale attached to it rather than headers.

Location of the second Y-axis line (Chart menu: Second Y axis):

To control where the axis and its scale display, choose Chart, Y axis. On the flyout menu, choose Display on Left, Display on Right, both, or neither. (You can't show both the first and second Y axes on the same side of the Charting Area.)

Grid lines and Scale:

Choose Chart, Second Y Axis to change the second Y-Axis scale and grid lines. Since major grid lines align with numbers on the numeric scale, specifying the number of major grid-line divisions will affect the number of scale divisions.

To show or hide the second Y-axis line:

Method 1: Show or hide-axis line and scale

- Choose Chart, Display Status to open the Display Status dialog box.
- To show the-axis or scale, click Second Y-Axis & Scale. An x indicates that the axis line and its scale will show (at the default location on the left side of the chart).
- To hide the axis or scale, click off the Second Y-Axis & Scale check box.

Method 2: Make axis line transparent (axis line only):

- Select the axis line.
- Make it transparent by clicking the X, or transparent tile on the Outline tool's flyout.
- To restore the line, click in the area where it is. (If you've just made it transparent, choose Edit, Undo.) When its handles appear, choose a color from the on-screen color palette or the color dialog box, accessed by clicking the first tile on the top row of the Outline tool's flyout.

Adjusting the second Y-axis scale

The second Y axis is the scale attached to the 2nd Y-axis line.

Choose Chart, 2nd Y axis to change the following:

- Location of 2nd Y-axis scale. The scale is attached to the axis; choose Display on Right (the common location) and/or Display on Left, or neither.

To show/hide the 2nd Y-axis scale and its axis line:

1. Choose Chart, Display Status.
2. Click the 2nd Y Axis & Scale check box.

To hide the scale and axis:

- In the Display Status dialog box, click 2nd Y Axis & Scale again.

Working with the second Y-axis title

The second Y axis is a label that describes the 2nd Y axis. The axis title can be moved anywhere on the chart, but it should be located near the axis it describes.

To create and edit the 2nd Y-axis title:

This title is entered in a Data Manager cell tagged as 2nd Y-axis title. To edit the title, return to the Data Manager, select the cell, press F2 and change it in the contents box. To see in Data Manager which cell has been tagged as the title, scroll through the cells while watching the chart elements list at the top of the Data Manager window. You'll see the cell's tag in the box.

To show/hide the 2nd Y-axis title:

Choose Chart, Display Status. In the Display Status dialog box, click the 2nd Y-axis Title check box.

Using Data Axis Major Grid Lines

Data Axis Major Grid Lines split up the data axis into equal divisions. "Major grid lines" can cross the whole chart, be just tick marks on the edge of the Charting Area, or both.

To set the number of major divisions:

- Choose Chart, Data axis, and choose one of these options:

  Automatic: Let CorelCHART automatically divide the chart with grid lines.

  Manual: Specify the number of divisions, entering a number in the No. of Divisions text box.

To show or hide major grid lines:

Choose Chart, Data axis. On the flyout menu, choose Grid Lines. In the Grid Lines dialog box, click the Major Grids check box. Choose grid lines or tick marks, or hide the lines by clicking No Grids.

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Using Data Axis Minor Grid Lines

Data Axis Minor Grid Lines are placed between data axis major grid lines to offer more precise measurement. "Minor grids" can cross the whole chart, be tick marks on the axis line, or both.

To set the number of minor divisions (grid lines):

- Select "Grid Lines" (Chart menu: Data Axis) and choose one of the following:

  Auto: Let Chart automatically divide the chart with grid lines.

  Manual: Specify the number of divisions, entering a number in the Number of Divisions" text box.

To show or hide major grid lines:

Choose Chart, Data axis. On the flyout menu, choose Grid Lines. In the Grid Lines dialog box, click Major Grids, choose grid lines or tick marks, or hide the lines by clicking No Grids.

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Making 3D Scatter labels

A 3D Scatter label describes a data point on an XYZ (3D) scatter chart.

To create or edit a scatter label:

These labels must be created, tagged and edited in Data Manager. Depending on how the data is arranged, the fourth row or column holds the label text. For instance, if the data is arranged by columns (column 1 holds X values, Column 2 holds Y values, column 3 holds Z values), then column 4 holds the labels.

If no labels have been tagged, make sure the labels have been entered in the fourth column. (If they're elsewhere in the Data Manager spreadsheet, you must cut and paste them as the fourth column of the data range by clicking and dragging to select the cells and choosing Edit, Cut and Edit, Paste. If they're not in the matrix at all, you must enter them as the fourth column of the data range by clicking the first cell and typing, then using the cursor key to move to the next cell.) Then select the entire data range, click the scroll arrow on the chart elements drop-down list at the top of the Data Manager window, and click Data Range.

Once the labels have been tagged in the Data Manager, go to Chart View. Choose Chart, Display Status, and click the Data Labels check box.

Showing or hiding the left Z-axis scale

The Z axis is the vertical axis in 3D charts. The numbers (or data-based text such as time periods) set at regular intervals along the end of the left wall comprise the left Z-axis scale.

The Z-axis scale can be modified by choosing Chart, Vertical (Z) axis.

To show or hide the left Z-axis scale:

Choose Chart, Display Status and click Left Z-axis Scale. An "x" in the check box indicates that the scale will appear.

Working with the left Z-axis title

The left Z-axis title is one of two titles that describes the vertical Z axis. This one is placed adjacent to the left wall.

To create or edit a left title:

In the Data Manager, select a cell and set it as Axis Title #3, and type the title in the cell. To edit the title, return to the Data Manager, select the cell, press F2, and make changes in the contents box.

To show or hide a left title:

Choose Chart, Display Status and click Left Scale Title. An "x" in the check box indicates that the left title will appear.

Working with series headers

A series header is a descriptive label for a series of data on a 3D chart. Usually there is one header for each data group. When the appearance of one series header is changed, all are changed.

To create or edit series headers:

In the Data Manager, select a cell and set it as Row Header or Column Header, depending which axes your groups and series are arranged on. Type the title in the cell. To edit the title, return to the Data Manager, select the cell, press F2, and make changes in the contents box.

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Creating and editing series titles

A series title is the single title that describes what the series of data represent.

To create or edit a series title:

In the Data Manager, select a cell, set it as the Axis Title #1 or Axis Title #2, depending on which axes your groups and series are arranged on. Type the title in the cell. To edit the title, return to the Data Manager, select the cell, press F2, and make changes in the contents box.

Showing or hiding the right Z-axis scale

The Z axis is the vertical axis in 3D charts. The numbers (or data-based text such as time periods) set at regular intervals along the end of the right wall comprise the right Z-axis scale.

The Z-axis scale can be modified by choosing Chart, Vertical (Z) axis.

To show or hide the right Z-axis scale:

Choose Chart, Display Status and click Right Z-axis Scale. An "x" in the check box indicates that the scale will appear.

Creating or editing a Z-axis title

The Z-axis title is one of two titles that describes the vertical Z axis; this one is placed adjacent to the right wall.

To create or edit a right title:

In the Data Manager, select a cell, set it as the Axis Title #4, and type the title in the cell. To edit the title, return to the Data Manager, select the cell, press F2, and make changes in the edit box.

To show/hide a right title:

Choose Chart, Display Status, and click the Axis Title #4. An "x" in the check box indicates that the right title will appear.

Creating column header labels

Column header labels are the text in column header cells or, in Chart View, the column header area, in a table chart.

To create column header labels:

1. Enter column headers in a row in the Data Manager.
2. Select all the cells you've just entered into.
3. Select Column Header from the chart element list box.

Column headers can be formatted using the tools on the Text Ribbon and colored using the on-screen color palette or the effects available through the Fill tool.

Creating row header labels

Row header labels are the text within row header cells in a table chart.

To create row header labels:

1. Enter row headers in a column in the Data Manager.
2. Select all the cells you've just typed into.
3. Select Row Header from the chart elements list box.

Row headers can be formatted using the tools on the Text Ribbon and colored using the on-screen color palette or the effects available through the Fill tool.

Creating a row header area

The row header area appears on the left-most column in a table chart; it contains all the row header cells.

To create the row header area:

1. Enter row headers in a column in the Data Manager.
2. Select the first (top) row header.
3. From the chart elements list box, select Row Header.

The row header area accepts colors. The area has an outline; you can change its color and width using the Outline tool.

Showing or hiding titles

The title of a chart is a label that describes the chart. It's normally displayed at the top of the chart and is usually the largest text element. Title text can be formatted using the facilities on the on-screen text ribbon.

To show or hide the title:

Choose Chart, Display Status. In the Display Status dialog box, click the Title check box. To hide the title, click the check box again.

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Creating a category header

Category headers are the identification labels assigned to groups of data. There is usually a header for each data group. When the appearance of one group header is changed, all are changed. (You can use the Text Ribbon, or the color palette, to change any headers.) The labels usually describe group data, but will describe series data.

Headers are attached to the category axis and cannot be moved independently of the axis. To set the location of the axis and headers, choose Chart, Category axis. On the flyout menu, you can select Display on Bottom/Left and/or Display on Top/Right (or neither).

To create category headers:

1. Enter category axis headers in a column in the Data Manager.
2. Select all the cells you've just typed into.
3. Select Column Header from the chart elements list box.
4. Click Set.

To edit category headers, go to the Data Manager. Click the cell you wish to edit, press F2, and edit the cell in the contents box atop the Data Manager spreadsheet.

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Working with X-axis titles

An X-axis title is a label that describes the X axis. The axis title can be moved anywhere on the chart, but it should be located near the axis it describes. This title is entered in the Data Manager.

To create or edit an X-axis title:

In the Data Manager, select a cell, set it as Axis Title #1, and type the title in the cell. To edit the title, return to the Data Manager, select the cell, press F2, and make changes in the contents box.

To show or hide an X-axis title:

Choose Chart, Display Status and click Axis Title #1. To hide the title, click the check box again.

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Working with Y-axis titles

A Y-axis title is a label that describes the Y axis. The axis title can be moved anywhere on the chart, but it should be located near the axis it describes. This title is entered in the Data Manager as "Y-axis Title".

To create or edit a Y-axis title:

In the Data Manager, select a cell, set it as Axis Title #2, and type the title in the cell. To edit the title, return to the Data Manager, select the cell, press F2, and make changes in the contents box.

To show or hide a Y-axis title:

Choose Chart, Display Status and click Axis Title #2. To hide the title, click the check box again.

Chart menu for Vertical/Horizontal Bar Charts

Category Axis Displays a flyout menu with toggle commands for controlling the location of the category axis text, appearance of text and turning display of grid lines. The category text can appear at the top or bottom of the chart or at both locations at the same time. Deselecting both options hides the category text from view. Text can be fitted automatically or staggered.

Data Axis Displays a flyout menu with toggle commands for setting the location of the numeric axis (right or left side, both or none), type (log or linear) and direction (ascending or descending) of the scale, and appearance of text (autofitted or staggered). You can also specify the Scale Range, Number Format and Grid Lines in the appropriate dialog boxes.

2nd Data-Axis Contains the same options as the Data Axis. Only available for dual-axis charts.

Axis Assignment... Opens a dialog box that controls the assignment of series to primary and secondary axes in dual-axis charts.

Data Reversal Toggle commands to **Reverse Series** data within groups or **Reverse Groups** along the non-numeric axis.

Data Analysis... Used to select scientific and financial statistical procedures, including the mean, standard deviation, moving averages and linear regressions.

Base of Bars Displays options to show the data from the Zero Line or from the Scale Minimum, the latter being the lowest value in the data range.

Bar Thickness Displays a selection of bar thicknesses**.** Hold down the mouse button and move down the flyout menu; a preview of each option is displayed. Release the mouse button to make a selection.

Bar-Bar Spacing Displays a selection of bar spacing intervals. Hold down the mouse button and move down the flyout menu; a preview of each option is displayed. Release the mouse button to make a selection.

Marker Shape Displays a selection of bar and legend marker shapes. Hold down the mouse button and move down the flyout menu; a preview of each option is displayed. Release the mouse button to make a selection.

Show as Pictograph Select a bar, then click this option to activate it. This command divides each bar into slices based on the major grid lines. A pictograph (.CDR file) can then be selected through the Full-Color Fill icon in the **Fill Tool** flyout menu or the Pictograph roll-up. The pictograph will be copied into each rectangle formed by the bar and the major grid lines.

Display as Line Select a bar, then click this option. The data for that bar will appear as a line.

Emphasize Bar Choose a bar that you wish to emphasize and click this option. The outline and fill of the bar can then be modified using the Fill and Outline tools and the on-screen color palette.

Legend... Opens a dialog box containing controls for the chart's legend.

Display Status... Opens a dialog box containing check boxes for showing and hiding chart elements such as title, subtitle, data values and legend.

Axis Assignment dialog box

Use this dialog box to move series of data from one axis to another in any of the Dual Y Axis or Bipolar chart types. Select the data series you want to move and then click the **Move** button.

You must have a least one data series per axis. If you want all series on a single axis, use a non-Dual Y or Bipolar chart type.

Scale Range dialog box

Use this dialog box to specify the scale range and whether minimum, maximum and out of range values are plotted on your chart.

Dialog Box Options

Range Display

Select **Exclude Minimum** and/or **Exclude Maximum** if you don't want the lowest and/or highest values to appear on the scale of the chart.

The other two options in this field become available when Manual Scale is selected. Choose the first option if you want the risers for out of range values plotted at the scale limits or the second if you don't want them plotted at all.

Range Method

Choose **Automatic** to set the upper and lower scale limits according to the minimum and maximum data values. Or, choose **Manual** and type or select the upper and lower scale limits in the From and To boxes.

How to...

Numeric dialog box 

Use the Numeric dialog box, also called the Number Format command in Chart View, to choose or create new numeric styles in both Chart View and Data Manager. The Numeric dialog box is available from the Chart menu's Data Axis flyout menu, from the Data Manager's Format menu, from pop-up menus and from the Ribbon Bars.

CorelCHART provides several built-in formats based on serial values used with dates. If none of the built-in formats suit your needs, you can create new ones by editing a built-in format code or typing your own codes. Numeric formats applied in Chart View affect all similar numeric data, while numeric formats applied in Data Manager affect only the selected cell(s).

User-defined formats can be conditional, i.e., the applied format depends on the result returned by a formula or the value typed. For example, you can create a numeric format which displays positive values in black and negative values in red.

CorelCHART uses symbols to represent how the number will look when formatted. The symbols m/d/yy for example, represent the appearance of one of the built-in date formats. Typing 10-2-93 in a Data Manager cell with this format produces this result: 10/2/93.

Dialog Box Options

Category and Formats

Use the scroll bar to browse the list of formats; there's a general-purpose format, and number, currency, date, time, percentage and scientific formats. The **Formats** box displays available formats for the selected category.

See also Built-In Numeric Formats

Code

Displays the code of the selected format. Use the code box to edit the code, modify the format or create a new one. If a user-defined numeric format is deleted, all cells that use that format adopt the general format, which is the CorelCHART default.

Sample

Displays the selected format.

User Formats

The **User Format** text box displays the user-defined formats. The **Add** button is used to add a newly created style, built in the **Code** box, to the current category. Click the **Change** button to apply the changes made to a custom format using the **Code** box. The **Delete** button removes a selected custom format from the list.

See also Creating and Deleting custom formats and User defined numeric formats

Built-in Numeric Formats

The following is a description of CorelCHART's built-in numeric format categories.

Category and format(s)	Description/Sample/Notes
All	Lists formats for all categories
General	Default format.
	Displays up to nine digits to the right of the decimal point. Displays up to 11 digits to the left of the decimal point; if more than 11, switches automatically to scientific notation (see below).
Number	
0	displays the number as is
0.00	displays two digits after decimal point
#,##0	thousands separator
#,##0.00	thousands separator/two decimals
#,##0;(#,##0)	negative values displayed in brackets
([>100][/b];[/i])#,##0;[/i](#,##0)	positive values bold if greater than 100, italicized if not; negative values italicized and in brackets
#,##0.00;(#,##0.00)	thousands separator, two decimal digits and negative values in brackets
[/b]#,##0.{[/c:red]00};[/i](#,##0.{[/c:blue]00})	Positive values: digits to the left of decimal point are bold, digits to the right are red. Negative values in brackets, digits to the left of decimal point italicized, digits to the right are blue.
Currency	
$#,##0.0;($#,##0.0)	
${[/b/i]#,##0.0};(${[/u]#,##0.0})	
$#,##.0.00;($#,##0.00)	
${[/b]#,##0}.[/i]00;($#,##0{[/c:red].}00)	

Note: CorelCHART automatically adds the new currency formats if the currency symbol, selected in Windows differs from the dollar sign. This new format is handled as a user-defined format and you can edit and/or delete them.

Date	Displays dates in one of six formats.
m/d/yy	Month, day, year separated by /
[/b]m/[/r]d/[/i]yy	Month in bold, day in default font and year italicized
dd-mmmm	Day with leading zero (04) and month name displayed (March)
[/bold]dd{[/c:red]-}mmmm	Day in bold, month name displayed in red
dddd mmmm-d-yyyy	Weekday and month name displayed, day without leading zero and four-digit year notation (Thursday March- 24-1994).
{[/b]dddd} mmmm-d-yyyy	Day name in bold, month name, day without a leading zero and four-digit notation for the year (**Friday** April-1-1994).

Note: Date and Time formats may differ depending the Windows Calendar settings on your computer.

Time

m/d/yy h:m:s AM/PM	Date and time format. Displays both date and time, uses 12-hour clock.
h:m:s AM/PM	Hours, minutes and seconds. Displays the time using 12-hour clock.
h:mm AM/PM	Hours and minutes. Uses a 12-hour clock.
h:mm [/c:yellow]AM/PM	Hours and minutes, AM/PM displayed in yellow
hh:mm:ss	Hours, minutes and seconds using a 24-hour clock (00-23)
{[/b]m-d-yy} {[/i]h:m:s} [/i/b]AM/PM	Date displayed in bold, time italicized and AM/PM if bold/italic.

Note: The Date and Time formats may differ depending the Windows Calendar settings on your computer.

Percentage

0%	Displays numbers as a percentage (multiplied by 100) with a percent sign (%).
0[/italic]%	% symbol italicized
#,###.00%	Thousands separator and two digits after decimal point
{[/i]#},###.00[/b]%	Thousands digit italicized, % symbol bold, two digits after decimal point.

Scientific Displays values in exponential (scientific) notation.

0.00e+00	
([>0][/b];[/i/u])0.00e+[/sup:2]00	If value is above zero, it displays in bold, otherwise it is underlined and italic.

See also User-Defined Numeric Formats

User-Defined Numeric Formats: Overview

You can create your own numeric formats by editing the built-in format codes or by typing your own. The built-in formats can be edited and saved as new ones but cannot be deleted.

There are two types of numeric formats you can create--General Conditional Format and Custom Conditional Formats.

Built-in or user-defined numeric formats are made up of symbols that tell Data Manager how to display numbers on the spreadsheet. The symbols, also called codes, used in numeric formats, make up the Numeric Format Interpreter Macro Language.

The Macro Language includes codes that define the structure to be applied to numbers, the font and color to be used and the conditions that have to be met for a format to be applied.

See one or more of the following topics for information on the syntax used in numeric formats and the different codes used to set the format attributes:

General Conditional Numeric Format
Custom Conditional Numeric Format
Font attribute codes
Codes for user-defined numeric formats

General Conditional numeric format

This topic describes the General Conditional Format syntax.

The General Conditional format--used to apply one format to all numbers or apply different formats to positive, negative or zero values--is made up of three sections separated by semi-colons as shown below:

Section_1;Section_2;Section3
Section_1: contains the codes that define the format for **positive numbers**

Section_2: contains the codes that define the format for **negative numbers**

Section_3: contains the codes that define the format for **zero values**
If only one section is used (i.e., coded) in a custom format, all numbers entered use the format coded in that one section. If two sections are coded, positive and zero values adopt the section 1 format, negative values adopt the section 2 format.

See also:

Font attribute codes
Codes for user-defined numeric formats
Custom conditional formats
Examples of general numeric format

Custom Conditional numeric formats

A Custom Conditional numeric format includes user-defined conditions, which are usually more complex than those available in the General Conditional formats. If a number meets the condition, the condition-dependent format is applied to that number; if not, another format is applied.

You can create up to three conditional statements, one for each of the sections described in General Conditional numeric format. For example, you could create a format which states that all numbers greater than 100 should be bold, displayed in blue with two digits after the decimal point and all other values are red, with a point size of 6.

The syntax is:

([conditional value][font_specification_1];[font_specification_2])placeholder(s)

In which:
[condition value] is the condition to be met. Value can be any number and the condition any of the symbols below:

- **=** Equal to
- **>** Greater than
- **<** Less than
- **>=** Equal to or greater than
- **<=** Equal to or less than
- **<>** Not equal to

[font_specification_1] represents the font attributes to be applied to the number if it meets the condition. *See also* Font attribute codes for details on coding font attributes.

[font_specification_2] is the alternative format to be used for numbers that do not meet the condition.

placeholders include the digit placeholders and other symbols used in the format to represent a currency, a percentage or any other available symbol. *See also* Codes for user-defined numeric formats for a list of placeholder codes.

See also Examples of custom conditional numeric format

Font attribute codes--numeric format

The following tables describe the codes used in setting font and color attributes in numeric formats. The italicized text is used to represent areas where you must type information.

Attribute	Code
Font Face	/f:*font name here*
Font Size	/s:*size here*
Output color	/c:*color name or color number* (*See also* Colors--numeric format)
Bold	/b
Italic	/i
Underline	/u
Strikeout	/s
Subscript	/sub:*offset in points (0-255)**
Superscript	/sup:*offset in points (0-255)**
Cancel Italic, Bold and Underline set earlier in format	/r (the font and size are not changed; only the type styles are disregarded for the digits on the right of the /r code)

*Units of measurement cannot be changed, must be points.

Coding font attributes...

Notice the use of the forward slash **/** symbol; it precedes every font code.

You can set several font attributes within one set of square brackets [ ], e.g., in **[/b/i/u]#.00**, all digits will be bold, italic and underlined.

Effective range of font attributes...

Curly brackets **{}** are used to define the effective range in which the font attribute is applied. In **{[/i]#.}[/b]00,** only the digits on the left of the decimal point, and the decimal point, are italicized; digits to the right of the decimal point are bold.

If no effective range is defined, i.e., no curly brackets used, the font specifications are valid for all digits to the right of them until either the end of the section or until the **/d** code is used to reset the default font attributes.

See also:
Codes for user-defined numeric formats
Examples of general numeric format
Examples of custom conditional numeric format

Color attribute codes--numeric formats

The following table lists available colors in the Numeric format interpreter and their color numbers. You can reference the color name or number when coding a new numeric format.

Color name	Number
BLACK	1
WHITE	2
RED	3
GREEN	4
BLUE	5
YELLOW	6
CYAN	7
MAGENTA	8

Note: If you enable the Formula command in the Data Manager View menu, changing the color of numbers on your spreadsheet using in-cell editing automatically updates the code of the number format. This new format is displayed in the User Formats box in the Numeric dialog box and is saved with your spreadsheet.

You can assign a style name to the numeric format by typing a name in the styles drop-down list box or by using the Styles command. Whether you assign a style name to the new numeric format or not, that format is available only for the spreadsheet in which it was created.

The Styles command also enables you to make the numeric format available to other spreadsheets by assigning a style name and saving that style in the current or a new style sheet (.CCT file).

Codes used in user-defined numeric formats

Use the following codes to create custom numeric formats. *See also* Font attribute codes

Codes	Descriptions
0	Digit placeholder. CorelCHART will replace each occurrence of the symbol with a digit from the value being entered. If the number has fewer digits than the number of zeros in the format, CorelCHART displays the extra zeros. For example, with the user-defined format 000.000, the number 1.23 would display as 001.230. If the number has more digits than the zeros in the format, the extra digits will display **on the left side of the decimal only.** For example, the format 000.000 will display 12345.6789 as 12345.679. If there are more digits on the right of the decimal point than there are zeros, the interpreter rounded off the number to as many decimals as there are zeros in the format.
#	Digit placeholder. Follows the same rules as for 0 discussed above except that the interpreter does not display extra zeros if there are fewer digits in the entry than the format. If there are more digits to the right of the decimal point than number signs, CorelCHART rounds the number to the number of decimals in the format.
?	Digit placeholder. Follows the same rules as 0 described above. However, if the number has fewer digits from either side of the decimal point than question marks, CorelCHART adds space for sufficient zeros so that decimal points align in cells. If there are more digits to the right of the decimal point than there are question marks, CorelCHART rounds the number to the specified number of decimals.
- (hyphen)	Symbol displayed for every occurrence of this code in the format.
. (period)	Decimal point. Displays in accordance with the Windows Control Panel International settings.
, (comma)	Thousands separator when inserted in the numeric format after #s or 0s.
: (colon)	Time separator.
; (semi-colon)	**1)** Separates the sections in General conditional format. **2)** Separates font specifications within each section of Custom Conditional formats.
%	Percentage sign displayed in the formatted entry. Multiplies the entry by 100 and adds % symbol.
$	Currency symbol displayed for every occurrence of this code in the format. Displays in accordance with the Windows Control Panel International settings.
"text"	Displays whatever text is entered between the double quotation marks.
****	Displays the next character in the format as is. This is the same as enclosing characters in double quotation marks, i.e., "characters".
/	**1)** Precedes font specification codes in format. **2)** Used as a separator in Date formats; displays in accordance with the Windows Control Panel international settings in this case.
E- E+ e- e+	The numeric format followed by **e** or **E** sign tells CorelCHART to display the number in exponent (scientific) form. **E-** or **e-** places a minus sign

	next to negative components and omits the plus sign for positive components. **E+** or **e+** places a minus sign by negative components and a plus sign by positive ones.
d,dd,ddd,dddd	Day. A single **d** displays a day without leading zero (3), **dd** adds the leading zero (03), **ddd** shows the abbreviated day name (Mon, Tue, Wed, Thu, Fri, Sat, Sun) and **dddd** shows the full day name (Monday, Tuesday, etc.). The month and day names are stored in the INTL.RC file and can be modified.
m,mm,mmm **mmmm**	Month. A single **m** displays month without leading zeros (1), **mm** displays leading zeros (01), **mmm** displays the abbreviated month name (Jan.) and **mmmm** shows the full month name.
yy,yyyy	Year. **yy** displays only the last two digits of the year. If you enter **yyyy**, CorelCHART displays the full year number.
h, hh	Displays the hour with or without a leading zero, i.e., (00-23) or (0-23) . If the format includes Am or PM, the interpreter displays the hour based on a 12-hour clock.
m, mm	Displays minutes when placed before seconds or after hours. Displays with (00-59) or without (0-59) a leading zero.
s, ss	Displays the seconds with a leading zero (00-59) or without (0-59).
AM/PM, am/pm **A/P, a/p**	Displays time using 12-hour clock.
[ ] square brackets	**1)** Enclose font attributes specifications **2)** Enclose the condition in custom conditional formats as well as the font specifications. The conditional formats should be separated with "**;**" signs.

Creating conditional formats you can use the following operators:

=	Equal to
>	Greater than
<	Less than
>=	Equal to or greater than
<=	Equal to or less than
<>	Not equal to
{}curly brackets	Define the effective range for font attributes; all digit placeholders enclosed in curly brackets conform to the font specifications
() brackets	Enclose a custom conditional format.

Examples of custom general numeric formats

The following are examples of user-defined numeric formats using one, two and three sections:

Using one section: [/b/u/st]#[/b].00

This format applies the bold, underline and strike-out attributes to the digits located on the left of the period. The digits after the period are bold only. This being a single-section format, all numbers entered, whether positive, negative or zero values, adopt the format.

Using two sections: {[/b/u/st]#.00;[/c:RED]#.00}

The curly brackets define the range of digits affected by the font characteristics. In the example, curly brackets enclose the entire format; therefore all digits use the same font characteristics. The only difference is that negative values display in red.

Using three sections: [/b/i]#.##;[/c:BLACK]-0.00;"Zero"

In the example, positive numbers are bold, italic and displayed in the #.## format. Negative numbers use the -0.00 format and display in black. Zero values cause the "Zero" text string to appear in the cell.

Examples of custom conditional numeric formats

The following are examples of custom conditional formats:

Example 1: ([>100][/b/c:RED];[/i/s:4])0.00

There is only one section in the example. If values are greater than 100, they display in red, bold with two digits after the decimal point. Values that are not greater than 100 are italic and have a point size of 4.

Example 2: ([>=24][/c:GREEN];[/c:RED/b])#.##;([<-5][/i];[/u/c:BLUE])-#.00;"Zero"

The example above is a three-section format. The first section (for positive numbers) stipulates that values equal to or greater than 24 are to be displayed in green; values less than 24 are to be bold and red.

The second section (for negative numbers) stipulates that values less than -5 are to be italicized while other negative values will be underlined and displayed in blue; all negative values are to adopt the -#.00 format, which includes the minus sign and two digits after the decimal point.

The third section stipulates that cells that containing zero values will display the word "zero".

Grid Lines dialog box

Use this dialog box to specify how the grid lines in your chart are to appear.

Dialog Box Options

Major Divisions

Specify how you want the major grid lines and tick marks to appear

Show Major Grid Lines

Toggles the display of the major grid lines on and off. When selected the following options become available:

Normal:	Displays the grid lines without tick marks.
Normal with Ticks:	Displays the grid lines with tick marks outside the scale axis.
Inside Ticks:	Displays ticks inside the scale axis and hides the grid lines.
Outside Ticks:	Hides the grid lines but displays the ticks outside the scale axis.
Spanning Ticks:	Displays ticks on both sides of the scale axis and hides the grid lines.
Auto:	Displays the grid lines and tick marks at intervals determined by the data values in the chart.
Manual:	Select this option and type the number of grid lines you want in the **Number of Divisions** box.

Minor Divisions

Options for Minor Divisions are the same as those for Major Divisions. Minor Divisions are intermediate grid lines appearing between major grid lines.

Note: Major Divisions display in black and Minor Divisions display in white by default. The latter will not appear if your chart background is also white. You can change the color of major and minor grid lines by selecting one with the Pick tool and then clicking a color in the on-screen palette with the right mouse button.

3D Grid Lines dialog box

Use this dialog box to control the display of grid lines on 3D charts.

Dialog Box Options

Walls & Floors

Specify which grid lines you want displayed on the walls and floors by enabling or disabling the appropriate options.

Risers

Specify which grid lines you want displayed on the risers by enabling or disabling the appropriate options. This option has no affect on 3D scatter charts.

Z-Axis Divisions

Choose **Manual** and type the number of divisions you want on the Z-Axis or choose **Automatic** and let CorelCHART determine the number based on the data values in the chart.

Data Analysis dialog box

Use this dialog box to fit curves and statistical lines to your data to highlight particular trends or values, such as the average. *See also* Using Data Analysis

- Mean
- Standard Deviation
- Connected Line
- Smooth Curve
- Moving Average
- Financial Moving Average
- Scientific Moving Average
- Linear Regression
- Power Law Regression
- Natural Logarithmic Regression
- Exponential Regression
- Polynomial Regression Line
- Order box
- Smooth Factor box
- Show Formula
- Show Correlation Coefficient

How to...

Legend dialog box

Use this dialog box to control how legends appear in your charts.

Dialog Box Options

Legend Display

Display Legend

Clear the check mark if you don't want the legend to appear in your chart. With the Legend turned on you can choose an option from the left side of the dialog box to position the text in relation to the marker within the legend.

Note: The text's alignment determines its position on the marker. For example, if the text is left aligned, the last character in the text will appear on the marker. Use the alignment buttons in the text ribbon to change the text's alignment.

Autofit Legend Text

Fits the text to the size of the legend box. If you resize the legend box, the text resizes by the same proportions automatically. You cannot change the point size of autofitted text using the text ribbon.

Legend Layout

Automatic Legend Orientation

Positions the legend in the default location for that particular chart type.

Vertical

Arranges the legend items in a column.

Horizontal

Arranges the legend items side-by-side.

Display Status dialog box

Use this dialog box to control the display of various elements in your chart.

If you don't want a particular element to appear, deselect it. Clicking the **ALL Text** and **NO Text** buttons turns all elements on or off.

Clicking the **Position** box, available when **Data Values** is selected, displays options for positioning data values which lie outside the scale range. Select **Outside Maximum**, for example, and all values beyond the upper limit of the scale will display outside the chart frame.

The **Format** button displays the Numeric dialog box, used to set number formats.

Chart menu for Vertical/Horizontal Line Charts

Category Axis	Displays a flyout menu with toggle commands for controlling the location of the category axis text, appearance of text and display of grid lines. The category text can appear at the top or bottom of the chart or at both locations at the same time. Deselecting both options hides the category text from view. Text can be fitted automatically or staggered.
Data Axis	Displays a flyout menu with toggle commands for setting the location of the numeric axis (right or left side, both or none), type (log or linear) and direction (ascending or descending) of the scale, and appearance of text (autofitted or staggered). You can also specify the Scale Range, Number Format and Grid Lines in the appropriate dialog boxes.
2nd Data Axis	Contains the same options as the Data Axis. Only available for dual-axis charts.
Axis Assignment...	Opens a dialog box that controls the assignment of series to the primary and secondary axes in dual-axis charts.
Data Reversal...	Displays a flyout menu with toggle commands to Reverse Series data within groups or Reverse the Groups themselves along the non-numeric axis.
Data Analysis...	Used to select scientific and financial statistical procedures, including the mean, standard deviation, moving averages and linear regressions.
Show Markers	A toggle command to or hide a marker at each data point on the line.
Marker Shape	Displays a selection of bar and legend marker shapes. Hold down the mouse button and move down the flyout menu; a preview of each option is displayed. Release the mouse button to make selection.
Marker Size	Displays a selection of marker sizes. Hold down the mouse button and move down the flyout menu; a preview of each option is displayed. Release the mouse button to make a selection.
Display as Bar	Select a line, then click this option. The data for that line will display as a bar.
Legend...	Opens a dialog box containing controls for the chart's legend. Click the check boxes to activate each option.
Display Status...	Opens a dialog box containing check boxes for showing and hiding chart elements such as title, subtitle, data values and legend.

Chart menu for Vertical/Horizontal Area Charts

Category Axis	Displays a flyout menu with toggle commands for controlling the location of the category axis text, appearance of text and display of grid lines. The category text can appear at the top or bottom of the chart or at both locations at the same time. Deselecting both options hides the category text from view. Text can be fitted automatically or staggered.
Data Axis	Displays a flyout menu with toggle commands for setting the location of the numeric axis (right or left side, both or none), type (log or linear) and direction (ascending or descending) of the scale, and appearance of text (autofitted or staggered). You can also specify the Scale Range, Number Format and Grid Lines in the appropriate dialog boxes.
2nd Data Axis	Contains the same options as the Data Axis. Only available for dual-axis charts.
Axis Assignment...	Displays a dialog box that controls the assignment of series to primary and secondary axes in dual-axis charts.
Data Reversal	Toggle command to Reverse Series data within groups or Reverse the Groups themselves along the non-numeric axis.
Data Analysis...	Used to select scientific and financial statistical procedures, including the mean, standard deviation, moving averages and linear regressions.
Base of Areas	Displays options to show the data from the Zero Line or from the Scale Minimum, the Scale minimum being the lowest value in the data range.
Legend...	Opens a dialog box containing controls for the chart's legend. Click the check boxes to activate each option.
Display Status...	Opens a dialog box containing check boxes for showing and hiding chart elements such as title, subtitle, data values and legend.

Chart menu for Pie Charts

Pie Tilt	Use the visual selector to determine the amount of tilt.
Pie Thickness	Use the visual selector to control thickness.
Pie Rotation	Use the visual selector to determine the degree of rotation. Each selection starts from zero degrees.
Pie Size	Use the visual selector to determine the size.
Pies per Row...	Available only for multiple pie charts. Enter a number in the Pies per Row dialog box to change the layout of the pies.
Detach Slice	Click a slice to select it, then click this option and use the visual selector to control detachment.
Delete Slice	Deletes the selected slice.
Restore All Slices	Restores the pie chart to its original appearance.
Slice Number Format...	Displays a dialog for controlling how numbers display. You can use one of the formats provided or create your own. This command only works with ring pie charts.
Slice Feeler Size...	Displays a dialog box for adjusting the length of the slice feelers
Hole Size	Use the visual selector to control the size of the hole in a ring chart or multiple ring chart.
Ring Total Format	Displays a dialog for controlling how numbers display. You can use one of the formats provided or create your own. This command only works with ring pie charts. The chosen format is applied only to the ring chart's total number, not the slice numbers.
Data Reversal	Toggle commands to Reverse Series or Reverse Groups.
Legend...	Opens a dialog box containing controls for the chart's legend. Click the check boxes to activate each option.
Display Status...	Opens a dialog box with check boxes for showing and hiding chart elements such as title, subtitle, data values and legend.

Slice Feeler Size dialog box

Click a black node in the dialog box and drag to change the length of each segment of a slice feeler. In a single-pie chart, select one feeler, and your adjustments apply only to that feeler. In a multiple-pie chart, your adjustments apply to all feelers in the same data series.

Chart menu for 3D Riser/Floating Charts

Preset Viewing Angles Changes the perceived position of a 3D chart in space to one of 16 preset angles. Hold down the mouse button and move down the flyout menu. A preview of each option is displayed. Release the mouse button to make a selection.

AutoShade Risers When checked, the risers of a 3D chart are automatically colored to give the effect of a light source illuminating the chart.

AutoShade Cube When checked, the floor and walls of a 3D chart are automatically colored to give the effect of a light source illuminating the chart. Disable this option if you wish to use a graphic or special effect to fill a selected floor or wall area.

Vertical [Z] Axis Used to select a linear or log scale, manipulate the scale range and specify the number format for the scale values.

Data Reversal Toggle command to Reverse Series data within groups or Reverse Groups along the non-numeric axis.

3D Grid Lines... Opens a dialog box containing options to control grid lines for walls, floor and risers.

Text View Options... Once a 3D text element is selected, the text can be autofitted so that it is sized automatically according to the available space. All headers can be made the same size or the headers can be made to change as the perspective changes.

Base of Bars Controls whether 3D risers rise from the floor, or rise or fall from the zero plane. **From Zero Plane** stresses the difference between positive and negative values by having bars rise and fall from an invisible floor which is level with the zero value. The zero plane itself never appears (unlike the Zero Line in 2D charts). **From Scale Minimum** makes all bars rise from the floor.

Riser Sizing Hold down the mouse button and move down the flyout menu. Displays 16 sizes for the risers. A preview of each option appears. Release the mouse button to make selection.

Riser Colors Contains options for coloring risers.

Riser Type Hold down the mouse button and move down the flyout menu. A preview of each option appears. Release the mouse button to make a selection.

Display Status... Opens a dialog box containing check boxes for showing and hiding chart elements such as title, subtitle, data values and legend.

How to...

Text View Options dialog box

Use this dialog box to specify how you want text in 3D charts to appear. Select at least one text object before choosing the command. To specify options for multiple series headers, hold down the Shift key and click at least one header in each series.

Note: This dialog box changes depending on which 3D or 2D options or chart objects are selected.

Dialog Box Options

Autofitted Text

With this option selected, text resizes automatically as you scale the chart with the 3D Tool. Note that you cannot change the font size of autofitted text using the text ribbon.

2D Size Options

All headers the same size

Makes all text in the selected series the same size.

Headers change size with perspective

Resizes the text so that it corresponds to the chart's perspective.

3D Perspective Text

Enabling this option removes the two choices mentioned above from the dialog box and replaces them with **3D Placement Options**. The options are represented visually. You can place your text parallel or perpendicular to the chart floor or walls, or align it towards or away from the chart's implied vanishing point.

Align To

The text can be aligned to either the inside or outside edge of the chart walls. This makes a difference when working with a chart that has thick walls.

Riser Colors

Options in the Riser Colors submenu let you choose the method by which color is applied to the risers. You still choose the actual color by using the On-screen color palette or the Fill tool.

Submenu Options

Color by Face

Makes all risers the same color.

Color by Series

Risers in a series have the same color. This emphasizes series data.

Color by Group

Risers in a group have the same color. This emphasizes group data.

Color by Height

Makes risers different colors, depending on their relative heights. Once you've chosen Color by Height, choose **Color Range** described below. Select a start and end color in the dialog box. Click OK, and you'll see the shorter risers are closer to the start color, and the taller risers are closer to the end color.

Color by Angle

Most often used for surface charts. Surfaces are colored by their angle from the viewer. To set the start and end colors, choose **Color Range**, and select a start and end color in the dialog box.

Color Range

Displays a dialog box for specifying the range of color when coloring by angle or by height. The **Start** and **End** buttons are used to choose the first and last color of the range using the Select Color dialog box.

Type the desired number of variations in color from the start to the end color in the **Number of Divisions** box.

Color Range dialog box

Use this dialog box to specify the range of colors in the chart risers. Specifying color range applies only when coloring by height or angle.

To specify a range of colors:

1. Click **Start** to display the Select Color dialog box and choose the color you want as the start color in the range.
2. Click **End** and choose the end color.
3. In the Number of Divisions box, type the number of colors you want between the start and end colors.

A small number will produce a collection of colors, and a high number will produce a smooth color fill.

Chart menu for 3D Connect Series/Group Charts

Preset Viewing Angles Changes the perceived position of a 3D chart in space to one of 16 preset angles. Hold down the mouse button and move down the flyout menu. A preview of each option is displayed. Release the mouse button to make a selection.

AutoShade Cube When turned on, the floor and walls of the 3D chart are automatically colored to give the effect of a light source illuminating the chart. Disable this option if you wish to use a graphic or special effect to fill a floor or wall area.

AutoShade Risers When turned on, the risers of the 3D chart are automatically colored to give the effect of a light source illuminating the chart.

Vertical [Z] Axis Used to select a linear or log scale, manipulate the scale range and specify the number format for the scale values.

Data Reversal A toggle command to Reverse Series data within groups or Reverse Groups along the non-numeric axis.

3D Grid Lines... Opens a dialog box containing options to control grid lines for walls, floor and risers.

Text View Options... Once a 3D text element is selected, the text can be autofitted so that it is sized automatically according to the available space. All headers can be made the same size or the headers can be made to change as the perspective changes.

Base of Bars Controls whether 3D risers rise from the floor or rise/fall from the zero plane. **From Zero Plane** emphasizes the difference between positive and negative values by having bars rise and fall from an invisible floor which is level with the zero value. The zero plane itself never appears (unlike the Zero Line in 2D charts). **From Scale Minimum** makes all bars rise from the floor.

Riser Sizing Hold down the mouse button and move down the flyout menu. A preview of each option is displayed. Release the mouse button to make selection.

Riser Colors Options for coloring risers.

Riser Type Hold down the mouse button and move down the flyout menu. A preview of each option appears. Release the mouse button to make a selection.

Display Status... Opens a dialog box containing check boxes for showing and hiding chart elements such as title, subtitle, data values and legend.

Chart menu for 3D Surface Charts

Preset Viewing Angles Changes the perceived position of a 3D chart in space to one of 16 preset angles. Hold down the mouse button and move down the flyout menu. A preview of each option is displayed. Release the mouse button to make a selection.

AutoShade Cube When checked, the floor and walls of the 3D chart are automatically colored to give the effect of a light source illuminating the chart. Disable this option if you wish to use a pictograph or special effect to fill a floor or wall area.

Vertical [Z] Axis Enables you to select a linear or log scale, manipulate the scale range and specify the number format for the scale values.

Data Reversal Toggle switch to Reverse Series data within groups or Reverse Groups along the non-numeric axis.

3D Grid Lines... Displays a dialog box with options to control grid lines for walls, floor and risers.

Text View Options... Once a 3D text element is selected, the text can be autofitted so that it is sized automatically according to the available space. All headers can be made the same size or the headers can be made to change as the perspective changes.

Base of Bars Controls whether 3D risers rise from the floor or rise/fall from the zero plane. **From Zero Plane**: Emphasizes the difference between positive and negative values by having bars rise and fall from an invisible floor which is level with the zero value. The "zero plane" itself never displays (unlike the Zero Line in 2D charts). **From Scale Minimum**: All bars rise from the floor.

Riser Sizing Hold down the mouse button and move down the flyout menu. A preview of each option is displayed. Release the mouse button to make selection.

Riser Colors Options for coloring risers.

Display Status... Opens a dialog box containing check boxes for showing and hiding chart elements such as title, subtitle, data values and legend.

Chart menu for 3D Scatter Charts

Preset Viewing Angles Changes the perceived position of a 3D chart in space to one of 16 preset angles. Hold down the mouse button and move down the flyout menu. A preview of each option is displayed. Release the mouse button to make a selection.

AutoShade Cube When checked, the floor and walls of the 3D chart are automatically colored to give the effect of a light source illuminating the chart. Disable this option if you wish to use a pictograph or special effect to fill a floor or wall area.

Data Reversal Toggle switch to Reverse Series or Reverse Groups. Provides a different view of the data.

3D Grid Lines... Displays a dialog box with options to control grid lines for walls, floor and risers.

Text View Options... Once a 3D text element is selected, the text can be autofitted so that it is sized automatically according to the available space. All headers can be made the same size or the headers can be made to change as the perspective changes.

Data Point Size Hold down the mouse button and move down the flyout menu. A preview of each option appears. Release the mouse button to make a selection.

Data Point Shape Hold down the mouse button and move down the flyout menu. A preview of each option appears. Release the mouse button to make a selection.

Tie Lines Drops perpendicular lines from the data points to the left wall, right wall, floor or neighbor. You can also have a line drawn between points in a series. Each series can have different drop lines.

Data Point Colors You can choose to color the points by face, series, group, or by their distance from the left or right wall or the floor.

Legend... Opens a dialog box containing controls for the chart's legend. Click the check boxes to activate each option.

Display Status... Opens a dialog box containing check boxes for showing and hiding chart elements such as title, subtitle, data values and legend.

Chart menu for Scatter Charts

X-Axis	This option enables you to display the axis at the top or bottom. You can specify linear or log scale, scale range, number format, grid lines, ascending scale and autofitted or staggered scales.
Y1-Axis	Displays a flyout menu with toggle switches. You can control the location of the numeric axis and its scale; you can also specify a linear or log scale, an ascending or descending scale, and autofitted and staggered text. You can specify Scale Range, Numeric Format and Grid Lines in the appropriate dialog boxes.
Y2-Axis	Options for the second vertical axis line (same as Y-axis options).
Axis Assignment...	Opens a dialog box that controls which series are assigned to primary and secondary axes in dual-axis charts.
Marker Shape	Hold down the mouse button and move down the flyout menu. A preview of each option appears. Release the mouse button to make a selection.
Marker Size	Hold down the mouse button and move down the flyout menu. A preview of each option appears. Release the mouse button to make a selection.
Legend...	Opens a dialog box containing controls for the chart's legend. Click the check boxes to activate each option.
Display Status...	Opens a dialog box containing check boxes for showing and hiding chart elements such as title, subtitle, data values and legend.

Chart menu for Polar Charts

Circular Axis	Displays a flyout menu with options to show/hide the scale labels for the circular axis, choose a linear or logarithmic scale, set an ascending or descending scale and have the scale automatically fit the available space. From this flyout, you can also access dialog boxes to set the Scale Range, Number Format and Grid Lines options for the circular axis.
Radial Axis	Displays a flyout menu with options to display the radial scale above or below the radial axis, choose a linear or logarithmic scale, set an ascending or descending scale, and have the scale automatically fitted or staggered. From this flyout, you can access dialog boxes to set the Scale Range, Number Format and Grid Lines options for the radial axis.
2nd Radial Axis	Same options as Radial Axis above. Only available for Dual Axis Polar charts.
Axis Assignment...	Opens a dialog box that controls the assignment of series to primary and secondary axes in dual-axis charts.
Marker Shape	Displays a selection of data and legend marker shapes. Hold down the mouse button and move down the flyout menu; a preview of each option is displayed. Release the mouse button to make a selection. The shape assigned to a data marker is applied to all data markers for the series and to the appropriate legend marker.
Marker Size	Hold down the mouse button and move down the flyout menu. A preview of each option appears. Release the mouse button to make a selection.
Legend...	Opens a dialog box containing controls for the chart's legend.
Display Status...	Opens a dialog box containing check boxes for showing and hiding chart elements such as title, subtitle, data values and legend.

Chart menu for Radar Charts

Circular Axis	Displays a flyout menu with options to show/hide the circular axis headers and grid lines. The header text can be automatically fitted to the available space in the same flyout menu.
Radial Axis	Displays a flyout menu with options to display the radial scale above or below the radial axis, choose a linear or logarithmic scale, set an ascending or descending scale, and have the scale automatically fitted or staggered. From this flyout, you can access dialog boxes to set the Scale Range, Number Format and Grid Lines options for the radial axis.
2nd Radial Axis	Same options as Radial Axis above. Only available for Dual Axis Radar charts.
Axis Assignment...	Opens a dialog box that controls the assignment of series to primary and secondary axes in dual-axis charts.
Data Reversal	Toggle commands to **Reverse Series** data within groups or **Reverse Groups** along the non-numeric axis.
Marker Shape	Displays a selection of data and legend marker shapes. Hold down the mouse button and move down the flyout menu; a preview of each option is displayed. Release the mouse button to make a selection. The shape assigned to a data marker is applied to all data markers for the series and to the appropriate legend marker.
Marker Size	Hold down the mouse button and move down the flyout menu. A preview of each option appears. Release the mouse button to make a selection.
Legend...	Opens a dialog box containing controls for the chart's legend.
Display Status...	Opens a dialog box containing check boxes for showing and hiding chart elements such as title, subtitle, data values and legend.

Chart menu for Bubble Charts

X-Axis	Displays a flyout menu with options to display the X axis scale above or below the bubble chart, choose a linear or logarithmic scale, or set an ascending or descending, or autofit or staggered scale. From this flyout, you can access dialog boxes to set the Scale Range, Number Format and Grid Lines options for the radial axis.
Y1-Axis	Displays a flyout menu with options to display the first (or only) Y axis scale to the left or right of the chart, choose a linear or logarithmic scale, or set an ascending or descending, or autofit or staggered scale. From this flyout, you can access dialog boxes to set the Scale Range, Number Format and Grid Lines options for the radial axis.
Y2-Axis	Flyout menu with options for second Y axis; only available for dual axis Bubble charts. options are the same as the ones for the Y1-Axis described above.
Axis Assignment...	Opens a dialog box that controls the assignment of series to primary and secondary axes in dual-axis charts.
Marker Shape	Displays a selection of data and legend marker shapes. Hold down the mouse button and move down the flyout menu; a preview of each option is displayed. Release the mouse button to make a selection. The shape assigned to a data marker is applied to all data markers for the series and to the appropriate legend marker.
Marker Size	Hold down the mouse button and move down the flyout menu. A preview of each option appears. Release the mouse button to make a selection.
Show Quadrant Lines	When checked, lines dividing the Bubble chart in four quadrants appear.
Legend...	Opens a dialog box containing controls for the chart's legend.
Display Status...	Opens a dialog box containing check boxes for showing and hiding chart elements such as title, subtitle, data values and legend.

Chart menu for High-Low-Open-Close Charts

Category Axis Displays a flyout menu with toggle commands for controlling the location of the category axis text, appearance of text and display of grid lines. The category text can appear at the top or bottom of the chart or at both locations at the same time. Deselecting both options hides the category text from view. Text can be fitted automatically or staggered.

Data Axis Displays a flyout menu with toggle commands for setting the location of the numeric axis (right or left side, both or none), type (log or linear) and direction (ascending or descending) of the scale, and appearance of text (autofitted or staggered). You can also specify the Scale Range, Number Format and Grid Lines in the appropriate dialog boxes.

2nd Data Axis Contains the same options as the Data Axis. Only available for dual-axis charts.

Axis Assignment... Opens a dialog box that controls which series are assigned to primary and secondary axes in dual-axis charts.

Data Reversal Toggle switch to Reverse Series data within groups or Reverse Groups along the non-numeric axis.

Data Analysis... Used to select scientific and financial statistical procedures, including the mean, standard deviation, moving averages and linear regressions.

Bar Thickness Hold down the mouse button and move down the flyout menu. A preview of each thickness available for the bars appears. Release the mouse button to make a selection.

Open & Close Width Hold down the mouse button and move down the flyout menu. A preview of each option for the size of the Open and Close ticks appears. Release the mouse button to make a selection. This option is available only for Open and Open/Close chart types; it is not for High/Low charts.

Legend... Opens a dialog box containing controls for the chart's legend. Click the check boxes to activate each option.

Display Status... Opens a dialog box containing check boxes for showing and hiding chart elements such as title, subtitle, data values and legend.

Chart menu for Spectral Mapped Charts

Series Header	Gives options for the location of the series header (left or right side of the chart), the display of the text that makes up the headers, which can be fitted automatically or staggered. Another option is listed for showing or hiding the series grid lines.
Groups Header	This option enables you to display the headers at the top or bottom of the chart, show or hide the group grid lines and control the display of the header text to fit automatically or be staggered.
Spectrum Label	Opens flyout menu options that allow you to display the legend spectrum label values above or below the legend spectrum and choose between linear or log scales. You can also alter the scale range, number format and the grid line display. You can set an ascending or descending, or autofit or staggered scale. Open the Color Range dialog box to select the start and end colors for the spectrum. The number of divisions controls the number of color fills between the start and end colors.
Data Reversal	Toggle command to Reverse Series or Reverse Groups.
Spectrum	Opens the Color Range dialog box for selecting the start and end colors for the categories displayed in the chart's spectrum. The number of divisions controls the number of color fills between the start and end colors.
Marker Shape	Hold down the mouse button and move down the flyout menu. A preview of each option appears. Release the mouse button to make a selection.
Display Status...	Opens a dialog box containing check boxes for showing and hiding chart elements such as title, subtitle, data values and legend.

Chart menu for Gantt charts

Category Axis	Displays a flyout menu with options to display category headers to the left or right of the Gantt chart, or to show/hide the grid lines. You can also specify autofitted or staggered category text.
Data Axis	Displays a flyout menu with options to have the data axis headers (or labels) displayed above or below the chart, choose a linear or logarithmic scale for the data axis and have it ascending or descending. You can also specify an autofitted or staggered scale for axis labels.
Data Reversal	Toggle command to Reverse Series or Reverse Groups.
Bar Thickness	Hold down the mouse button and move down the flyout menu. A preview of each thickness available for the bars appears. Release the mouse button to make a selection.
Legend...	Opens a dialog box containing controls for the chart's legend. Click the check boxes to activate each option.
Display Status...	Opens a dialog box containing check boxes for showing and hiding chart elements such as title, subtitle, data values and legend.

Chart menu for Histograms

Interval Axis Use this option to (a) display the axis at the top or bottom for a vertical histogram and left or right for a horizontal histogram, (b) specify a linear or log scale, (c) select number format, (d) display or hide the grid lines and (e) specify an autofitted or staggered scale.

Data Axis This option enables you to display the axis at the left or right, or top or bottom, specify a linear or log scale, adjust the scale range, select number format and grid lines and specify an ascending, autofitted or staggered scale.

Intervals... Displays the Histogram Intervals dialog box, used to specify the number of intervals on the X axis.

Marker Shape Hold down the mouse button and move down the flyout menu. A preview of each option appears. Release the mouse button to make a selection.

Show as Pictograph Select a bar, then click this option to activate it. This command divides each bar into slices based on the major grid lines. A pictograph (.CDR file) can then be selected from the vector option on the **Fill Tool** flyout or the Pictograph roll-up. The pictograph will be copied into each rectangle formed by the bar and the major grid lines.

Display Status... Opens a dialog box containing check boxes for showing and hiding chart elements such as title, subtitle, data values and legend.

Histogram Intervals dialog box

Use this dialog box to specify the number of intervals along the X axis in a histogram. You can set the number manually by choosing **Manual** and typing a value or let CorelCHART set them by choosing **Automatic**.

Chart menu for Table Charts

Divisions...	Opens the Table Chart Divisions dialog box, used to specify no color divisions, color by row, color by columns, and whether headers are included.
Grids & Borders...	Opens a dialog box showing a map of possible grid lines. Click a grid line to have it appear in the table chart.
Uniform Cell Width	This option gives all cells a uniform width. **Note:** You must deselect the Autofit Table command to implement this option.
Uniform Cell Height	This option gives all cells a uniform height. **Note:** You must deselect the Autofit Table command to implement this option.
Autofit Table	Check this box to have CorelCHART automatically control table dimensions.
Display Status...	Opens a dialog box containing check boxes for showing and hiding chart elements such as title, subtitle and legend.

Table Chart Divisions dialog box

Controls the use of colors to demarcate rows and columns in the chart. For example, you can have columns colored alternately red, white and blue by setting **Number of colors to cycle through** to three, and after closing the dialog box, selecting the three colors from the color palette.

Dialog Box Options

Rows/Columns Color Selection

No Color Divisions Applies the same color to all rows and columns, excluding the row and column headers

Color by Rows, Columns Alternates the colors by row or column. You specify the number of colors used in the **Number of rows per color box**.

Include Headers Applies the row or column color to its header.

Rows/Columns Color Setting

Number of columns between grids Enter the number of columns in the chart.

Number of colors per row If you want each row/column colored differently, then enter the number of rows/columns in the chart. Enter two or more if you want the same color in adjacent rows/columns.

Number of colors to cycle through Enter the number of colors you want to alternate between. Entering two, for example, applies the same color to every second row/column.

Grids & Borders dialog box

Use this dialog box to turn parts of the grid on and off. Lines that are turned on appear in a darker gray than those that are turned off. Click parts you want to turn on or off or use the Select All and Deselect All buttons to turn them all on or off.

Basics: Get started with CorelCHART

Overview

Creating a chart from sample data
Creating a chart from your own data
Saving a new chart
Opening a CorelCHART file
Saving an exisiting chart with a new name or new location
Opening Data Manager first
Dragging and dropping files
Using menus
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Choosing tools
Ribbon Bars
Text Ribbon Bars
Switching between Chart View and Data Manager
Working with dialog boxes
Starting and exiting CorelCHART
Using Corel Online Help

Tip: For a tutorial on CorelCHART, browse through this module and try out the procedures shown.

See also How to..., the CorelDRAW User's Guide (CorelCHART section) and Learning CorelDRAW

Overview

CorelCHART 5, with an impressive array of enhanced spreadsheet capabilities and its intuitive charting, is a powerful and dynamic data presentation tool. Using CorelCHART, you can simply and quickly produce complex and colorful charts and spreadsheets, add sizzle to your screen shows and slide presentations, or compute a multitude of mathematical formulas.

As part of the CorelDRAW suite of programs, CorelCHART emphasizes presentation. With CorelCHART, you have drawing tools, full color design and printing support and over 825 typefaces to choose from. Available chart types include CorelCHART 4's line, bar, area and pie charts, histograms, scatter and 3D charts and, new in CHART 5, Bubble charts, Gantt charts, Polar charts and Radar charts.

For descriptions of the various chart types, see the Glossary and Menus. See How to ... for Help with building your charts. For Help with Windows basics, press F1 from within CorelCHART Help.

Using Corel Online Help

How to use Context-sensitive Help

The CorelDRAW 5.0 suite of programs features the range of Context-sensitive Help indicated below:

- **Context-sensitive Help pointer  :** Choose the Help pointer from the right side of the Ribbon Bar and click the menu item, tool, button, or interface item you want information about. **Keyboard:** Shift+F1
- **Right mouse button Help**: Click the right mouse button on the Toolbox, Ribbon Bar or Text Ribbon Bar.
- **Pop-Up Help**: Rest the mouse pointer over any button on the Toolbox, Ribbon Bar or Text Ribbon Bar. The item's name will appear in a small yellow callout or "bubble." Pop-Up Help is turned on by default; you can turn it off from the Preferences dialog box, found in the File menu.
- **F1**: Press F1 while you have any dialog box open--a Help topic specific to the dialog box will appear.
- **Status line Help**: Read the message in the Status line when you choose a menu command or tool, click a button on the Ribbon Bar or Text Ribbon or open a dialog box
- **Help menu**: Choose a Help item from the Help menu.

Close | Print | Basics | Close All

Using the History button

The History button, which lists the last 50 Help topics viewed, provides a useful alternative to the Contents buttons.

To use the History button:

1. Press "t" on the keyboard, or click the History button and scroll through the topics until you find the one you are interested in.
2. Click the topic you want to review and close the History window.
3. When you close the History window, the list of last topics viewed remains in memory.

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Opening other programs' Help files

You can open any of the Online Help files for the CorelDRAW suite of applications from the Programs subdirectory by double-clicking them in the main directory where you installed CorelDRAW, usually \COREL50\PROGRAMS.

1. Choose Open from the CorelCHART Help Menu Bar.
2. Double click [filename.hlp] from the File Name box.

Opening other programs' Help files

You can open Online Help files for other Microsoft Windows-compatible programs using the Help File Menu. The example below explains how to open Online Help for CorelDRAW!

To open CorelDRAW's Online Help:

1. Choose Open from the CorelCHART Help Menu Bar.
2. Double click CORELDRW.HLP from the File Name box.

   Note: You can also use the File Manager to open any Online Help file. To open another Corel application's Help file, go to the Corel Programs subdirectory, usually \ COREL50\PROGRAMS, and open the file you want to use by double-clicking the file, e.g., CORELDRW.HLP.

Using Help's Search feature

Help Search keywords are usually limited to specific topic names or subjects. If the topic is procedural, the keyword describing it will take you to a Contents section. From there choose the topic you are looking for.

In general, try to use the terms used by CorelCHART, beginning with subject area in searching for help about dialog boxes, menu items or subject areas. In the example below, using the key words "Setting up spreadsheets" would not bring up the desired topics.

To search for information about formatting spreadsheets:

1. With a Help window active, press "s" or click the Search Help button.
2. Type "spr" in the Search box. A list of topics appears in the Show Topics list box of the Search dialog box, including "spreadsheet."
3. Press Enter with the term "spreadsheet" highlighted in the Show Topics list box. The topic "Format your spreadsheets" appears in the Go To list box.
4. Double-click the topic title "Format your spreadsheets." The list of topics for that area appears for you to choose from.

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1. With a Help window active, press "s" or click the Search Help button.
2. Type "spr" in the Search box. A list of topics appears in the Show Topics list box of the Search dialog box, including "spreadsheet."
3. Press Enter with the term "spreadsheet" highlighted in the Show Topics list box. The topic "Format your spreadsheets" appears in the Go To list box.
4. Double-click the topic title "Format your spreadsheets." The list of topics for that area appears for you to choose from.

Close | Print | Basics | Close All

Keeping Help on top

By default, Online Help windows remain open but drop out of sight when you activate another window. Sometimes, however, you may find it useful to keep Help windows visible while you work---the smaller secondary windows containing procedures are particularly useful this way. (Application menus will still appear on top of your Help window when called using speed keys.)

To keep a Help window on top:

1. Click the Help from Help Menu Bar in any main Help window.
2. Choose Always on Top.

   This causes both main and secondary windows to remain on top. Resize as required.

   Notes: You may toggle the On Top command on and off, and minimize on-top Help windows to icons.

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   Notes: You may toggle the On Top command on and off, and minimize on-top Help windows to icons.

Using secondary windows

Secondary Online Help windows, the smaller windows that appear when you click a procedural topic title in a Help contents listing, display concise step-by-step Help information. Secondary windows are useful because they cover a smaller portion of the active application window than main Help windows. And because they stay on top, secondary windows make it easier to carry out a procedure and view its Help topic at the same time without switching back and forth between windows.

Always on top: CorelCHART's secondary Help windows differ from main Help windows in that they are programmed to remain on top of your current application window until you need to close or minimize them.

The following limitations apply to secondary windows:

Search: Help topics shown in secondary windows cannot be coded for search keywords. If you use Help's Search function for a topic in a secondary window, Help takes you to a main menu which will include the topics you are looking for.

Sizing: Unlike other window types in the Windows Operating System, secondary windows do not "remember" when you change their default size and position.

To resize a secondary window and retain that size for subsequent topics viewed during the current CorelCHART session, minimize the window rather than closing it when finished. The next time you open a topic held in a secondary window it will appear in the size and location you set for the minimized window.

The Buttons: Secondary window buttons cannot at this time be programmed for underlined characters which "press the button" when you press the underlined letter on the keyboard; they must be clicked with the mouse pointer. Secondary windows also cannot include **browse** buttons.

Note: **Basics** and **How to...** procedures which appear in secondary Help windows contain a special button which reopens their contents screens in the main Help window. Click the Basics button in Basics secondary windows to reopen the Basics contents screen in the main Help window, and click the How to... button in How to... secondary windows to reopen the How to... contents in the main Help window.

Using speed keys

Speed keys, also known as hot keys, are keys that when pressed in combination execute menu commands. Some people prefer to use speed keys rather than reach away from the keyboard for the mouse and click two or more menu items or a tool button.

To carry out a command using combination speed keys, such as Ctrl+Tab:

1. Press and hold down the first key, e.g., Ctrl.
2. Press and release the second key, e.g., Tab.
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Opening Data Manager first

1. Choose New from the File Menu.
2. Choose any chart type from the Gallery list.
3. Turn off Use Sample Data and click OK.

   A blank Data Manager spreadsheet will appear, but no chart will display in Chart View until you enter and tag data in a configuration matching the chart you chose from the Gallery.

See also How to... Use Data Manager: An Overview

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See also How to... Use Data Manager: An Overview

Creating a chart from sample data

Before you start, you may need to reflect on what type of chart best represents the data you want to graph. See Choosing chart types, review the Gallery menu in Menus or browse through the Chart Types preview in the New chart dialog box.

1. Choose File New from the Menu Bar. The New Chart dialog box appears containing a list, called the Gallery, of available chart types on the left and a preview box on the right.
2. Click once on the chart type name in the Gallery to see previews of the various sample charts for the type of chart you have highlighted.

   Below the preview window, you'll see the path and file name for the chart previewed. You'll also see its chart type, the required values and structure.
3. When you decide on the type of chart you want to create, choose its template by double-clicking its preview.

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Close | Print | Basics | Close All

Creating a chart from your own data

The New Chart dialog box by default provides sample data when it builds charts from the templates, or predesigned charts, supplied with CorelCHART. Once you are familiar with the types of charts you want to build, you may want to build them from your own spreadsheet data. Review the templates for examples of how to structure your data if you encounter difficulties.

To create a new chart from your own data:

1. Choose File New from the Chart View File Menu.
2. Choose a chart type and click the Sample Data toggle to turn it off and click OK. A blank Data Manager spreadsheet appears.
3. Enter or import data and text as required.
4. Select a cell or range of cells and tag them using the drop-down Tag list to the right of the Autoscan button.
5. Click Autoscan and go to Chart View by clicking  to see your results.

See also Choosing chart types, Cell Smarts: Moving around a spreadsheet, The Right Mouse Button ... in a spreadsheet and The Right Mouse Button ... in columns and rows

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See also Choosing chart types, Cell Smarts: Moving around a spreadsheet, The Right Mouse Button ... in a spreadsheet and The Right Mouse Button ... in columns and rows

Choosing tools

If you wish, you can detach and reshape CorelCHART's Toolbox and move it to another part of the screen. The next to time you open CorelCHART, the Toolbox will be where you last left it.

To enable a tool:

- Click the tool's icon, or symbol.

The CorelCHART tools listed below have flyouts, panels that "fly out" when you click and hold your mouse pointer on the object for a moment. Clicking the tool's flyout panels will activate additional functions or open dialog boxes.

 Pencil tool

 Outline tool

 Fill tool

 Zoom tool

See also Chart View Tools and Ribbon Bars

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See also Chart View Tools and Ribbon Bars

Opening a CorelCHART file

Use File Open to gain access to your edited charts.

To open a CorelCHART file:

1. Choose File from the Menu Bar, then click Open.
2. Find your CorelCHART file (.cch) in the Open Chart dialog box.
3. Click the file name once for a preview and twice to open the file.

Tip: For files you open frequently, setting up file icons will help speed up your work. See Creating file icons

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Tip: For files you open frequently, setting up file icons will help speed up your work. See Creating file icons

Saving a new chart

The first time you save a new chart file, the Save Chart dialog box appears, prompting you to give your chart a file name.

To save a new file:

1. Choose File from the Menu Bar, then click Save from the File menu.
2. Type a file name of eight characters or less in the File Name text box. CorelCHART will append a .cch extension for you, designating your file as a CorelCHART file.

Note:

The **Save Presentation Exchange Data** option, if enabled, appends information to the saved file allowing it to be opened in any Corel application.

Files saved in the current version of CorelCHART cannot be opened in earlier versions of the program.

CorelCHART's File Open command by default looks for .cch files only. The .cch extension reduces the length of file lists you must look through for your file and distinguishes it from other file types.

Saving a new chart

The first time you save a new chart file, using the Save command, the Save Chart dialog box appears to give the chart a name. When a file has been saved once, choosing the Save command saves the file under its current name and location without presenting a dialog box.

To save a new file:

1. Choose File from the Menu Bar, then click Save from the File menu.
2. Type a file name of eight characters or less in the File Name text box. CorelCHART will append a .cch extension for you, designating your file as a CorelCHART file.

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Files saved in the current version of CorelCHART cannot be opened in earlier versions of the program.

Saving an existing chart with a new name or in a new location

To change the name of an existing chart or save it to a different drive or directory, you must use teh Save As command.

To save an existing chart with a new name or in a new location:

1. Choose File from the Menu Bar, then click Save As from the File menu.
2. In the Save Chart dialog box, choose the drive and directory you want to save the chart to.
3. The current name of the chart appears in the File Name box. Overwrite it or append to it if you want to change the chart's name. CorelCHART appends a .cch extension to the file name, designating it as a CorelCHART file.

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3. The current name of the chart appears in the File Name box. Overwrite it or append to it if you want to change the chart's name. CorelCHART appends a .cch extension to the file name, designating it as a CorelCHART file.

Close | Print | Basics | Close All

Using menus

Like other menu-driven software, CorelCHART's graphical user interface features drop-down Menus attached to the Menu Bar, located at the top of your screen. These menus make your work easier.

To activate a menu:

- Click once on the Menu Bar item you want to select at the top of the CorelCHART screen. If you release the mouse button after clicking, the selected menu will drop down and stay open until you click the function you want to use.

  See also Chart View Shortcuts, Data Manager Shortcuts and CorelCHART roll-ups

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CorelCHART Roll-ups

Roll-up windows contain many of the controls found in dialog boxes: command buttons, text boxes, drop-down list boxes and so on. But unlike most dialog boxes, the window stays open after you apply the selected options. This lets you makes adjustments and experiment with different options without having to continually re-open a dialog box. When you are not using a window, you can hide the controls leaving just the Title bar visible.

CorelCHART features five roll-up windows; for a brief description of each, click its name below.

- 3D Roll-up
- Fill Roll-up
- Mosaic Roll-up
- Pen Rollup
- Pictograph Roll-up

See also How to... Use Roll-up windows, Chart View Tools, Data Manager Tools, Chart View Menus and Data Manager Menus

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Switching to Data Manager

CorelCHART's Data Manager is a fully-functioning spreadsheet program. You may use Data Manager simply to hold the text and data you need to create your charts, or to create spreadsheet presentations to be used on their own.

To switch to Data Manager:

- Click  at the left side of Chart View Text Ribbon Bar.

Switching between Chart View and Data Manager

You may use CorelCHART's Data Manager simply to hold the text and data you need to create your charts, or to design spreadsheet presentations to be used on their own.

To switch to Data Manager:

- Click  at the top left-hand corner of the Chart View screen.

To switch back to Chart View:

- Click  at the top left-hand corner of the Data Manager screen.

  Tip: After you have switched to Data Manager once as decribed above, use Ctrl+tab to toggle between screens.

Starting and exiting CorelCHART

Starting CorelCHART:

- Double click the CorelCHART icon in the Windows Program Manager. The CorelCHART logo screen will appear, followed by a blank CorelCHART drawing window with only the File and Help menus available. The rest of the menus and the toolbox are dimmed and inaccessible until you have opened or created a chart.

Exiting CorelCHART:

- Choose File from the Menu Bar and click Exit.

Note: If you choose File Exit when there are unsaved changes in Chart View or a Data Manager spreadsheet, the Save Changes prompt will appear.

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Working with dialog boxes

Dialog boxes are small boxes which "invite dialog." They appear when CorelCHART requires more information to complete a tool or menu task. Menu items which call up dialog boxes are followed by ellipses "..."

To carry out dialog box commands:

1. Enter text into text boxes within dialog boxes as required.
2. Using the mouse, click the dialog button you want to activate, such as OK or CANCEL.

Tip: Press the TAB and SHIFT+TAB buttons to move forward and back between areas of a dialog box. *See also* Chart View Shortcuts and Data Manager Shortcuts

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Dragging and dropping files

Drag and drop offers a quick and visual new way to open files.

To open a chart using drag and drop:

1. Tile any open charts in the charting window and your file manager window.

   NB: The charting window's empty background area must be visible--not the white background of an individual chart. Click the individual chart's Restore button to reduce as required.

2. Click and hold down the mouse pointer on the .CCH file in your Windows file manager.

3. Drag the file into Chart View and release the button when the pointer is at the location where you want the file to appear.

   The new file's tiled document window will appear where you have "dropped" it in the charting window.

Note: If you already have a file open, make sure you drop the new file into the white background area of the charting window. If you drop it onto an open chart, the template but not the data from the new chart will be applied to the open chart.

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To open a chart using drag and drop:

1. Tile any open charts in the charting window and your file manager window.

   NB: The charting window's empty background area must be visible--not the white background of an individual chart. Click the individual chart's Restore button to reduce as required.

2. Click and hold down the mouse pointer on the .CCH file in your Windows file manager.

3. Drag the file into Chart View and release the button when the pointer is at the location where you want the file to appear.

   The new file's tiled document window will appear where you have "dropped" it in the charting window.

Note: If you already have a file open, make sure you drop the new file into the white background area of the charting window. If you drop it onto an open chart, the template but not the data from the new chart will be applied to the open chart.

Ribbon Bars

CorelCHART's Ribbon Bars, sometimes called button bars, are located just under the Chart View and Data Manager Menu Bars. Clicking a button on a Ribbon Bar activates the command associated with it. Hold the mouse pointer over a button to see its name or right-click for Context-sensitive Help.

The Chart View Ribbon Bar, contains the following buttons (from left): New, Open, Save, Print, Cut, Copy and Paste, Import and Export, Display Status, Legend, Numeric Format, Data Analysis, Align, 3D Rollup, Copy Chart, Wireframe and Mosaic Rollup.

The Data Manager's Ribbon Bar includes (from left) New, Open, Save, Print, Cut, Copy and Paste, Import and Export, Set Page Break, Number Format, Borders, Patterns, Go to cell, Enter Formula Sort, Auto Recalculate, Grid Lines and Mosaic Rollup.

See also Chart View Tools and Ribbon Bars and Data Manager Ribbon Bars

Text Ribbon Bars

CorelCHART's Text Ribbon Bars, which include buttons and drop-down list boxes for setting text attributes such as font type and size selection, bold, underline, italic, alignment, inter-character and inter-line spacing, are located just under the Chart View and Data Manager Ribbon Bars. Clicking Text Ribbon Bar button activates the command associated with it. Hold the mouse pointer over a Text Ribbon button or list box to see its name or right-click for Context-sensitive Help.

See also Chart View Tools and Ribbon Bars and Data Manager Ribbon Bars

Help shortcuts

Press the key or keys on the left to produce the action described at right.

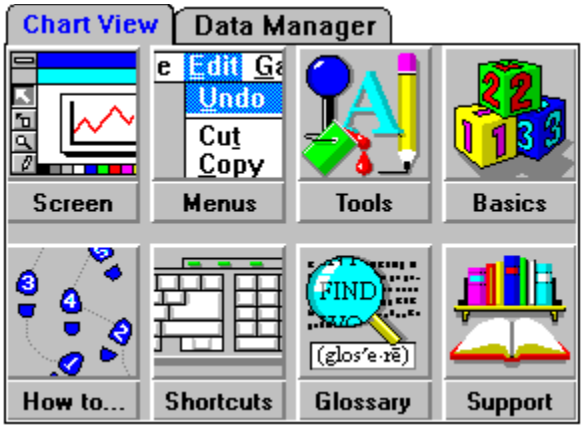
Key(s)	Result
F1	Displays the main CorelCHART Help Contents screen
F1-F1	Pressing F1 from within any Help window displays the Microsoft Windows Using Windows Help topics.
F1 (in a given context)	With a menu item selected or a dialog box or system message on screen, displays context sensitive Help (where available)
SHIFT+F1	Changes the pointer to  so that you can get Help on a specific command, screen region, or key. You can then choose a command, click the screen region, or press a key or key combination you want to know more about.
CTRL+F1	Opens Help's Search dialog box
CTRL+HOME	Moves to top of the Help topic
CTRL+END	Moves to the bottom of the Help topic
>	Moves to the next topic
<	Moves to the previous topic

Note: As an alternative to clicking with the mouse, you may also use the keyboard to press Help buttons. Simply type a Help button's underlined letter to execute its function. E.g., to press the Back button, press "**b**" on the keyboard; to press the Close button, press "**c**," and so on.

CorelCHART Help Contents

CorelCHART features two principal tools to help you create impressive charts and spreadsheets--the chart-building screen, called Chart View, and a spreadsheet program called the Data Manager.

Using Corel Online Help



CorelCHART Help Contents

CorelCHART features two principal tools to help you create impressive charts and spreadsheets--the chart-building screen, called Chart View, and a spreadsheet program called the Data Manager.

Using Corel Online Help

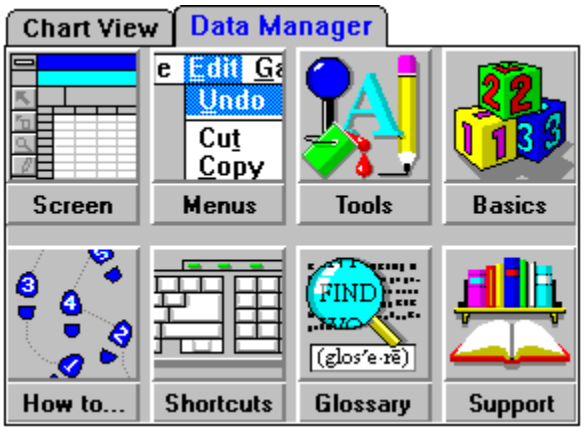
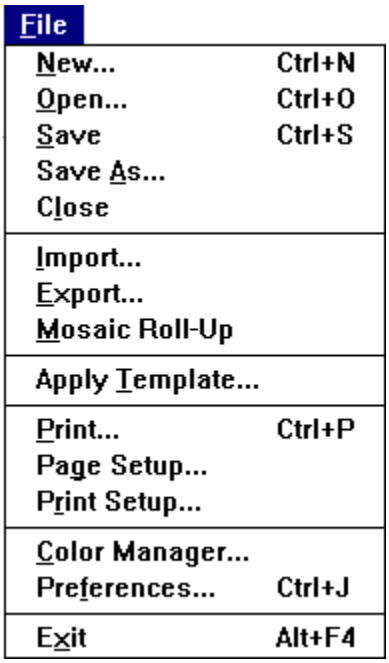


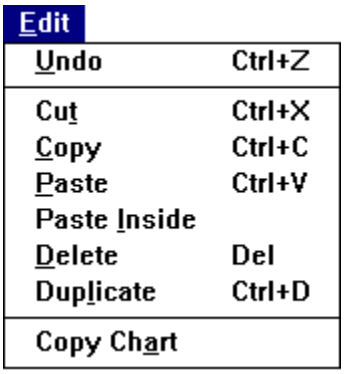
Chart View Menus

A context sensitive pop-up menu appears in Chart View when an object is clicked with the right or secondary mouse button. *See* Chart View pop-up menu for an overview.
See also Data Manager menus

Data Manager Menus

A context sensitive pop-up menu appears in Data Manager when an object is clicked with the right or secondary mouse button. *See* Data Manager pop-up menu for detailed information.
See also Chart View menus


File
New... Ctrl+N
Open... Ctrl+O
Save Ctrl+S
Save As...
Close
Import...
Export...
Mosaic Roll-Up
Apply Template...
Print... Ctrl+P
Page Setup...
Print Setup...
Color Manager...
Preferences... Ctrl+J
Exit Alt+F4


Edit
Undo Ctrl+Z
Cut Ctrl+X
Copy Ctrl+C
Paste Ctrl+V
Paste Inside
Delete Del
Duplicate Ctrl+D
Copy Chart

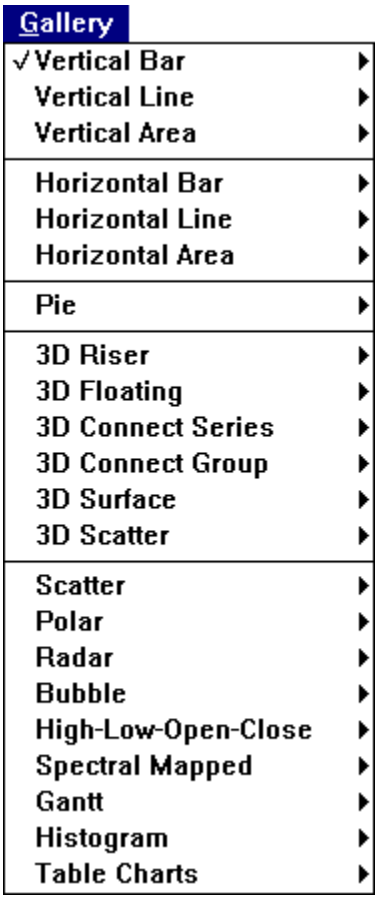
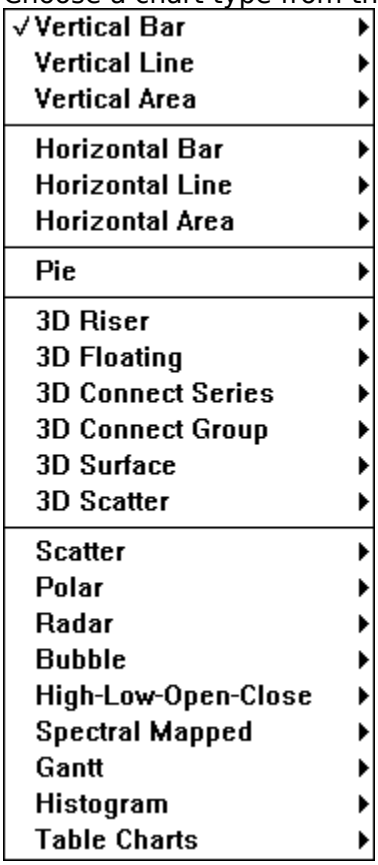
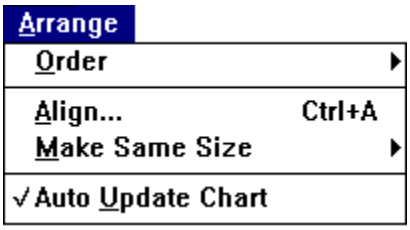
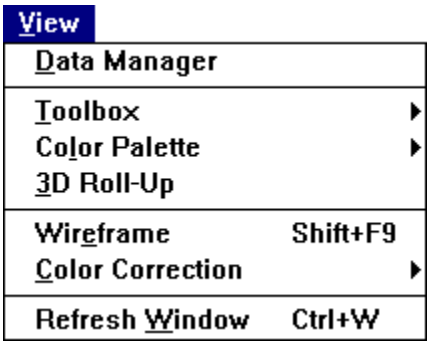

Gallery
✓Vertical Bar
Vertical Line
Vertical Area
Horizontal Bar
Horizontal Line
Horizontal Area
Pie
3D Riser
3D Floating
3D Connect Series
3D Connect Group
3D Surface
3D Scatter
Scatter
Polar
Radar
Bubble
High-Low-Open-Close
Spectral Mapped
Gantt
Histogram
Table Charts

Chart menu

The Chart menu varies depending on the type of chart in use.
Choose a chart type from the list below to view the accompanying Chart menu.




Arrange
Order
Align... Ctrl+A
Make Same Size
✓Auto Update Chart


View
Data Manager
Toolbox
Color Palette
3D Roll-Up
Wireframe Shift+F9
Color Correction
Refresh Window Ctrl+W

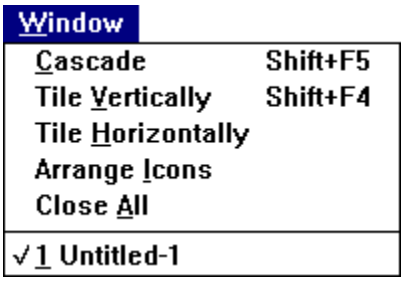
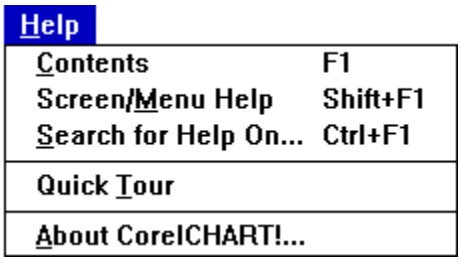

Window
Cascade Shift+F5
Tile Vertically Shift+F4
Tile Horizontally
Arrange Icons
Close All
✓1 Untitled-1

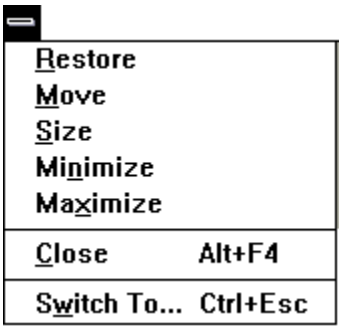
Chart View pop-up menu

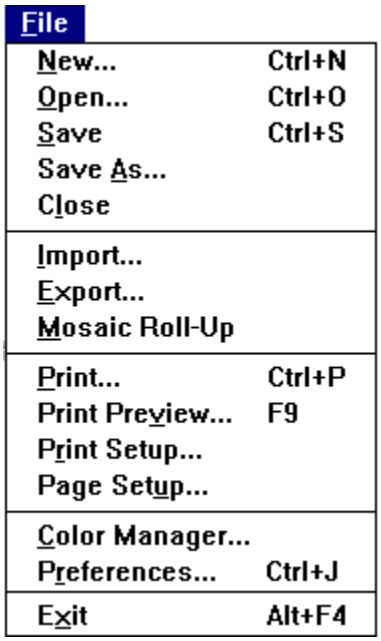
A pop-up menu, like the one represented here, appears when you click any object in your chart with the right mouse button.

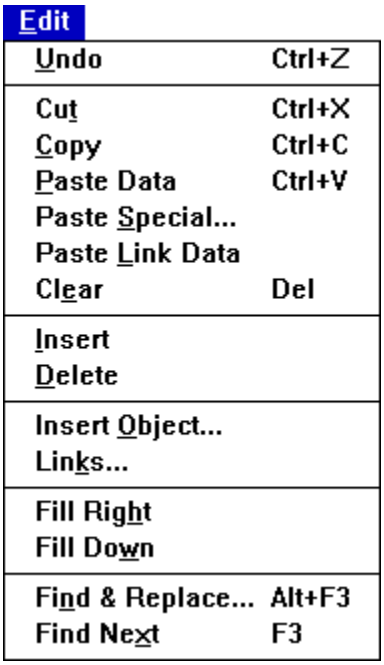
The pop-up menu has a title bar that describes the object you clicked to open it. If no menu commands are available for the selected object, only the title bar appears in the pop-up.

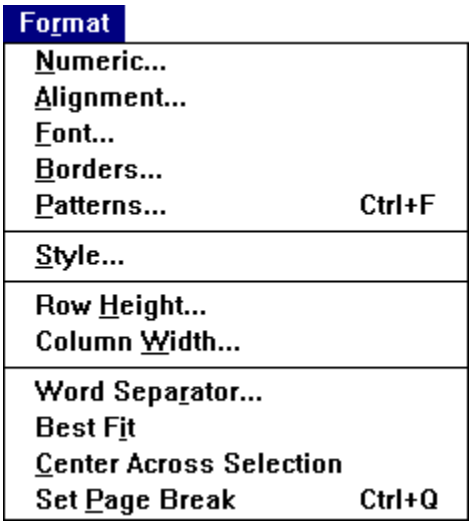
The pop-up menu is context sensitive--it lists menu commands that are available to modify the selected object or perform an operation which involves the object. Most of the listed commands are also found in the Chart menu in Chart View or appear in flyout menus that appear when a command is clicked.

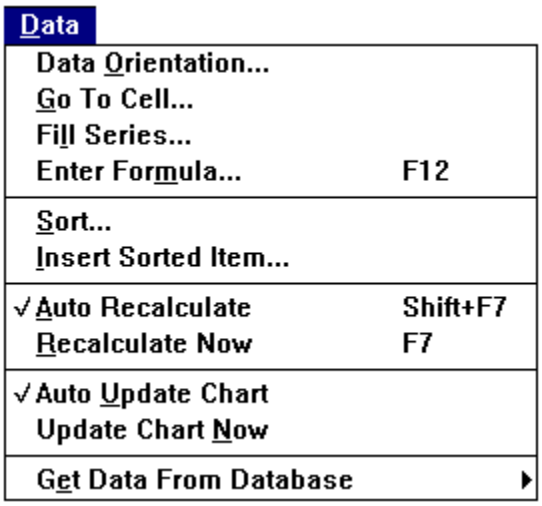

Help
Contents F1
Screen/Menu Help Shift+F1
Search for Help On... Ctrl+F1
Quick Tour
About CorelCHART!...

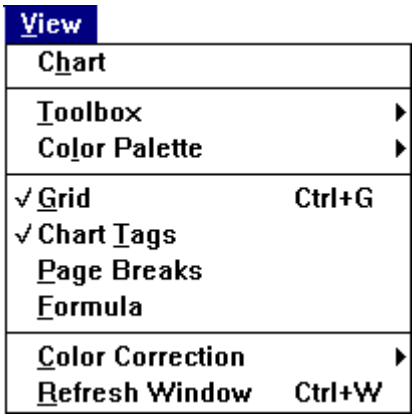

Restore
Move
Size
Minimize
Maximize
Close Alt+F4
Switch To... Ctrl+Esc


File
New... Ctrl+N
Open... Ctrl+O
Save Ctrl+S
Save As...
Close
Import...
Export...
Mosaic Roll-Up
Print... Ctrl+P
Print Preview... F9
Print Setup...
Page Setup...
Color Manager...
Preferences... Ctrl+J
Exit Alt+F4


Edit
Undo Ctrl+Z
Cut Ctrl+X
Copy Ctrl+C
Paste Data Ctrl+V
Paste Special...
Paste Link Data
Clear Del
Insert
Delete
Insert Object...
Links...
Fill Right
Fill Down
Find & Replace... Alt+F3
Find Next F3


Format
Numeric...
Alignment...
Font...
Borders...
Patterns... Ctrl+F
Style...
Row Height...
Column Width...
Word Separator...
Best Fit
Center Across Selection
Set Page Break Ctrl+Q


Data
Data Orientation...
Go To Cell...
Fill Series...
Enter Formula... F12
Sort...
Insert Sorted Item...
✓Auto Recalculate Shift+F7
Recalculate Now F7
✓Auto Update Chart
Update Chart Now
Get Data From Database


View
Chart
Toolbox
Color Palette
✓ Grid Ctrl+G
✓ Chart Tags
Page Breaks
Formula
Color Correction
Refresh Window Ctrl+W

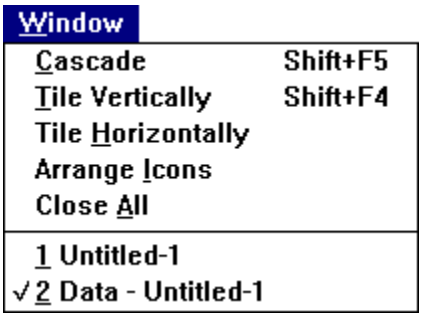
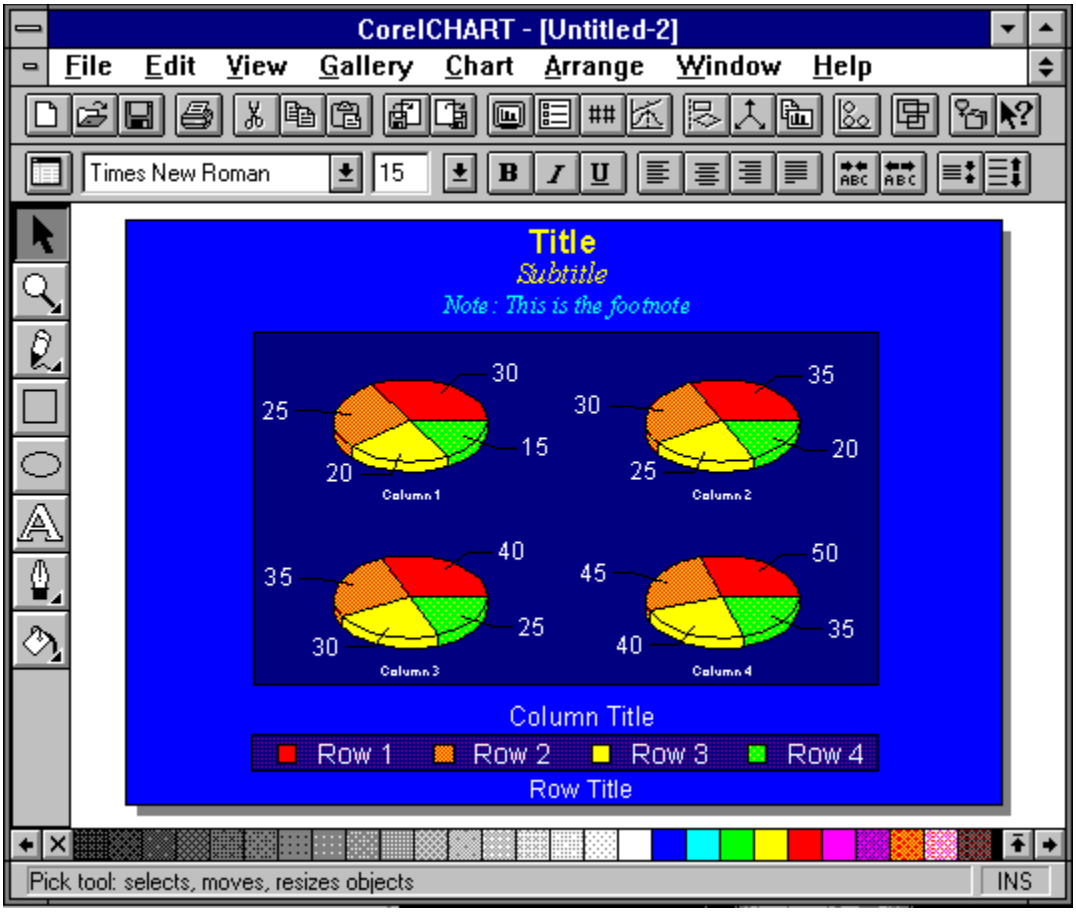

Window
Cascade Shift+F5
Tile Vertically Shift+F4
Tile Horizontally
Arrange Icons
Close All
1 Untitled-1
✓2 Data - Untitled-1

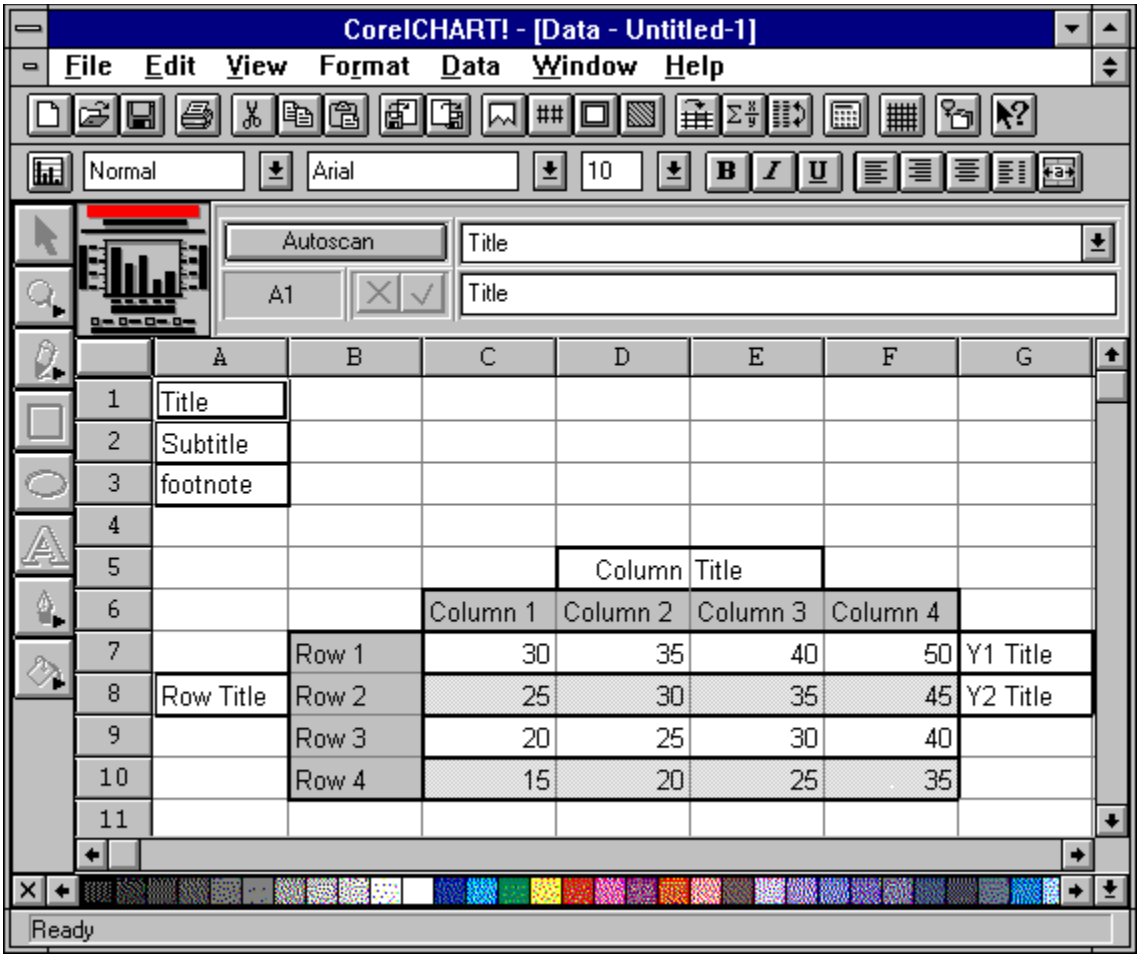
Chart View screen

Click a screen object for more information. *See also* Data Manager screen



Data Manager screen

Click a screen object for more information. *See also* Chart View screen



Data Manager pop-up menu

A pop-up menu appears when you click anywhere in a Data Manager spreadsheet with the right mouse button. The pop-up menu is context sensitive--it lists menu commands available to modify the selected cell or object or perform an operation which involves the cell.

There are four different pop-up menus in Data Manager. Select an object below to see the pop-up menu that appears if you click the right mouse button on that object.

Cell

Row number or column letter

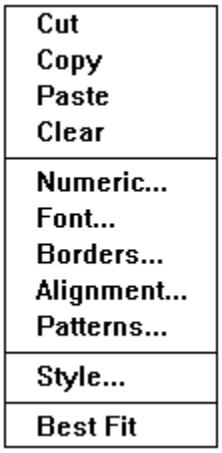
OLE object

Formula bar

Data Manager pop-up menu (Cell)

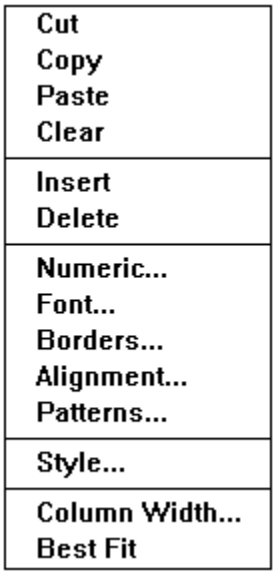
This pop-up menu appears when you click a cell in Data Manager with the right mouse button. Some commands are dimmed (i.e., unavailable) when you click an empty cell.

Click a command for information on how it works.



Data Manager pop-up menu (Row or Column header)

This pop-up menu appears when you click a row number or column letter in your spreadsheet. Click a command for information on how it works.



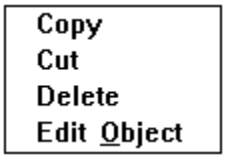
Column width/Row height

The command name that appears in the Data Manager pop-up menu depends on the object you clicked in your spreadsheet, or row or column button. See the appropriate command according to the element you clicked:

Row Height (Format menu)
Column Width (Format menu)

Pop-up menu for OLE objects in Data Manager

This pop-up menu appears when you click a linked or embedded object (OLE object) in your spreadsheet. Note that the Edit Object command displays the OLE server application name in the menu. Click a command for information on how it works.



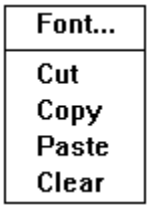
Edit OLE object command (Data Manager pop-up menu)

This command appears in the pop-up menu in Data Manager when you click an OLE object with the right mouse button. In the menu, the OLE server application name appears.

When you click this command, the application in which the OLE object was created is launched provided it is installed on the computer you are using. The object appears in the application ready to be edited. When you choose Exit from the application's File menu, CorelCHART Data Manager appears and the OLE object is updated.

Data Manager pop-up menu (Formula bar)

This pop-up menu appears when you click the Formula bar in Data Manager. For the pop-up to appear, the editing cursor (blinking I-bar) must be active in the formula bar. Click a command for information on how it works.



Glossary

Glossary

Glossary

 **Glossary**

Data Axis Major Grid Lines
Data Axis Minor Grid Lines
Data cell
Data Manager
Data Range
DDE
Densitometer Scale
Descending Scale
Deselect
Directory
Dithered color
Dithering
Double click
DPI
Drag and Drop
Drive
Dynamic Data Exchange (DDE)

 **Glossary**

Editable Preview
Ellipse tool
Embedded object
Emulsion
Error values
Exponential Regression Line
Export
Expression

 **Glossary**

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

Fibonacci
Fill Roll-up
Fill tool
Film recorder
Filter
Financial Moving Average
Font
Footer
Footnote
Formula (Reg. Line Label)
Formula
Formula label
Formula bar
Fountain Fill
Four-color process
Frequency (screen)
Full Color Pattern
Functions

 **Glossary**

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

Gamut
Gamut mapping
Gantt Charts
Grid Lines
Group

 **Glossary**

Halftone Screen
Handle
Header
Header (spreadsheet)
Headers (Category Axis)
Headers (2nd Category Axis)
High-Low-Open-Close Charts
Highlighting box
Histogram
Horizontal area Charts
Horizontal bar Charts
Horizontal line Charts
Horizontal area Charts
Hotel text
HSB
Hue

 **Glossary**

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

Image header
Image setter
In-cell editing
Integers
Inter-character spacing
Inter-line spacing
Irrational numbers

 **Glossary**

 **Glossary**

 **Glossary**

Least squares approximation
Left Title
Left Wall
Left Z-Axis Scale
Linear Regression
Linked object
List
Logarithmic Regression Line

 **Glossary**

Maximize button
Mean/Average Line
Menu bar
Minimize button
Mixed Reference
Moiré pattern
Mosaic Roll-up
Mouse button (right)
Moving Average Line
Moving Average (Financial)
Multiple Select

 **Glossary**

Natural Logarithmic Regression
Non-Numeric Axis
Numeric Axis

 **Glossary**

Object Linking and Embedding (OLE)
OLE client application
OLE server application
On-screen Color Palette
Operators
Order box
Outline tool

Glossary

Palette
PANTONE Spot Colors
Path
Pen Roll-up
Pencil tool
Pick tool
Pictograph
Pictograph Roll-up
Pie charts
Point Size
Polar Charts
Polygon
Polynomial Regression Line
Pop-up Menu
PostScript
Power Law Regression
Printable Page
Printers' references
Process Color
Pure color

 **Glossary**

 **Glossary**

Radar Charts
Rational Numbers
Real Numbers
Rectangle Tool
Registration Marks
Relative Reference
Resolution
RGB
Ribbon Bar
Right mouse button
Right Title
Right Wall
Risers
Riser Bar
Roll-up windows
Row Header Area
Row Buttons
Row Header Labels
Row Title Area
Row Title Label

 **Glossary**

 **Glossary**

Table
Template
Text Ribbon Bar
Text tool
Three-D charts
Three-D Connect Group chart
Three-D Connect Series chart
Three-D Floating chart
Three-D Riser chart
Three-D Riser
Three-D Roll-up
Three-D Scatter chart
Three-D Surface chart
Tick Mark
Title Bar
Title
Toggle
Toolbox
TRUMATCH
Two-Color Pattern

 **Glossary**

 **Glossary**

Values
Vertical area Charts
Vertical bar Charts
Vertical line Charts

 **Glossary**

Whole numbers
Window
Window border
Wireframe

Glossary

X-axis (2D Scatter chart, Spectral chart)
X-axis title

 **Glossary**

Y-Axis Scale
Y-Axis Title
Y-Axis Line
2nd Y-Axis Title
2nd Y-Axis Scale

 **Glossary**

CMYK

The four letters represent Cyan, Magenta, Yellow, and Black, the ink colors used in four-color process printing. CorelCHART enables you to specify colors using CMYK values.

HSB

The initial letters in Hue, Saturation and Brightness are the components in the HSB color model. HSB is one of three color models CorelCHART provides for creating process colors.

RGB

The initial letters in Red, Green and Blue, the component colors in one of three color models CorelCHART provides for creating Process colors.

Brightness

In the HSB color model, the component that determines the amount of black in a color where 0% is black and 100% is white. *See also* Hue and Saturation.

Hue

In the HSB color model, hue is the main attribute in a color that distinguishes it from other colors. Blue, green and red, for example, are all hues. *See also* Saturation and Brightness.

Saturation

In the HSB color model, the component that determines the purity or intensity of a color. *See also* Hue and Brightness.

Spot color

In offset printing, solid colors commonly specified using the PANTONE color matching system. Spot color is used whenever exact colors are required. CorelCHART also uses the PANTONE system to specify spot colors.

Process color

The primary colors used in four-color process printing: Cyan, Magenta, Yellow and Black. *See also* Four-color process.

Four-color process

Reproducing color artwork using four separate sheets of film, which represent the Cyan, Magenta, Yellow and Black content of the artwork.

PANTONE Spot Colors

A standard color matching system in which solid (spot) colors are specified using color sample books. You can use this system in CorelCHART to specify colors.

PANTONE also has a similar system for specifying process colors. It too, is available in CorelCHART.

Pictograph

A pictograph is a symbol or image, used to fill bar risers in a chart. Any file saved in a supported file format can be imported and used as a pictograph. This conveys your chart's message in a fast and visual fashion. Pictographs can only be used in horizontal and vertical bar charts and histograms.

TRUMATCH

A color matching system for specifying process colors. You can use this system in CorelCHART to specify colors.

Crop Mark

Alignment marks at the corners of a page printed on a PostScript printer. Used as aids for trimming the paper to the proper size. Crop marks are turned on in the Print Options dialog box and appear only when the page size in CorelCHART is smaller than the paper size of the printer.

Combination charts

Combination charts include a mix of bar and line risers. Use combination charts to emphasize one data series over others. **Note:** Stacked Bar and Stacked Line charts cannot be used in combination charts because the risers are subdivided.

See also Making combination charts

Calibration Bar

Strips of color and gray printed with an illustration. Used as a reference for calibrating a monitor so that is displays colors as they appear in the printed output.

Curve Fit Correlation Coefficient

CorelCHART will calculate how closely a curve fit line intersects with the data points it is charting. The number will be between zero and one; one is a perfect fit, zero is a poor fit.

Film Recorder

Device that reproduces images from a computer screen on film. The film can then be developed into slides or prints using conventional photographic processes. CorelCHART can export files for use by film recorders that accept files in SCODL format.

Color separation

The process of separating the colors in an image into the primary printing colors: cyan, magenta, yellow and black.

Choke

Type of trap created by extending a background object into a foreground object. CorelCHART provides an Overprint feature that enables you to create chokes. *See also* Spreads

Registration Marks

Crosshairs or other marks on paper or film used for aligning color separations. CorelCHART automatically adds registration marks when printing color separations to a PostScript printer.

Autoscan

Data Manager feature used to automatically scan your spreadsheet and apply appropriate tags to the cells according to the data sample layout. You can also "tag" or label your spreadsheet data manually. *See also* How to... Use Data Manager: An Overview

Halftone screen

In photography, a sheet of glass or film with a grid pattern of lines used to convert a continuous tone image into dots of various sizes. In CorelCHART, halftone screens are specified by choosing PostScript from the Outline Color, Uniform Fill or Fountain Fill dialog boxes.

Directory

A directory is part of a structure used to organize files on a disk like a drawer in a filing cabinet. Directories have names and can be divided into subdirectories. For example, you could create a directory called LOGOS for storing logo designs.

Drive

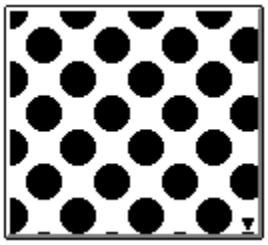
A device in a computer that spins disks used to store information. Personal computers normally have a fixed disk drive labeled C and one or two floppy disk drives labeled A and B.

Full Color pattern

Fill composed of repeating vector images. CorelCHART supplies a collection of vector patterns to which you can add your own.

Two-Color pattern

Fill composed of repeating bitmap images. CorelCHART supplies a collection of bitmap patterns to which you can add your own.



Bitmap texture

Variable fills that look like clouds, water, gravel, minerals and dozens of other natural and man-made substances. Bitmap textures display on your screen and print to any printer.

Smooth Curve

A curved line that is drawn through or near each data point in a series. A smooth curve is created as a line connecting points that have been evenly distributed between data points. The more points added, the smoother the curve. Point are added using the Smooth Factor box.

Smooth Factor box

To control smoothness, type in the number of points in the Smooth Factor text box. The higher the number, the smoother the curve (but the longer it may take to draw).

Bipolar Line

A horizontal line that goes through the center of a dual-axis chart, separating the chart into an upper half and a lower half. This allows charting of different data series on either side of the line.

Exponential Regression

A least squares approximation line of the form $y = a(b^x)$ for a selected series.

Power Law Regression

A line that fits the data points in accordance with the power law regression formula

$y = ax^b$. This curved line is a least squares approximation of data for a selected series.

Natural Logarithmic Regression

A line that fits the data points in accordance with the natural log regression formula y = a(lnx) + b. This curved line is a least squares approximation of data for a selected series.

Polynomial Regression line

A line that curve fits to the data points following the polynomial regression formula: $y = a0 + a1x + a2x^2 + ... + anx^n$ where n = the order of the polynomial. Note that the order "0" draws a line at the mean of the data. This curved line is a least squares approximation of data for a selected series.

Pop-up menu

Pop-up menus give you quick access to many menu commands. Pop-up menus appear when you click a chart object or a spreadsheet cell with the right mouse button. *See also* Right mouse button

PostScript

A page description language or protocol by which programs describe text and graphics they want the printer to output. Several features in CorelCHART require the use of a PostScript printer.

Printable Page

The rectangular area with the drop shadow containing your chart. The Printable Page appears inside the CorelCHART Charting Window. You can adjust the printable page settings using the Page Setup command in the Chart View File menu.

In Data Manager, the printable page is the section of the spreadsheet which prints on a single sheet of paper. You can insert manual page breaks to choose the end of a page, and set other options using the Set Page Break and Page Settings commands in the Format menu. To preview the printable page(s) of your spreadsheet before printing, use the Print Preview command in the File menu.

Header (spreadsheet)

A text string that appears at the top of every printed page of a Data Manager spreadsheet. The header can be any user-defined text string, the file name, the page number, the computer's date or time. Spreadsheet headers are assigned using the Page Setup command.

Footer (spreadsheet)

A text string that appears at the bottom of every printed page of a Data Manager spreadsheet. The footer can be any user-defined text string, the file name, the page number, the computer's date or time. Spreadsheet footers are assigned using the Page Setup command.

Rectangle tool

Found in the Toolbox, the Rectangle tool is used to draw rectangles and squares to enhance CorelCHART annotations.

Mean

A horizontal or vertical line drawn at the mean of the data points.

The "mean" equals the sum of the values divided by the number of values (e.g. [P1 + P2 + P3] / 3).

Moiré Pattern

Undesirable wave pattern in an image printed from color separations with incorrect halftone screen angles.

Moving Average

A line drawn at the moving average of the data points. You must specify whether the average is Financial or Scientific and enter the number of periods used to calculate each moving average point in the Order box.

By using moving averages (with the appropriate number of periods), you can eliminate cyclical, seasonal, or irregular patterns, and thus clearly see the moving trend. Unfortunately, you lose data at both ends of the series, and the program may calculate cycles or movements not present in the original data. Also, moving averages are easily affected by extreme values.

Financial Moving Average

A line drawn at the moving average of the data points. In the Data Analysis dialog box, you must enter, in the Order box the number of periods used to calculate each moving average point.

By using moving averages (with the appropriate number of periods), you can eliminate cyclical, seasonal, or irregular patterns, and thus clearly see the moving trend. Unfortunately, you lose data at both ends of the series, and the program may calculate cycles or movements not present in the original data. Also, moving averages are easily affected by extreme values.

Scientific Moving Average

A line drawn at the moving average of the data points. You must enter, in the Order box, the number of periods used to calculate each moving average point.

By using moving averages (with the appropriate number of periods), you can eliminate cyclical, seasonal, or irregular patterns, and thus clearly see the moving trend. Unfortunately, you lose data at both ends of the series, and the program may calculate cycles or movements not present in the original data. Also, moving averages are easily affected by extreme values.

Category Axis Grid Lines

Grid lines cross the chart along the category axis perpendicular to the axis line. (For example, if the category axis line is the bottom of the chart, the grid lines run vertically.) Since the category axis is non-numeric, tick marks are not an option and there are no minor grid lines.

Headers (Second Category Axis)

Labels on the second category axis that describe the charted data. Headers are attached to the axis; they cannot be moved independently of the axis.

Headers (Category Axis)

Labels on the category axis that describe the charted data.

Headers are attached to the axis; they can not be moved independently of the axis.

Second Category Axis Title

A label that describes the second category axis.

This title is entered in a Data Manager cell that you set as Second Category Axis Title. To edit the title, return to the Data Manager, select the cell, press F2 and change it in the Tag list box.

Service Bureau

A commercial business that prints customer-provided artwork and documents, usually on high-resolution PostScript devices.

Spread

A type of trap created by extending a foreground object into a background object. CorelCHART provides an Overprint feature that enables you to create spreads and an Auto trapping feature that creates them automatically. *See also* Chokes.

Riser Bar

A bar on a 2D bar chart that represents the data; risers ascend from a group axis or zero line to a data point.

Standard Deviation

Shown by horizontal or vertical lines drawn at each standard deviation distance from the mean line along the numeric axis. CorelCHART determines this distance and makes it the interval for drawing lines above and below the mean line (visible or hidden).

For instance, if the mean = 100 and the standard deviation = 6, the first range of deviation will draw lines at 106 (100 + 6) and 94 (100 6). The second range will draw lines at 112 and 88. The program will draw these pairs of lines until it runs out of room in the Charting Area.

In most cases, 66% of the data points will fall between the first two lines (the first range). The second range will contain 95% of the points. The third will contain about 99% of the points.

Y Axis

The vertical, axis line on XY scatter, high-low-close, spectral map charts and histograms. The Y axis is numeric and has a scale associated with it rather than headers.

To control where the axis and its scale display, choose Chart, Y Axis. On the flyout menu, choose Display on Left (the default location), Display on Right, both, or neither.

Choose Chart, Y Axis to change the data axis's scale and grid lines. Since major grid lines align with numbers on the numeric scale, specifying the number of major grid-line divisions will affect the number of scale divisions.

Connected Line

A straight line connecting the data values of bar risers in a selected group.

Second Y Axis

The axis line on XY scatter charts or dual-axis bar, line or area charts. The second Y axis measures a different quantity than the first Y axis. Because it's numeric; it has a scale attached to it rather than headers.

Location of the second Y axis line (Chart menu: Second Y Axis):

To control where the axis and its scale display, choose Chart, Y Axis. On the flyout menu, choose Display on Left, Display on Right, both, or neither. (You can't show both the first and second Y axes on the same side of the Charting Area.)

Grid lines and Scale:

Choose Chart, Second Y Axis to change the second Y axis scale and grid lines. Since major grid lines align with numbers on the numeric scale, specifying the number of major grid-line divisions will affect the number of scale divisions.

To show or hide the second Y axis line:

Method 1: Show or hide axis line and scale

- Choose Chart, Display Status to open the Display Status dialog box.
- To show the axis or scale, click Second Y Axis & Scale. An x indicates that the axis line and its scale will show (at the default location on the left side of the chart).
- To hide the axis or scale, click off the Second Y Axis & Scale check box.

Method 2: Make axis line transparent (axis line only):

- Select the axis line.
- Make it transparent by clicking the X, or transparent tile on the Outline tool's flyout.
- To restore the line, click in the area where it is. (If you've just made it transparent, choose Edit, Undo.) When its handles appear, choose a color from the on-screen color palette or the color dialog box, accessed by clicking the first tile on the top row of the Outline tool's flyout.

Second Y Axis Scale

The scale attached to the 2nd Y axis line.

Choose Chart, 2nd Y axis to change the following:

- Location of 2nd Y axis scale. The scale is attached to the axis; choose Display on Right (the common location) and/or Display on Left, or neither.

To show/hide the 2nd Y axis scale and its axis line:

1. Choose Chart, Display Status.
2. Click the 2nd Y Axis & Scale check box.

To hide the scale and axis:

- In the Display Status dialog box, click 2nd Y axis & Scale again.

Second Y Axis Title

A label that describes the 2nd Y axis. The axis title can be moved anywhere on the chart, but it should be located near the axis it describes.

To create and edit the 2nd Y axis title:

This title is entered in a Data Manager cell tagged as 2nd Y axis Title. To edit the title, return to the Data Manager, select the cell, press F2 and change it in the contents box. To see in Data Manager which cell has been tagged as the title, scroll through the cells while watching the chart elements list at the top of the Data Manager window. You'll see the cell's tag in the box.

To show/hide the 2nd Y axis title:

Choose Chart, Display Status. In the Display Status dialog box, click the 2nd Y Axis Title check box.

Data Axis Major Grid Lines

Grid lines that split up the data axis into equal divisions. "Major grid lines" can cross the whole chart, be just tick marks on the edge of the Charting Area, or both.

To set the number of major divisions:

- Choose Chart, Data Axis, and choose one of these options:

  Automatic: Let CorelCHART automatically divide the chart with grid lines.

  Manual: Specify the number of divisions, entering a number in the No. of Divisions text box.

To show or hide major grid lines:

Choose Chart, Data Axis. On the flyout menu, choose Grid Lines. In the Grid Lines dialog box, click the Major Grids check box. Choose grid lines or tick marks, or hide the lines by clicking No Grids.

Data Axis Minor Grid Lines

Grid lines placed between data axis major grid lines to offer more precise measurement. "Minor grids" can cross the whole chart, be tick marks on the axis line, or both.

To set the number of minor divisions (grid lines):

- Select "Grid Lines" (Chart menu: Data Axis) and choose one of the following:

  Auto: Let Chart automatically divide the chart with grid lines.

  Manual: Specify the number of divisions, entering a number in the Number of Divisions" text box.

To show or hide major grid lines:

Choose Chart, Data Axis. On the flyout menu, choose Grid Lines. In the Grid Lines dialog box, click Major Grids, choose grid lines or tick marks, or hide the lines by clicking No Grids.

Scatter Label (3D)

A label for a data point on an XYZ (3D) scatter chart.

To create or edit a scatter label:

These labels must be created, tagged and edited in Data Manager. Depending on how the data is arranged, the fourth row or column holds the label text. For instance, if the data is arranged by columns (column 1 holds X values, Column 2 holds Y values, column 3 holds Z values), then column 4 holds the labels.

If no labels have been tagged, make sure the labels have been entered in the fourth column. (If they're elsewhere in the Data Manager spreadsheet, you must cut and paste them as the fourth column of the data range by clicking and dragging to select the cells and choosing Edit, Cut and Edit, Paste. If they're not in the matrix at all, you must enter them as the fourth column of the data range by clicking the first cell and typing, then using the cursor key to move to the next cell.) Then select the entire data range, click the scroll arrow on the chart elements drop-down list at the top of the Data Manager window, and click Data Range.

Once the labels have been tagged in the Data Manager, go to Chart View. Choose Chart, Display Status, and click the Data Labels check box.

Scatter Marker

Marker for a data point on a scatter chart.

Scatter markers are areas which accept colors and effects. The marker has a fill and outline; you can color each separately, and change the width of the outline using the Outline tool. You can also control the size and shape of color data-point markers by choosing Chart, Data Point Size and Chart, Data Point shape, respectively, and choosing an option from the flyout menus.

Axis Gridlines (3D charts)

There are three axes in a 3D chart. Each one can have a set of grid lines. Series grid lines travel on the floor parallel to the left wall (along the X axis). Group grid lines travel on the floor parallel to the right wall (along the 2nd Y axis). Z axis grid lines are the horizontal lines that travel across the two walls.

Z-Axis Scale (Left)

The Z axis is the vertical axis in 3D charts. The numbers (or data-based text such as time periods) set at regular intervals along the end of the left wall comprise the left Z axis scale.

The Z axis scale can be modified by choosing Chart, Vertical (Z) Axis.

To show or hide the left Z axis scale:

Choose Chart, Display Status and click Left Z axis Scale. An x in the check box indicates that the scale will appear.

Z-Axis Title (Left)

One of two titles that describes the vertical Z axis. This one is placed adjacent to the left wall.

To create or edit a left title:

In the Data Manager, select a cell and set it as Axis Title #3, and type the title in the cell. To edit the title, return to the Data Manager, select the cell, press F2, and make changes in the contents box.

To show or hide a left title:

Choose Chart, Display Status and click Left Scale Title. An "x" in the check box indicates that the left title will appear.

3D Riser

A bar, pyramid, or other shape that represents data by rising from the floor (or an invisible zero plane) to a data point on a 3D chart. Other shapes include octagonal and cut-corner bars.

Axis Riser Grid Lines

Grid lines on risers for any of the three axes (series, or X axis, lines parallel to the left wall, group, or second Y axis, lines parallel to the right wall, and Z axis lines parallel to the floor).

Series Header

Descriptive label for a series of data on a 3D chart. Usually there is one header for each data group. When the appearance of one series header is changed, all are changed.

To create or edit series headers:

In the Data Manager, select a cell and set it as Row Header or Column Header, depending which axes your groups and series are arranged on. Type the title in the cell. To edit the title, return to the Data Manager, select the cell, press F2, and make changes in the contents box.

Series Title

The single title that describes what the series of data represent.

To create or edit a series title:

In the Data Manager, select a cell, set it as the Axis Title #1 or Axis Title #2, depending on which axes your groups and series are arranged on. Type the title in the cell. To edit the title, return to the Data Manager, select the cell, press F2, and make changes in the contents box.

Z-Axis Scale (Right)

The Z axis is the vertical axis in 3D charts. The numbers (or data-based text such as time periods) set at regular intervals along the end of the right wall comprise the right Z axis scale.

The Z axis scale can be modified by choosing Chart, Vertical (Z) Axis.

To show or hide the right Z axis scale:

Choose Chart, Display Status and click Right Z axis Scale. An x in the check box indicates that the scale will appear.

Z-Axis Title (Right)

One of two titles that describes the vertical Z axis; this one is placed adjacent to the right wall.

To create or edit a right title:

In the Data Manager, select a cell, set it as the Axis Title #4, and type the title in the cell. To edit the title, return to the Data Manager, select the cell, press F2, and make changes in the edit box.

To show/hide a right title:

Choose Chart, Display Status, and click the Axis Title #4. An x in the check box indicates that the right title will appear.

Scatter Line

Line that connects each succeeding point in a series in a 3D scatter chart. Each data series is given a separate line.

Column Header Area

The top-most row in a table chart (not including the Subject Area cell); it contains all the column header cells.

Column Header Labels

The text in column header cells or, in Chart View, the column header area, in a table chart.

To create column header labels:

1. Enter column headers in a row in the Data Manager.
2. Select all the cells you've just entered into.
3. Select Column Header from the chart element list box.

Column headers can be formatted using the tools on the Text Ribbon and colored using the on-screen color palette or the effects available through the Fill tool.

Row Header Labels

The text within row header cells in a table chart.

To create row header labels:

1. Enter row headers in a column in the Data Manager.
2. Select all the cells you've just typed into.
3. Select Row Header from the chart elements list box.

Row headers can be formatted using the tools on the Text Ribbon and colored using the on-screen color palette or the effects available through the Fill tool.

Row Title Label

A title that describes the row headers in a table chart. The row title label is located in the chart's top-left cell, known as the row title area.

The row title label can be formatted using the tools on the Text Ribbon and colored using the on-screen color palette or the effects available through the Fill tool.

Row Header Area

The left-most column in a table chart; it contains all the row header cells.

To create the row header area:

1. Enter row headers in a column in the Data Manager.
2. Select the first (top) row header.
3. From the chart elements list box, select Row Header.

The row header area accepts colors. The area has an outline; you can change its color and width using the Outline tool.

Row Title Area

The top-left cell on a table chart that holds the row title. The title describes the row headers in the cells located above the row title area.

Bar (High-Low-Open-Close Chart)

A bar on a 2D High-Low-Open-Close chart that represents the data. Depending on which High-Low-Open-Close chart type you choose from the Gallery, a bar riser can have two lines extending from it (the open and close bars). This chart type is commonly used for stock market prices.

Ellipse tool

You can use the Ellipse tool to create an ellipse then alter its outline characteristics with the Outline tool and its fill with the Fill tool. Ellipses are useful in creating annotations.

Polygon

A series of connected straight lines that form a closed shape. You can create a polygon on the annotation layer using the second tile on the Pencil tool flyout. You can alter its outline characteristics using the Outline tool, and its fill using the Fill tool.

Order box

When setting a moving average line in the Data Analysis dialog box, determines the number of values to be used to calculate the moving average within a period.

If you enter 3 in the Order box, the program averages the first 3 values (P1, P2, P3). It then shifts over one value to take another 3-value average (P2, P3, P4). This continues (in groups of 3) until it reaches the final value.

Show Correlation Coefficient

CorelCHART will figure out how closely a curve fit line intersects with the data points it is charting.

In the Data Analysis dialog box, choose one of the available types of regression analysis by clicking the check box for that analysis type. Then click Show Correlation Coefficient below the list of regression types. Click OK to close the dialog box and return to your chart, and you'll see coefficient inside the Charting Area. The number will be between zero and one; one is a perfect fit and zero is a poor fit. This text can be moved anywhere on the chart, but should be placed close to the line it describes. Only one coefficient per series can be shown.
See also Using Data Analysis

Chart View

As part of the CorelDRAW suite of programs, CorelCHART emphasizes presentation. With CorelCHART, you have drawing tools, full color design and printing support and over 825 typefaces to choose from. Available chart types include CorelCHART 4's line, bar, area and pie charts, histograms, scatter and 3D charts and, new in CHART 5, Bubble charts, Gantt charts, Polar charts and Radar charts.

CorelCHART's charting module is referred to as Chart View, while its spreadsheet program is called Data Manager

Charting Area

The area bounded by the chart's axes. The data is charted within the charting area, but many chart objects lie outside it, including scales, axis titles, and headers. You can apply CorelCHART's fill colors and patterns to the Charting Area. The color and width of the charting area's outline can be changed using the Outline tool.

Chart objects

Chart objects, unlike annotations, are included in the chart template itself (i.e., title, subtitle, footnote, legend, data and category labels) and cannot be deleted from the chart. They are instead hidden from view using the Display Status dialog box in the Chart menu. You can display chart objects again with the Display Status command.

Footnote

The footnote of a chart usually indicates the origin of the chart data. It is often placed near the bottom of the chart, and shown in a small type size. Footnote text can be formatted using the facilities on the on-screen text ribbon and can be hidden from view by using the Display Status command in the Chart menu.

Title

The title of a chart is a label that describes the chart. It's normally displayed at the top of the chart and is usually the largest text element. Title text can be formatted using the facilities on the on-screen text ribbon.

To show or hide the title:

Choose Chart, Display Status. In the Display Status dialog box, click the Title check box. To hide the title, click the check box again.

Zero Line

The line on a chart that shows where numeric values equal zero. It serves as the base for the risers (if they show positive values. Risers with negative values hang from the zero line.)

The zero line serves as a visual divider between positive and negative values. It crosses the chart like a grid line but it is not formatted like one. A zero line will show over a grid line.

Zoom tool

Located in the vertical Chart View Toolbox, the Zoom tool is used to magnify or reduce a section of your chart. It has a flyout menu that includes several options for controlling the view of your chart. *See also* Chart View Tools and Ribbon Bar

Category Header

The identification labels assigned to groups of data. There is usually a header for each data group. When the appearance of one group header is changed, all are changed. (You can use the Text Ribbon, or the color palette, to change any headers.) The labels usually describe group data, but will describe series data.

Headers are attached to the category axis and cannot be moved independently of the axis. To set the location of the axis and headers, choose Chart, Category Axis. On the flyout menu, you can select Display on Bottom/Left and/or Display on Top/Right (or neither).

To create category headers:

1. Enter category axis headers in a column in the Data Manager.
2. Select all the cells you've just typed into.
3. Select Column Header from the chart elements list box.
4. Click Set.

To edit category headers, go to the Data Manager. Click the cell you wish to edit, press F2, and edit the cell in the contents box atop the Data Manager spreadsheet.

Category Axis

An axis that has headers (text) rather than a numeric scale. The category axis line is a border line that can be displayed on two sides of the chart's frame.

Location options depend on the chart type orientation:

- Vertical bar, line, or area: bottom (the default location) and/or top.
- Horizontal bar, line, or area: left side (the default location) and/or the right side.
- Spectral Map: left side (the default location) and/or the right side.

Show Formula

Displays the statistical formula for a given regression type or polynomial fit. *See also* Using Data Analysis

Category Axis Title

A label that describes the category axis. The axis title can be moved anywhere on the chart, but should be located near the axis it describes.

The category axis title describes the axis headers or special charting information. This title is entered in Data Manager. To edit the title, return to the Data Manager, select the cell, press F2 and edit it in the contents box atop the Data Manager spreadsheet.

Second Category Axis

An axis that has group or series header text rather than a numeric scale. This axis only occurs in spectral charts. The second category axis line borders one side of the chart. It usually has series headers.

X Axis (2D Scatter Chart, Spectral Map)

X Axis on a 2D Scatter Chart

An axis that has a numeric scale rather than headers (text). The X axis line is the horizontal (bottom or top) axis line.

X Axis on a Spectral Map

An axis that has headers (text) rather than a numeric scale. The X axis line is the horizontal (bottom or top) axis line.

X Axis Title

A label that describes the X axis. The axis title can be moved anywhere on the chart, but it should be located near the axis it describes. This title is entered in the Data Manager.

To create or edit an X axis title:

In the Data Manager, select a cell, set it as Axis Title #1, and type the title in the cell. To edit the title, return to the Data Manager, select the cell, press F2, and make changes in the contents box.

To show or hide an X axis title:

Choose Chart, Display Status and click Axis Title #1. To hide the title, click the check box again.

Y Axis Title

A label that describes the Y axis. The axis title can be moved anywhere on the chart, but it should be located near the axis it describes. This title is entered in the Data Manager as "Y axis Title".

To create or edit a Y axis title:

In the Data Manager, select a cell, set it as Axis Title #2, and type the title in the cell. To edit the title, return to the Data Manager, select the cell, press F2, and make changes in the contents box.

To show or hide a Y axis title:

Choose Chart, Display Status and click Axis Title #2. To hide the title, click the check box again.

Y axis Scale

The numeric scale attached to a Y axis line.

The Scale Range can be set automatically or manually by choosing Chart, Data Axis, and choosing Scale Range on the flyout menu. If you click the manual check box, you can set upper and lower values of the range, start the scale at zero, and choose whether to display values that go beyond the range.

Formula Label (for Regression Line)

In the Data Analysis dialog box, choose one or more of the available types of regression analysis by clicking the check box for that analysis type. Then click Show Formula below the list of regression types. When you click OK to close the dialog box and return to your chart, you'll see the regression formula inside the Charting Area. This text can be moved anywhere on the chart, but should be placed close to the line it describes. Only one formula per series can be shown.

Left Wall

The left-side vertical plane on a 3D chart. The left wall has depth as well as length and width, with no more than three surfaces visible at a time (by default top edge of the wall, the inside surface, and the left, or outside, edge).

The wall surfaces can be automatically shaded, or you can manually give each surface a different color. For automatic shading, choose Chart, Auto Shade Cube, a toggle command.

The left wall surfaces are areas; they accept colors from the on-screen color palette and special effects created in the Fill tool.

Right Wall

The right-side vertical plane on a 3D chart. The right wall has depth as well as length and width, with no more than three surfaces visible at a time (by default top edge of the wall, the inside surface, and the right, or outside, edge).

The wall surfaces can be automatically shaded, or you can manually give each surface a different color. For automatic shading, choose Chart, AutoShade Cube, a toggle command.

The left wall surfaces are areas; they accept colors from the on-screen color palette and special effects created in the Fill tool.

Annotations

Annotations are graphic elements--text, boxes, arrows and other objects--that are created on top of your chart, rather than in your chart's Data Manager window. You create them using the annotation tools on the toolbox--the Pencil, Rectangle, Ellipse and Text tools. Typical uses include special explanations, arrows that point to items of interest, or circles that draw attention to important areas of a chart. Annotations can be colored and given special effects using the on-screen color palette and the Fill and Outline tools. Maximum character length for annotations is 2,048.

Area

Area refers to an Area Chart or Area Riser. Areas can be modified using the Fill and Outline tools, and the on-screen color palette.

Ascending Scale

A scale on which values increase moving up the scale. Most charts have an ascending scale. In bar, line and area charts, the ascending scale is controlled by choosing Chart, Data Axis, and choosing Ascending Scale from the flyout menu.

Descending Scale

A scale on which values decrease moving up the scale or right to left depending on the chart type. Most charts have an ascending scale. In bar, line and area charts, you can change a scale from ascending to descending by choosing Chart, Data Axis, and turning off Ascending Scale on the flyout menu.

Attached

Indicates that two or more chart elements are linked, and cannot be separated from each other.

Example: Headers are attached to the category axis. A numeric scale is attached to the data and 2nd data axes.

Autofit Text

Chart menu option. When activated, CorelCHART makes a best guess in selecting the font size. This prevents text from overlapping. Most text items (scales, headers, data text, etc.) can be autofitted.

Autofit controls are found by choosing Chart, and choosing Legend for the legend text and the flyout menus under the commands for the various axes.

NOTE: Autofitting a text item overrides the Text Ribbon tool. You must turn off autofitted text for the text item you're altering before manually changing its point size.

Axis

Axis lines are the outside edges of the chart's frame.

Examples:

On a vertical bar chart, the bottom-most line is the category axis and the left-side line is the data axis (by default). A dual-axis chart will have a category axis and two data axes.

Axis Text

Text that is attached to an axis line and cannot be moved independently of the line. On numeric axis lines, the text will be a numeric scale. On a text-based category axis, the axis text will be the headers (for example, months, years or other time periods).

If the axis line is made longer or shorter, the axis text will move to accommodate the new length. This is true only if Autofitting is checked via the Legend dialog box.

Aspect Ratio

The ratio of the width of an image or object, to its height. You can change an object's aspect ratio by stretching it in one direction.

Category

When charting large masses of data, it helps to break down the data into categories. A category can be group data or series data.

On a bar, line, or area chart, the category axis has text labels that represent the categories.

Point Size

Point size is used to determine the height of type (text). There are approximately 72 points (pts) to an inch and 12 points to a pica.

This text is set at 10 pt.

This text is set at 24 pt.

Least squares approximation

A method of creating a "best-guess" straight line, one that best reflects a collection of data points.

The program tries a vast number of straight lines to find the one line where the sum of $D1^2 + D2^2 + \ldots + Dn^2$ (where D = the vertical distance between a data point and the line) is the smallest number. This method squares each distance (D) to eliminate negative values, in order to calculate a more accurate sum of the distances.

Non-Numeric Axis

An axis that is text-based. Header labels are attached to the axis.

Note that numbers can be used in a non-numeric list, but they are labels and do not serve as numeric scales.

Numeric (Data, 2nd Data, X, Y) Axis

An axis that is number-based. A numeric scale is attached to the axis, and always appears on the data axis.

Examples of numeric scales:

"10, 20, 30," "$50, $100, $150", "3.0e+2, 3.5e+2, 4.0e+2"

Risers

Bars, pyramids, or other shapes that stretch from an axis (or zero line) to a data point.

There are three basic types of 2D risers: bar risers, area risers, and High-Low-Open-Close risers.

3D risers have more than one surface (such as pyramids or cut-corner bars).

Scale

1. A set of numbers attached to a numeric axis that indicates the values of the data.

2. Changing the size of an object, or group of objects, while maintaining the original aspect ratio.

Header

A label for a category of data. In 2D charts, there are headers for groups. In 3D charts, there can be headers for groups and series.

Deselect

Turns off a toggle menu command or dialog box check box. When you deselect a check box item by clicking it, the "x" in the box disappears. Toggle menu items are selected when a check mark appears next to them, and deselected when the check mark is not visible.

Grid Lines

Horizontal or vertical lines that split up an axis into divisions.

Numeric axes can display major and minor grid lines. Major grid lines line up with numbers on the numeric scale. Minor grid lines are placed between major grid lines.

Non-numeric axes have one set of grid lines, placed between headers.

Group

Groups can be viewed in two ways:

In the Data Manager, choose Data, Data Orientation. In the Data Orientation dialog box, if you click Series are Rows, group data is represented in columns. If you click Series are Columns, group data is represented in the rows.

In Chart View, a group by default contains data points from one or more series. For example, if a side-by-side bar chart has three pairs of bars, each pair is a group, and each bar is part of a series of three data points. A stacked bar chart has three bars, each with two colors representing the two series, and each stacked bar is group.

Series

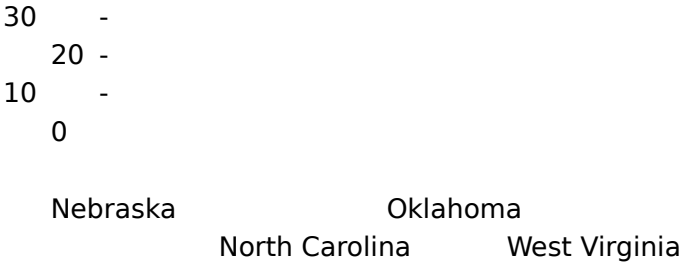
Series can be viewed in two ways:

In the Data Manager, choose Data, Data Orientation. In the Data Orientation dialog box, if you click Series are Columns, series data is represented in the chart's columns. If you click Series are Rows, series data is represented in the rows.

In Chart View, a group by default contains data points from one or more series. For example, if a side-by-side bar chart has three pairs of bars, each pair is a group, and each bar is part of a series of three data points. A stacked bar chart has three bars, each with two colors representing the two series, and each stacked bar is a group.

Staggered Text

Alternating labels are shifted down or sideways so that long header or scale labels do not overlap. Here are two examples:



Tick Mark

Tick marks are short lines that cross (or line up on) the axis, but do not run across the chart as grid lines do. They appear only on numeric (data or X, Y) axes.

Fountain Fill

A graduated change from one color to another or a blend of two or more colors used to fill objects. To apply a fountain fill to an object, click the Fill tool. You can use the Fill Roll-up tool by clicking the second tile on the flyout menu, then clicking the second tile on the roll-up. You can select an existing fill, or create and save a new fill. Alternatively, click the Fill tool, then click the last tile on the top row of the flyout to open the Fountain Fill Effect dialog box. You can choose an existing fill, or create a new one.

Fill tool

The last tool in the CorelCHART Toolbox. It is used to fill chart elements and other objects with uniform colors, fountain fills, patterns or textures. An object must have a closed path to be filled. *See also* Chart View Tools and Ribbon Bar

Data Manager

The Data Manager is the powerful spreadsheet program underlying your charts. Whether you're building a new chart or changing an existing one, the Data Manager--now a hefty 16,384 rows by 256 columns--is a valuable data analysis tool.

In Data Manager, you can create and analyse your own data or bring in chart data using OLE 2.0. Tags you assign to cells containing text or data in the Data Manager determine what part of the chart they'll be--title, footnote, legend, chart data, and so on.

To open a chart's Data Manager window, click the Data Manager button above the Toolbox on the left side of the CorelCHART Text Ribbon Bar.

Spreadsheet error values

Spreadsheet error values, not to be confused with computer system error messages, are warnings returned by Data Manager when you use unrecognized syntax (usually operators, separators, functions or values) when entering formulas.

See also

- Spreadsheet error values
- Technical Support

Spreadsheet

A matrix, or grid containing individual cells, used to contain, organize and make calculations with numerical and textual data. Spreadsheets used in microcomputers typically include a wide array of useful tools and functions to process the data. The Data Manager is the spreadsheet used with CorelCHART.

Data Range

The data range is the group of contiguous cells containing numeric data that will form the bars, lines, pies, or other markers in the chart. You must select and tag the data range in the Data Manager.

Bitmap

An image composed of a series of dots (pixels). Scanners and paint programs such as CorelPHOTO-PAINT generate this type of image. By contrast, CorelCHART creates images using vector objects, shapes which are described in their files as mathematical equations.

Bitmap pattern

Fill composed of repeating bitmap images. CorelCHART supplies a collection of bitmap patterns, and you can add your own using the facilities in the Fill Roll-up tool.

Check box

A square box in a dialog box used to turn options on or off. An option is turned on when an x appears in the check box, and is turned off when the check box is empty.

Constrain

Holding down the Ctrl key while moving an object, drawing ellipses and rectangles. Constrain limits your movements to specific directions or increments.

Double-click

To press and release the left mouse button twice in quick succession.

Densitometer scale

Scales printed on each page of a color-separated document for the purpose of gauging the accuracy, quality and consistency of the output. You can print these scales by choosing an option in the Print Options dialog box.

Dithering

Simulating a color by putting dots of another color very close together. Windows uses dithering to display colors that PC graphics graphics adapters are unable to display.

Handles

Small squares that appear on the corners and sides of an object's highlighting box when the object is selected. Use these handles to move or resize an object.

Highlighting box

The invisible rectangle with eight handles that encloses a selected object. As you move, scale or otherwise transform an object, a dotted rectangle representing the highlighting box appears instead of the object.

Inter-character spacing

The amount of spacing between characters of text. Also called letter spacing. You can adjust inter-character spacing interactively using the two buttons labeled ABC on the Text Ribbon.

Inter-line spacing

The amount of spacing between the baselines of text. Also called leading. You can adjust inter-line spacing interactively using the two right-most buttons on the Text Ribbon.

Menu bar

The bar near the top of the window that contains the names of the CorelCHART menus.

Multiple select

A method of selecting multiple objects with the Pick tool by holding down the Shift key and clicking the objects.

Palette

A collection of colors along the bottom of the CorelCHART window and in the Color dialog box found under the Outline and Fill tools.

Pencil tool

Tool found in the CorelCHART Toolbox, used to create straight lines, curves and polygons. The default outline attributes of lines, curves and polygons can be reassigned with the Outline tool.

Outline tool

Opens a flyout menu from which you can select outline thickness and color in a number of ways--including the Pen Roll-up, which provides quick access to various outline attributes.

Note: You can also choose outline colors from the On-screen Color Palette.

Pick tool

The first tool in the Toolbox, it is used to select one or multiple objects, move objects and resize them. *See also* Chart View Tools and Ribbon Bar

On-screen Color Palette

The collection of colors along the bottom of the CorelCHART window. The on-screen color palette is inoperative when a Data Manager window is the current window.

#$Control menu box 

Located at the left end of the title bar in the CorelCHART window.

Clicking the Control Menu box displays commands for sizing and positioning the window.

Maximize button 

Located in the upper-right corner of the CorelCHART window and document windows if they are not fully expanded. Clicking the Maximize button expands the window to fill the entire screen.

After you expand a window, the button changes to the Restore button  . Use this button to return the window to its former size.

You can also maximize a window by choosing Maximize from its Control menu or restore it to its original size by choosing Restore.

Shortcut

Double-clicking a window's title bar expands the window to full size.

Minimize button 

Located in the upper-right corner of the CorelCHART window and document windows. Clicking the minimize button shrinks the window to an icon at the bottom of the screen.

- As an icon, the application or presentation stays in memory, but its window does not take up space on your screen.
- To restore the window, double-click its icon or click the icon and choose Restore from its Control menu.

Text tool

The Text tool is used to add artistic text or annotations to a chart.

Font

A set of characters in a given typeface and pointsize, e.g., 10-point Times Roman. Most fonts are available in families that include different weights or styles such as bold and italic.

Text Ribbon Bar

Clicking a button on a Text Ribbon Bar executes the command associated with it. Hold the mouse pointer over a button or drop-down list box to see its name, or right-click with the mouse for Context-sensitive Help.

Both Chart View and Data Manager have a Text Ribbon Bar located near the top of the screen, below the Ribbon Bar. CorelCHART's Text Ribbon Bars include buttons and drop-down list boxes for setting text attributes such as font type and size selection, bold, underline, italic, alignment, inter-character and inter-line spacing.

Note: Chart View and Data Manager have different Text Ribbon Bars. Right click on any part of either Text Ribbon Bar for Help.

Ribbon Bar

Clicking a button on a Ribbon Bar executes the command associated with it. Hold the mouse pointer over a button to see its name or right-click for Context-sensitive Help.

The Chart View Ribbon Bar, contains the following buttons (from left): New, Open, Save, Print, Cut, Copy and Paste, Import and Export, Display Status, Legend, Numeric Format, Data Analysis, Align, 3D Rollup, Copy Chart, Wireframe and Mosaic Rollup.

The Data Manager's Ribbon Bar includes (from left) New, Open, Save, Print, Cut, Copy and Paste, Import and Export, Set Page Break, Number Format, Borders, Patterns, Go to cell, Enter Formula Sort, Auto Recalculate, Grid Lines and Mosaic Rollup.

See also Chart View Tools and Ribbon Bar

Title Bar

Located along the top of the CorelCHART window and in each document window. The CorelCHART Title Bar shows the name of the program plus the name and location of files in fully-expanded presentation windows.

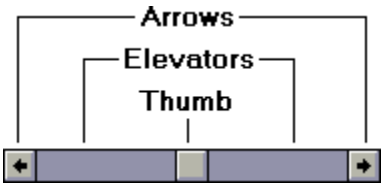
In non-maximized document windows, the Title Bar shows the file's name and location or the word "Untitled-1", "Untitled-2" etc., for new charts you have not yet been saved.

If it is less than full-size, dragging the Title Bar moves the window.

The Title Bar may contain buttons for controlling the window.

Scroll Bars

Bars along the bottom and right side of a Data Manager document window. You use the scroll bars to view parts of a spreadsheet outside the current viewing area.



No Help Available

Context-sensitive Help is not available for the selected item. Press Ctrl+F1 to search for Help by keywords, press F1 to open the Help contents screen and or click Technical Support.

Export

Export is used to define the process of saving an existing file under a different file format. An export filter performs the conversion of the file into another file format. The purpose of the export process is to use a file, or part of a file, in other software applications. You can export your chart or chart data from CorelCHART.

Emulsion

The light-sensitive coating material found on a piece of film.

Filter

A program that translates information from one file format to another. Filters allow files created in one application to be inserted or used in another. CorelCHART includes many filters enabling you to import data or graphics into CorelCHART and export CorelCHART files to other applications.

Data Cell

The intersection of a column and row in the Data Manager spreadsheet. Data cells, recognized as individual data units in Data Manager, are used to hold data in the form of numbers, formulas and text.

Note: Text that is wider than the current cell is visible unless the adjacent cell also contains data. To display any text hidden in this way, widen its column. Where a number contains more digits than can be displayed in the current column width, number signs appear in the cell. To display the number correctly, widen its column.

Mixed reference

References are used in formulas to identify cells. **Mixed references** use one absolute co-ordinate and one relative coordinate (i.e., $E4). In this case, the column is absolute, which means that it will remain at column E if you move the cell that contains this reference. The row coordinate is relative and will be updated if such a change occurs.

Syntax: **(column letter.Row number) or (Column letter,$Row number)**

The $ identifies the absolute part of that reference, i.e., either the row number or column letter remain as they are when the cell containing the reference is moved.

See also Relative reference and Absolute reference.

Absolute reference

References are used in formulas to identify cells. **Absolute references** indicate the absolute position of cells in a spreadsheet. If you move or copy cells that use absolute references, they still refer to the original cell reference(s).

Syntax: **($Column letter,$Row number)**

For example, if a formula used the cell reference (A2); when the formula was moved to another location on the spreadsheet, the cell reference would still point to cell A2--the second cell to the right of the first row of the spreadsheet.

See also Relative reference and Mixed reference.

Relative reference

References are used in formulas to indicate the position of cells in relation to the cell containing a formula. If you move or copy cells that use **Relative References**, CorelCHART automatically updates the references included in formulas to the new location of the referenced cell.

Syntax: **(Column letter,Row number)**

For example, a cell C10 contains a formula which includes the reference C5. If the formula is moved to cell D15, the reference will change so that it still point to the cell that is five cells to the left. The new reference will be D10.

See also Absolute reference and Mixed reference in the CorelCHART glossary.

Operators

Signs or symbols used to add, subtract, multiply or divide (+, - , *, /, (),{}, and ^) inserted in formulas to activate various mathematical or logical operations.

See also Using the Enter Formula command and List of Operators

Separators

Data Manager requires separators such as commas, semicolons, colons, spaces and double periods (, ; : ..) to distinguish arguments, expressions or values in formulas. You may also set up your own separators using the Word Separator command.

See also Operators

Values

Values are any variable data recognized by Data Manager, in cell addresses, functions, formulas or numbers.

In-cell editing

With in-cell editing, you can set individual attributes directly in a cell. For example, you can make the first character bigger than others, give it a different font or even apply a different color with the on-screen color palette.

Note: Text that is wider than the current cell is visible unless the adjacent cell also contains data. To display any text hidden in this way, widen its column. Where a number contains more digits than can be displayed in the current column width, number signs appear in the cell. To display the number correctly, widen its column.

Cell addresses

Cell addresses, which refer to the column and row intersections of cells, are used in formulas and by commands such as printing. Cell address references determine the range(s) of values Data Manager uses in a given operation.

Example: To print all the data from the top left-hand corner of a spreadsheet to the row 10, column 10, you would choose Print and enter the cell addresses A1 to J10.

Formula bar

The Formula bar, located just below the Tag Bar, is used for composing spreadsheet formulas in the Data Manager.

Spreadsheet Functions

Ready-made formulas that can be used in combination with other functions, values and operators to produce a result. The Data Manager's nearly 300 spreadsheet functions perform a wide variety of operations in the following categories: Conversion, Date and Time, DDE, Engineering, Finance, Information, Logic, Lookup and Reference, Math and Trig, Statistics and Text.

Tip: In Data Manager, press F12 to open the Enter Functions dialog box, choose a spreadsheet function and then click the Dialog's **Help Button** for a specific Help topic.

Fibonacci

A sequence of numbers in every number is the sum of the two numbers immediately preceding it; 1,1,2,3,5,8,13. CorelCHART's Fill Series feature enables you to create Fibonacci series automatically.

Formula

A formula is one or a series of operations performed on various types of data which produces a different result. When formulas are entered into a spreadsheet cell, only the result appears in the cell. To view a formula after it is entered, click the cell and then press F2, then use the Formula bar for editing. Formulas may include constant numbers, cell addresses, operators, cell ranges and functions, but may not exceed 255 characters. *See also* Spreadsheet error values

Trap

Also referred to as chokes or spreads. The process of adding a slight overlap between adjacent areas of color to avoid gaps caused by registration errors. You can create traps in CorelCHART when printing color separations.

Embedded Object

A file, or part of a file, created in an application that is inserted into a file in another application. In CorelCHART, objects can be embedded in Data Manager. An embedded object becomes part of the CorelCHART spreadsheet or chart. You can still make changes to this object by double clicking it in the spreadsheet. The server application opens with the object displayed for editing. You can also embed a chart created in CorelCHART in an OLE client application.

Linked Object

A file, or part of a file, created in an application that is inserted into a file in another application. CorelCHART enables you to insert linked objects or data in Data Manager. You can also insert a chart as a linked object in another application such as CorelDRAW, CorelSHOW and many more. A linked object maintains a connection with the application that it was created in. Any changes made to the object in the server or parent application, updates the object in Data Manager.

Section (in numeric format)

One of three possible components of a numeric format. The syntax for a numeric format is:

Section_1;Section_2;Section_3

where each section is a series of codes that assign attributes to numbers. The attributes can include the font, size, style and color. Section_1 is the format for positive numbers, Section_2 is the format for negative numbers and Section_3 is the format for zero values.

If a numeric format has only one section, the format is applicable to all numbers. If it has two sections, the first one is the format for positive and zero values and the second one is for negative numbers.

Argument

An independent variable upon which the value of a function depends (Merriam Webster)

Example: In the formula, SUM(1+2, A1..C4), the numbers 1 and 2 and cell references A1 and C4 are arguments, while SUM is a function, the parentheses () and plus sign are operators and the periods are separators,

Integers

The number set consisting of all the positive whole numbers, their negatives, and zero. Integers are a subset of rational numbers.

Example: 10, -10 and 0 are integers

Real numbers

The number set comprised of all the rational numbers and irrational numbers. Integers are a subset of the rational numbers.

Example: 25 and -10 are integers and real numbers because they are positive and negative whole numbers; 25.349 is a real number, but not an integer because it includes decimal places

Rational numbers

Integers or the quotients of integers divided by non-zero integers with either a finite number of decimals or an infinite number of decimals with a known sequence.

Example: The fraction 1/9, which produces the repeating decimal 0.111111, is a rational number, as is 1/2, whose decimal equivalent is 0.5.

Irrational numbers

Numbers that can be expressed as infinite decimals with an indefinite sequence and that cannot be expressed as the quotient of two integers

Example: The square root of 2, which is 1.414213562373

Whole numbers

The positive integers and zero

Basis	Day count basis
0 or omitted	US (NASD) 30/360
1	Actual/actual
2	Actual/360
3	Actual/365

Linear regression

A least squares approximation line of the formula y = a0+a1x for a selected series. This formula is equal to a polynomial fit with the Order set to 1. Linear regression is determined by the following formula:

$$E(Y|x) = b_0 + b_1 \times x$$

where x is an independent variable, Y is a dependent variable, $E(Y|x)$ is a conditional expectation of random variable Y for fixed value of the variable x. In practice the parameters $_0$ and $_1$ of the linear regression are unknown, and their values evaluated through Y and x variables.
Parameter $_0$ determines the intercept of the linear regression.
Parameter $_1$ determines the slope of the linear regression.

Expression

Any variable--positive, negative, fractional or whole numbers or formulas.

List

List represents any combination of integers, cell references separated by commas, or an array of values.

Charting window

The Chart View screen, including the large white background surrounding the printable page area, but excluding the Title, Menu, Ribbon, Status and Scroll bars and the Toolbox. Click at the top of the current charting window during drag and drop operations.

OLE client application

A program which accepts linked or embedded objects from Object Linking and Embedding (OLE) applications. OLE objects can be edited from within the client application once they've been placed there. Double-click the object to launch the server application within the client application. CorelCHART 5's Chart View is an OLE 2.0 server application, while Data Manager is an OLE client.

OLE server application

A program which provides linked or embedded objects to Object Linking and Embedding (OLE) applications. Once created, OLE objects can be edited from within the client application. Double-click the object to launch the server application within the client application. CorelCHART 5's Chart View is an OLE 2.0 server application, while Data Manager is an OLE client.

Object Linking and Embedding (OLE)

Windows' Object Linking and Embedding (OLE) 2.0 offers two ways to connect files from separate programs--linking and embedding. As the term implies, "linked objects" are files created in one application, the server, which remain linked to a file in another program, the client. When you update the original linked file, it can be updated in both locations. Chart View acts as an OLE server but not a client while Data Manager acts as an OLE client application. In either case, double-clicking a linked or embedded object switches you back to that file in a special session of the server application to make your changes.

Right mouse button

The right mouse button acts as a context sensitive tool in both Chart View and Data Manager screens. In a spreadsheet, click and release the right mouse button in a cell to call up a popup format menu right where you're working. Clicking the right mouse button in Chart View also results in numerous helpful popup menus. After you open a popup menu, click the left mouse button on the command listed in the popup to put it to work for you.

The right mouse button also provides Context-sensitive Help when clicked on the Toolbox, Ribbon Bars or Text Ribbon Bars.

References to the right and left mouse buttons assume they have not been reassigned. *See also* Mouse tricks

Dynamic Data Exchange (DDE)

Dynamic Data Exchange is the precursor to Object Linking and Embedding. DDE enables you to create a link from one or more cells in a host application which are then updated automatically whenever the linked file is reopened in the client application.

Toolbox

The collection of icons (initially) located at the left side of the Charting Window. Each icon represents a Charting Window tool, such as the Pick, Zoom, Text, Outline and Fill tools.

In version 5, the Toolbox can be detached and reconfigured to "float," or in other words be moved to locations of your choice. The Toolbox can also remain "grouped," as shown at the left at the side of the screen, ungrouped into a large rectangle, resized into another shape showing each tool and its all flyouts, or hidden from view. *See also* Chart View Tools and Ribbon Bar

Style

In Data Manager, a style is a combination of formatting options that can be saved and used to format other cells in the same spreadsheet. The style can include your selection of font attributes, alignment within the cell, numeric format, borders and patterns. Styles are created, saved and edited using the Style command.

Style sheet

Available in Data Manager, a style sheet is a file with the .CCT extension which includes several styles. A style sheet can be made available to any CorelCHART spreadsheet, therefore the styles it includes can also be used in any spreadsheet. Style sheets are created, saved, modified and chosen by using the Style command.

Template

A chart template includes parameters that determine the appearance of the chart. The parameters include the chart type, font, color and fill information, display status of various chart elements and much more. Any .CCH file (CorelCHART's file format) is a chart template that can be applied to other charts by using the Apply Template command.

Serial values

Though normally displayed in the default date format of day/month/year, dates are in fact converted by the Data Manager to serial values similar to Julian dates. **Serial date values** start at 1, representing December 31, 1899, and end at 65,000 in the year 2077. **Serial time values** begin at 00:00:00, or midnight, and are counted in seconds.

Serial date values

Though normally displayed in the default date format of day/month/year, dates are in fact converted by the Data Manager to serial values similar to Julian dates. **Serial date values** start at 1, representing December 31, 1899, and end at 65,000 in the year 2077. **Serial time values** begin at 00:00:00, or midnight, and are counted in seconds.

CorelCHART Roll-ups

Roll-up windows contain many of the controls found in dialog boxes: command buttons, text boxes, drop-down list boxes and so on. But unlike most dialog boxes, the window stays open after you apply the selected options. This lets you makes adjustments and experiment with different options without having to continually re-open a dialog box. When you are not using a window, you can hide the controls leaving just the Title bar visible.

CorelCHART features five roll-up windows; for a brief description of each, click its name below.

3D Roll-up
Fill Roll-up
Mosaic Roll-up
Pen Rollup
Pictograph Roll-up

See also How to... Use Roll-up windows

Fill Roll-up

The Fill Roll-up, available from the Fill tool flyout menu  , applies colorful fountain fills, two-color and full-color patterns, and bitmap textures to chart elements and annotations.

Pictograph Roll-up

The Pictograph Roll-up, available from the Fill tool flyout menu, adds pictographs, or graphic pictures, to bar charts and histograms.

3D Roll-up

The 3D Roll-up, available from the Ribbon Bar and View Menu, alters the size, scale or perspective of 3D charts.

Mosaic Roll-up

The Mosaic Roll-up, available from the Ribbon Bar and File Menu (both Chart View and Data Manager), is a file management utility designed to facilitate drag and drop of a wide range of files.

Pen Roll-up

The Pen Roll-up, available from the Outline Pen tool flyout, gives you quick access to a variety of outline attributes, dotted and dashed linestyles, line thicknesses, colors, and arrowheads and other line endings.

Gray Component Replacement (GCR)

Technique for reducing the cyan, magenta and yellow in an image and replacing them with an appropriate amount of black.

When you use GCR, separations print with improved sharpness, better color fidelity, and increased contrast. Separations will also print with better consistency during the print run. You set your GCR when you build your Color System Profile using Color Manager. GCR can make quality separations even better, especially for darker images or those that contain considerable amounts of problem colors such as purples, browns, deep reds, flesh tones, and grays.

CorelCHART's GCR tool in Color Manager enables you to set the GCR to different levels along the tonal range depending on the output device or printer. You produce skeletal blacks by setting the GCR level to very low values near the highlights, and to higher values in the shadows. Because high levels of GCR reduce the total amount of ink, deep shadow and black areas may appear to be less glossy and have less depth. You can compensate for this by using less GCR in the shadow areas.

Undercolor Removal (UCR)

UCR refers to the reduction of the cyan, magenta and yellow colors in the dark or neutral shadow areas to reduce the total amount of ink coverage. In an ideal printing environment, a press would be able to print any combination of ink densities, up to 100% of each of the four colors, or what is known as 400% TAC (Total Area Coverage). However, the maximum generally accepted TAC is 300%. TAC values higher than the maximum generally cause problems with black ink transfer, ink drying, and ink trapping.

Black Point

A black produced by 100% of each of the CMYK components is darker than one produced by full amounts of CMY. The black point specifies the blackness level relative to these two references in a range from 0 to 1.0. A black point of 0.0 yields a black as dark as a 3-color black (CMY). A black point of 1.0 yields a black as dark as a full 4-color black (i.e., darker).

Note: Black point only specifies the apparent darkness of black. The actual CMYK percentages used to produce this appearance is determined by the GCR and UCR settings in the Prepress Controls dialog box.

Dot Gain

Halftone dots that make up an image gain in size from the time you view them on film to the time they come off the press. This unavoidable increase in size results in colors that appear more intense in the printed image than intended. Fortunately, dot gain can be compensated for during the color separation process.

Factors that contribute to dot gain are the quality of the paper, especially its absorbency; the properties of the ink, and the capabilities of the printing press.

CorelCHART's Dot Gain control can compensate for all four colors separately (CMYK), or for all four collectively (Master). The compensation technique reduces the size of a given pixel in the image to compensate for the fact that the same dot will increase in size on the printing press. For example, a pixel having a density value of 60% when measured before printing might have a measured value of 70% when printed on paper. If you want to maintain the 60% value, the value must be reduced such that the increase caused by dot gain will result in the desired 60% dot. So when you calculate a dot gain and then apply a percentage, you enter a positive number that represents the percentage of decrease that you wish to apply to the pixels in that channel(s).

Vector graphics

Also referred to as object-based graphics. Graphics created in programs such as CorelDRAW in which shapes are represented as a series of lines or bezier curves and fills. These contrast with bitmap or raster graphics which are created pixel by pixel in paint programs and by scanners.

Bezier curves

A method CorelDRAW and other computer graphics programs use to represent curved surfaces. A Bezier curve has two endpoints and a set of control points that allow you to mold the shape of the curve. You can also resize a Bezier curve without losing image quality.

Photographic

The mapping necessary for the reproduction of photographs. CorelCHART uses a photographic color mapping to compress colors into your printer's gamut of colors. This technique preserves the tonal characteristics and relationships of colors in the photographs you are trying to print. This way, photographs reproduce with enhanced contrast and color variation. *See also* Colorimetric and Gamut Mapping

Colorimetric

Colorimetric refers to the colorimetric chroma mapping necessary for the reproduction of spot colors. CorelCHART remaps colors outside of the printer's to the edge of the gamut, preserving colors inside the gamut to ensure more accurate spot color reproduction.

If you are printing an object that is mostly vector drawings, or CorelDRAW graphics and text, choose a colorimetric System Color Profile. *See also* Photographic and Gamut Mapping.

Undercolor removal (UCR)

In color printing, a technique for reducing the amount of cyan, magenta and yellow ink in shadows and neutral areas of an image and replacing them with an appropriate amount of black. Another technique called Gray Component Replacement (GCR), also substitutes amounts of CMY ink with black but over a greater color range.

Gamut Mapping

Gamut Mapping is the reassigning of colors outside of the range of colors a printer is capable of producing. The range of colors you can specify from a palette or capture with a scanner can be larger than a printer can reproduce. CorelCHART uses two kinds of gamut mapping: Colorimetric for spot colors and vector based art and Photographic for bitmap art.

Gamut

A gamut is the range of colors a device can reproduce. The human eye has a very large color gamut. Photographs have a large gamut as well. A monitor, with its RGB gamut can also display many colors. Where gamut mapping becomes really important is with printers and output devices. These gamuts can be very limited and care must be taken when producing artwork to be reproduced on different printers. If you do use colors outside of the printer's gamut, CorelSHOW's Color Manager will ensure that those colors are mapped into the printers gamut as accurately as possible. *See also*, Colorimetric, Photographic and Gamut Mapping.

CORELPRN.INI

A text file with printing-related information shared by all installed Corel applications. This file is in the CORELDRW\CONFIG subdirectory and can be edited by double-clicking it in the Windows File Manager. Changes you can make to this file include disabling the message box that warns when the printer and page orientation in a Corel application do not match.

Drag and Drop

A popular new feature of OLE 2.0, Drag and Drop enables you to select and "drag" information from one application window and "drop" it into another. When used from an OLE server to an OLE client application, Drag and Drop can create linked or embedded objects which can be automatically or manually updated as required. But the function is a visual way to move information within or between windows, regardless of whether it is used for linking and embedding.

Linking and embedding procedures vary somewhat between applications. Check the client application's documentation for additional information.

Window border

The narrow white double line surrounding any reduced window.

To resize a window:

1. Point, click and hold the mouse button on a window border.
2. While holding the mouse button down, drag up, down, left or right to resize an application window or an open file window.

Note: You may also choose Size from the Control menu then use the arrow keys to resize reduced (non-maximized) windows.

To resize a window diagonally:

- Point to the window corner, click and drag as above.

Window

A rectangular area on your computer screen in which applications are displayed. Corel application windows have a Title bar, menu bar and two ribbon bars at the top, a toolbox initially attached to the left side, and scroll bars at the sides or bottom.

Screen angles

When printing color separations, the angles at which each of the four process colors are printed to avoid undesirable moire patterns. These angles can be specified in CorelCHART.
See also Halftone screen.

Resolution

In printing, a term referring to the number of dots per inch (dpi) the printer is capable of printing. Typical laser printers have resolutions of 300 dpi while image setters have resolutions of approximately 1200 or 2400 dpi. The more dots per inch, the smoother the output.

Screen frequency

Screen frequency is measured in lines per inch (lpi). Screen frequency affects images such as photographs and tints of color. A laser printer might produce an acceptable screen at 60 lpi. A high resolution image setter may be capable of producing a 150 line screen. Screen frequency can be set in the Print Options - Options dialog box. *See also* Halftone screen.

Path

The fundamental entity from which vector objects in CorelCHART and CorelDRAW are constructed. A path can be open (line) or closed (circle). It can be made up a single line or curve segment or many joined together. When two or more paths are combined into a single path, they are called subpaths.

Pure color

Any color that individual pixels on a computer screen can assume. On a monochrome screen, there are only two pure colors, black and white. Color screens typically display 8, 16 or 256 pure colors. *See also* Dithered color.

Linked object

A reference or placeholder for information inserted into a file. Changes made to the information from the application that created the linked object are automatically reflected in the destination files.

Embedded object

Information from a file created in one application that's been inserted into a file in another application. For example, you can embed a graphic created in CorelCHART into a Microsoft Word document. The embedded information can be edited from within the application in which it is embedded.

Wireframe view

One of two ways of viewing objects in the charting window. In wireframe view, objects display in skeleton form without fills or outlines. Since the screen redraws faster in this view, you may want to use it for editing complex drawings. In the other view--editable preview--you see the outlines and fills of objects as you create them.

You can switch freely between views by choosing Wireframe from the Chart View menu or pressing Shift+F9.

Editable Preview

One of two ways to view objects in the drawing window. In editable preview (the default view), you see the outlines and fills of objects as you create them. In the wireframe view, objects are displayed in skeleton form. Since objects redraw more quickly without outlines and fills, you may find it more efficient to edit complex drawing in wireframe view.

You can switch freely between views by choosing Wireframe from the View menu.

Row Buttons

Every row in the Data Manager spreadsheet is numbered. The row button can be used to set row height or select an entire row. Data Manager spreadsheets 16,384 rows. *See also* Column Buttons

Column Buttons

Every column in the Data Manager spreadsheet is identified by a letter, or pair of letters, on the column button. Clicking a column button selects all cells in that column. Data Manager spreadsheets have 256 columns. The columns are labelled from A to Z, then from AA to AZ and so on up to IF. *See also* Row Buttons

Toggle

Like electric toggle switches, toggle commands turn a function on or off each time you click them. For example, Undo is a toggle command. If you delete an object, pressing Ctrl+Z undoes the deletion and pressing Ctrl+Z again repeats it.

Hotel text

Available for column and row titles, hotel text in Chart View sets text up vertically. To toggle hotel text on or off, right-click a row or column title.

Printers' references

The series of buttons, described below, under the Preview area of the Print Options dialog box.

 **Information button:** Prints the filename of the publication, the current date and time, Tile and Plate number outside the top and bottom margins of the Printable Page. Also includes the color profile, color name, the screen frequency and screen angle when you print color separations at the bottom of the printable page.

If the size of the Printable Page (as set in the Page Setup dialog box) exceeds the size of the paper you are printing on, file info will not appear. Use the **File info within page** option if your Printable Page is the same size as your page setup.

For larger page sizes, use the Page Setup command in the Layout menu to define a custom page size smaller than the printer paper. You may have to resize your publication to fit on the new page size.

 **Crop marks button:** Prints crop marks applied to the current page.

 **Registration marks button:** Prints registration marks of a color-separated publication on each page so the printer can line up the colors properly.

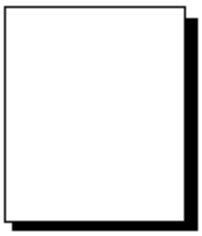
 **Calibration bar button:** Prints a calibration bar of the six basic colors (RGB and CMYK).

 **Densitometer scale button:** Prints a densitometer scale on each page of a color-separated publication.

 **Negative button:** Creates a reverse image of the publication that images directly on film. Check with your service bureau, but many bureaus prefer to set negative image on their imagesetter.

 **Emulsion button:** Choose when printing to film to print the publication emulsion side down. Check with your printer as to whether they prefer the emulsion side up or down.

Printable page



The rectangle with the drop shadow that appears in the drawing window. Also called the "Page border", the Printable page corresponds to the paper size not the printer's "image area" which includes margins. The width of the margins varies depending on the printer.

Halftone screen

In photography, a sheet of glass or film with a grid pattern of lines used to convert a continuous tone image into dots of various sizes. In CorelCHART, halftone screens are specified for Spot Colors by choosing PostScript from the Outline Color, Uniform Fill or Fountain Fill dialog boxes. Process color screens are set in the Print Separations dialog box under Custom Halftone.

Drag and Drop within Data Manager

When used within a single application, Drag and Drop is a simple way to move data around.

To drag a selection within Data Manager:

1. Highlight an area of a spreadsheet.
2. Point to the top line of the selection with the mouse pointer.
3. When the pointer changes from a white cross to an arrow, click and hold the mouse button while you reposition or "drag" the pointer and data to another open Data Manager window or another part of the current spreadsheet.
4. Release the mouse button to "drop" the data into its new location.

Using Paste Inside

The Paste Inside command allows you to fill a chart element with the contents of the Windows Clipboard.

To fill an object with the contents of the Clipboard:

1. In an application of your choice, open a file or create the objects you wish to use as fill in CorelCHART.
2. Copy or cut the objects to the Clipboard
3. In CorelCHART, select a chart element.
4. Choose Paste Inside from the Edit menu. The Clipboard contents fill the selected object.

Printing a spreadsheet

1. Choose Print from the Data Manager File menu.
2. In the Print Data dialog box, choose the options you want.
3. Click **Setup** to change the default printer and/or its setup.

Choosing a default printer

When you print from Data Manager, your spreadsheet is automatically sent to the default printer. If you have installed other printers, you can specify which one you want CorelCHART to use. The printer you specify remains active until you exit CorelCHART.

Note: Before you print a final copy of the spreadsheet, or send a print file to an service bureau for film or direct imaging, make sure that you've built your System Color Profile with Color Manager for the particular output device chosen.

To select a printer:

1. Choose Print Setup from the File menu.

   You can also select a printer from the Print dialog box. See Print command.

2. In list box under **Printers**, choose a printer.

   Only installed printers appear. For information on installing printers, see your Microsoft Windows *User's Guide.*

3. Click the **Setup** button to choose the **Orientation** and **Paper** options.

Setting up the active printer

You can specify the default settings for the active printer from Data Manager.

To set up the active printer:

1. Choose Print Setup from the File menu.

   You can also select a printer from the Print dialog box. See Print command.

2. Choose **Setup**.
3. Select the paper source, size and orientation.
4. Choose **Options** for more advanced choices. Click **Help** for information about the options.

Printing a range of cells

You can print a selected range of cells in a given spreadsheet.

To print a range of cells:

1. In Data Manager, choose Print from the File menu.
2. In the Print Data dialog box, in the **Print Cells** group, do one of the following:
   - choose **All** to print all rows that contain data.
   - to print a range of rows, enter the number of the first row in the **From** box and the number of the last row in the **To** box.
3. In the Columns section, do one of the following:
   - choose **All** to print all columns that contain data.
   - to print a range of columns, enter the letter of the first column in the **From** box and the letter of the last column in the **To** box.

Note: when you select a range of cells to print, the **Print Pages** options in the Print Data dialog box are automatically dimmed because the number of pages that print corresponds to the range of cells selected.

Printing a range of pages

You can specify a range of pages to print only a section of a long spreadsheet.

To print a range of pages:

1. In Data Manager, choose Print from the File menu.
2. In the Print Data dialog box, in the **Print Pages** click the radio button that precedes the word "From".
3. In the **From** box, type the page number of the first page you want printed.
4. In the **To** box, type the page number of the last page you want printed.

Note: If you have set the **First Page Number** to a number other than one, enter the page numbers for the print range accordingly, i.e., if the number five is assigned to the first page and you want to print the first ten pages, the print range is from page five to page fifteen.

Setting the first page number for a printed spreadsheet

You can assign a page number other than one to the first page of the spreadsheet. Use this procedure when cover or presentation pages will precede the printed spreadsheet in a document.

To set the first page number for a spreadsheet:

1. In Data Manager, choose Print from the File menu. The Print Data dialog box appears.
2. In the **First Page Number** box, type the number you want to assign to the first printed page of the spreadsheet.

Note: The first page number is also valid when selecting a range of pages to print in the **Print Pages** group, i.e., if the number five is assigned to the first page and you want to print the first ten pages, the print range is from page five to page fifteen.

Creating headers and footers

You can set headers and footers that appear on every printed page of your spreadsheet.

To create headers and footers:

1. Choose Page Setup from the Data Manager File menu. The Page Setup dialog box appears. Choosing Print from the File menu and clicking the **Page** button does the same.
2. In the **Header** text box, type the text you want at the top of each printed page.
3. In the **Footer** text box, type the text you want at the bottom of each printed page.
4. In both the **Header** and **Footer** boxes, insert the text alignment codes to the left of the text and the automatic codes if needed. *See* Header and Footer Formats for a list of codes.
5. Click the **Font** button to select the font face, style and size for printing the headers and footers.

Setting the spreadsheet margins

1. Choose Page Setup from the Data Manager File menu. The Page Setup dialog box appears. Choosing Print from the File menu and clicking the **Page** button does the same.
2. Click the arrow in the Units box to choose units of measurement from the drop-down list.
3. In the **Margins** group, type the width of the four margins in the **Left, Top, Right** and **Bottom** boxes.

Note: Most printers have minimum margin widths, which override a spreadsheet margin set to zero. The margins you set in Data Manager are added to your printer's minimum margins. Use Print Preview to see how the spreadsheet will print on-screen.

Printing row numbers and column letters

You can set row and column button labels to print.

To print row numbers and column letters:

1. In Data Manager, choose Page Setup from the File menu.
2. Check the **Print Labels** check box to print the row numbers and column letters.

Printing spreadsheet gridlines

1. In Data Manager, choose Page Setup from the File menu.
2. Check the **Print Grid** check box.

Printing cell borders and patterns

You have a choice when printing to show the borders and patterns applied to cells using the commands from the Format menu.

To print cell borders and patterns:

1. In Data Manager, choose Page Setup from the File menu.
2. Check the **Print Shadow** check box to print the patterns applied to cells.
3. Check the **Print Borders** check box.

Saving printing time by turning off OLE objects

To shorten printing times for drafts, you can turn off the **Print OLE Objects** option in the Page Setup dialog box.

To turn off printing for OLE objects in a spreadsheet:

1. In Data Manager, choose Page Setup from the File menu.
2. Deselect the **Print OLE Objects** check box.

Printing a spreadsheet from Print Preview

The Print Preview command can be used as an alternative to the Print command. Print Preview gives you a visual representation of your spreadsheet pages and to all print options available through the Print command.

To print a spreadsheet using Print Preview:

1. In Data Manager, choose Print Preview from the File menu. The first page of the spreadsheet appears in the Preview screen.
2. Press the PgDn key to see the next pages, PgUp to go backwards. Click the **Goto** button to go to a specific page.
3. Click the **Zoom** button to magnify the view of the preview, click it again to zoom away.
4. Click **Margins** to set the top, left, bottom and right margins.
5. Click **Page** to open the Page Setup dialog box used to create headers and footers and choose the elements of the spreadsheet that will print (Row and column labels, cell borders and patterns, grid and OLE objects)
6. Click **Setup** to choose and setup a printer.
7. Click **Close** to exit the Print Preview without printing.
8. Click **Print** to display the Print Data dialog box.
9. In the Print Data dialog box, choose the range of pages or cells to print, type the number of copies and the page number of the first page.

Creating file icons

Using drag and drop to create file icons for CorelCHART files you use regularly can speed up your work. The files will load automatically when you launch CorelCHART.

To create file icons, just drag and drop as shown below:

1. Open the Windows File Manager or an equivalent file management program.
2. Resize the file manager window so that other Program Groups are visible.
3. Open the drive and directory where your file is located
4. Click the file and drag it into a Program Group window.

Windows automatically creates the icon you need in the chosen Program Group.

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Windows automatically creates the icon you need in the chosen Program Group.

Launching files from File Manager

Using Windows File Manager or an equivalent utility to start a work session saves time by opening the file and program you want to use at the same time to begin a work session.

To open a file from File Manager:

1. Open the File Manager from Windows Main Program Group.
2. Choose the directory containing your file.
3. Locate the file you want to work with and double-click its icon.

Working with multiple charts

You can have multiple CorelCHART windows, i.e., charts and corresponding spreadsheets, opened at the same time.

To view several charts at a time:

1. Open the charts you want to view.
2. Choose Cascade (Shift+F5), Tile Vertically (Shift+F4) or Tile Horizontally from the Window Menu.

   Tip: You can also "iconize," or reduce to icons, extra open Data Manager or Chart windows, just as you can program windows. Your file windows will appear at the bottom of the CorelCHART window and CorelCHART will automatically resize open file windows to keep iconized files visible.

Entering dates and times

Data Manager recognizes the following date and time formats and separators. Follow these conventions when entering dates and times. The earliest available date is December 31, 1899, and the last available date is June 4, 2079.

12/03/93	Displays month first, then day, then year
3-Dec-93	Displays day first, then month, then year
3-Dec	Displays day, then month
Dec-93	Displays only the month and year
11:33	Displays hours and minutes
11:33:44	Displays hours, minutes and seconds
11:33 AM	Displays the time using the 12-hour clock
12/03/93 11:33	Displays date and time

Use "/" or "-" to separate year, month, and day; use ":" to separate hour, minute, and second.

Using alphanumeric date and time values in formulas

DATEVALUE, DAYS360 and TIMEVALUE are the only Date and Time Functions which normally recognize alphanumeric values.

To use alphanumeric date and time values with other Date and Time Functions:

- Nest DATEVALUE, DAYS360 or TIMEVALUE in your formula.

  The syntax =DAY("July-16-1994") returns #BAD DATA!, but

  =DAY(DATEVALUE("July-16-1994")) = 16

or

- Reference a cell or range of cells containing any recognized date/time format by Data Manager, i.e., =MONTH(A1) = 4 if cell A1 contains Thursday April-14-1994.

Setting chart page size and orientation

You can change the size and orientation of a chart page to match the page size of the printer or other output device you are using.

To set the size and orientation of the page:

1. Choose Page Setup from the Chart View File menu.
2. Choose the Orientation option you want. The options are Portrait and Landscape.

   When you print the chart, a message will appear if the Printable Page and printer page orientation (as specified with the Print Setup command) do not match. The message will ask if you want CorelCHART to change the printer orientation to match Printable Page.
3. Do one of the following:
   - Choose one of the preset page sizes.
   - Choose Custom and type the Horizontal and Vertical dimensions you want.

   To use a different unit of measurement, choose one from the units box. CorelCHART will convert the value to its equivalent in the unit you choose.

   Clicking the Set From Printer button will set the size and orientation of your page to whatever is specified for the currently active printer.

Setting up a spreadsheet's printable page

The page settings you choose with the following procedure take effect only when you print your spreadsheet. *See also* Print Preview command and Print setup

To set up the spreadsheet's printable page:

1. Choose Page Setup from the File menu.
2. In the Page Setup dialog box, type header or footer text if you want a text string to appear at the top or bottom of every printed page. Headers and footers are saved automatically with your spreadsheet. *See also* Header and Footer Formats
3. Click the Font... button to choose a typeface, style and size for the header and footer. *See also* Font dialog box
4. Click OK to return to the Page setup dialog box.
5. Type the amount of space you want between the edge of the paper and the printed spreadsheet in the Margins text boxes. Click the units box if you want to change units of measurement.
6. Click one or more of the options. Print Shadow prints the cell patterns applied with the Pattern command, Grid prints cell gridlines, Borders prints borders added with the Borders command and Labels prints row numbers and column letters. The Color option, available only when printing to a color printer, prints color borders and patterns.

Setting page orientation

1. Choose Print Setup from the File Menu.
2. Click Setup in the Printer Setup dialog box.
3. Choose a page layout--Portrait or Landscape--from the Orientation box at the bottom left of the resulting dialog box.

Automatically filling series

The Fill Series command automatically speeds up your work by filling a larger range of cells based on existing data. Fill Series works with dates, times and number sequences. *See also* Fill series command (Data menu)

To use Fill Series:

1. Select a range of at least two cells upon which you want to base your autofill.
2. Extend the selection to the end of the range you want to fill.
2. Click Fill Series from the Data Menu.
3. Choose the options which apply and click OK.

Using the Enter Formula dialog box

The Enter Formula dialog box contains a listing of nearly 300 spreadsheet functions available in the Data Manager in the following subject areas: Conversion, Date and Time, DDE, Engineering, Finance, Information, Logic, Lookup and Reference, Math and Trig, Statistics and Text. *See also* Spreadsheet Functions

To enter a formula:

1. Click the Enter Formula button on the Ribbon Bar or press F12.
2. Key in your formula, including any required functions and separators into the Editor box at the top of the Enter Formula dialog box.

   or,

1. Choose a function category from the Functions Text Box at the bottom right of the Enter Formula dialog box.
2. Click the function list on the right-hand side of the dialog box. Scroll to and click the function you're looking for.
3. Choose a function and then key in the required arguments.

   Tips: Choose a spreadsheet function and then click the Dialog's **Help Button** for a specific Help topic.

   It is not necessary to use the equal sign operator at the beginning of your formula if you're using the Enter Formula dialog box.

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   Tips: Choose a spreadsheet function and then click the Dialog's **Help Button** for a specific Help topic.

   It is not necessary to use the equal sign operator at the beginning of your formula if you're using the Enter Formula dialog box.

Entering formulas directly into a cell

If you are familiar with the functions and syntax a given formula requires, you can enter it directly into a cell rather than using the Enter Formula dialog box. *See also* Spreadsheet Functions

To enter a formula directly:

1. Choose the cell where you want to enter your formula.
2. Type an equal sign (=), your function, (e.g., SUM) values or cell addresses, operator(s) and separators.
3. If you don't know the addresses of the cells you want to include, scroll to the area, click the first cell in the desired range and drag the mouse pointer until the entire range is selected and click OK.

Using Context-sensitive Help with Functions

Context-sensitive Help is available for all spreadsheet functions from the Enter Formula dialog box.

To get context-sensitive Help about a spreadsheet function:

1. Choose a function category (Conversion, Date and Time, DDE, Engineering, Finance, Information, Logic, Lookup and Reference, Math and Trig, Statistics or Text) from the Functions list box.
2. Click a spreadsheet function, e.g., in the Enter Formula dialog box's Functions list box under **Math & Trig** functions, choose **sum**.
3. Choose the Dialog's **Help Button**.

A Help window will open with a specific Help topic about the selected function.

Using the Formula bar

The Formula bar, located just below the Tag Bar, is used for composing spreadsheet formulas in the Data Manager.

1. Click the Formula bar
2. Press the equal sign.
3. Key in your formula including any required functions, cell references and separators and click OK.

See also Entering formulas directly into a cell

Editing a formula directly in a cell

There are two methods for editing a spreadsheet formula--using the Formula bar or editing directly in the cell that contains the formula. Editing the formula in a cell works only when the Formula command is turned off (the default) in the View menu.

To edit a formula directly in a cell:

1. Choose the cell containing the formula.
2. If the Formula command in the View menu is enabled, click it to turn it off.
3. Press F2. The formula appears in the cell.
4. Click inside the formula to position the cursor, which becomes a blinking I-bar.
5. Edit the formula.
6. Press the Enter key to apply the changes. The formula is replaced by its result in the cell.

Editing a formula using the Formula bar

The Formula bar is located just below the Tag Bar.

To edit a formula using the Formula bar:

1. Select the cell which contains the formula.
2. Click the Formula bar to position the cursor, which becomes a blinking I-bar.
3. Make the desired changes to the formula.
4. Press the Enter key to apply the changes. The new result appears in the cell.

Entering cell references

Cell references are used within formulas. They tell Data Manager where to look for the data needed in the formula. There are three types of references: relative, absolute and mixed.

To enter a cell reference in a formula:

1. Position the insertion point in the formula where the reference is to appear.
2. Do one of the following:
    - **relative reference:** Type the column and row co-ordinates of the cell to which you want the formula to refer, without spaces e.g., E4.
    - **absolute reference:** Type the dollar sign ($) before the column and row co-ordinates of the cell, e.g., E4.
    - **mixed reference:** Type a combination of the syntax used in the two previous points; type the $ before either the column or row co-ordinate to make half of the reference relative and the other absolute.

Applying pictographs

Pictographs can only be used in horizontal and vertical bar charts and histograms.

To apply a pictograph:

1. In Chart View, select a bar riser.
2. In the Chart menu, choose Show as Pictograph. If the current chart type does not support this feature, the command is not displayed in the Chart menu.
3. Click the Fill tool. The fill flyout menu appears.
4. Click the pictograph button which is the last on the top row of the flyout menu. This opens the Pictograph Roll-up.
5. Click Import. In the Import dialog box, locate the CDR file you want to use as a pictograph and click OK.
6. The chosen CDR file is displayed in the Pictograph Roll-up. Click Apply. The selected riser is filled with several pictographs, one for each division on the numeric scale.

See also Using the Pictograph Roll-up

Using the Pictograph Roll-up

The Pictograph Roll-up is used to select or import pictographs, which can replace default risers.

To apply pictographs to a chart riser:

1. In Chart View, select a bar riser.
2. In the Chart menu, choose Show as Pictograph. **Note:** If the current chart type does not support this feature, the command is not displayed in the Chart menu.
3. Click the Fill tool. The Fill flyout menu appears.
4. Click the pictograph button--the last button on the top row of the flyout menu.
5. Click import. In the Import dialog box, locate the CDR file you want to use as a pictograph and click OK.
6. The chosen CDR file is displayed in the Pictograph Roll-up. Click Apply. The selected riser is filled with several pictographs, one for each division on the numeric scale.

See also Applying pictographs

Changing chart types from the Gallery

The Gallery menu lists and displays all available chart types.

To change a chart type:

1. Open the chart you want to change.
2. From the list in the Gallery menu, click a chart category. A flyout menu appears which lists the various chart types available in the selected category.
3. Press and hold the mouse button.
4. Drag the mouse down, over the chart type names. A color visual preview of the highlighted chart type appears to help you make your selection.
5. Release the mouse button when the appropriate type is displayed. Your chart is converted to the selected chart type.

See also Choosing chart types and Changing chart types with drag and drop

Changing chart types with drag and drop

You can apply a new template to your current chart without changing the underlying data using drag and drop.

To drag and drop a new template onto your current chart:

1. Tile your file manager and charting windows.
2. Drag any CorelCHART file from the CorelDRAW50 \PROGRAMS\CHART subdirectory onto your current chart.

Using Corel clipart in your charts

Corel provides an extensive clipart library on CD-ROM with the CorelDRAW suite of applications. You can import the clipart images in your charts as chart objects. Clipart can also be used as pictographs in bar charts and histograms. *See also* How to... Change a chart's appearance

To use a clipart image as a pictograph:

1. Select a bar riser from a bar chart or histogram.
2. Select Show as Pictograph from the Chart menu. The selected riser displays lines that separate it in several equal sections.
3. Click the Fill tool. The fill flyout menu appears.
4. Click the Pictograph button, the last on the top row of the flyout menu. This opens the Pictograph Roll-up.
5. Click import. In the Import dialog box, choose the drive letter for your CD-ROM drive and locate the clipart (.CDR) file you want to use as a pictograph and click OK.
6. Click Apply to fill the riser sections with the selected clipart.

Drawing straight lines

The Pencil tool is used draw **straight lines**, polygons and curves. You can set attributes for lines by using the Outline tool.

To draw a straight line:

1. Click the Pencil tool. A flyout menu appears.
2. Click the Line tool 
3. Move to where you want to start the line and click and hold the mouse button.
4. Drag the mouse to where you want the line to end. Release the button.

Drawing polygons

The Pencil tool is used draw straight lines, **polygons** and curves. You set fill and outline attributes for polygons with the Outline and Fill tools.

To draw a polygon:

1. Click the Pencil tool. A flyout menu appears.
2. Click the polygon button  .
3. Move to where you want to start the polygon and click the mouse button.
4. Release the mouse button and move to another location and click again. Repeat this process until you have the desired shape, then double-click to close the polygon.

Drawing curves

The Pencil tool is used draw straight lines, polygons and **curves**. You can set attributes for those curves by using the Outline tool.

To draw a curve:

1. Click the Pencil tool. A flyout menu appears.
2. Click the freehand drawing tool  .

3. Move to where you want to start the curve and click the mouse button. Hold the mouse button down while drawing.

Drawing squares and rectangles

1. Click the Rectangle tool and move the cursor to where you want to start the rectangle.
2. Click and drag the mouse until you have the desired rectangle, then release.
   Holding down the Ctrl key while dragging draws a square.

Rounding the corners of rectangles and squares

1. Click the corner of a rectangle or square with the right mouse button.
2. From the pop-up menu, choose Corner Roundness.
3. Choose one of the degrees of roundness from the flyout menu.

Shortcut

To switch back and forth between the Rectangle and the Pick tools, press the space bar with either one selected.

Drawing circles and ellipses

1. Click the Ellipse tool and move the cursor to where you want to start the ellipse.
2. Click and drag the mouse until you have the desired ellipse, then release.

   Holding down the Ctrl key while dragging draws a circle.

Shortcut

To switch back and forth between the Rectangle and the Pick tools, press the space bar with either one selected.

Adding text to a chart

1. Click the Text tool.
2. Move the cursor to where you want the text to begin and click. The cursor changes to a blinking I-bar, called the insertion point.
3. Type in your text.

Creating 3D text

While the default setting is two-dimensional, in 3D charts, you can display titles, axis markers, series and group headers in 3D perspective.

To show text in 3D perspective:

1. Click a title, axis marker, series or group header with the right mouse button.
2. Choose Text View Options... from the popup menu.
3. Click 3D perspective text.
4. Choose from the 3D Placement Options listed.

   You can place your text parallel or perpendicular to the chart floor or walls, or align it towards or away from the chart's implied vanishing point.
5. Choose Align to... Inside Edge or Outside Edge of the chart walls.

See also Autofitting headers in 3D charts

Autofitting headers in 3D charts

In three-dimensional charts, you can display all 2D headers all the same size (the default setting) or have them change size to match their relationship to the chart. The higher the number, the larger the title. *See also* Creating 3D text

To set autofitted text options:

1. Click a title, axis marker, series or group header with the right mouse button.
2. Choose Text View Options... from the popup menu.
3. Click Headers Change Size With Perspective.

Editing text in Chart View

To edit and format text:

1. Select the Text tool then, move the cursor to the text you want to edit.
2. Click the text.
3. Once the I-bar cursor appears do any of the following:

To	Do this
Move insertion point	Point and click on the new location, or press the followings keys or combinations of keys:
, ¯, ¬, ®	moves in direction of arrow
HOME	moves to start of text
END	moves to end of current line
Select any text	Drag across the text with the mouse.
Delete text	Press the BACKSPACE or DEL key to delete one character at a time or select the characters and press the DEL key.
Add text	Move the insertion point to where you want the text to start, then type.
Replace text	Select text and begin typing.
Copy to Clipboard	Select text and press CTRL+C or choose Copy from the Edit menu.
Cut to Clipboard	Select text and press CTRL+X or choose Cut from the Edit menu.
Paste	Press CTRL+V or choose Paste from the Edit menu.

Changing the font, size and style (Chart View)

The Text Ribbon bar allows you to set or change many text attributes quickly and easily. The text itself can be an inherent part of the chart such as the title, subtitle, footnote, data or category axis labels, or annotation text, created using the Text tool.

To change the font, size and style:

1. Select the text object with the Pick tool.
2. Click the Font Name list box. Type or choose a font from the list. The font is applied to text object.
3. In the Font Size list box, type a point size for the text or choose one from the drop-down list.
4. Click  to make the text bold,

 to italicize text and/or

 to underline it.

5. Choose Refresh Window from the View menu if parts of the text are not visible or are slightly offset.

Setting text alignment in Chart View

In Chart View, the alignment of text within its bounding box can be modified. The Text Ribbon bar alignment buttons can be used for annotation text created using the Text tool, or text objects inherent to the chart itself, such as the title, subtitle and footnote.

To change the text alignment:

1. Select the text with the Pick tool.
2. Do one of the following:
   - Click  to have the text align to the left of its bounding box.
   - Click  to center the text in its bounding box.
   - Click  to align the text to the right.
   - Click  to increase the spacing between characters so that the text is aligned with the left and right side of its bounding box.

Adjusting interline spacing in Chart View

The spacing between lines of one text object can be adjusted in Chart View. The change is applied to all lines within the selected text object.

To adjust the interline spacing:

1. Select the text object you want to edit. The selection must have at least two lines.
2. Click  to increase the space between all lines in the object. Click  to reduce it.
3. Repeat step 2 until the spacing is as required.

Adjusting inter-character spacing (Chart View)

Inter-character spacing, known as kerning, can be adjusted in Chart View for annotation text and a chart's title, subtitle or footnote; the spacing set is applied to all characters in a text object.

To adjust inter-character spacing:

1. Select the text you want to edit.
2. Click  to increase the spacing between characters,

 to reduce it.

3. Repeat step 2 until the spacing is as required.

Hiding or showing chart objects

Hiding chart objects increases the redraw speed and space on your page. You can choose precisely which chart objects you want to hide and show, or hide all text on your chart. The hidden objects still exist and are saved with the chart.

To hide or show elements of a chart:

1. Choose Display Status from the Chart menu and do any of the following:

- In the Display Status dialog box, check the object boxes for the chart objects you want displayed. The objects included in the dialog box vary according to the chart type you are using.

  or

- Clear the boxes for the chart objects you want to hide.

  or

- Click NO Text to hide all text, ALL Text to display all the text.

Deleting chart objects

Unlike chart objects, annotations created with drawing tools and imported objects can be removed from the current chart as follows:

1. Select the object with the Pick tool.
2. Press the DEL key.

Making combination charts

CorelCHART allows you to make combination charts.

To make a combination chart:

1. Open a Bar or Line chart.
2. Select the riser you want to emphasize.
3. If you're working with a line chart, choose Display as Bar from the Chart menu. If you're working with a bar chart, choose Display as Line.
4. To revert to the original riser type, deselect Display as Line/Bar.

Selecting objects

To select one object:

1. Choose the Pick tool.
2. Click the object or its outline.

   When an object is selected, a highlighting box with eight handles appears around the object (in some cases only a highlighted box appears).

To select multiple objects:

1. Click the Pick tool.
2. Press and hold down the Shift Key.
3. Click every object you want to select or their respective outlines.

Moving objects

1. Choose the Pick tool.
2. Do one of the following:
   - click anywhere there is no handle on the object's highlighting box
   - click anywhere on the object's fill
3. Hold down the mouse button and drag the object to its new location.

Resizing annotation objects

Annotation objects are objects created with the Chart View drawing tools and added to the chart.

To resize annotation objects:

1. Select an annotation object. It is surrounded by eight square selection handles.
2. Do one of the following:
   - Click and drag a corner handle to resize the object while maintaining its original aspect ratio. A dotted rectangular bounding box appears. It represents the selected object as you are scaling it.
   - Drag a middle selection handle to stretch or compress the object in one direction. The object's aspect ratio will change.
3. Release the mouse button when the bounding box has the desired size. The object's edges are at the precise location of the bounding box.

Note: Text annotation objects can only be scaled proportionately. They cannot be stretched or compressed. When you drag a middle handle, both the text's width and height are modified.

Resizing chart objects

Some chart objects such as the risers and legend markers cannot be resized individually with the Pick tool. They are however resized when the chart or legend background are scaled or stretched. Riser size for some chart types can be modified by choosing a command from the Chart menu.

To resize chart objects:

1. Select the object with the Pick tool. The object is surrounded by square selection handles. If the object is enclosed in a rectangular frame when selected, it is a chart object that cannot be individually resized.
2. Do one of the following:
   - Click and drag a corner handle to scale the object and maintain its aspect ratio. A rectangular dotted bounding box; representing the selected object as you are resizing it, appears.
   - Drag a middle selection handle to stretch or compress the object in one direction. The object's aspect ratio will change.
3. Release the mouse when the bounding box is of the desired size. The object redraws.

Note: Text objects (title, subtitle, footnote) cannot be stretched. Dragging the top or bottom middle handle of a text objects scales it. Dragging the left or right middle handle relocates the text within the bounding box without changing its size. The object is scaled down when you drag the handle enough to make the bounding box shorter than the original text object.

Reversing the order within groups and series

Reversing the order within groups and series can be a useful way to show a different emphasis for data and is available for in all chart types except table charts. Reversing a series changes the order of the related items. Reversing groups makes the data run from last to first on the category axis.

To reverse data:

1. Click the right mouse button on any bar, pie, slice, line or riser.
2. Choose Data Reversal. A flyout will appear, containing the Reverse Series and Reverse Groups toggle commands.
3. Choose Reverse Series or Reverse Groups. The reversal will be executed and will appear as a check mark on the flyout the next time you choose Data Reversal.

Applying templates from other charts

A chart template is any saved chart file (.CCH).

To apply another chart template to your current chart:

1. Choose Apply Template from the File menu. The Open Chart dialog box will appear.
2. In the File Name box, type the name of the chart template you want to open or select one from the lists contained in the folders under the Corel 5.0\CHART subdirectory.

   If the template you want is in another drive or directory, select the drive from the Drives box and the directory from the Directories box.

   Note: When you click a .CCH template in the File Name list box, you'll see a Preview of the chart, and a description if available, in the Preview box.

See also

Changing chart types from the Gallery

Changing chart types with drag and drop

Changing the scale range

Altering a chart's scale range manipulates data to show the trends you want to highlight.

To change a scale range:

1. Click any data value on a data axis with the right mouse button.
2. Choose from the scale choices identified--Linear Scale, Log Scale, Ascending Scale, Autofitted Scale, Staggered Scale--or click Scale Range... to open a dialog box.
3. Choose from the options listed (Exclude Minimum or Exclude Maximum, and Automatic Scale or Manual Scale) and click OK.

See also Scale Range dialog box

Displaying legends

1. In Chart View, choose Legend from the Chart menu.
2. In the Legend dialog box, click Display Legend.

See also Modifying legend layout

Modifying legend layout

The Legend command in the Chart menu lets you change the orientation, layout and text item location of your chart legend.

To modify the legend layout:

1. Choose Legend from the Chart menu. The Legend dialog box appears.
2. To hide the legend, click Display Legend to deselect it.
3. Do one or more of the following:
   - click Autofit Legend Text to have the text automatically sized to fit the legend box. If you change the legend box size, the text is resized automatically. You cannot change the point size of autofitted text using the text ribbon.
   - choose a position for the text in relation to the legend marker, the legend's rectangular display area, by clicking a text option. The text's alignment determines its position on the marker. For example, if text is left aligned, the last character will appear on the marker. Use the alignment buttons on the Text Ribbon to change text alignment.
4. Choose the legend orientation by clicking an option. Automatic Orientation places the legend in the default location for the current chart type.
5. If you select Vertical or Horizontal, you can determine the number of markers per column or row. Type the number in the box.

Modifying legend layout

The Legend command in the Chart menu lets you change the orientation, layout and text item location of your chart legend.

To modify the legend layout:

1. Choose Legend from the Chart menu. The Legend dialog box appears.
2. To hide the legend, click Display Legend to deselect it.
3. Do one or more of the following:
   - click Autofit Legend Text to have the text automatically sized to fit the legend box. If you change the legend box size, the text is resized automatically. You cannot change the point size of autofitted text using the text ribbon.
   - choose a position for the text in relation to the legend marker, the legend's rectangular display area, by clicking a text option. The text's alignment determines its position on the marker. For example, if text is left aligned, the last character will appear on the marker. Use the alignment buttons on the Text Ribbon to change text alignment.
4. Choose the legend orientation by clicking an option. Automatic Orientation places the legend in the default location for the current chart type.
5. If you select Vertical or Horizontal, you can determine the number of markers per column or row. Type the number in the box.

Applying patterns to cells

You can apply a pattern or shadow to a cell or range of cells to emphasize a particular string of data or differentiate groups of data.

To apply a pattern:

1. Select a cell or a range of cells.
2. Choose Patterns from the Format menu.
3. In the Patterns dialog box, choose a pattern from the Brushes group.
4. Select background and foreground colors by clicking the color selection boxes to display the drop-down color palette.

Removing cell patterns

1. Select the cell(s) for which you want to delete the pattern.
2. Choose Clear from the Edit menu or press the DEL key.
3. In the Clear Options dialog box, check Patterns in the Format group. Clear the boxes for the data and formats you want to keep.

Switching between Chart View and Data Manager

You may use CorelCHART's Data Manager simply to hold the text and data you need to create your charts, or to design spreadsheet presentations to be used on their own.

To switch to Data Manager:

- Click  at the top left-hand corner of the Chart View screen.

To switch back to Chart View:

- Click  at the top left-hand corner of the Data Manager screen.

  Tip: After you have switched to Data Manager once as described above, use Ctrl+tab to toggle between screens.

Entering information in a cell

Each cell in Data Manager can contain text, values or formulas. You can type up to 255 characters in a cell. Some characters may not be shown in a cell if a column is not wide enough and an adjacent cell contains data.

To enter information into a cell:

1. Select the cell in which you want to enter information.
2. Type the entry. The information you are typing appears simultaneously in the selected cell and in the Formula bar.
3. Press Enter to accept the information entered or Esc to cancel your entry and remove the data from the cell.

Entering information in a group of cells

Selecting a range of cells before entering data can speed up your work.

To enter information in a group of cells:

1. Select a range of cells by holding down the mouse button and dragging from the top left-hand corner to the bottom right-hand corner of the desired range.
2. Release the mouse button. The first selected cell remains active.
3. Type the first entry. The entry appears in the Formula bar and in the current cell.
4. Press Enter. The cell immediately below the first cell is now current. If you have reached the bottom of the first column of selected cells, the first cell in the next column is current.
5. Repeat steps 3 and 4 to enter data in the range as necessary.

Editing cell contents

1. Select the cell
2. Click the Formula bar.
3. Make the changes to the cell's contents in the Formula bar.
4. Press Enter to accept the changes or Esc to cancel them and retain the previous data.

See also Editing a formula directly in a cell

Moving to a specific cell using a cell address

The GoTo command is convenient when you know the address you want to be the current cell.

To move to a specific cell using a cell address:

1. From the Data menu, choose GoTo.
2. In the Go to Cell dialog box, type the address of the cell you want to move to.
3. Click OK. The specified address is the current cell.

Selecting multiple cells

1. Click the cell in the upper left corner of the area you want to select.
2. Hold down the mouse button and drag the mouse cursor to the lower right corner of the area.
3. Release the mouse button. The selected range of cells is highlighted and the first cell in the range becomes the active cell.

Selecting an entire row or column

Clicking the right mouse button on a Column or Row button (at the top and left sides of a spreadsheet) activates the popup format menu. The popup includes the following options for formatting, inserting and deleting rows and columns:

Insert	Inserts a column to the right of the column selected, or beneath the row selected
Delete	Deletes the column(s) or row(s) selected.
Column Width	Brings up a column width box. Reset width in the default measure of points, or change the measure to millimeters, centimeters, or picas and points.
Row Height	Brings up a row height box. Reset row height in the default measure of points, or change the measure to millimeters, centimeters, or picas and points.

To select multiple rows or columns, position the mouse pointer over a column or row header, press the left mouse button and drag in either direction until the desired number of columns or rows are selected. To deselect, click anywhere else in the spreadsheet.

Note: You may also select multiple rows and columns or blocks of data by clicking the first cell you want to select and dragging diagonally, vertically over the area with the mouse.

See also Scrolling and selecting cells and Right mouse button shortcuts... in a spreadsheet

Tagging cells automatically

1. Enter or paste your data into the spreadsheet following the layout for the sample data in the template for the chart type you want to create. Ignore the elements that your chart does not use and leave the corresponding cells blank. To tag only a portion of a spreadsheet, select the data range.
2. Click the Autoscan button in the Tag bar. Autoscan looks for the chart elements in particular places and assigns the appropriate tags.

See also Tagging cells manually

Tagging cells automatically

1. Enter or paste your data into the spreadsheet following the sample layout. Ignore the elements that your chart does not use and leave the corresponding cells blank. To tag only a portion of a spreadsheet, select the data range.
2. Click the Autoscan button in the Tag bar. Autoscan looks for the chart elements in particular places and assigns the appropriate tags.

See also Tagging cells manually

Tagging cells manually

This procedure is an alternative to tagging cells automatically which is useful when the layout of your data does not correspond to the sample layout.

To tag cells manually:

1. Select a cell or group of cells.
2. From the drop-down tag list, choose the tag to be assigned to the selected cell(s).

Sorting data

The Sort command in the Data menu allows you to sort data. You can sort all of the data or a partial area. Several options allow you to control how CorelCHART sorts the data.

To sort data:

1. Select the range of cells you wish to sort.
2. Choose Sort from the Data menu. The Sort dialog box appears.
3. Click either Rows or Columns to choose the type of sort and type the address of the cell to use as the sort criteria.
4. Click the Ascending or Descending radio button to choose the sort order.
5. Check the Adjust Formulas option to recalculate relative references in formulas after the sort.
6. Check the Move Formats option to move the cell format along with the data during the sort.
7. Press Enter to start sorting. The sorted data is displayed in the spreadsheet.

Finding data

The Find command is a fast way to search for a specific cell. The Find Previous and Find Next commands are used to move through several or all occurrences of specific data in a large spreadsheet.

To find specific data:

1. Choose Find from the Data menu. The Find dialog box appears.
2. Type the text, formula or formula value to locate in the Find box.
3. Specify the following options:
   - in the **Look by** group, the search order: by rows or by columns
   - in the **Look in** group, the kind of data to look for: formulas, formula value or text
   - the direction of the search starting from the current cell: forward or backward
4. Check the Ignore Case option to ignore upper case text.
5. Check the Whole Cell option if the entire cell contents should match the search string.
6. Click the Find button. The first cell containing the search string is highlighted.
7. Use the Find Next or Find Prev commands in the Data menu to find the next or previous occurrence of the search string.

Finding and replacing data

The Find & Replace command in the Edit menu allows you to locate a specific string in a spreadsheet and replace it with a new string.

To replace data:

1. Choose Find & Replace from the Edit menu.
2. Type the string to locate in the Find What box. To find only the instances when the search string is the entire cell contents, check the Whole Cell option.
3. Type the string to replace the search string with in the Replace With box.
4. To replace the whole cell contents, check the Whole Cell option next to the Replace With box. To replace only the part of the cell that matches the search string, disable the Whole Cell option.
5. Specify the following options:
   - in **Search for group**, choose the type of data to look for: text, formulas or values
   - in **Search by**, choose the search order: by row or column
6. Check the Match Case option to find only the strings that match the combination of upper and lower case characters of the Find What string.
7. Check the Verify on Replace option if you want to be notified when the search string is found.
8. To start searching, do one of the following:
   - Click Replace All to replace all occurrences of the search string. If the Verify on Replace option is enabled, a second dialog box appears. Click Find Next to skip the current string and find the next one. Click Replace to replace the current cell and find the next one. Click Replace All to override the Verify on Replace option selected previously.
   - Click Find Next to see the first occurrence of the search string and stop the process. If the Verify on Replace option is enabled, a second dialog box appears:
   - Click Find Next to skip the current cell and find the next one. Click Replace to replace the current cell. Click Find Next again to move to the next occurrence. Repeat as many times as needed.
   - Click Replace All to override the Verify on Replace option specified previously and replace all occurrences without being advised.

Changing the font, size and style in Data Manager

You can change the font, typestyle and point size used in spreadsheet cells by using the Font Command in the Format menu or the Text Ribbon bar.

To change the font, size and style:

1. Select a cell or range of cells containing text or numeric values.
2. Click the Font Name list box. Type or choose a font from the list. The font is applied to the text.
3. In the Font Size list box, type a point size for the text or choose one from the drop-down list.
4. Click  to make the text bold,

 to italicize it and/or

 to underline it.

Each attribute is applied to the text in the selected cells immediately after you set it.

Note: Text attributes can be saved in a style. Style can be applied to other cells and made available to all CorelCHART spreadsheets giving you quick access to customized settings.
See also Style command

Setting horizontal text alignment in Data Manager

To set the horizontal alignment of text in cells:

1. Select a cell or range of cells.
2. Choose Alignment from the Format menu.
3. In the Alignment dialog box, in the **Horizontal** group, do one of the following:
   - check **Left** to align the cell contents to the left
   - check **Center** to center the contents in the cell
   - check **Right** to align the cell contents to the right
   - check **Auto** to align text to the left and numeric values to the right of the cell
4. Type a value in the **Indent** box to set the alignment to anywhere between the choices mentioned above. The indent is calculated from the left of the cell and uses the units you set in the units box.
5. Check **Word Wrap** if you want long text strings in a single cell to display on several lines within the cell.

Note: The horizontal alignment of cell contents can also be set using the Text Ribbon bar alignment buttons. 



Setting vertical text alignment in Data Manager

The vertical alignment of cell contents--text or numeric values--can only be set in the Alignment dialog box. The horizontal alignment can be set in the dialog box or with the Text Ribbon bar alignment buttons.

To set the vertical alignment of cell contents (text and numeric values):

1. Select a cell or range of cells.
2. Choose Alignment from the Format menu.
3. in the **Vertical** group of the Alignment dialog box, check the radio button that corresponds to the desired alignment. The text or value can be aligned with the top or bottom of the cell. The **Baseline** option centers the cell contents; this is more visible when row height has been increased.

Editing individual characters in a cell

You can set attributes for individual characters with in-cell editing.

To edit attributes of individual characters in a cell:

1. Select a cell.
2. Press F2. The cell is highlighted.
3. Click the cell. A blinking cursor appears in the cell.
4. Select characters by pressing and holding down the mouse and dragging over the characters. Release the mouse. The characters are highlighted.
5. Set the font, typestyle and point size using the Text Ribbon bar.
6. Repeat steps 4 and 5 to modify the attributes of other characters in the cell.

Editing text with the pop-up menu

Cell text attributes can be modified with the Data Manager pop-up menu. This method is available when changing the attributes of all characters in a cell or range of cells.

To edit text attributes using the pop-up menu:

1. Select a cell or range of cells.
2. Click the right mouse button. The pop-up menu appears.
3. Click Font to access a the Font dialog box for choosing a font, size and style. Click OK to apply the changes to the cell.
4. Repeat step 2 and choose Alignment to set the justification of the cell contents.
5. Repeat the process to apply other attributes found in the pop-up menu such as Numeric format, Borders, Patterns or Styles.

Recalculating the spreadsheet

Data Manager offers several ways to determine when and how it recalculates spreadsheet values. If you are working on a large spreadsheet, recalculating after every change slows you down.

To recalculate automatically do one of the following:

1. Choose Auto Recalc from the Options menu. A marker appears next to the command name in the menu. Data Manager will recalculate all formulas in your spreadsheet after every change made.
2. Press the Auto Recalc button in the Data Manager text ribbon. The button, when active, is highlighted and has the same effect as the Auto Recalc command mentioned above.

To recalculate now:

1. Choose Recalc Now from the Options menu. Data Manager immediately recalculates all formulas in the spreadsheet.

Updating your chart

As you edit data in a Data Manager spreadsheet, by default the corresponding chart in Chart View changes. The Data Manager Data menu includes options to control when the changes take effect in Chart View.

To update the chart at a specific time:

1. Deselect Auto Update Chart from the Data Manager's Data menu.
2. Choose Update Chart Now from the Data Manager Data menu when you want to update. Data Manager remains current as the chart is updated in the background.

Adjusting row height using the mouse

1. Position the mouse pointer over the bottom portion of the row number for the row to be adjusted.
2. The cursor changes to a horizontal double. Drag the cursor up or down until the desired row height is set.

Adjusting row height with numeric precision

1. Select an entire row or group of cells in a row. you can select several rows at once if you want each one to have the same height.
2. Choose Row Height from the Format menu.
3. In the Row Height dialog box type the desired height. Click the units box to change the units of measurement.
4. Click the Default Value box to return to the default row height of 16 points.

Adjusting column width with numeric precision

1. Select an entire column or cells in a column. You can select several columns at once if you want all of them to have the same width.
2. Choose Column Width from the Format menu.
3. In the Column Width dialog box type the desired width. Click the units box to change the units of measurement.
4. Click the Default Value box to return to the default column width of 50 points.

Adjusting column width using the mouse

1. Position the mouse pointer on the column heading towards the left or right edge.
2. The cursor changes to a vertical double arrow. Drag the mouse to the right or left until the column width is correct.

Hiding columns and rows

You can hide entire columns and rows from view--a useful alternative to moving data you do not currently need to see or print. Rows or columns are hidden if button labels are not consecutive.

To hide columns or rows:

1. Position the mouse pointer on the edge of the column or row heading. The pointer becomes a double-arrow.
2. Drag towards the other edge of the column or row you wish to hide.
3. Release the mouse button.

The column or row is now hidden.

See also Unhiding columns and rows

Unhiding columns and rows

You can redisplay or "unhide" hidden columns and rows. Hiding columns offers a useful alternative to moving data you do not currently need to see or print. You can tell rows or columns are hidden if button labels are not consecutive.

To unhide columns or rows:

1. Position the mouse pointer over the line separating the row or column you want to unhide.

   The pointer becomes a double-arrow.

2. Drag the double-arrow cursor towards the right to unhide a column. Drag down to unhide a row.

See also Hiding columns and rows

Applying cell borders

You can apply a border to selected cells to emphasize a particular data string or visually differentiate different types of data.

To apply a cell border:

1. Select one or several cells.
2. Choose Borders from the Format menu.
3. Click the border location. The Outline option applies a border to all four sides of the cell(s).
4. Click a border style.
5. Click the Color selection box to choose a border color from the drop-down color palette.

Removing cell borders

1. Select the cell(s) for which you want to remove the border.
2. Choose Clear from the Edit menu or press the DEL key.
3. In the Clear Options dialog box, check Borders in the Format group. Clear the boxes for the data and formats you want to keep.

Setting horizontal page breaks

Although Data Manager sets default vertical and horizontal page breaks in your data, you may also divide print jobs manually using the Set Page Break command.

To set a horizontal page break:

1. Click the cell immediately below where you want the horizontal page break to appear.
2. Click the Set Page Break button on the Data Manager's Ribbon Bar or choose Set Page Break from the Format Menu. The page break is indicated by a thin blue line that stretches across the spreadsheet.

   Note: The Set Page Break function, both from the Ribbon Bar and from the Format Menu, is a toggle command. To reverse your action, simply repeat it.

Setting vertical page breaks

Although Data Manager sets default vertical and horizontal page breaks in your data, you may also divide print jobs manually using the Set Page Break command.

To set a vertical page break:

1. Position the mouse pointer immediately to the right of the position where you want to create the vertical page break.
2. Click the Set Page Break button on the Data Manager's Ribbon Bar or choose Set Page Break from the Format Menu. The page break is indicated by a thin blue line that runs down the spreadsheet.

   Note: The Set Page Break function, both from the Ribbon Bar and from the Format Menu, is a toggle command. To reverse your action, simply repeat it.

Turning the grid on and off

- Choose Grid from the View menu. This command switches the grid display on and off.

Displaying chart tags

- Choose Chart Tags from the View menu. This command switches the tags display on and off.

Creating custom numeric formats

You can create custom numeric formats in both Chart View and Data Manager. CorelCHART applies new numeric formats to the data values in the current chart or selected Data Manager cells and adds the format to the end of the User Formats list. If you edit an existing format, the original remains in the list and the edited format is added to the end of the User Formats list.

Chart View:

1. Click a data value with the right mouse button and then choose Number format from the popup.
2. Type a new code in the Code box, or select and edit one of the built-in formats from the Formats list box.
3. Click the Add and OK buttons successively.

CorelCHART applies the new numeric format to all data values.

Data Manager:

1. Select a cell or range of cells.
2. Click the right mouse button and choose Numeric from the Format menu.
3. Type a new code in the Code box, or select and edit one of the built-in formats from the Formats list box.
4. Click the Add and OK buttons successively.

See also Understanding Data Formats and User Defined Numeric Formats

Deleting custom numeric formats

You can delete custom numeric formats in both CorelCHART and Data Manager.

Chart View:

1. Select a data value with the right mouse button and then choose Number format from the popup.
2. Select the format you want to delete from the User Formats list.
3. Click the Delete button. The custom numeric format is deleted.

Data Manager:

1. Select a cell or range of cells.
2. Click the right mouse button and choose Numeric from the Format menu.
3. Select the format you want to delete from the Numeric list.
4. Click the Delete and OK buttons successively.

See also Understanding Data Formats and User Defined Numeric Formats

Making custom numeric formats available to all documents

The Style command is used to save formatting options for use in other CorelCHART spreadsheets. The options saved in a style can include a numeric format.

To make a user-defined format available to all documents:

1. Choose Style from the Format menu.
2. In the Style dialog box, do one of the following
   - click the **Number** check box on the left side to include the current user-defined numeric format in the new style
   - click the **Number** button on the right side to access the Numeric dialog box (Format menu), create a new numeric format, click **Add** and **OK**.
3. At the top of the Style dialog box, in the **Name** drop-down list, type a name for a new style or choose the existing style name you wish to assign the numeric format to.
4. If you created a new style name, click the **Add** button to insert the new style in the list. This style, and its numeric format, is now available to format cells in the current spreadsheet.
5. Click **Save**. The Save Styles dialog box appears for saving all styles listed in a style sheet (.CCT).
6. Type a name for the style sheet. The new style sheet is available to all spreadsheets.

Creating a style

The Style command is used to save formatting options for use in spreadsheets.

To create a style:

1. Choose Style from the Format menu.
2. In the components group, click the options buttons on the right to see the dialog boxes used to set attributes for font, alignment, numeric format format, borders and patterns.
3. In the **Name** drop-down list at the top of the Style dialog box, type a name for a new style or choose an existing style name to which you wish to assign new attributes.
4. If you created a new style name, click the **Add** button to insert the new style in the list. This style is now available to format cells in the current spreadsheet.

Deleting a style

The Style command is used to save formatting options for use in a spreadsheets.

To delete a style:

1. Choose Style from the Format menu.
2. In the **Name** drop-down list at the top of the Style dialog box, choose the name of the style you want to delete.
3. Click delete.

Selecting a style

In Data Manager, combinations of formatting options can be saved as styles for quick access.

To select an existing style:

1. In Data Manager, choose the cell(s) to which you want to apply a different style.
2. In the Text Ribbon Bar, click the arrow to the right of the Styles drop-down list box.
3. In the styles list, click the style. It is applied to selected cell(s).

Making a style available to all spreadsheets

When you create a new style and add it to the styles drop-down list located in the Text Ribbon Bar, that style is available to the current spreadsheet only. It must be saved in a style sheet (.CCT files) to be available to all CorelCHART spreadsheets.

To save a style in a style sheet:

1. Open the spreadsheet which contains the style(s) you want to make available to all documents.
2. In Data Manager, choose Style from the Format menu.
3. In the Style dialog box, click the **Save** button.
4. In the Save Styles dialog box, select the appropriate drive and directory and type a file name for the new style sheet.

   All styles listed are saved in the new style sheet.

Choosing a style sheet

Style sheets (.CCT files) include a variety of styles which in turn, include several formatting options to use to change the appearance of your Data Manager spreadsheet. The Style command is used to create styles and save style sheets.

To choose a different style sheet:

1. In Data Manager, choose Style from the Format menu.
2. Click the **Load** button.
3. In the Load Styles dialog box, choose a style sheet (.CCT). Click OK.

   All styles found in the selected style sheet (.CCT) are listed in the styles drop-down list in the Text Ribbon.

Choosing numeric formats

You can apply a variety of numeric formats in both CorelCHART and Data Manager.

Chart View:

1. Select a data value with the right mouse button and choose Number format from the popup.
2. Select the category that contains the format you want to use from the Category list.
3. Choose the numeric format you want from the Formats list box and click OK.

CorelCHART applies the new numeric format to all data values.

Data Manager:

1. Select a cell or range of cells.
2. Click the right mouse button and choose Numeric from the popup.
3. Select the category that contains the format you want to use from the Category list.
4. Choose the numeric format you want from the Formats list box and click OK.

CorelCHART applies the new numeric format to the selected cells.

See also Built-in Data Formats and User Defined Numeric Formats

Inserting rows

1. In Data Manager, select a row by clicking the row number located on the left side of the spreadsheet.
2. To insert multiple rows, click and drag the cursor down the row numbers.
3. Choose Edit, Insert.

   The selected row and all rows below it shuffle down, and a row of empty cells (with default formats) is inserted. In the case of a multiple selection, the rows shuffle down by the number of new rows inserted.

Inserting columns

1. Select the column to the right of the insertion location by clicking the column letter.
2. To insert multiple columns, click and drag through the column letters of the columns you want to select.
3. Choose Edit, Insert.

   The selected column and all columns to the right shuffle right, and a column with empty cells is inserted. In the case of a multiple selection, the columns shuffle to the right by the number of columns inserted.

Deleting rows

1. In the Data Manager, select a row by clicking its row number, located on the left side of the spreadsheet.
2. To delete multiple rows, click and drag the cursor down the row numbers of the rows you want to select.
3. Choose Delete from the Edit menu.

   The selected row disappears and all rows below it move up. In the case of a multiple selection, the rows move up by the number of rows deleted.

Deleting rows

1. In the Data Manager, select a row by clicking its row number, located on the left side of the spreadsheet.
2. To delete multiple rows, click and drag the cursor down the row numbers of the rows you want to select.
3. Choose Delete from the Edit menu.

   The selected row disappears and all rows below it move up. In the case of a multiple selection, the rows move up by the number of rows deleted.

Deleting columns

1. In Data Manager, select the column you want to delete by clicking its column letter.
2. To delete multiple columns, click and drag through the column letters of the columns you want to select.
3. Choose Edit, Delete.

   The selected column disappears and all columns to the right of it shuffle to the left. In the case of a multiple selection, the columns shuffle to the left by the number of columns deleted.

Deleting columns

1. In Data Manager, select the column you want to delete by clicking its column letter at the top of the spreadsheet.
2. To delete multiple columns, click and drag through their column letters.
3. Choose Edit, Delete.

   The selected column disappears and all columns to the right shuffle to the left. In the case of a multiple selection, the columns shuffle to the left by the number of columns deleted.

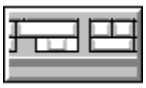


Chart View shortcuts

See also Data Manager shortcuts

Speed keys

Key(s)	Action
CTRL+R	Refreshes the current window
CTRL+TAB	Toggles between Data Manager and Chart View
F2	Activates the Zoom cursor
F6	Chooses the Rectangle tool
F7	Chooses the Ellipse tool
F8	Chooses the Text tool
F10	Activates/deactivates the Menu Bar

Note: This function is available **after** you have opened Data Manager once by the conventional method, either by clicking the Data Manager icon at the top of the Toolbox or choosing View Chart Data from the Chart View Edit menu.

ESC-ESC	Deactivates the Menu Bar

Menu speed keys

Ribbon Bars

CorelCHART's Ribbon Bars, sometimes called button bars, are located just under the Chart View and Data Manager Menu Bars. Clicking a button on a Ribbon Bar activates the command associated with it. Hold the mouse pointer over a button to see its name or right-click for Context-sensitive Help.

The Chart View Ribbon Bar, contains the following buttons (from left): New, Open, Save, Print, Cut, Copy and Paste, Import and Export, Display Status, Legend, Numeric Format, Data Analysis, Align, 3D Rollup, Copy Chart, Wireframe and Mosaic Rollup.

The Data Manager's Ribbon Bar includes (from left) New, Open, Save, Print, Cut, Copy and Paste, Import and Export, Set Page Break, Number Format, Borders, Patterns, Go to cell, Enter Formula Sort, Auto Recalculate, Grid Lines and Mosaic Rollup.

See also Chart View Tools and Ribbon Bars and Data Manager Ribbon Bars

Text Ribbon Bars

CorelCHART's Text Ribbon Bars--located just under the Chart View and Data Manager Ribbon Bars--include buttons and drop-down list boxes for setting text attributes such as font type and size selection, bold, underline, italic, alignment, inter-character and inter-line spacing. Clicking Text Ribbon Bar button activates the command associated with it. Hold the mouse pointer over a Text Ribbon button or list box to see its name or right-click for Context-sensitive Help.

See also Chart View Tools and Ribbon Bars and Data Manager Ribbon Bars

Tool tips

Press the key or keys on the left to produce the action described at right.

Key(s)	Action
CTRL-DRAG-SIZE-HANDLE	With the Pick tool active, dragging the sizing handle of an ellipse or rectangle constrains size increase/decrease to multiples of the original
CTRL-ELLIPSE	Constrains an ellipse drawn to a circle. (Hold the mouse button and Ctrl key down and drag in any direction)
SHIFT-ELLIPSE	Draws the ellipse from the center outward
CTRL-SHIFT-ELLIPSE	Draws a circle from the center outward
CTRL-RECTANGLE	Constrains rectangles to squares
SHIFT-RECTANGLE	Draws the rectangle from the center outward
CTRL-SHIFT-RECTANGLE	Draws a square from the center outward
SPACE BAR	Activates the Pick tool when a drawing tool is current
	Activates the last drawing tool used when the Pick tool current
ESC	Deselects all objects

Menu keys

Common menu keys

The following speed keys are common to all menus. Press the key or keys on the left to produce the action described at right.

Key(s)	Result
ALT	Activates the menu bar. Press any underlined letter from the menu bar to pull down that menu (see the next paragraph). Deselect the menu bar by pressing ESC or clicking anywhere in the active window
ALT-{MENU LETTER KEY}	Opens the drop-down menu. To pull down the menu you want to use, select its underlined letter after or while pressing the ALT key. E.g., ALTFA opens the Save As dialog box.
ALT-"-" or ALT-SPACE BAR	Opens the control menu for the current window
ALT-LEFT or ALT-RIGHT ARROW	Moves left or right through menus
ARROW KEYS	When scrolling through menus, if the selection bar is closer to the top, bottom, left or right side, pressing the ARROW key in that direction side takes you to the opposite end of the menu or screen.
UP or DOWN ARROW (2)	Chart View's Gallery, Chart and Arrange menus feature secondary, or flyout menus, which are indicated by a pointer at each menu's right side. To use the arrow keys in a CorelCHART flyout menu, with the flyout open, press the UP ARROW to see the top chart listed, or the DOWN ARROW to see the bottom chart.

File menu keys

Keys	Result
CTRL+N	Opens the New Chart dialog box
CTRL+O	Opens the Open Chart dialog box
CTRL+S	Resaves the current chart and spreadsheet file, replacing previous information.
CTRL+P	Opens the Print dialog box
CTRL+J	Opens the Preferences dialog box, which controls Display Options, Curve Flatness, Preview Colors, and Miter Limit
ALT+F4	Closes both Data Manager and Chart View. A Save Changes message appears if there are unsaved changes.

Edit menu keys

Keys	Result
CTRL+Z	Undoes the last editing operation
CTRL+X	Cuts selected text, data or objects to the Windows Clipboard for retrieval
CTRL+C	Copies selected text, data or objects to the Windows Clipboard for retrieval
CTRL+V	Pastes or inserts at the current cursor location any previously cut or copied text, data or objects from the Windows Clipboard
DEL	Deletes the currently selected object
CTRL+D	Duplicates a drawing object
CTRL+T	Copy Chart: copies the current chart for use as an OLE object

Arrange menu keys

Key	Result
CTRL+A	Align command: Opens the Align objects dialog box

View menu keys

Key	Result
SHIFT+F9	Toggles between wireframe and editable preview modes
CTRL+W	Refresh window: Updates the current chart window

Window menu keys

Key	Result
SHIFT+F5	Cascades all open charts and spreadsheets
SHIFT+F4	Tiles all open charts and spreadsheets horizontally

See also Help shortcuts

Mouse tricks

Selecting objects

Perform the mouse action on the left to produce the result described at right.

Key(s) or Mouse Action	Result
SHIFT+LEFT MOUSE BUTTON	With the Pick tool activated, hold down the SHIFT key to select two or more objects at once

Right mouse button shortcuts ... in Chart View

The right mouse button opens context-sensitive pop-up menus in both Chart View and Data Manager screens.

To activate a right mouse button menu in Chart View:

- Click and release the right mouse button anywhere in a charting window. This will open a context sensitive popup menu right where you're working. As the example below shows, you may then toggle on or off a range of options on the spot!

Right mouse button context sensitivity

The right mouse button opens context sensitive pop-up menus in both Chart View and Data Manager screens and opens context-sensitive Help about the Toolbox, Ribbon Bar and Text Ribbon.

To open context-sensitive Help with the right mouse button:

- Click the right mouse button with the pointer over any Tool, Ribbon Bar button or Text Ribbon item.

Help shortcuts

Press the key or keys on the left to produce the action described at right.

Key(s)	Result
F1	Displays the main CorelCHART Help Contents screen
F1-F1	Pressing F1 from within any Help window displays the Microsoft Windows Using Windows Help topics.
F1 (in a given context)	With a menu item selected or a dialog box or system message on screen, displays context sensitive Help (where available)
SHIFT+F1	Changes the pointer to  so that you can get Help on a specific command, screen region, or key. You can then choose a command, click the screen region, or press a key or key combination you want to know more about.

CTRL+F1 Opens Help's Search dialog box
CTRL+HOME Moves to top of the Help topic
CTRL+END Moves to the bottom of the Help topic
> Moves to the next topic
< Moves to the previous topic

Note: As an alternative to clicking with the mouse, you may also use the keyboard to "press" Help buttons. Simply type a Help button's underlined letter to execute its function. E.g., to press the Back button, press **b** on the keyboard; to press the Close button, press **c**, and so on.

Creating file icons

Using drag and drop to create file icons for CorelCHART files you use regularly can speed up your work because the files will automatically load when you launch CorelCHART.

To create file icons, just drag and drop as shown below:

1. Open the Windows File Manager or an equivalent file management program.
2. Resize the file manager window so that other Program Groups are visible.
3. Open the drive and directory where your file is located
4. Click the file and drag it into a Program Group window.

Windows automatically creates the icon you need in the chosen Program Group.

Dialog box shortcuts

Pressing the key or key combinations indicated at left with a dialog box open will produce the results shown at right.

Key(s)	Result
F1	Opens Help Context Sensitive Help about the current dialog box (where available)
TAB	Moves from field to field (left to right and top to bottom)
SHIFT+TAB	Moves from field to field in reverse order
ALT+LETTER	Presses the command button, or chooses the option or group whose underlined letter matches the one you type
ARROW key	Moves from option to option within a group of options
ENTER	Presses a selected command button Or, chooses the selected item in a list box and executes the command

Note: A command button is selected or current when it has a bold black border, as shown below.

ESC Closes a dialog box without completing the command (same as the Cancel button in a dialog box)
ALT+DOWN ARROW Opens a drop-down list box
ALT+UP OR DOWN ARROW Selects item in a drop-down list box
SPACEBAR Cancels a selection in a list box
Selects or clears a check box
CTRL+SLASH Selects all the items in a list box
CTRL+BACKSLASH Cancels all selections except the current one
SHIFT+ARROW key Extends selection in a text box

SHIFT+HOME	Extends selection to first character in a text box
SHIFT+END	Extends selection to last character in a text box

Windows shortcuts

The following keys can be used from any window, regardless of the application you are using.

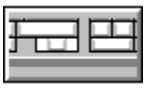
Key(s)	Result
CTRL+ESC	Switches to the Task List
ALT+ESC	Switches to the next application window or minimized icon, including full-screen programs
ALT+TAB	Switches to the next application window, restoring applications that are running as icons
PRINT SCRN	Copies the entire screen to the Windows Clipboard
ALT+PRINT SCRN	Copies the active window screen to the Windows Clipboard
CTRL+F4	Closes the active window
F1	Displays CorelCHART's main Help Contents screen *(see also* Help shortcuts)
ALT+SPACEBAR	Opens the Control menu for an application window
ALT+HYPHEN	Opens the Control menu for a document window
ALT+F4	Closes an application
ALT+ENTER	Switches a non-Windows application between windowed and full-screen operation
ARROW key	Moves a window when you have chosen Move from the Control menu

Shortcut key conventions

The following conventions are used when referring to shortcut keys:

- Keys which must be used in combination are shown linked by a plus sign, e.g., CTRL+TAB. See also Using speed keys.
- Where shortcut keys may be pressed successively, they are linked by a hyphen. E.g., ALT-F opens the File Menu. Press the ALT key, release it and then press and release the F key to open the drop-down File Menu. The menu stays open until you select a menu item's underlined letter, which activates that command or opens a dialog box.
- Reference to the right mouse button assumes that the mouse buttons have not been reassigned. Our apologies to left-handed users who have reassigned their mouse buttons and use the left mouse button as the secondary button.
- For more detail on a given topic:
  - click the Contents button at the top of the Help screen and choose the Help subject best suited to your query
  - click the **How to ...** button under the Help Menu Bar, or
  - search Help for your topic by keyword

For help with Online Help conventions, press F1 now (F1-F1 from an application) to open the Microsoft Windows *Using Windows Help* file. *See also* Help shortcuts



Data Manager shortcuts

Moving around a spreadsheet
Right mouse button shortcuts ... in a spreadsheet
Right mouse button shortcuts ... in columns and rows
Right mouse button context sensitivity
Scrolling and selecting cells
Automatically filling series
Menu keys
Speed keys
Ribbon Bars
Text Ribbon Bars
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Shortcut key conventions
Windows shortcuts

See also Chart View shortcuts

Menu keys

See also Speed keys

Speed keys

Press the key or keys on the left to produce the action described at right.

Key(s)	Result
F2	Activates the Formula Bar
TAB	Moves the cursor one cell to the right
ENTER	Enters the current information and moves the cursor one cell down
SHIFT+F4	Tiles any open CorelCHART files vertically
F5	Chooses the Pencil Tool
SHIFT+F5	Cascades open CorelCHART files
F12	Opens the Enter Formula dialog box
CTRL+TAB	Toggles between Data Manager and Chart View.

Note: This function is available after you have opened Data Manager once by the conventional method, either by clicking the Data Manager icon at the top of the Tool Box or choosing View Chart Data from the Chart View Edit menu.

ESC	Closes an open dialog box
ESC-ESC	Deactivates the Menu Bar

Menu keys

Scrolling and selecting cells

Perform the mouse action on the left to produce the result described at right.

Mouse action	Result
Click above or below the thumb slide on the vertical scroll bar	Scrolls one screen up or down
Click to the left or right of the thumb on the vertical scroll bar	Scrolls one screen left or right
Click and drag diagonally, horizontally or vertically in a spreadsheet	Selects a range of cells
Click and drag along row or column buttons	Selects several rows or columns at once

Moving around a spreadsheet

The following key combinations will help you get around your spreadsheets quicker. *See also* Scrolling and selecting cells

Keys	Result
CTRL+ HOME	Moves the cursor to the first cell (cell A1) in a spreadsheet
CTRL+ END	Moves the cursor to the bottom right of the data range
CTRL+ LEFT or RIGHT ARROW	Moves the cursor to the extreme left (column A) or right side (column IV, or 256) of a spreadsheet
CTRL+ UP or DOWN ARROW	Moves the cursor to the top (Row 1) or bottom (Row 16,384) of a spreadsheet
PAGE UP or PAGE DOWN	Moves the cursor up or down a full screen.
In the Formula Bar	
F2	Activates Formula Bar editing
F2-F2	Activates in-cell editing
HOME	Moves to the beginning of the Formula Bar
ESC	Cancels current formula input

Note: Pressing PAGE UP or PAGE DOWN automatically repositions the spreadsheet window, placing the cursor at the top of the next window and scrolling data in the previous

window off screen.

View menu keys

Keys	Result
CTRL+G	Grid toggle: Toggles Data Manager gridlines on or off
CTRL+W	Refresh window: Updates any changes to the current window

Common menu keys

The following speed keys are common to all menus. Press the key or keys on the left to produce the action described at right.

Key(s)	Result
ALT	Activates the menu bar. Press any underlined letter from the menu bar to pull down that menu (see the next paragraph). Deselect the menu bar by pressing ESC or clicking anywhere in the active window
ALT-{MENU LETTER KEY}	Opens the drop-down menu. To pull down the menu you want to use, select its underlined letter after or while pressing the ALT key. E.g., ALTFA opens the Save As dialog box.
ALT-"-" or ALT-SPACE BAR	Opens the control menu
ALT-LEFT or ALT-RIGHT ARROW	Moves left or right through menus.
UP or DOWN ARROW	When scrolling through menus, if the selection bar is closer to the top, bottom, left or right side, continuing toward that side takes you to the opposite end of the menu or screen.
UP or DOWN ARROW	Chart View's Gallery, Chart and Arrange menus feature secondary, or flyout menus, which are indicated by a pointer at each menu's right side. To use the arrow keys in a CorelCHART flyout menu, with the flyout open, press the UP ARROW to see the top chart listed, or the DOWN ARROW to see the bottom chart.

File menu keys

Key(s)	Result
CTRL+N	Opens the New Chart dialog box
CTRL+O	Opens the Open Chart dialog box
CTRL+S	Saves a previously saved chart and spreadsheet, replacing previous information **Note:** Choosing CTRL+S for a new chart or spreadsheet file calls up the Save As dialog box.
F9	Displays a print preview of a spreadsheet
CTRL+P	Opens the Print Data dialog box
CTRL+J	Opens the Preferences dialog box, which controls Display Options, Curve Flatness, Preview Colors, and Miter Limit
ALT+F4	Closes both Data Manager and Chart View. A Save Changes message appears if there are unsaved changes.

Edit menu keys

Key(s)	Result
CTRL+Z	Undoes the last editing operation
CTRL+X	Cuts selected text, data or objects to the Windows Clipboard for retrieval
CTRL+C	Copies selected text, data or objects to the Windows Clipboard for retrieval
CTRL+V	Pastes or inserts at the current cursor location any previously cut or copied text, data or objects from the Windows Clipboard
DEL	Opens the Cut and Clear dialog box, giving options for the deletion of any text, data or objects selected
ALT+F3	Find & Replace: Opens the Find & Replace dialog box. This function allows you to search for text, formulas or values by row or column. You may search backward and forward and match upper and lower case.

Format menu keys

Keys	Result
Ctrl+F	Patterns: Opens the Patterns dialog box
Ctrl+Q	Set page break: Sets manual page breaks in your printed data

Data menu keys

Key(s)	Result
F12	Enter Formula: Calls up the Enter Formula Dialog Box. *See also* How to ... Use functions and formulas and Enter Formula command (Data menu)
SHIFT+F7	Auto Recalculate toggle: The default setting is on, as indicated by a check mark next to the menu item. If you are working with large amounts of data and your computer is taking extra time to perform the calculations, you may want to turn Auto Recalculate off.
F7	Recalculate Now: Recalculates data when selected if Auto Recalculate is turned off.

Window menu keys

Keys	Result
SHIFT+F5	Cascades all open charts and spreadsheets
SHIFT+F4	Tiles all open charts and spreadsheets horizontally

See also Help shortcuts

Right mouse button context sensitivity

The right mouse button opens context-sensitive pop-up menus in both Chart View and Data Manager screens and opens context-sensitive Help about the Toolbox, Ribbon Bar and Text Ribbon.

Opening context-sensitive Help with the right mouse button:

- Click the right mouse button with the pointer over any Tool, Ribbon Bar button or Text Ribbon item.

Right mouse button shortcuts ... in a spreadsheet

Clicking the right mouse button anywhere in a spreadsheet will call up a pop-up format menu; its selections and their results appear below. *See also* Right mouse button shortcuts ... in columns and rows and Right mouse button shortcuts... in Chart View.

Menu Item	Result
Cut	Cuts text or graphics (active only when text or data selected)
Copy	Copies text or graphics (active only when text or data selected)
Paste	Pastes text or graphics (only if text or data have been cut or copied)
Clear	Opens a dialog box listing options for deleting data or formats
Numeric...	Opens the Numeric format dialog box. Choose from preset numeric styles or create your own.
Font...	Opens the Font format and selection box
Borders...	Calls up the Borders dialog box, which allows you to set fills and patterns for spreadsheet cells
Alignment...	Opens the Alignment dialog, which allows you to set preferences for text alignment or justification and turn on word wrap
Patterns...	Opens the Patterns dialog, used to add patterns to one or more selected cells
Style...	Opens the Style dialog box. Styles are saved formatting combinations, including font, alignment, numeric format, cell borders and patterns.
Best Fit	Executes the Best Fit command

Right mouse button shortcuts ... in columns and rows

Clicking the right mouse button on a Column or Row button (at the top and left sides of a spreadsheet) activates a pop-up format menu. The pop-up includes the following options for formatting, inserting and deleting rows and columns:

Cut Cuts text or graphics (active only when text or data selected)

Copy Copies text or graphics (active only when text or data selected)

Paste Pastes text or graphics (only if text or data have been cut or copied)

Insert Inserts a column to the right of the column or selected, or beneath the row selected

Delete Deletes the column(s) or row(s) selected.

Numeric... Opens the Numeric format dialog box. Choose from preset numeric styles or create your own.

Font... Opens the Font format and selection box

Borders... Calls up the Borders dialog box, which allows you to set fills and patterns for spreadsheet cells

Alignment... Opens the Alignment dialog, which allows you to set preferences for text alignment or justification and turn on word wrap

Patterns... Opens the Patterns dialog, used to add patterns to one or more selected cells

Style... Opens the Style dialog box. Styles are saved formatting combinations, including font, alignment, numeric format, cell borders and patterns.

Column Width On a column button, brings up a column width box. Reset width in the default measure of points, or change the measure to millimeters, centimeters, or picas and points.

Best Fit Executes the Best Fit command, which adjusts the width or height of the selected column or row to match the largest item in a cell in that row or column.

Row Height On a row button, brings up a row height box. Reset row height in the default measure of points, or change the measure to millimeters, centimeters, or picas and points.

To select multiple rows or columns, position the mouse pointer over a column or row header, press the left mouse button and drag in either direction until the desired number of columns or rows are selected. To deselect, click anywhere else in the spreadsheet.

Note: You may also select multiple rows and columns or blocks of data by clicking on the first cell you want to select and dragging diagonally, vertically over the area with the mouse.

See also Scrolling and selecting cells and Right mouse button shortcuts ... in a spreadsheet

After you have opened Data Manager normally for the first time (e.g., using Edit-View Chart Data), you can use CTRL+TAB to toggle between Data Manager and Chart View.

Automatically filling series

The Fill Series command automatically speeds up your work by filling a larger range of cells based on existing data. Fill Series works with dates, times and numbers sequences. *See* Fill series command (Data menu) for details about the available options

To use Fill Series:

1. Select a range of at least two cells upon which you want to base your autofill.
2. Extend the selection to the end of the range you want to fill.
2. Click Fill Series from the Data Menu.
3. Choose the options which apply and click OK.

Help shortcuts

Press the key or keys on the left to produce the action described at right.

Key(s)	Result
F1	Displays the main CorelCHART Help Contents screen
F1-F1	Pressing F1 from within any Help window displays the Microsoft Windows Using Windows Help topics.
F1 (in a given context)	With a menu item selected or a dialog box or system message on screen, displays context sensitive Help (where available)
SHIFT+F1	Changes the pointer to  so that you can get Help on a specific command, screen region, or key. You can then choose a command, click the screen region, or press a key or key combination you want to know more about.
CTRL+F1	Opens Help's Search dialog box
CTRL+HOME	Moves to top of the Help topic
CTRL+END	Moves to the bottom of the Help topic
>	Moves to the next topic
<	Moves to the previous topic

Note: As an alternative to clicking with the mouse, you may also use the keyboard to press Help buttons. Simply type a Help button's underlined letter to execute its function. E.g., to press the Back button, press "**b**" on the keyboard; to press the Close button, press "**c**," and so on.

Ribbon Bars

CorelCHART's Ribbon Bars, sometimes called button bars, are located just under the Chart View and Data Manager Menu Bars. Clicking a button on a Ribbon Bar activates the command associated with it. Hold the mouse pointer over a button to see its name or right-click for Context-sensitive Help.

The Chart View Ribbon Bar, contains the following buttons (from left): New, Open, Save, Print, Cut, Copy and Paste, Import and Export, Display Status, Legend, Numeric Format, Data Analysis, Align, 3D Rollup, Copy Chart, Wireframe and Mosaic Rollup.

The Data Manager's Ribbon Bar includes (from left) New, Open, Save, Print, Cut, Copy and Paste, Import and Export, Set Page Break, Number Format, Borders, Patterns, Go to cell, Enter Formula Sort, Auto Recalculate, Grid Lines and Mosaic Rollup.

See also Chart View Tools and Ribbon Bars and Data Manager Ribbon Bars

Text Ribbon Bars

CorelCHART's Text Ribbon Bars--located just below the Chart View and Data Manager Ribbon Bar--include buttons and drop-down list boxes for setting text attributes such as font type and size selection, bold, underline, italic, alignment, inter-character and inter-line spacing. Clicking a Text Ribbon Bar button activates the command associated with it. Hold the mouse pointer over a Text Ribbon button or list box to see its name or right-click for Context-sensitive Help.

See also Chart View Tools and Ribbon Bars and Data Manager Ribbon Bars

Dialog box shortcuts

Pressing the key or key combinations indicated at left with a dialog box open will produce the results shown at right.

Key(s)	Result
F1	Opens Help Context Sensitive Help about the current dialog box (where available)
TAB	Moves from field to field (left to right and top to bottom)
SHIFT+TAB	Moves from field to field in reverse order
ALT+LETTER	Presses the command button, or chooses the option or group whose underlined letter matches the one you type
ARROW key	Moves from option to option within a group of options
ENTER	Presses a selected command button Or, chooses the selected item in a list box and executes the command

Note: A command button is selected or current when it has a bold black border, as shown below.

ESC Closes a dialog box without completing the command (same as the Cancel button in a dialog box)
ALT+DOWN ARROW Opens a drop-down list box
ALT+UP OR DOWN ARROW Selects item in a drop-down list box
SPACEBAR Cancels a selection in a list box
Selects or clears a check box
CTRL+SLASH Selects all the items in a list box
CTRL+BACKSLASH Cancels all selections except the current one
SHIFT+ARROW key Extends selection in a text box

SHIFT+HOME	Extends selection to first character in a text box
SHIFT+END	Extends selection to last character in a text box

Creating file icons

Using drag and drop to create file icons for CorelCHART files you use regularly can speed up your work because the files will automatically load when you launch CorelCHART.

To create file icons, just drag and drop as shown below:

1. Open the Windows File Manager or an equivalent file management program.
2. Resize the file manager window so that other Program Groups are visible.
3. Open the drive and directory where your file is located
4. Click the file and drag it into a Program Group window.

Windows automatically creates the icon you need in the chosen Program Group.

Windows shortcuts

The following keys can be used from any window, regardless of the application you are using.

Key(s)	Result
CTRL+ESC	Switches to the Task List
ALT+ESC	Switches to the next application window or minimized icon, including full-screen programs
ALT+TAB	Switches to the next application window, restoring applications that are running as icons
PRINT SCRN	Copies the entire screen to the Windows Clipboard
ALT+PRINT SCRN	Copies the active window screen to the Windows Clipboard
CTRL+F4	Closes the active window
F1	Displays CorelCHART's main Help Contents screen *(see also* Help shortcuts)
ALT+SPACEBAR	Opens the Control menu for an application window
ALT+HYPHEN	Opens the Control menu for a document window
ALT+F4	Closes an application
ALT+ENTER	Switches a non-Windows application between windowed and full-screen operation
ARROW key	Moves a window when you have chosen Move from the Control menu

Shortcut key conventions

The following conventions are used when referring to shortcut keys:

- Keys which must be used in combination are shown linked by a plus sign, e.g., CTRL+TAB. See also Speed keys.
- Where shortcut keys may be pressed successively, they are linked by a hyphen. E.g., ALT-F opens the File Menu. Press the ALT key, release it and then press and release the F key to open the drop-down File Menu. The menu stays open until you select a menu item's underlined letter, which activates that command or opens a dialog box.
- Reference to the right mouse button assumes that the mouse buttons have not been reassigned. Our apologies to left-handed users who have reassigned their mouse buttons and use the left mouse button as the secondary button.
- For more detail on a given topic:
  - click the Contents button at the top of the Help screen and choose the Help subject best suited to your query
  - click the **How to ...** button under the Help Menu Bar, or
  - search Help for your topic by keyword

For help with Online Help conventions, press F1 now (F1-F1 from an application) to open the Microsoft Windows *Using Windows Help* file. *See also* Help shortcuts

Working with basic System Profiles

Overview

Creating a basic System Profile
Selecting a System Profile

Using advanced printer calibration features

Overview

System Color Profile dialog box

- Accessing the advanced features

Monitor

- Calibrating your monitor numerically
- Calibrating your monitor interactively

Printer

- Calibrating your printer: General notes
- Calibrating your CMYK printer
- Calibrating your RGB printer
- Characterizing your printer using a Color Match file
- Characterizing your printer using the visual method

Advanced Calibration features--Overview

The Color Manager is a powerful tool. Its basic features, namely the configuration of two (or three) devices into a System Profile, will be easily and quickly mastered by all users. The advanced calibration features, however, are intended to be used by informed users only. A solid understanding of color and calibration is essential for successful use of these features.

The System Color Profile dialog box leads to a series of further dialog boxes.

Before using the advanced calibration features, you may want to review: Working with basic System Profiles

Accessing the advanced features

You access the advanced features for all devices, whether monitor, printer or scanner, in one of two ways: by choosing "Other" from the device list, or by clicking the Edit button.

To access the advanced features:

Do one of the following:

- **Other:** If your device is not listed in the System Color Profile dialog box, choose Other from the device list. This will give you access to the calibration dialog box for that type of device.
- **Edit:** If your device is listed but you want to review or modify the default settings offered by the Color Manager, click Edit to access the calibration dialog box for that particular device.

Calibrating your monitor numerically

Monitor calibration can be done numerically or interactively.

To calibrate your monitor numerically:

1. In the Monitor Calibration dialog box, enter the monitor characteristics for Red, Green and Blue. For each of the three colors, you must specify the gamma as well as the chromaticity (x, y). These values can be supplied by the monitor manufacturer.
2. Enter a white point temperature in degrees Kelvin.

   Click Reset to return to the default values if need be.

Note: If you chose Other from the monitor list, a text entry field at the top of the Monitor Calibration dialog box allows you to enter a name for the monitor. This name is added to the monitor list for future recall.

Calibrating your monitor numerically

Monitor calibration can be done numerically or interactively.

To calibrate your monitor numerically:

1. In the Monitor Calibration dialog box, enter the monitor characteristics for Red, Green and Blue. For each of the three colors, you must specify the gamma as well as the chromaticity (x, y). These values can be supplied by the monitor manufacturer.
2. Enter a white point temperature in degrees Kelvin.

   Click Reset to return to the default values if need be.

Note: If you chose Other from the monitor list, a text entry field at the top of the Monitor Calibration dialog box allows you to enter a name for the monitor. This name is added to the monitor list for future recall.

Calibrating your monitor interactively

Monitor calibration can be done interactively or numerically.

To calibrate your monitor interactively:

1. In the Monitor Calibration dialog box, click Interactive.

   The Interactive Monitor Calibration dialog box appears.

   CAUTION: The gamma and white point must definitely be adjusted, as they differ from monitor to monitor, even within a given brand. The chromaticity values, however, SHOULD NOT be adjusted, for the reasons listed in step 4.

2. Do one of the following:

   - Adjust the gamma for each color channel in turn (Red, Green and Blue) by scrolling up or down until both sides of the color box appear the same.
   - Adjust the color gamma for one channel then enable Identical to set an identical gamma for all three channels.

   Click Preview to evaluate the effect of your adjustments.

3. Use the slider bar to specify a cooler or warmer white point. The value in degrees Kelvin is displayed to the right of the slider bar.

   Click Preview to evaluate the effect of your adjustments.

4. It is strongly recommended that default chromaticity values be left as is, for a number of reasons: chromaticity values are stable and almost identical from monitor to monitor; the default values are correct; visual adjustments are difficult to discern and evaluate.

   If you must, you can adjust the chromaticity by dragging the Red, Green and Blue markers to achieve the desired result. The x and y values are displayed below the color boxes. Note that the effect of your adjustments will be difficult to evaluate in the Preview.

   Click Reset to return to the default values if need be.

Note: If you chose Other from the monitor list, a text entry field at the top of the Monitor Calibration dialog box allows you to enter a name for the monitor. This name is added to the monitor list for future recall.

Calibrating your monitor interactively

Monitor calibration can be done interactively or numerically.

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   If you must, you can adjust the chromaticity by dragging the Red, Green and Blue markers to achieve the desired result. The x and y values are displayed below the color boxes. Note that the effect of your adjustments will be difficult to evaluate in the Preview.

   Click Reset to return to the default values if need be.

Note: If you chose Other from the monitor list, a text entry field at the top of the Monitor Calibration dialog box allows you to enter a name for the monitor. This name is added to the monitor list for future recall.

Calibrating your printer: General notes

When it comes to your printer, two separate operations must be performed:

- calibration
- characterization

Calibration

The printer *calibration* process varies depending on whether the device employs a CMYK or RGB color model.

Characterization

The printer *characterization* process is the same for both color models. Use either a Color Match file or the visual method to perform the characterization.

Spectrophotometer / colorimeter settings:

When characterizing your printer, you may choose from the supplied files or generate your own. To generate your own IM, GRY or RNH files, you will need a spectrophotometer or a colorimeter. The measurement device should be set up as follows:

- Set the White Base to "abs" and calibrate it with the manufacturer-supplied white.
- Set the Illumination Type to D65.
- Set the Eye Angle to 2 degrees.
- Set the Filter to None (do not use D65 or Pol).

Calibrating your CMYK printer

1. In the Printer Calibration dialog box, choose CMYK as printer type.
2. Choose Printer if you are measuring from a paper print or imagesetter proof. Choose Film if measuring from imagesetter film. We recommend measuring from a proof because it is faster and produces accurate results.
3. Enter a percentage for Total Area Coverage (TAC). This refers to the maximum allowable quantity of ink (i.e., total combined amount of C, M, Y and K inks).
4. Adjust the K curve in the CMYK Plates box. Click Reset to return to the default values if need be.
5. A default dot gain is provided. It is appropriate for most jobs. Verify with your printing shop before changing this value.

Note: CorelDRAW ships with some ready-made ink models. An .IM file to match or approximate your printer may be available. Check the list. If an appropriate .IM file exists, you need not perform steps 6 and 7--just continue at step 8.

6. Click Print CMYK Patterns. The Print dialog box appears. Choose a printer. The CMYK320 color pattern file is printed to the chosen printer.
7. Use a spectrophotometer or colorimeter to measure the CIE XYZ values of each color square in numerical sequence (from 1 to 320). Enter the measurements in an ASCII file with three columns: X, Y and Z (with a space separating the columns). Name the file to reflect the printer and give it a .IM extension--for example, TEK300I.IM for data measured from the printout of a Tektronix 300I. Copy the file into the COREL50\COLOR subdirectory. Return to the Printer Calibration dialog box.
8. Choose the appropriate .IM file.
9. Click Calculate.
10. The Color Match option becomes available. Click the button. The Printer Characterization dialog box appears. Establish printer characterization according to one of the two methods described under:

    Characterizing your printer using a Color Match file

    Characterizing your printer using the visual method

    When you return to the Printer Calibration dialog box after characterizing the printer, choose OK.

Note: If you chose Other from the printer list, a text entry field at the top of the Printer Calibration dialog box allows you to enter a name for the printer. This name is added to the printer list for future recall.

Calibrating your RGB printer

1. In the Printer Calibration dialog box, choose RGB as printer type.
2. Click Print RGB Patterns. The Print dialog box appears. Choose a printer. The RGB80 color pattern file is printed to the chosen printer.
3. Use a spectrophotometer or colorimeter to measure the CIE XYZ values of the grayscale squares *only*, in numerical sequence (from 65 to 80). Enter the measurements in an ASCII file with three columns: X, Y and Z (with a space separating the columns). Name the file to reflect the printer and give it a .GRY extension--for example, CJ10.GRY for data measured from the printout of a Canon CJ10. Copy the file into the COREL50\COLOR subdirectory. Return to the Printer Calibration dialog box.
4. Choose the .GRY file you have created.
5. Click Color Match. The Printer Characterization dialog box appears. Establish printer characterization according to one of the two methods described under:

   Characterizing your printer using a Color Match file

   Characterizing your printer using the visual method

   When you return to the Printer Calibration dialog box after characterizing the printer, choose OK.

Note: If you chose Other from the printer list, a text entry field at the top of the Printer Calibration dialog box allows you to enter a name for the printer. This name is added to the printer list for future recall.

Characterizing your printer using a Color Match file

Printer characterization can be performed using a Color Match file or using the visual method.

To perform characterization using a Color Match file:

1. In the Printer Characterization dialog box, choose File.
2. Click Print Testing Patterns. The test pattern file is printed to the chosen printer.
3. Use a spectrophotometer or colorimeter to measure the CIE XYZ values of each color square in numerical sequence (from 1 to 80). Enter the measurements in an ASCII file with three columns: X, Y and Z (with a space separating the columns). Name the file to reflect the printer and give it a .RHN extension--for example, TEK300I.RHN for data measured from the printout of a Tektronix 300I. Copy the file into the COREL50\COLOR subdirectory.
4. Return to the Printer Characterization dialog box. Choose the .RHN file you have created.

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1. In the Printer Characterization dialog box, choose File.
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4. Return to the Printer Characterization dialog box. Choose the .RHN file you have created.

Characterizing your printer using the visual method

Printer characterization can be performed visually or using a Color Match file.

To perform characterization using the visual method:

1. You must calibrate your monitor before proceeding if the visual characterization of your printer is to be meaningful. Click Calibrate Monitor. If a Monitor calibration circuit is in place, it will be used. Otherwise, a dialog box will appear to allow you to calibrate your monitor.
2. In the Printer Characterization dialog box, choose Visual.
3. Click Print Testing Patterns. The test pattern file is printed to the chosen printer.
4. Adjust the colors interactively or by entering numeric values so that they approximate the test printout. Adjustments follow the norms of the HSB (Hue, Saturation, Brightness) model.

   If you are not pleased with the changes you have made to a color, click Reset Color to start fresh.

Characterizing your printer using the visual method

Printer characterization can be performed visually or using a Color Match file.

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1. You must calibrate your monitor before proceeding if the visual characterization of your printer is to be meaningful. Click Calibrate Monitor. If a Monitor calibration circuit is in place, it will be used. Otherwise, a dialog box will appear to allow you to calibrate your monitor.
2. In the Printer Characterization dialog box, choose Visual.
3. Click Print Testing Patterns. The test pattern file is printed to the chosen printer.
4. Adjust the colors interactively or by entering numeric values so that they approximate the test printout. Adjustments follow the norms of the HSB (Hue, Saturation, Brightness) model.

   If you are not pleased with the changes you have made to a color, click Reset Color to start fresh.

Working with basic System Profiles

A color management system must take into account all factors involved for all the devices used for color acquisition, viewing and reproduction. This is done by building a System Profile. A System Profile indicates which monitor and printer are part of your publishing system. It may also include a scanner if you are working with Corel PHOTO-PAINT.

If any component of your system changes, you must make this change known to the Color Manager by updating your System Profile. Similarly, if you have access to multiple devices, you will need to build a System Profile for each combination of two (or three) devices that you use.

Once built, simply select and enable the appropriate System Profile according to the devices your project currently calls for.

See also:

Basic

Creating a basic System Profile

Selecting a System Profile

Advanced

Advanced calibration features

Creating a basic System Profile

All you need to know about your system is the brand name and model number of each device. The Color Manager has built-in information sheets for a large number of devices and chances are yours will be in the lists. You do not need to know the technical properties of your devices; just pick their names from the lists and save the configuration as a System Profile.

To create a basic System Profile:

1. Choose Color Manager from the File menu.

   The System Color Profile dialog box appears.
2. Choose a monitor.
3. Choose a printer.
4. Choose a scanner (optional). This can only be done from an application that support scanners, such as Corel PHOTO-PAINT.
5. Enter descriptive comments in the Notes box to help you better manage your System Profiles (optional).
6. Click Generate.

   The Generate Profile dialog box appears.
7. Enter a name for the System Profile.
8. Click OK. System Profile generation will take a few minutes.

Creating a basic System Profile

All you need to know about your system is the brand name and model number of each device. The Color Manager has built-in information sheets for a large number of devices and chances are yours will be in the lists. You do not need to know the technical properties of your devices; just pick their names from the lists and save the configuration as a System Profile.

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5. Enter descriptive comments in the Notes box to help you better manage your System Profiles (optional).
6. Click Generate.

   The Generate Profile dialog box appears.
7. Enter a name for the System Profile.
8. Click OK. System Profile generation will take a few minutes.

Selecting an existing System Profile

Your work may entail working with a number of various devices of each type. You may therefore need to load a different System Profile depending on the task at hand. System Profiles can be created as explained under Creating a basic System Profile. Once created, selecting one is easy.

To select an existing System Profile:

1. Choose Color Manager from the File menu.

   The System Color Profile dialog box appears.

2. From the Current Profile list, choose a System Profile.

3. Click Select.

Note: By default, AutoMatch is enabled, ensuring that automatic color matching is performed. This is the normal way to proceed and the default should be left as is, unless you want to force a different color matching method.

If you are working in CorelDRAW, AutoMatching means the Color Manager will automatically differentiate between bitmapped and vector objects, and optimize each type of object accordingly. In Corel PHOTO-PAINT, AutoMatching means that the System Profile is optimized for bitmaps. Another application may be optimized for line art.

You can force the Color Manager to optimize the color matching for line art by enabling Illustration. Similarly, if you want to force the Color Manager to optimize the color matching for bitmaps, enable Photographic.

System Color Profile dialog box

The System Color Profile dialog box allows you to create a system color profile to help CorelCHART capture, display and print color across different devices more accurately.

Dialog Box Options

Current Profile

Displays the name of the current color profile. If you have different printers, you may wish to build different color profiles and then select the appropriate one before working on images for that output device.

Notes

Allows you to attach notes to your system profile. Useful for keeping track of different equipment setups.

Monitor

Displays monitor choices.

Printer

Displays printer choices.

Automatch

Enables the two different color gamut mapping systems, Illustration and Photographic. CorelCHART automatically senses whether it is printing a vector or bitmapped object and applies the appropriate gamut map.

Photographic

Enables the Photographic color mapping only. Use to force Photographic color mapping regardless of object type.

Illustration

Enables Colorimetric color mapping for working with spot colors. Use to force colorimetric color mapping regardless of object type.

System Color Profile dialog box

The System Color Profile dialog box allows you to create a system color profile to help CorelCHART capture, display and print color across different devices more accurately.

Dialog Box Options

Current Profile

Displays the name of the current color profile. If you have different printers, you may wish to build different color profiles and then select the appropriate one before working on images for that output device.

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Enables the two different color gamut mapping systems, Illustration and Photographic. CorelCHART automatically senses whether it is printing a vector or bitmapped object and applies the appropriate gamut map.

Photographic

Enables the Photographic color mapping only. Use to force Photographic color mapping regardless of object type.

Illustration

Enables Colorimetric color mapping for working with spot colors. Use to force colorimetric color mapping regardless of object type.

Monitor Calibration

Allows you to calibrate your monitor to enhance color accuracy.

Dialog Box Options

Monitor Characteristics

Defines the monitor gamma settings. As you increase the gamma level you are increasing the brightness of your midtone gray levels. Chromaticity defines hue and saturation or chroma. It's important to use the manufacturer recommended levels of chromaticity for your monitor. If you do not have manufacturer recommended levels and wish to modify gamma or chromaticity settings use Interactive Monitor Calibration.

White Point Reset

Defines the color temperature of your monitor in creating white. Returns the gamma and chromaticity values to default.

Interactive Calibration

Interactive calibration lets you adjust gamma, white point and chromaticity interactively. Adjust the color fields to enhance color accuracy. Chromaticity should be set to the manufacturer's specifications. Gamma or brightness is variable according to the level of light in the room and the brightness and contrast controls on your monitor. White point temperature for an individual monitor will have a factory default but monitors can vary from their default.

Printer Calibration

Allows you to calibrate your printer to enhance color accuracy.

Dialog Box Options

Printer Type Defines whether the printer prints using four colors (CMYK) or three (RGB).

UCR Choose Film or Printer, depending on the output device you are configuring. TAC (Total Ink Coverage) adjusts the level of UCR. See your printer for the appropriate level of UCR. It depends on paper stock and the printer used.

Dot Gain Halftone dots that make up an image "gain" in size from the time you view them on film to the time they come off the press. This unavoidable increase in size results in colors that appear more intense in the printed image than intended.

Dot Gain is calculated two ways:

The default Dot Gain is calculated by the ink model. This gives you an average value and is set automatically by Color Manager. This is the recommended level of dot gain.

If you need to reset Dot Gain for a specific job you can set a constant dot gain level. Consult with your printer before changing this setting.

Ink model field Defines the ink model for the selected printer.

Color Match Allows you to match your printer and monitor color accuracy.

Print CMYK Patterns... Allows you to generate a test file to be measured to create a new Ink Model.

Calculate Updates the calibration changes you have made before you continue on to Color Match.

Reset Returns the black point value to default.

OK Accepts the changes you have made.

Cancel Abandons the changes you have made.

Printer Characterization

Characterization establishes a normalized color relationship between your device and the CIE based reference Color System. This characterization may be based on spectrophotometric measurements (File) or visual methods (Visual).

Visual

Print Testing Patterns Print these patterns to match against the view field in the Printer Characterization dialog box.

Calibrate Monitor	If you have not already done so, calibrate your monitor before continuing with your Color Match.
Reset	Returns Hue, Saturation and Brightness to the default values.
OK	Accepts the changes you have made.
Cancel	Abandons the changes you have made.

File

Print Testing Patterns	Print these patterns and measure the CIE X Y Z values in order to create a new RHN file.
File Name	Choose an existing RHN that matches your output device or choose a new RHN that you have built.

Restore command (Control menu)

Returns the active window to its previous size and location.

You can also restore a window by clicking its Restore button 

- Does not affect a window moved or resized with Move or Size.

Move command (Control menu)

Moves the active window with the keyboard direction keys.

- This command is unavailable if the window is maximized.
- You can use this command to move application icons and dialog boxes that have a Control menu.

For more information, see your Microsoft Windows *User's Guide.*

Size command (Control menu)

Resizes the active window with the keyboard direction keys.

- This command is unavailable if the window is maximized.

For more information see your Microsoft Windows *User's Guide.*

Minimize command (Control menu)

Shrinks the active window to an icon at the bottom of the CorelCHART window.

- Using the Minimize command is equivalent to clicking the Minimize button  .
- You can use Restore to return the minimized window to its former size.

Maximize command (Control menu)

Enlarges the active window to fill the entire screen.

- Using the Maximize command is equivalent to clicking the Maximize icon  .
- You can choose Restore or click the Restore button  to return the window to its former size.

Close command (Control menu)

Closes the active window.

- Closing CorelCHART is the same as choosing Exit from the File menu.
- Double-clicking the Control Menu button  is equivalent to choosing the Close command.

Switch To command (Control menu)

Opens the Task List, which lists all the applications currently running on your system.

Dialog Box Options

Switch To

Opens the selected application.

End Task

Closes the selected application.

Cancel

Closes the Task List.

Cascade

Overlaps all open applications so that their Title bars are visible.

Tile

Sizes all open applications to fit on the screen.

Arrange Icons

Arranges the icons of all minimized applications evenly across the bottom of the CorelCHART window.

New command (File menu)

Opens the New chart dialog box. Choose a chart type from the Gallery to start building a chart.

Dialog Box Options

Gallery

Lists all available chart categories. Several chart types, displayed in the **Chart Types** preview window on the right side of the dialog box, are available in each category.

Chart Types

Shows the various chart types for the chosen category in the **Gallery** list displayed on the left. A written description of the highlighted chart type appears below the preview window. Double-click the chart type to select it.

Use Sample Data

Choose this option to use the sample data included in each CorelCHART template when you create a new chart. Replace the sample data with your own and add titles and other annotations as required. The chart itself appears in the Chart window when you click OK.

Deselect this option to go directly to a Data Manager window. Enter the data required in the configurations used in the sample charts and click Autoscan to generate the selected chart type from your own data.

Shortcut

Pressing CTRL + N displays the New Chart dialog box

Open command (File menu)

Displays the Open Chart dialog box, used to load existing CorelCHART files from any drive.

Dialog Box Options

The **File Name, List Files of Type, Directories** and **Drives** lists and boxes allow you to choose CorelCHART (.CCH) files from the drives and directories on your computer system. Files created in CorelCHART versions 3 and 4 can be opened in CorelCHART 5.

Preview

When checked, the Preview window displays the chart type currently selected in the File Name box.

Options>>

Displays options for finding and annotating files.

Sort by	Sorts files in the **File Name** list alphabetically or chronologically with the most recently saved file listed first.
Notes	Lets you store remarks with your files.

Shortcut

Pressing CTRL + O displays the Open Chart dialog box

Save (File menu)

Saves the current chart and its data. Allows you to select the appropriate drive and directory where you wish to save the file.

When saving a new file which has no title, this command displays the Save Chart dialog box, prompting you to assign a file name to your chart.

When saving a file that has already been saved, the Save command saves the chart in the same location and uses the same file name. The Save As command is used to save a new file or an existing file in a new location or with a different file name.

Shortcut

Pressing CTRL + S Saves the File or displays the Save Chart dialog box

Save As (File menu)

Displays the Save As dialog box allowing you to save a new CorelCHART (.CCH file) to a specified directory or save an existing file with a new name or in a new drive/directory.

The **Save Presentation Exchange Data** option, if enabled, appends information to the saved file, allowing it to be opened in any Corel application.

Note: Files saved in the current version of CorelCHART cannot be opened in earlier versions of the program.

Close command (File menu)

This command removes the active chart and its window from the screen but leaves CorelCHART open. If the active chart has never been saved, or has been modified since the last save, a Save Changes dialog appears, asking if you want to save the file and/or the changes applied to it.

From the Save Chart dialog box click:

- Yes to return to CorelCHART,
- No to abandon your changes and close the current charting window, or
- Cancel the closing operation and return to the document.

Apply Template command (File menu)

Use this command to apply a new chart template to the current chart but retain the data from the original.

Any chart you create, edit and save in CorelCHART (.CCH file) can be used as a template. CorelCHART's sample templates are installed in the \CHART subdirectory of the CorelDRAW main directory, e.g., \COREL50\CHART. The applied template contains any and all graphic information saved with the chart, such as text attributes, location of the chart on the page, riser shape and attributes, 3D positioning, fill and outline colors and bitmaps.

Use templates if you want to maintain a consistent look for several charts, such as corporate colors or a company logo.

Import command (Chart View File menu)

Brings graphics into CorelCHART from other programs.

Dialog Box Options

File Name

Type the name of the file you want to import, or select it from the list. To list a different type of file, choose the type from the **List Files of Type** box.

Directories

Select the directory where the file you want to import is stored.

Drives

Select the drive where the file you want to open is stored.

List Files of Type

Use this feature to select the type of file you want to import. You can import the following file types into Chart View: All Files *.* (Choose this option if you are unsure of the source application of the file you want to import. CorelCHART will attempt to identify the source automatically.); Corel Presentation Exchange (*.cmx); CorelDRAW! Graphic (*.cdr;*.pat); CorelTRACE (*.eps); Windows Bitmap (*.bmp;*.dib;*.rle); CompuServe Bitmap (*.gif); Computer Graphics Metafile (*.cgm); JPEG Bitmap (*.jpg;*.jff;*.cmp); Kodak Photo CD Image (*.pcd); Paintbrush (*.pcx); Scitex CT Bitmap (*.sct;*.ct);Targa Bitmap (*.tga;*.vda;*.icb;*.vst);TIFF Bitmap (*.tif;*.sep;*.cpt); Windows Metafile (*.wmf); Adobe Illustrator 1.1, 88, 3.0 (*.ai;*.eps);AutoCAD DXF (*.dxf); GEM File (*.gem); HPGL Plotter File (*.plt);IBM PIF (*.pif); Lotus PIC (*.pic); Macintosh PICT (*.pct);Micrografx 2.x, 3.x (*.drw);PostScript (Interpreted) (*.eps;*.ps); WordPerfect Graphic (*.wpg).

See also Technical Support

Filter Information

Displays the developer and version number of the filter used to import the selected file type.

Preview

Displays a preview of the selected file in the file preview window. A preview will only display if there is a preview header available. Deselect the Preview check box to skip preview.

Bitmap Load Image list box

Use this list box to choose between Full-sized, Cropped or Resampled image sizes.

Options

Displays a **Sort** drop-down list box. You can use this box to sort the files listed by name or date. If a single file is highlighted in the file list, the file's size, format, image size and date are displayed below the **Sort** box.

See also

Please consult Technical Support for information on supported import file formats and limitations.

Export command (Chart View File menu)

Saves the current chart in a format that other programs can read.

Dialog Box Options

File Name

Proposes a name for the export file (the same name as the chart). Accept it, or type your own. The file extension corresponds to the Export file format selected from the **List Files of Type** box.

Directories

Select the directory containing the file you want to export.

Drives

Select the drive containing the file you want to export.

List Files of Type

Use to select the type of file you want to export. Available file formats include Windows Bitmap (*.bmp,*.dib,*.rle); Compuserve Bitmap (*.gif); Computer Graphics Metafile (*.cgm); JPEG Bitmap (*.jpg; *.jff; *.jtf; *.cmp); OS/2 Bitmap (*.bmp); Paintbrush (*.pcx); Scitex CT Bitmap (*.ct; *.sct); Targa Bitmap (*.tga, *.vda, *.icb, *.vst); Tiff Bitmap (*.tif); Windows Metafile (*.wmf); Adobe Illustrator (*.ai, *.eps); AutoCAD DXF (*.dxf); GEM File (*.gem); HPGL Plotter File (*.plt); IBM PIF (*.pif); Macintosh PICT (*.pct); Matrix/Imapro SCODL (*.scd) and WordPerfect Graphic (*.wpg). *See also* Technical Support

About...

Displays the developer and version number of the filter used to export the selected file type.

Selected Only

Exports only currently selected objects.

See also

Please consult Technical Support for information on supported export file formats and limitations.

Export Bitmaps dialog box

Use this dialog box to specify how you want to export files in any of the bitmap export formats, such as PCX (PCC), TIFF, TGA, GIF or 4 color TIFF, Windows BMP and OS/2 BMP.

Dialog Box Options

Color

Exports color bitmaps from your drawing. Select the number of colors you want in the exported file from the list box.

The greater the number of colors, the larger the exported file.

(16 colors = 4 bits)
(256 colors = 8 bits)
(16 million colors = 24 bits)

Grays

Exports colors in your drawing as shades of gray. Select the number of shades you want in the exported file from the list box.

You can convert gray shades and colors to black and white by selecting **Black and White** from the list box.

(black and white = 1 bit)
(16 shades of gray = 4 bits)
(256 shades of gray = 8 bits)

Dithered

Dithers the colors and gray shades in the exported file. Dithering may produce better results when exporting fewer colors than the original image. If the image contains fountain fills or color blends, dithering can cause obvious banding in the exported bitmap. Here are some guidelines to help you decide whether to dither the bitmap:

- If you are exporting 16 or 256 colors or grays, use dithering.
- If you intend to scale the bitmap in another application, dithering is not recommended.

Compressed

Compresses the exported file so that it takes less disk space. Take note, however, that compressed files take more time to save and load.

Compression is optional for some bitmap formats; for others, compression is always performed.

Resolution

Specifies the resolution (in dots per inch) for bitmaps exported at a size of 1 to 1. Choose one of the preset resolutions from the list box, or choose **Custom** and type or select the resolution in the **DPI** box.

Note: As resolution increases, so does the size of the export file and the time required to print the image.

Size

Specifies the dimensions of the exported bitmap. Choose one of the preset sizes from the list box or choose **Custom** and type or select the dimensions in the **Width** and **Height** boxes.

If a size is not selected, the size of the image in CorelCHART is used. Smaller bitmaps (with lower resolution) or larger bitmaps (with higher resolution) can be created by scaling the image up or down in CorelCHART prior to exporting.

If the dimensions you choose are not proportional to the bitmap's original aspect ratio, CorelCHART will remove extra pixels. Removing them prevents the bitmap from having

undefined borders and appearing distorted.

About

Displays the developer and version number of the filter used to export the selected file type.

Reset

Returns to the settings in effect when you opened the dialog box.

Projected uncompressed file size

Shows the estimated size of the exported file before compression. Compressed files will be smaller than the value displayed.

Note: To get an empty border around your bitmap, create a rectangle around your image where you want the border. Then, assign No Fill and No Outline to the rectangle.

See also

Technical Notes

Export--Bitmaps

Technical Notes

Scaling Bitmaps

If you enlarge a bitmap in another application, you will lose resolution. If you shrink a bitmap, the result should be acceptable, but you will be wasting disk space storing unused information.

File Size

To avoid unnecessarily large bitmap files (a full page at 300 dpi uncompressed can take several megabytes of disk space), scale the CorelCHART graphic to the same size as the space it will occupy in your word processing or page layout package or change the destination size in the dialog box.

Compression Schemes

Compression can only be applied to images that are 16- or 256-color, 16- or 256 gray (i.e., 4- or 8-bit images).

CorelCHART uses the following compression schemes:

Windows BMP	RLE (Run-Length Encoding). Very few applications support compressed BMP files; most will generate error messages or display the bitmap improperly.
Compuserve GIF	LZW (GIF Version 89A)
CorelPHOTO-PAINT	RLE (PCX Version 3.0)
Targa TGA	Exports either RLE-compressed color-mapped images or RLE compressed RGB images (types 9 and 10 as defined by AT&T Electronic Photography and Imaging Center). The type of file produced depends on the number of colors exported: 24-bit color TGA files will be exported as RLE-compressed RGB bitmaps. Very few applications support compressed TGA files.
TIFF	PackBits (TIFF Version 5.0). A user-definable switch under the [CorelTIFFExport] section of your CORELFLT.INI file should be set to 1 when exporting images for use in WordPerfect.

Fountain Fills

The number of bands used to represent fountain fills in the exported file is determined by the **Preview Fountain Step** setting in the Preferences - Display dialog box.

Page Setup command (File menu)

Sets the page size and orientation for the chart.

Dialog Box Options

Paper Size

Select one of the standard paper sizes or select **Custom** and type the dimensions (up to 30x30 inches) in the **Horizontal** and **Vertical** boxes. Note that **Slide** selects a page dimension with the same aspect ratio as a 35mm slide.

Set From Printer	Uses the same paper size and orientation as the currently active printer.
Portrait	Prints the drawing down the length of the paper.
Landscape	Prints the drawing across the width of the paper.
Width	Displays the currently select page width.
Height	Displays the currently selected page length.
Units box	Drop-down box used to set the units of measurement.

Print command (File menu)

Prints the current chart according to the options you specify.

Note: Before you print a final print file, or send a print file to an output bureau for film or direct imaging, make sure that you've built your System Color Profile with Color Manager for the output device chosen.

Dialog Box Options

Print Range

- Check **All** to print all pages in a multi-page document.
- **Selected Objects** is dimmed, therefore not available when printing from CorelCHART.
- **Current Page** prints the page displayed in the view window.
- **Pages** is not available when printing charts because Chart View does not support multiple page documents. You can however print a large chart on several pages by choosing the **Print Tiled Pages** option in the Print Options dialog box.

Setup

Allows you to select specific printer options such as paper size, orientation, paper source, that are unique to the printer selected. See also, Windows Control Panel Help, Printers. See also Print Setup command.

Options

Displays the Print Options dialog box, used to set advanced options for controlling the layout, color separations and other options.

Printer

Shows the active printer. If other printers are installed, select the one you want to use from the list. You can also select installed printers with the Print Setup command in the File menu.

Printer Quality

Choose a level of resolution depending on the printer chosen. Resolution is measured in dots per inch (dpi).

Printer Color Profile

Displays the color profile currently in use. The profile is created using the Color Manager.

Copies

Prints multiple copies of the current drawing. You can print as many as 999 copies, depending on the type of printer you are using.

Print to File

Creates a file that can be printed from DOS. Commonly used to print files from systems which do not have CorelCHART installed or when sending files to a service bureau for high-resolution printing. Choose OK and a dialog box opens, prompting you to type a file name. *See also* Print to File dialog box

For Mac When printing to file, select this option if you are printing on a device controlled by a Macintosh computer. Available only with **Print to File** checked.

Collate Copies

When printing several copies of a multi-page document, check this option to print the entire range of pages several times. Clear the option to print multiple copies of the first

page and then the second page and so on until the last page.

Shortcut

Pressing CTRL + P opens the Print dialog box

Print Setup command (File menu)

Use Print Setup to select a printer or print options for your chart or spreadsheet

Dialog Box Options

Printer(s)

Selects the default printer or a printer listed in the box under **Specific Printer**. Only installed printers appear in the list. You install printers through the Windows Control Panel.

Print Quality

For selection of a different resolution, as available from the printer's driver.

Setup...

Contains the following options:

Paper Source

Choose upper or lower paper tray, or manual feed as required.

Paper Size

Selects paper size and source. Click on the arrows on the right of the **Size** and **Source** boxes to see a list of options you can choose.

Number of Copies

Choose the number of copies you want to print of the current chart or spreadsheet page.

Page Orientation

Selects orientation of the printer page. Choose an orientation that matches the orientation specified for your drawing with the Page Setup command.

Options

Displays a dialog box from which you can choose default options for the selected printer. For more information, click **Options** and choose **Help**.

Note: Before you print a final print file, or send a print file to an output bureau for film or direct imaging, make sure that you've built your System Color Profile with Color Manager for the output device chosen.

Color Manager command (File menu)

Color Manager creates a **System Color Profile** by learning about your monitor, scanner and printers. The profiles help CorelCHART more accurately capture, display and print color across different devices.

This System Color Profile ensures:

- colors that you view on your monitor closely resemble the colors your printer produces.
- the images and colors you include in your documents are accurately described to your printer.
- colors from your scanner are adjusted to accurately reflect the colors of the image being scanned. Images cannot be acquired directly from a scanner in CorelCHART. You can however include your scanner specifications in a color profile built in CorelCHART using Color Manager.

Note: The Color Manager's built-in defaults are pre-tested settings; use them whenever possible.

See also More about Color Manager

Dialog Box Options

Current Profile
Displays the name of the current color profile. If you have different printers, you may wish to build different color profiles and then select the appropriate one before working on charts for that output device.

Notes
Allows you to attach notes to your system profile. Useful for keeping track of different equipment setups.

Monitor
Displays monitor choices. Clicking **Edit** opens the Monitor Calibration dialog box.

Printer
Displays printer choices. Clicking **Edit** opens the Printer Calibration dialog box.

Scanner
Displays scanner choices. Scanners are not supported in CorelCHART--use CorelDRAW or Corel PHOTO-PAINT.

Automatch
Enables the two different color gamut mapping systems, Illustration and Photographic. CorelCHART automatically senses whether it is printing a vector or bitmap object and applies the appropriate gamut map.

Photographic
Enables the Photographic color mapping only. Use to force Photographic color mapping regardless of object type.

Illustration
Enables Colorimetric color mapping for working with spot colors. Use to force colorimetric color mapping regardless of object type.

Printer Characterization

Characterization establishes a normalized color relationship between your device and the CIE based reference Color System. This characterization may be based on spectrophotometric measurements (File) or visual methods (visual). The dialog box options vary depending on the method you choose. Both are described below.

Visual

Print Testing Patterns

Print these patterns to match against the view field in the Printer Characterization dialog box.

Calibrate Monitor

If you have not already done so, calibrate your monitor before continuing with your Color Match.

Reset Color

Returns Hue, Saturation and Brightness to the default values.

OK

Enters the changes you have made and closes the dialog box.

Cancel

Abandons the changes you have made and closes the dialog box.

See also Working with basic System Profiles and Using advanced printer calibration features

File

Print Testing Patterns

Print these patterns and measure the CIE X Y Z values in order to create a new RHN file.

File Name

Choose an existing RHN that matches your output device or choose a new RHN that you have built.

See also Advanced Calibration features

For GCR, UCR, Black Point, and Dot Gain definitions, see Prepress Definitions.

More about Color Manager

Color Manager is a sophisticated color management system that provides three levels of color support.

Calibration

Color Manager creates a standard for image acquisition, viewing and reproduction devices. These devices include monitors, hardcopy printers, film recorders, image setters and scanners. **Note:** CorelCHART does not support use of scanners; please use CorelDRAW or Corel PHOTO-PAINT.

Characterization

Characterization establishes a normalized color relationship between your device and the CIE based reference Color System. This characterization may be based on spectrophotometric measurements or visual methods.

Gamut Mapping

Gamut Mapping provides a method of mapping colors to different printer gamuts. Gamut mapping enhances the accuracy of colors displayed on your monitor and the color and tonal ranges printed by your output device. CorelCHART uses two types of color mapping: Colorimetric for illustrations and Photographic for photographs. Gamut mapping works automatically according to the System Color Profile selected.

Prepress Definitions

Click the terms shown below for definitions of the Color Manager's Prepress controls.

Gray Component Replacement (GCR)

Undercolor Removal (UCR)

Black Point

Dot Gain

See also

Working with basic System Profiles
Using advanced printer calibration features

Exit command (File menu)

Exit ends the current CorelCHART session and returns the user to the Windows Program Manager.

If some active documents have not been saved, or have been modified since the last save, CorelCHART will prompt you to save those files.

Undo command (Edit menu)

Reverses the last action taken.

Cut command (Edit menu)

Removes selected annotations and places them onto the Windows clipboard.

Copy command (Edit menu)

Places a copy of selected annotations onto the Windows clipboard.

Paste command (Edit menu)

Places cut, copied or deleted annotations onto the current chart from the Windows clipboard.

Paste Inside command (Edit menu)

Copies the clipboard contents into the selected annotation or chart element. The command is dimmed if the clipboard contents are not in the required format (CMF, WMF, BMP or DIB) or the Clipboard is empty.

You can use this command, for example, to insert a graphic from CorelDRAW into the background of your chart. The contents become the default fill for all annotations created with the Ellipse, Rectangle or Pencil tools.

Delete command (Edit menu)

Removes the selected annotation(s), but does not save it to the clipboard. The chart title, subtitle and footnote can be deleted. Other chart elements, category titles, legend and so on, cannot be deleted. They can however be hidden from view by using the Display Status command.

Duplicate command (Edit menu)

Makes a copy of an annotation slightly offset from the original object.

Copy Chart command (Edit menu)

Copies the entire chart to the Windows clipboard where it can be pasted into another Windows application or inserted as an OLE object into a client application.

Chart View/Data Manager command (View menu)

Toggles the current window between Chart View and Data Manager.

Toolbox command (View menu)

Displays a flyout menu for selecting a toolbox option.

Visible makes the toolbox visible or invisible

Floating When checked, the Toolbox detaches from its usual location on the left side of the screen. You can also detach the Toolbox by holding down the Shift key, clicking on the Toolbox and dragging it to a new location.

When the Toolbox is floating, you change its layout from vertical to horizontal or any intermediate arrangement.

Any floating Toolbox also has a control menu box listing various options.

Shortcut

To dock a detached Toolbox, double-click anywhere in its Title bar.

Floating toolbox control menu

Displays the following options for controlling the toolbox layout.

Floating	Toggles the Toolbox between floating and detached states
Grouped	Choosing this option groups the tools. When deselected, all tools are displayed including the flyout tools such as the Zoom, Rectangle and Ellipse tools.
Close	Hides the toolbox. To redisplay it, choose Toolbox-Visible from the View menu.

Color Palette (View menu)

Displays a flyout menu used to choose the type of color palette that appears at the bottom of the CorelCHART window. You can remove the palette from view to free up screen space. A bullet-marker appears next to the current flyout menu selection.

The Color Palette options are: None, Uniform Palette, Custom Palette, FOCOLTONE Process, PANTONE Spot Colors, PANTONE Process Colors or TRUMATCH Process Colors.

3D Roll-Up command (View menu)

Displays the 3D Roll-Up. The command is enabled only when you are working with 3D-riser or 3D-scatter charts. The 3D Roll-Up is used to:

- alter size, scale and perspective
- modify length of axes and thickness of walls
- rotate and move 3D charts

Click a red arrow and hold the mouse button down until you achieve the desired result. The longer you hold down the mouse button, the more of the effect you'll get.

Button/ Check box **Action**

Enlarges or reduces the charting area; moves the chart vertically or horizontally in the charting window.

Makes the chart larger or smaller without changing its position on the page.

2D Pan moves the chart vertically or diagonally anywhere on the page without changing the size of the chart.

3D Perspective controls the chart's perspective by making part of the chart appear closer and larger, and part of the chart appear further away and smaller. The less parallel the lines of the chart are, the more distorted the chart is. The chart can become very distorted as though seen through a fisheye lens or have very little distortion as seen through a telephoto lens. Increasing distortion can give the chart a dramatic look and emphasize data by placing it closer to the viewer.

Changes the length of any axis.

Tilts the chart in three dimensions.

Show Graph Deselecting the box leaves a wireframe outline reflecting changes in the original chart.

Undo Undoes your changes and returns you to the chart window.

Redraw Redraws the chart to show changes.

Pictograph Roll-Up command (View menu)

Displays the Pictograph Roll-Up, used to fill an object with an imported graphic. Choose an object with the Pick tool and select a picture on the roll-up to fill the entire object with that picture.

Choose Show as Pictograph from the Chart menu. Select any bar in a series and select a picture from the Pictograph Roll-Up. Multiple copies of the picture will form each bar. The size of each picture is set by the width of the bars and the frequency of the major grid lines on the data axis.

Roll-Up Controls

Roll window icon 

Hides the controls, leaving just the title bar visible.

 **Pattern List**

Click anywhere inside the large, central preview area of the Pictograph roll-up to display a list of patterns. Click the pattern you want and choose OK. Choosing **Cancel** ignores your selection and closes the list.

Choosing **File** displays a menu for saving, deleting and importing patterns.

Delete Item	Deletes the selected pattern from the list.
Import Pattern	Displays another dialog box that lets you create a pattern from an imported graphic.

Import

Brings files created in other applications into the charting window.

Apply

Applies your choices to the selected object.

Color Correction command (View menu)

Color Correction allows you to increase the accuracy of your screen preview. Note: CorelCHART slows screen redraw slightly when previewing bitmaps.

Displays a flyout menu used to specify a level of color correction. Color Correction improves and optimizes the linearity of your monitor so that pictures appear on-screen as close as possible to a white-balanced photograph. The options are:

None	Uses no color correction, allowing for the fastest screen draw.
Fast	Uses some color correction based on your System Color Profile created using Color Manager, which improves the color display yet maintains a fast screen redraw.
Accurate	Uses color correction based on your System Color Profile to display colors more accurately. Slows down the screen redraw of bitmaps. *See also* Working with basic System Profiles and Using advanced printer calibration features
Simulate Printer	An advanced option based on your System Color Profile. Choosing this option slows down the screen refresh of bitmaps, but is useful for previewing colors before sending the file to the printer.

Wireframe command (View menu)

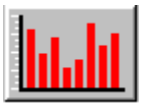
Displays the chart in wireframe mode. Only the outline of the chart is displayed. The overall performance of CorelCHART improves when working in wireframe mode.

Vertical/Horizontal Bar (Gallery menu)

A chart that uses bars to show the magnitudes of several categories. Bars run vertically, while the numeric scale travels in the same direction as the bars.

Vertical Bar charts show how values change over time. In contrast to line charts, vertical bar charts are best for a limited time series--just a few years, quarters, months, or whatever time period you're working with. Vertical bar charts are good for handling multiple series for comparison purposes.

Subtypes: Side-by-Side, Stacked, Dual Axis Side-by-Side, Dual Axis Stacked, Bipolar Side-by-Side, Bipolar Stacked and Percent

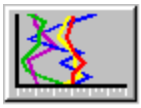


Vertical/Horizontal Line (Gallery menu)

A chart that uses lines to show the magnitudes of several categories. The numeric scale is perpendicular to the lines.

Vertical Line charts are best for showing changes in a group of values over longer periods of time. If you're trying to plot three or four series of values on a line chart, and they intersect so often you lose track of which is which, consider a vertical bar or vertical area chart.

Subtypes: Absolute, Stacked, Bipolar Absolute, Bipolar Stacked, Dual Axis Absolute, Dual Axis Stacked and Percent

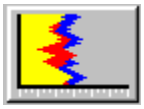


Vertical/Horizontal Area (Gallery menu)

A chart that uses area risers to show the magnitudes of several categories. The numeric scale is perpendicular to the areas.

Vertical Area charts show continuous proportions and totals. Like line charts, vertical area charts don't handle multiple series well; the areas representing larger quantities tend to obscure those representing smaller quantities. If this is the problem with your vertical area chart, consider a stacked vertical bar chart.

Subtypes: Absolute, Stacked, Bipolar Absolute, Bipolar Stacked, Dual Axis Absolute, Dual Axis Stacked and Percent



Pie (Gallery menu)

Pie charts show the relative sizes of data points, compared to their sums. The slices show proportions, not absolute values. Slice labels name the slice and can include the slice's percentage or its absolute value.

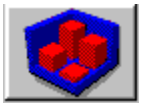
For **multiple pie** charts, if you assign each pie to represent a time period, each conveys the contribution of parts to a whole and how the whole itself can grow or shrink over time.

Subtypes: Pie, Ring Pie, Multiple Pie, Multiple Ring Pie, Multiple Proportional Pie and Multiple Proportional Ring Pie

3D Riser (Gallery menu)

Charts that represent data with three-dimensional bars or other riser shapes that rise from the floor of the chart. Three-dimensional charts suggest a connection between the three groups of data.

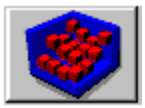
Subtypes: Bar, Pyramid, Octagon and Cut-Corner Bar



3D Floating (Gallery menu)

Three-dimensional charts suggest a connection between three groups of data. Three-dimensional floating charts represent data with three-dimensional cubes or spheres in three dimensions.

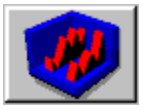
Subtypes: Cube and Sphere



3D Connect Series (Gallery menu)

Three-dimensional charts suggest a connection between three groups of data. In 3D Connect Series charts, markers or data points in a series are connected to form three-dimensional floating lines or areas, usually representing year-over-year economic performance. Ribbon and step lines let you see below them, while areas rise from the floor.

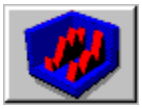
Subtypes: Area, Ribbon and Step



3D Connect Group (Gallery menu)

Three-dimensional charts suggest a connection between three groups of data. Markers or data points in a group are connected to form three-dimensional floating "lines" or areas. Ribbon and step lines let you see below them, while areas rise from the floor.

Subtypes: Area, Ribbon and Step

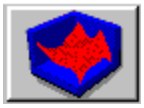


3D Surface (Gallery menu)

Three-dimensional charts suggest a connection between three groups of data. Data points are connected to form a net. The areas between the points are planes that can be colored to make the net look like a solid surface rather than a wireframe. For large amounts of data, surface charts help show hot spots both high and low areas in the data.

A 3D surface with contour lines can be made by activating grid lines for the riser and making the edges of the riser surface transparent.

Subtypes: Surface, Surface with Sides and Honeycomb Surface



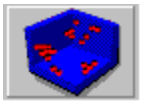
3D Scatter (Gallery menu)

Three-dimensional scatter chart data is random along all three axes. Unlike the other 3D charts, the data is not spaced evenly along the floor (X and Y axes).

Since the data points are floating in space, there are several visual methods to help gauge their values:

- *Color by* distance from floor, left wall, or right wall
- *Tie* lines to the floor, left wall, right wall, or neighbor.

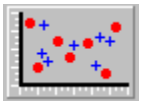
Subtypes: XYZ Scatter and XYX Scatter with Labels



Scatter (Gallery menu)

Scatter charts show the correlation of two sets of numbers by plotting where the variables intersect. Scatter charts are useful when the co-ordinates on the horizontal scale--often time intervals--are irregular.

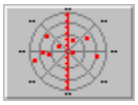
Subtypes: X-Y Scatter, X-Y Dual Axes, X-Y with Labels and X-Y Dual Axes with Labels



Polar (Gallery menu)

This chart type is based on an X-Y plane in which each data point represents the distance (or radius) and angle from the X axis.

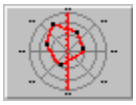
Subtypes: Single and Dual Axis



Radar (Gallery menu)

Used to display the occurrence of data or the variation of data in relation to each other. Several series of data can be represented on a single radar chart. The different data points in a series are connected by lines.

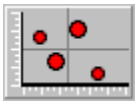
Subtypes: Regular, Stacked Radar and Dual Axis Radar



Bubble (Gallery menu)

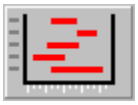
Similar to a scatter chart, a bubble chart represents three-variable, or trivariate, data: the standard X and Y axis and the Z variable, represented by the size of the data point or bubble as it is called in this chart type.

Subtypes: Bubble, Dual Axis Bubble, Bubble with Labels and Dual Axis Bubble with Labels



Gantt (Gallery menu)

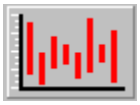
This chart type is used to represent the duration, start and end times of particular events.



High-Low-Open-Close (Gallery menu)

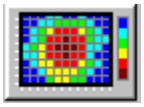
This is a traditional stock-market chart type. Vertical lines indicate the highest and lowest values, while horizontal bars indicate the opening and closing values.

Subtypes: HiLo, HiLo Dual Axes, HiLoOpen, HiLoOpen Dual Axes, HiLoOpenClose and HiLoOpenClose Dual Axes



Spectral Map (Gallery menu)

Spectral maps are specialized charts used with data that carries some kind of spatial relationship, such as geographical data. Showing a population density across a group of contiguous areas of a city would be one application for a spectrally-mapped chart.



Histogram (Gallery menu)

Histograms display the distribution of data. The difference between the largest and smallest data values is broken into equally-spaced intervals. The histogram displays a count of the number of data points in each interval. The shape of the chart is often the traditional Gaussian or bell-shaped normal distribution curve.

Subtypes: Vertical Histogram and Horizontal Histogram

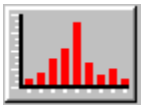
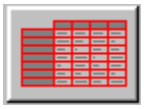


Table Charts (Gallery menu)

Table charts display data in columns and rows. This format is often used for data that is difficult to chart in any other way, or in scientific and technical settings where a graph's data is shown next to it in a table.



Order command (Arrange menu)

The order flyout menu appears with the following options:

To Front
Places the selected annotation in front of all other annotations.

To Back
Places the selected annotation behind all other annotations.

Forward One
Moves the selected annotation layer forward one level.

Backward One
Moves the selected annotation layer back one level.

Align command (Arrange menu)

Use the Align command to realign drawing objects vertically and horizontally.

Vertical Alignment

Top	Aligns one or more drawing objects with the top edge of the last selected object.
Center	Aligns one or more drawing objects with the center of the last selected object.
Bottom	Aligns one or more drawing objects with the bottom edge of the last selected object.

Horizontal Alignment

Left	Aligns one or more drawing objects with the left edge of the last selected object.
Center	Aligns one or more drawing objects with the center of the last selected object.
Right	Aligns one or more drawing objects with the right edge of the last selected object.

Align to Center of Page

Centers selected drawing objects at the center of the charting window, overlaying each successively aligned object on top of the previous one.

Shortcut

Pressing CTRL+A with two or more drawing objects in the charting window displays the Align dialog box.

Make Same Size... (Arrange menu)

Displays a flyout submenu used to apply vertical and/or horizontal dimensions of one drawing object (rectangle, square, ellipse or circle) to another.

With the Pick tool active, hold down the SHIFT key and click the original object. Click the object you want to give matching horizontal or vertical dimensions. Selection handles will appear around both objects. From the Menu bar, choose Arrange, Make Same Size. From the flyout menu, choose one of the following:

Same Horizontal

- Choose Same Horizontal to apply the horizontal dimension of object 1 to object 2.

Same Vertical

- Choose Same Vertical to apply the vertical dimension of object 1 to object 2.

Horizontal and Vertical

- Choose Horizontal and Vertical to apply the horizontal and vertical dimensions of object 1 to object 2.

Auto Update Chart command

When selected (the default), immediately redraws the whole chart to update any changes to the chart's data as they occur.

Preferences command (File menu)

Controls interface and display settings. You can change these settings at any time, but they will revert to the defaults when you close CorelCHART.

Dialog Box Options

Interface preferences options

When checked:

Show Ribbon Bar displays the button bar located immediately below the menu bar, which gives you quick access to several menu commands.

Show Text Ribbon Bar displays the ribbon located immediately above the chart area, which includes buttons and list boxes for formatting text objects.

Show Status Line displays a line below the On-screen color palette. Information about selected commands and tools appear in this line.

Show Pop-Up Help displays name of tools and Ribbon Bar buttons when you rest the mouse pointer over the tool's icon.

Interruptible Display allows you to stop a screen redraw by clicking the mouse or pressing a key.

Display Options

Preview Fountain Steps

Determines the number of bands used to represent fountain fills on the screen. Also affects the appearance of fountain fills in charts exported in the following formats:

- Illustrator (AI, EPS)
- Computer Graphics Metafile (CGM)
- MAC PICT (PCT)
- All bitmap formats

Selecting a lower value (less than 20) speeds up screen redraws, but results in noticeable banding.

You can control the number of bands used to print fountains with the **Fountain Steps** setting in the Print Options dialog box.

Note: The Steps setting in the Fountain Fill dialog box overrides the settings in this dialog box and in the Print Options dialog box for selected objects.

Greek Text Below

If your file contains large amounts of small text, selecting a high GTB value (maximum 500) causes the text to display as small blocks, resulting in faster screen redrawing. Using this option does not affect the appearance of printed text.

Note: Depending on how high you set Greek Text Below, Greek text becomes readable when you magnify it with the Zoom tool. For example, 10-point text becomes readable with the setting at approximately 125.

Miter Limit

Affects the appearance of corner joints. Any corner that is less than the Miter Limit will have a beveled point. Those above the limit will come to a sharp point. This limit exists to avoid corners that extend far beyond the actual corner at small angles.

Preview Colors

Controls how CorelCHART displays colors on your screen, and has no effect on the printed output. To use these settings, you must have a monitor or graphics adapter that can display 256 simultaneous colors and a Windows screen driver that takes advantage of this capability.

256-Color Dithering Displays color using CorelCHART's dithering scheme.

Windows Dithering	Displays color using the screen driver's default dithering scheme. If you have a 256-color adapter, your screen may redraw faster with this option selected. However, only 15 of these colors will be used in the dithering scheme.

Shortcut

Pressing CTRL+J displays the Preferences dialog box

Refresh window command (View menu)

Immediately redraws the current window, updating changes and removing any "dirt" left on the screen by earlier manipulation.

Cascade command (Window menu)

Makes all open windows overlap each other so that the title bar of each window is visible.

Tile Vertically command (Window menu)

Sets up two or more CorelCHART windows in equal frames arranged vertically.

Tile Horizontally command (Window menu)

Sets up two or more CorelCHART windows side by side and in equal sizes.

Arrange Icons command (Window menu)

Used to line up icons representing minimized CorelCHART files.

Close All command (Window menu)

Closes all active CorelCHART windows but leaves CorelCHART running.

1-2-3 File List (Window menu)

Lists all open windows or documents, including those minimized to icons. Choose any name or key any number on the list to make the window active. You can have 25 or more files open at once, depending on your computer's Random Access Memory (RAM).

Contents (Help menu)

Displays the CorelCHART Help contents. Click a topic area or title for descriptive or procedural help.

Screen/Menu Help (Help menu)

Displays the Help pointer  . Choose Screen/Menu Help or its icon at the right end of the Ribbon Bar for context-sensitive Help about a menu command or screen region.

Search for Help (Help menu)

Displays the Search dialog box that lets you find Help information using keywords.

Quick Tour command (Help menu)

This command, which appears in the menu only if you have installed the Quick Tour CD-based tutorial, launches the tutorial.

About CorelCHART (Help menu)

Displays information about CorelCHART. Click the System Info button for information about your computer hardware and operating system.

Control Menu

Restore command

Returns the active window to its previous size and location. You can also restore a window by clicking on its Restore button 

- Does not affect a window moved or resized with the Move or Size commands.

Move command

Moves the active window with the keyboard direction keys. This command is unavailable if the window is maximized.

Size command

Resizes the active window with the keyboard direction keys. This command is unavailable if the window is maximized.

Minimize command

Shrinks the active window to an icon at the bottom of the CorelCHART window. You can use the Restore command to restore the minimized window to its former size.

Maximize command

Enlarges the active window to fill the entire screen. You can choose the Restore command or click the Restore button to return the window to its former size.

Close command

Closes the active window. Double-clicking the Control Menu button  is equivalent to choosing the Close command.

Switch To command

Opens the Task List, which lists all the applications currently running on your system.

Dialog Box Options

Switch To	Opens the selected application.
End Task	Closes the selected application.
Cancel	Closes the Task List.
Cascade	Overlaps all open applications so that their Title bars are visible.
Tile	Sizes all open applications to fit on the screen.
Arrange Icons	Arranges the icons of all minimized applications evenly across the bottom of the CorelCHART window.

For more information see your Microsoft Windows *User's Guide.*

Window menu

Tile Vertically

Sets up two or more CorelCHART windows in equal-sized frames arranged vertically.

Tile Horizontally

Sets up two or more CorelCHART windows in equal side-by-side frames arranged horizontally.

Arrange Icons

Used to line up icons representing CorelCHART files that have been minimized.

Close All

Closes all active CorelCHART windows but leaves CorelCHART running.

1-2-3 File List

This section of the Window menu displays the list of all open files. You can 25 or more files open at once, depending on your computer's Random Access Memory (RAM).

Import command (File menu)

Imports data from other applications.

Dialog Box Options

File Name list box

Displays the default file extension *.CDS until you type in the name of the file you want to open, or select the file name you want from the list box.

Drives

Contains the list of all available disk drives.

Directories

Contains the list of all available directories.

List Files of Type

Contains the list of all the available file formats: Corel Sheet (.CDS) Corel Sheet v. 4 (.TBL), text (.TXT), Comma Separated Values (.CSV), Rich Text Format (.RTF), Excel v. 3 and 4 (.XLS).

Ansi to Oem

Check this option if the file you want to open uses the OEM standard.

Export command (File menu)

Saves CorelCHART spreadsheets in formats recognized by other applications.

Dialog Box Options

File Name

Proposes a name (e.g., SHEET1.CDS) if you have not saved a document before. Either accept the name or type a new file name.

Drives

Contains the list of all available disk drives.

Directories

Contains the list of all available directories.

List Files of Type

Contains the list of all the available file formats. Select the appropriate format for the application in which you intend to use the spreadsheet. Available formats are: Corel Data Sheet (.CDS), Tab separated text (*.txt), Comma Separated Values (.CSV), text (.TXT), Rich Text Format (.RTF), Excel 3.0 (*.xls) and Excel 4.0 (*.xls).

Ansi to Oem

Check this option if you need to save a file using the OEM standard. This exports the file with the DOS character set.

Print Preview command (File menu)

Displays a window that shows your spreadsheet as it will appear when printed. You can change the margins on screen before printing.

Zoom

Magnifies the page or returns to the full-page view. You can also magnify selected parts of the page by pointing to an area and clicking.

Margins

Lets you set the margins and chart size visually. When you click this button, dotted lines appear, indicating the positions of the paper margins. Dragging the lines changes the margins. After changing the margin settings, CorelCHART recalculates the number of spreadsheet cells fitting these settings.

Print

When you are ready to print, click Print. The Print dialog box will appear with options for controlling how the data prints.

Page

Click on this button to open Page setup dialog if you want to change page options.

Setup

If you want to select printer or to change printer parameters, click this button to display the Printer Setup dialog box.

Go to

Displays the Go to Page dialog box, where you can specify the page you want to preview.

Close

Closes the preview window and returns to the spreadsheet window.

Go To Page dialog

Enter the number of the page you want to see in the preview window and click OK.

Print command (File menu)

Displays the Print Data dialog box and prints the spreadsheet according to the options you choose. The selected printer and its connection are displayed at the top of the dialog box. You can change these with the Print Setup command.

Dialog Box Options

Copies

Specify the number of times you want the spreadsheet printed.

First Page Number

Specify the number to be assigned to the first page of your document.

Note: The page numbers in the **From** and **To** boxes under **Print Pages** should be calculated starting from this page, i.e., if number five is assigned to the first page and you want to print the first seven pages, the print range is from page five to page twelve.

Print Cells

Select **All** to print all rows and columns or choose **From** and specify the range you want printed in the **From** and **To** boxes. Selecting a range of cells to print automatically disables the Print Pages group in the Print Data dialog box.

Print Pages

Specify the pages you want to print. You can specify a range of pages if the **All** options are selected for both rows and columns under **Print Cells**. Type the first page number you want to print in the **From** box and the last page number in the **To** box.

Two-Sided Printing

Select this option if you want to print odd and even pages separately. When checked, a dialog box asks you if you want to print the odd-numbered pages. After your response, the dialog appears asking you if you want to print even-numbered pages. For two-sided printing, say yes to printing the odd or even-numbered pages, and when the odd-number pages are finished printing, place them in the printer tray to print the remaining pages on the reverse side.

Page

Displays the Page Setup dialog box, which enables you to change the layout of the pages to be printed.

Setup

Displays the Printer Setup dialog box to let you select the printer or to setup printer options.

Page Setup command (File menu)

Use this command to control the appearance of the printed spreadsheet.

Dialog Box Options

Header and Footer

Headers and footers are text strings that appear respectively at the top and bottom of every printed page of a spreadsheet. Type the header and footer text and/or field codes. The default settings print the document name as a header and the word "Page" and a page number as a footer, both being centered on the page. **Note:** Only one header and footer can be set at a time for each spreadsheet. *See also* Header and Footer Formats

Margins

Determines the amount of space between the edge of the paper and the printed spreadsheet. You can set different margins for each side of the page. Either accept the default settings or enter the new values in the edit boxes.

Options

Choose what you want to print.

Print Patterns Select this option to print shading added to cells with the Patterns command in the Format menu. Clear to print cell contents only.

Print Grid Select this option to print cell gridlines. Clear to print cell contents only.

Print Borders Select this option to print borders added with the Borders command in the Format menu. Clear to print cell contents only.

Print Labels Select this option to print row and column headings.

Print OLE Objects

Select this option to print objects created in another OLE server Deselect this option to omit OLE objects when printing spreadsheet drafts.

Font

Displays the Font Format dialog box to set the font, style, and size for printing headers and footers.

Header and Footer Formats

From the Page Setup dialog box, you can create headers and footers that put a title, date or page number at the top or bottom of each printed page of your spreadsheet. CorelCHART automatically uses the document name as the header and the word "Page" and the page number as the footer. You can delete or change them. Headers and footers are saved automatically with the document.

Header and Footer codes

	Code	Effect
Position codes	&L	Aligns text against left margin.
	&C	Centers text between margins.
	&R	Aligns text against right margin.
Automatic insert codes	&D	Inserts the computer date.
	&T	Inserts the computer time.
	&F	Inserts the name of the spreadsheet or chart.
Page codes	&P	Inserts the page number.

You can combine the codes shown in the table with your own text to create custom headers and footers. If text overlaps the header or footer, use the **Page Setup** command to change the top or bottom margin.

Use the **Font** button in the Page Setup dialog box to select type face, style and size for headers and footers.

Font command (Format menu)

Changes the type face, size, style, and color of selected cells.

Dialog Box Options

Font, Style, Size

Choose the typeface, style and size you want. CorelCHART lists only those fonts installed for the selected printer driver.

Effects

Choose the formatting effects you want and clear those you don't. As you select and deselect effects, the visual preview on the bottom right-hand side is updated.

Color

Controls the text color. Select the color you want from the list box. You must have a color monitor to display, or a plotter or color printer to print color formatting. Click the **More** button to select from a different color palette or create a color using the Color selection dialog box

Sample

Shows the effects of the options you've chosen before you apply them to the spreadsheet.

Printer Setup command (File menu)

Use this command to select the printer and printer options you want to use to print your spreadsheet.

Dialog Box Options

Printers

Selects the printer you want to use. Only installed printers appear in the list. You may install printers through the Windows Control Panel.

Setup

Displays a dialog box where you can choose default settings for the printer you select. The settings available are Paper Source, Paper Size, Orientation and number of copies. An **Options** button displays a dialog box of additional options. For more information, choose the **Help** button after you choose the **Options** button.

Cut command (Edit menu)

Removes the selection from the spreadsheet and places it on the Clipboard. The selection can be a cell, range of cells or characters in the Formula bar. This command displays the Cut and Clear Options dialog box for selecting the data types and formats to be placed on the Clipboard.

- If Cut is followed by Paste Data, the cell contents and formats are pasted into the area down and to the right of the selected cell.
- To paste below the selected range of data, choose the Fill Down command. To paste data to the right, choose Fill Right.
- If you need to "paste" just a portion of the Clipboard contents, select the area in the spreadsheet and then choose the Paste Data command. The selected area will be filled starting from the upper-left cell. **Note:** The paste area must be the same size (i.e., number of cells wide and high) or a multiple of the selection. For larger selected areas, Data Manager will recopy the data to fill the paste area.
- Use the Delete command if you want to remove selected cells and shift other cells to fill the space.

Cut and Clear Options dialog box

Provides choices as to the data types and formats placed on the Clipboard or cleared from the selected cell or cells.

- Select the data types and formats you want to cut or clear
- Deselect those data types and formats you want to retain

Dialog Box Options

Data

Select one or several types of data to be cut or cleared in selected cells. The options are formulas, variables or text. Your choices will be retained until you choose them for all cut and clear operations during the current CorelCHART session.

Formats

Select one or several of the formatting attributes to be cut or cleared for the chosen type(s) of data. The Format Options you can cut and clear are **All**, which removes the five available attributes--font, numeric format, alignment, borders and patterns.

Copy command (Edit menu)

Copies the selection to the Clipboard. The selection can be a cell, range of cells or characters in the Formula bar.

- If Copy is followed by Paste, the cell contents and formats are pasted into the area down and to the right of the selected cell.
- To paste below the selected range of data, choose the Fill Down command. To paste to the right, choose Fill Right.
- If you need to "paste" just a portion of the Clipboard contents, select the area in the spreadsheet and then choose the Paste command. The selected area will be filled starting from the upper-left cell.

Paste Data command (Edit menu)

The Paste Data command places previously cut or copied Clipboard data into the current spreadsheet, beginning at the current cell.

When you paste data from a group of cells, you may select a paste area that is a multiple of the original to repeat the data. The selected paste area must, however, be of the same shape as the original, or a mesage box appears stating that the cut and paste areas are different shapes.

Example: If you cut or copied cells C7, D7 and E7, containing the values 30, 35 and 40, you could paste them to a selected cell area of the same shape (three cells in a row) or a multiple of the original shape. If you pasted the data into six cells in a row, e.g., F7-K7, the data would paste into the first three cells and repeat in the next three as follows: 30, 35, 40, 30, 35, 40.

Paste Special command (Edit menu)

Use this command to paste data from the Windows Clipboard. When chosen, the Paste Special command displays one of two dialog boxes.

The dialog box displayed depends on the source of the Clipboard data: CorelCHART or another source application. Choose the appropriate topic:

Paste Special: From Data Manager
Paste Special: From another application

Paste Special: From Data Manager

You can specify whether the copied formulas or values are added to, subtracted from, multiplied by, or divided into the contents of the paste area cells. Paste Special can also be used to transpose a range of values.

Paste

Choose the data types and formats--all, formulas, values, text and/or formats--that should be pasted from the Clipboard.

Operation

Select the operation--none, subtract, add, divide, multiply--that should be applied to the pasted data and the paste area data. Choose **None** if you don't need any.

Swap Args

Select to change the order of arguments for Dividing and Subtracting. By default, the first argument in the operation is the value from the cell in the paste area. Swapping makes the value in the Clipboard the first argument in the operation.

Transpose

Select if you want to transpose the orientation of the data you are pasting. Data from the top row of the copied area will be pasted into the left column of the paste area; data from the left column will be pasted into the top row.

Paste Special: From another application

Dialog Box Options for data from another application

Source

Shows the source of the Clipboard data or object.

Paste and **Paste Link**

Click one of the two options. Paste embeds the data in the CorelCHART spreadsheet. Paste Link maintains a link so that any changes made to the source file will be reflected in your spreadsheet.

As

If you choose **Paste**, this box lists various data formats (eg., Server application object, Unformatted text, Comma separated text, Rich Text Format, Picture (Metafile)) you may to use when you paste the data into your spreadsheet.

If you choose **Paste Link**, only the format of the server application--the application the data was created in--is listed so that the file will retain a link with the source file.

Result

Provides information about the selections that are highlighted in the Paste and Paste Link area.

Paste Link Data command (Edit menu)

Pastes copied data into the selected cells and establishes a link with the data in the source application. When the source data changes, the pasted data reflects those changes. The source can be a Microsoft Excel worksheet or another DDE-compliant application.

Clear command (Edit menu)

Removes the contents of the selection from the spreadsheet. Unlike the Cut and Copy commands, the Clear command does not copy data to the Clipboard. Data previously copied to the Clipboard will not be replaced by cleared data. As with Cut and Copy, data to be removed using the Clear command can be a cell, range of cells or characters in the Formula bar. The Clear command displays the Cut and Clear Options for choosing the type(s) of data and the formats to clear from the selected cells.

Insert command (Edit menu)

Use this command to insert one or several rows/columns of empty cells.

Delete command (Edit menu)

The Delete command removes entire rows or columns and the contents of the cells they include.

Insert Object command (Edit menu)

This command inserts an OLE object created in another application into your spreadsheet. The object can be linked or embedded.

Dialog Box Options

Create New

Displays a list of OLE object types (based on the OLE server applications installed on your computer) in the **Object Type** list box. You can insert an object from any of these applications into your spreadsheet.

Create New also launches the appropriate application so that you can create a new object to be embedded in your spreadsheet.

Create from File

Enables the insertion of an object based on an existing file. The list box displays the directory for the selected OLE server and a **Browse** button to select a file in another directory. The **Link** box is used to establish a link between the object and the original file where it was created. Not choosing **Link** embeds the object.

Result

This text box describes the type of object that the selected application inserts in your spreadsheet.

Links command (Edit menu)

Displays the Links dialog box, used to change the properties of linked objects or break the links altogether.

Dialog Box Options

Link

Shows a list of all links in the current spreadsheet. Highlight a link to select it.

Source/Type

Identifies the linked files and the server applications.

Update

Updates the link automatically.

Update Now

Updates the link when you click this button.

Open Source

Opens the server application and the file containing the linked object.

Change Source

Changes the source object.

Break Link

Breaks the link between the object and the server application. The object becomes embedded in your spreadsheet.

Fill Down command (Edit menu)

This command copies the contents of two or more cells to cells located below them.

The command is available (not dimmed) when you select two or more cells containing the source data. You then drag with the mouse down the same column to select the cell range where the data is to be filled.

Fill Right command (Edit menu)

This command copies the contents of two or more cells into a range of cells located immediately to their right.

The command is available (not dimmed) when you select two or more cells containing the source data. You then drag with the mouse to the right to select the range of cells to be filled.

Chart command (View menu)

This command displays the current chart. Click the Data Manager button to return to the current Data Manager window from Chart View.

Borders command (Format menu)

Adds border lines in selected cells.

Dialog Box Options

Borders

Left, Top, Right, Bottom

Check the borders you want to be displayed and clear those for those you don't. You can use any combination of these options.

Outline

Check-this option if you want the whole cell to be outlined.

Style

Displays all the available line styles. Click on the line type you want to display the borders with.

Color

From the drop-down list box select the color for the borders. Click the **More** button to select from a different color palette or create a color using the Color selection dialog box

Note: Colors and line styles can be applied independently of the various borders (i.e., top, bottom, right, left) of a cell or range of cells.

Numeric dialog box

Use the Numeric dialog box, also called the Number Format command in Chart View, to choose or create new numeric styles in both Chart View and Data Manager. The Numeric dialog box is available from the Chart menu's Data Axis flyout menu, from the Data Manager's Format menu, from pop-up menus and from the Ribbon Bars.

CorelCHART provides several built-in formats based on serial values used with dates. If none of the built-in formats suit your needs, you can create new ones by editing a built-in format code or typing your own codes. Numeric formats applied in Chart View affect all similar numeric data, while numeric formats applied in Data Manager affect only the selected cell(s).

User-defined formats can be conditional, i.e., the applied format depends on the result returned by a formula or the value typed. For example, you can create a numeric format which displays positive values in black and negative values in red.

CorelCHART uses symbols to represent how the number will look when formatted. The symbols "m/d/yy," for example, represent the appearance of one of the built-in date formats. Typing 10-2-93 in a Data Manager cell with this format produces this result: 10/2/93.

Dialog Box Options

Category and Formats

Use the scroll bar to browse the list of formats; there's a general-purpose format, and number, currency, date, time, percentage and scientific formats. The **Formats** box displays available formats for the selected category.

See also Built-In Numeric Formats

Code

Displays the code of the selected format. The code box enables you to edit the code to modify the format or create a new one. If a user-defined numeric format is deleted, all cells that use that format adopt the general format, which is the CorelCHART default.

Sample

Displays the selected format.

User Formats

The **User Format** text box displays the user-defined formats. The **Add** button is used to add a newly created style, built in the **Code** box, to the current category. Click the **Change** button to apply the changes made to a custom format using the **Code** box. The **Delete** button removes a selected custom format from the list.

See also Creating and Deleting custom formats and User defined numeric formats

Patterns command (Format menu)

Adds a pattern to the background of selected cells.

Dialog Box Options

Patterns

Shows all the available brushes you can use for shading cells. Click the brush in the palette to make it active.

Colors

Use the **Foreground** and **Background** drop-down list boxes to select colors for the pattern. Click the **More** button to select from a different color palette or create a color using the Color selection dialog box

Alignment command (Format menu)

Aligns the contents of selected cells vertically and/or horizontally. You can also use the left, center, or right alignment buttons on the tool bar to align text and numbers in cells.

Dialog Box Options

Vertical

Displays three options for the vertical alignment of all selected cells. They are **Top**, **Bottom** and **Baseline**. The **Baseline** alignment centers the data according to the row height.

Horizontal

Gives four options: **Left**, **Center, Right** and **Auto.** The **Auto** option Aligns the numeric entries to the right and the text entries to the left. By default, the spreadsheet cells have the **Auto** alignment type.

The **Indent** box is used to set the alignment anywhere between the options mentioned. It specifies an indent from the left. The units of measurements box includes five indent choices.

Word Wrap

Displays long strings of text on multiple lines within a cell. Wrapped text may be left-aligned, right-aligned, or centered in a cell.

Set Page Break command (Format menu)

Set Page Break enables you to insert a page break to the left of or immediately above a selected cell.

The command name changes to **Remove Page Break** when the active cell is immediately below or to the right of a page break. You can then use the command to remove the page break.

Style command (Format menu)

Enables you to save combinations of cell formatting attributes as styles. The options can include font, alignment, numeric format, cell borders and patterns. Styles are used to apply attributes to cells in the same spreadsheet. You can save styles in a style sheet (.CCT file) for use in other spreadsheets. The Styles drop-down list in the Data Manager text ribbon bar includes all styles for the current style sheet.

Dialog Box Options

Name

Drop-down list of style names. Use the list to assign a file name to a new style or choose a style to modify.

Description

Shows the attributes that make up the currently highlighted style.

Components

This section is used to choose formatting options to be included in the style. Check the components you want and clear the ones you do not want as part of the style.

The Font, Alignment, Number, Border and Patterns buttons are used to set the formatting options for the style.

Add, Delete, Load, Save

Add

Is used to add a new style in the list for the current spreadsheet. When you save the file, the added style is saved with the file but it is not available to other documents.

Save

Saves the style in a style sheet which is a file with the .CCT extension. The .CCT file and the styles it contains are available to any spreadsheet. You can add many styles to the same style sheet and create new style sheets.

Delete

Permanently removes an existing style from the current list.

Load

Loads saved style sheets (.CCT files) for use in a spreadsheet.

Row Height command (Format menu)

Changes the height of selected rows. Only one cell in a row needs to be selected to change that row's height.

Dialog Box Options

Row Height

Used to type or select the height. A value of 0 (zero) hides the row.

To specify the height in a different unit, click the units box and select the unit you want.

Default Value

Resets the row height to default value (16 points).

Column Width command (Format menu)

Changes the width of selected columns. Only one cell in a column needs to be selected to change that column's width.

Dialog Box Options

Column Width

Used to type or select the width. A value of 0 (zero) hides the column.

To specify the height in a different unit, click the units box and select the unit you want.

Default Value

Resets the column width to default value (58 points).

Center Across Selection (Format menu)

This command positions text in the center of a selected horizontal range of cells.

For example, type a word in a cell, click that cell and drag the mouse to the right to highlight a total of four cells. When you choose this command, the text string is centered across the range of four cells which means that part of the text is in the second cell and part of it is in the third.

If the selected cell contains a numeric value or formula, the Center Across Selection command behaves exactly like the center alignment button  --it centers the value or formula in its cell, not across a range of cells.

Best Fit command (Format menu)

Adjusts the width or height of the selected column or row to match the largest item in a cell in that column or row. When used with a range of cells, the Best Fit command adjusts both row height and column width at once.

Data Orientation command (Data menu)

Use this dialog box to control how the data is plotted on the chart.

Dialog Box Options

Series Orientation

Choosing **Rows are Series** displays text in the first column of the spreadsheet on the legend as series names. The text in the first row (category names) appears on the horizontal axis of the chart as tick-mark labels.

Choosing **Columns are Series** displays text in the first row of the spreadsheet on the legend as series names. The text in the first column (category names) appears on the horizontal axis of the chart as tick-mark labels.

Charted Data Point Orientation

These options are used most often with Hi-Low-Open-Close charts. Choosing **Vertically Grouped Cell Values** plots the high and low values on separate bars. Choosing **Horizontally Grouped Cell Values** plots each high and low pair on the same bar.

Word Separator command (Format menu)

When editing cell contents in CorelCHART, you can double-click a word and all the characters that make up that word are automatically selected. CorelCHART looks for word separators and selects all characters located between two consecutive separators. A blank space is always a word separator.

It is useful at times to have other characters recognized as word separators. If, for example, you are editing a large financial spreadsheet that has the currency symbol ($) displayed in most of the cells, and you want to edit only the number digits, adding the $ symbol as a word separator simplifies and speeds up the work significantly. If a cell has $5,895.00 as its contents, the $ symbol is not selected when you double-click any of the numbers.

The Word Separator command displays a dialog box for adding or removing characters that act as word separators in your spreadsheet. The characters displayed in the dialog box when you first open it are all considered word separators. You can remove all of them except the space which is always a word separator by default. You can add any character in the dialog box.

The list of word separator characters is saved in the global CorelCHART settings. They are therefore valid for all spreadsheets and for every CorelCHART session until you modify the list.

Find & Replace command (Edit menu)

Searches for a specified data string, and replaces the search string with another string. You can have the find & replace operation done manually--you are prompted to replace or find the next occurrence of the string at every occurrence found. The option to **Replace All** does the work automatically without warning at every occurrence.

You can search the entire spreadsheet by placing the cursor in the very fist cell of the spreadsheet or limit the search to a selected range of cells.

Note: If the active cell is somewhere in the middle of your spreadsheet, the search will begin from that cell and go forward or backward according to the options you set.

Dialog Box Options

Find What

Type the text you want to search for. Proposes the last text or value you searched for, which you can accept or change. You can type in any character, number, or punctuation mark. The **Whole Cell** option, if checked, ignores cells which contain more than the specified characters. Deselect the Whole Cell option to search for all occurrences of the characters.

Replace With

Specifies the string that will replace the searched string. Proposes the last string used as replacement. The **Whole Cell** option, if checked, replaces the entire cell contents with the replacement string. Clearing it replaces only the characters that match the search string and leaves other characters in the cell as they are.

Search for

Determines the type of data to search for--text, formulas or values.

Search by

Determines the order of the search--row by row or column by column.

Direction

Define the direction of searching: forward or backward.

Match Case

Select this option if you want CorelCHART to find only the strings that match the combination of upper and lowercase letters you type in the **Find What** box.

Verify on Replace

Select this option if you want to confirm each replacement.

Find Next

Finds the next occurrence of a string in the **Find What** box. Replaces this occurrence if the Verify on Replace check box is cleared.

Replace All

Replaces all the occurrences of a string in the **Find What** box with a string from the **Replace With** box.

Find Next command (Edit menu)

Searches for the next occurrence of the string of characters you specify in the Find dialog box.

Go To Cell command (Data menu)

Use the Go To Cell command to jump from your current location to another cell address.

Sort command (Data menu)

Use this command to sort rows or columns of the data range according to the contents of a key row or column.

Insert Sorted Item dialog box

Provides a fast and easy method for inserting a new item in a sorted data range. The item is inserted at the appropriate location according to the sort order and key you specify in the dialog box. This command inserts the new item and sorts the selected data in one operation, thus eliminating the need to sort the data again after adding a new item.

Dialog Box Options

Item

Used to type the new item to insert.

Insert

Specifies whether to sort rows or columns when inserting the new item.

Key

Identifies the column or row to insert item to. Type any reference to the cell from that row or column.

Enter Formula dialog box (Data menu)

The Enter Formula dialog box contains a formula editor, a listing of all available spreadsheet functions--and Context-sensitive Help for each one--and a listing of the available operators and separators. *See also* Spreadsheet Functions

Dialog Box Options

Editor

Enter your formula in this window using the keyboard or dialog box buttons. Formulas must include arguments and operators, and may include functions and separators.

See also List of Operators

Functions

Drop-down list of the 11 Function categories--Conversion, Date and Time, DDE, Engineering, Finance, Information, Logic, Lookup and Reference, Math and Trig, Statistics and Text. The Data Manager includes nearly 300 Spreadsheet Functions. Click the down arrow to see the function categories. Double-click a function name to place the position of the cursor in the Editor field. After this, the cursor is positioned to input the function's arguments.

Functions List Box

Click a Function name in the **Functions List Box** and then click the **Help button** for a specific Help topic about the selected function. *See also* Using Context-sensitive Help with Functions

Copy

Copies the selected fragment of the formula onto the Clipboard. Use **Paste** to place the contents of the Clipboard into the formula you are editing.

Cut

Copies the selection to the Clipboard. Use Paste to place the contents into the formula you are editing.

Paste

Copies the contents of Clipboard into the formula starting from the cursor position.

Clear All

Clears the formula in the Editor window.

Undo

Removes the last characters typed.

Numeric Keyboard

Use this set of buttons to enter numeric arguments and operators with a mouse. Click the button to insert the selected symbol to the marker position in the Editor bar.

Enter

Closes the dialog box and enters the formula from the Editor box into the current cell.

Help

Displays Context-Sensitive Help when clicked with a function selected in the Functions list box.

Grid command (View menu)

Switches the display of gridlines on and off.

Chart Tags (View menu)

Switches the display of chart tags on and off.

Chart tags are the cell color shadows and cell frames that appear in your tagged spreadsheet cells. The chart tags are a visual aid for quickly identifying which cells have been tagged, what are the data series, the column headers and so on.

Page Breaks command (View menu)

Switches the display of automatic page breaks on and off. Manual page breaks set with the Set Page Break command are always displayed.

Formula command (View menu)

This command is used to control the CorelCHART in-cell editing feature. Using in-cell editing, you can edit the contents and format of a cell in the cell itself, rather than moving to the Formula bar. This speeds up your work session. Both in-cell editing modes are described below.

In-cell editing with the Formula command enabled

Enables you to apply attributes to the selected cell's content. This is valid for cells containing text, values or formulas. Available attributes are font, type style, point size and color of characters. Select the cell you want to edit, press F2, click the cell, highlight the characters to be modified and apply the attributes using the text ribbon bar and the on-screen color palette.

Numeric values

If the cell contains a numeric value, format changes are included automatically in that value's format in the Numeric dialog box. The modified format appears in the User Formats box and can be saved as a style and added to a style sheet. *See also*Style command.

Formulas

If the cell contains a formula, in-cell editing enables you to change the formatting attributes of the *result of the formula*. The numeric format is also updated automatically.

In-cell editing with the Formula command disabled

When the Formula command is deselected, you can change both the contents and the formatting attributes with in-cell editing. This is valid for cells containing text, numeric values and formulas.

Numeric values

Pressing F2 enables you to edit the numeric values themselves or their current format. When editing the format with the Formula command disabled, only the selected cell's appearance changes, the numeric format is not updated until the Formula command is enabled as described above.

Formulas

Cells containing formulas display the formula when you press F2, allowing you to edit the formula itself. Changes made to the attributes, also appear in the formula's result.

Fill Series command (Data menu)

Fills a number of cells in a row or column with a series of dates, times or sequential numbers.

Dialog Box Options

Series in

Chooses the orientation of the series. The choices are rows or columns.

Fill

Lists the types of series available. The options are:

Linear	fills each cell in the series with the next incremental linear value
Growth	fills cells in the series with a multiple calculated from existing data in the series
Log	fills cells with incremental values of a logarithmic progression
Fibonacci	fills cells with incremental values in the Fibonacci progression
String	fills cells with series of days of the week, month or year. The increments are based on the difference between the strings in existing cells or by the step value described below.
Autofill	fills cells according to the data already in the series

String

Lists the string types you can use. The options are available only when a **String** series is selected. The nature of the **Linear**, **Growth**, **Logarithmic** and **Fibonacci** calculations and the existing data used in an **Autofill** series dictate the type of string to use. The string options are therefore dimmed and unavailable for them.

Trend

Derives a mathematical progression from the data already in the series and applies the progression to the chosen Fill type.

Formula

Click this option and the **Formula** button at the bottom of the dialog box to create a formula to be used to create the series. The Enter Formula dialog box dialog box appears.

Step Value

Enter the amount by which you want each cell to increase over the previous cell.

Stop Value

Enter the value at which you want the series to end.

Auto Recalculate command (Data menu)

The **Auto Recalculate** command when checked, calculates all dependent formulas every time you make a change to a value or formula

Recalculate Now command (Data menu)

If Auto-Recalc is turned off, choose this command to recalculate your spreadsheet at a specific time. Choose this command every time you want to recalculate the spreadsheet.

Auto Update Chart command (Data menu)

If selected, this command immediately redraws the whole chart to update any changes to the data as they occur.

Update Chart Now command (Data menu)

CorelCHART will update the current chart when you click this option. Choose this command every time you want to update the chart.

Get Data From Database

This command accesses CorelQUERY, a Corel data query application included in your CorelDRAW package. This enables you to insert data coming from various sources into your CorelCHART spreadsheet. The command displays a flyout menu. You can create a new query file and insert it or select an existing query file.

New File

Displays the Data Source dialog box and the CorelQUERY window in the background. In the Data Source dialog, you can choose a data source from the ODBC Data Sources list or click **Add** to add a new data source to the list.

The **Configure** button is used to associate the data source name you are adding, with the directory containing the data files and application drivers CorelQUERY should use. The **Remove** button removes the currently selected data source from the list.

When the data source is selected, the CorelQUERY window becomes active. See the Help menu in the CorelQUERY window for further information. *See also* Making queries: an overview.

Open File

Displays the Load a Data Query from Disk... dialog box, used to insert an existing query file in your CorelCHART spreadsheet. The Data Query file format is .DSQ. When you click OK, the selected query table data is pasted in your CorelCHART spreadsheet as data. The data can be edited and formatted in Data Manager. There is no link established between this data and the corresponding data source.

1,2,3 File List (Window menu)

This section of the Window menu displays the list of all open spreadsheets.

Font, Border and Pattern Color Selection dialog box

Use this dialog box to specify the selected object's outline or uniform fill color using various models and custom palettes. As well, you can select colors from existing files in the Mixing area.

If you are using a color monitor, remember that the colors you see will not match the printed colors exactly. To accurately specify Process colors, use the *CorelDRAW Process Color Chart*. If you are choosing colors from the TRUMATCH or FOCOLTONE palettes or either of the PANTONE palettes, then use the corresponding Color Reference.

Dialog Options

Show

Selects the color model. The options are: CMYK, RGB, HSB, Grayscale, Standard Colors, FOCOLTONE, PANTONE Spot colors, PANTONE Process colors, TRUMATCH, Custom Palette.

Preview

The color model selected determines the display of the colors in the Preview box.

CMYK	Shows CMYK model and list boxes for each of the components.
RGB	Shows RGB model and list boxes for each of the components.
HSB	Shows HSB model and list boxes for each of the components.
Grayscale	Shows grayscale model and **Gray Level** list box.
Standard Colors	Shows Standard Colors model.
FOCOLTONE	Shows FOCOLTONE model, **Show Color Names** checkbox and a **Search for:** box.
PANTONE Spot	Shows spot colors, **Show Color Names** checkbox, **Tint** and **Search for:** boxes.
PANTONE Process	Shows process colors, **Show Color Names** checkbox, **Tint** and **Search for:** boxes.
TRUMATCH	Shows TRUMATCH colors, **Show Color Names** checkbox, **Tint** and **Search for:** boxes.
Current/New color	Displays the current color in the top half and the new selected color in the bottom half.

New

Field used for the entry of a new color name.

PostScript Options...

Displays the PostScript Options dialog box. Only available when working with Spot colors. Used to specify halftone screens for Spot colors. *See also*Postscript Options dialog box

Custom Palettes

Click the arrow button to display the following menu choices:

- **Add Color**, **Delete Color** and **New** palette commands
- Open Palette dialog box
- Save Palette As dialog box
- **Set As default** command, used to set the current palette as the default. The **Preview** box displays the colors in the selected custom palette.

Mixing Area

Used to choose colors from existing files, the **Show** Preview box, the **Custom Palette** Preview box or any combination of the three. Click the arrow button to display the following menu choices:

- Load Paint Area File dialog box
- Save Paint Area File As dialog box
- **Clear** paint area command.

The **Paintbrush** button paints the selected color in the **Paint Area** and can mix that color with colors already in the paint area. The **Eyedropper** button selects a color from the paint area which is then displayed in the **Current/New** preview box.

THE FOLLOWING TOPICS ARE DUPLICATES CREATED TO ENABLE BROWSE SEQUENCES IN DATA MANAGER. THE TOPICS HAVE BEEN STRIPPED OF KEYWORDS AND THE _DUP EXTENSION HAS BEEN ADDED TO THEIR CONTEXT STRING. THEY CAN ONLY BE ACCESSED BY BY USING BROWSE.

New command (File menu)

Opens the New chart dialog box. Choose a chart type from the Gallery to start building a chart.

Dialog Box Options

Gallery

Lists all available chart categories. Several chart types, displayed in the **Chart Types** preview window on the right side of the dialog box, are available in each category.

Chart Types

Shows the various chart types for the chosen category in the **Gallery** list displayed on the left. A written description of the highlighted chart type appears below the preview window. Double-click the chart type to select it.

Use Sample Data

Choose this option to use the sample data included in each CorelCHART template when you create a new chart. Replace the sample data with your own and add titles and other annotations as required. The chart itself appears in the Chart window when you click OK.

Deselect this option to go directly to a Data Manager window. Enter the data required in the configurations used in the sample charts and click Autoscan to generate the selected chart type from your own data.

Shortcut

Pressing CTRL + N displays the New Chart dialog box

Open command (File menu) 

Displays the Open Chart dialog box, used to load existing CorelCHART files from any drive.

Dialog Box Options

The **File Name, List Files of Type, Directories** and **Drives** lists and boxes allow you to choose CorelCHART (.CCH) files from the drives and directories on your computer system. Files created in CorelCHART versions 3 and 4 can be opened in CorelCHART 5.

Preview

When checked, the Preview window displays the chart type currently selected in the File Name box.

Options>>

Displays options for finding and annotating files.

Sort by	Sorts files in the **File Name** list alphabetically or chronologically with the most recently saved file listed first.
Notes	Lets you store remarks with your files.

Shortcut

Pressing CTRL + O displays the Open Chart dialog box

Save (File menu)

Saves the current chart and its data. Allows you to select the appropriate drive and directory where you wish to save the file.

When saving a new file which has no title, this command displays the Save Chart dialog box, prompting you to assign a file name to your chart.

When saving a file that has already been saved, the Save command saves the chart in the same location and uses the same file name. The Save As command is used to save a new file or an existing file in a new location or with a different file name.

Shortcut

Pressing CTRL + S Saves the File or displays the Save Chart dialog box

Save As (File menu)

Displays the Save As dialog box allowing you to save a new CorelCHART (.CCH file) to a specified directory or save an existing file with a new name or in a new drive/directory.

The **Save Presentation Exchange Data** option, if enabled, appends information to the saved file, allowing it to be opened in any Corel application.

Note: Files saved in the current version of CorelCHART cannot be opened in earlier versions of the program.

Close command (File menu)

This command removes the active chart and its window from the screen but leaves CorelCHART open. If the active chart has never been saved, or has been modified since the last save, a Save Changes dialog appears, asking if you want to save the file and/or the changes applied to it.

From the Save Chart dialog box click:

- Yes to return to CorelCHART,
- No to abandon your changes and close the current charting window, or
- Cancel the closing operation and return to the document.

Mosaic Roll-Up

Displays Corel MOSAIC, a file management application, as a roll-up window in CorelCHART. The Mosaic roll-up is used to display a collection of thumbnails, each thumbnail representing a file. You can use drag and drop to open or import files displayed in the roll-up in your chart or spreadsheet.

Two Mosaic roll-up windows can be opened at the same time in an application, allowing you to move or copy files between collections using drag and drop.

Control menu box 

Use to roll up, roll down, close the Mosaic roll-up window, arrange all opened roll-up windows or close them all.

Directory drop-down list

Located immediately below the Control menu box, the directory drop-down list enables you to select or change the directory, library or catalog displayed in the Mosaic Roll-Up. A file folder icon precedes each directory name in the list, a book icon precedes catalog names and a book collection precedes library names. An open collection, of any type, has an open file folder preceding its name.

Open collection button 

Use to open a second Mosaic roll-up window. It displays the Open Collection dialog box where you choose the type of collection you wish to open; directory, library (.CLB) or catalog (.CLC). To open a directory, select the file type you want to see, **All Image Files** to see thumbnails of all graphic files or **All Files** to see thumbnails of all files in the directory.

The **Options** button displays additional options to sort files, see notes associated and keywords associated with them and a **Find** button to find files that have specific keywords. The keyword options are not available in every Corel application.

Thumbnail size and orientation

The thumbnail size, orientation and other settings used in the collection are the ones saved when the standalone mode of Corel MOSAIC was last used.

Drag and Drop to the application

You can import a file into the application by clicking its thumbnail and dragging it to the current document in the application. Files of any files formats supported by CorelCHART can be imported.

Moving and copying files between collections

You can copy a file to a different collection by clicking its thumbnail and dragging it to the collection of your choice. Holding down the Shift key while dragging the file moves it instead of copying it.

Color Manager command (File menu)

Color Manager creates a **System Color Profile** by learning about your monitor, scanner and printers. The profiles help CorelCHART more accurately capture, display and print color across different devices.

This System Color Profile helps ensure that:

- colors that you view on your monitor closely resemble the colors that your printer can print
- the images and colors that you include in your documents are accurately described to your printer.
- colors from your scanner are adjusted accurately to reflect the colors of the image being scanned. Images cannot be acquired directly from a scanner in CorelCHART. You can however include your scanner specifications in a color profile built in CorelCHART using Color Manager.

Note: The defaults built into the Color Manager are pre-tested settings; use them whenever possible.

See also More about Color Manager

Dialog Box Options

Current Profile

Displays the name of the current color profile. If you have different printers, you may wish to build different color profiles and then select the appropriate one before working on charts for that output device.

Notes

Enables you to attach notes to your system profile. Useful for keeping track of different equipment setups.

Monitor

Displays monitor choices. *See also* Monitor Calibration

Printer

Displays printer choices. *See also* Printer Calibration

Scanner

Displays scanner choices. Scanners are not supported in CorelCHART. Use CorelDRAW or Corel PHOTO-PAINT.

Automatch

Enables the two different color gamut mapping systems, Illustration and Photographic. CorelCHART automatically senses whether it is printing a vector or bitmapped object and applies the appropriate gamut map.

Photographic

Enables the Photographic color mapping only. Use to force Photographic color mapping regardless of object type.

Illustration

Enables Colorimetric color mapping for working with spot colors. Use to force colorimetric color mapping regardless of object type.

Preferences command (File menu)

Controls settings which affect how CorelCHART displays the spreadsheet and objects on screen and how CorelCHART performs certain operations. You can change these settings at any time.

Dialog Box Options

Interface preferences options

When checked:

Show Ribbon Bar displays the button bar located immediately below the menu bar which gives you quick access to several menu commands.

Show Text Ribbon Bar displays the ribbon located immediately above the chart area which includes buttons and list boxes for formatting text objects.

Show Status Line displays a line below the on-screen color palette. Information about selected commands and tools appear in this line.

Show Pop-Up Help displays name of tool in when you rest the mouse pointer on the tool.

Interruptible Display enables you to stop a screen redraw by clicking the mouse or pressing a key.

Display Options

Preview Fountain Steps

Determines the number of bands used to represent fountain fills on the screen. Also affects the appearance of fountain fills in charts exported in the following formats:

- Illustrator (AI, EPS)
- Computer Graphics Metafile (CGM)
- MAC PICT (PCT)
- All bitmap formats

Selecting a value lower than 20 speeds up screen redraws, but results in noticeable banding.

You can control the number of bands used to print fountains with the **Fountain Steps** setting in the Print Options dialog box.

Note: The Steps setting in the Fountain Fill dialog box lets you override the settings in this dialog box and in the Print Options dialog box for selected objects.

Greek Text Below

Simplifies the appearance of text below the size specified. If your file contains large amounts of small text, selecting a high value (maximum 500) causes the text to display as small blocks, resulting in faster screen redrawing. Using this option does not affect the appearance of text when printed.

Note: Depending on how high you set Greek Text Below, greeked text becomes readable when you magnify it with the Zoom tool. For example, 10-point text becomes readable with the setting at approximately 125.

Miter Limit

Affects the appearance of corner joints. Any corner that is less than the Miter Limit will have a beveled point. Those above the limit will come to a sharp point. This limit exists to avoid corners that extend far beyond the actual corner at small angles.

Preview Colors

Controls how CorelCHART displays colors on your screen, and has no effect on the printed

output. To use these settings, you must have a monitor or graphics adaptor that can display 256 simultaneous colors and a Windows screen driver that takes advantage of this capability.

256-Color Dithering	Displays color using CorelCHART's dithering scheme.
Windows Dithering	Displays color using the screen driver's default dithering scheme. If you have a 256-color adapter, your screen may redraw faster with this option selected. However, only 15 of these colors will be used in the dithering scheme.

Shortcut

Pressing CTRL+J displays the Preferences dialog box

Undo command (Edit menu)

Reverses the last action taken.

Toolbox command (View menu)

Displays a flyout menu for selecting a toolbox option.

Visible makes the toolbox visible or invisible

Floating when checked, this option enables you to move the Toolbox away from its usual location on the left side of the screen by holding the Shift key and dragging the Toolbox.

When the Toolbox is floating, you change its layout from vertical to horizontal or any intermediate arrangement. *See* Changing the Toolbox layout.

The floating toolbox has a control menu box which lists various options.

Shortcut

To dock a detached Toolbox, double-click anywhere in its Title bar.

Color Palette (View menu)

Displays a flyout menu for choosing the color palette that appears at the bottom of the CorelCHART screen. You can hide the palette to free up screen space. A diamond-shaped marker appears next to the current flyout menu selection.

The flyout menu options are: FOCOLTONE, PANTONE or TRUMATCH process color palettes. PANTONE spot color palette, user-made custom palette, standard uniform palette or no palette at all.

Color Correction command (View menu)

Displays a flyout menu used to specify a level of color correction. Color Correction improves/optimizes the linearity of your monitor so that pictures appear as similar on-screen as possible to a white-balanced photograph. The options are:

None	No color correction
Fast	General approximation
Accurate	Best screen colors
Simulate Printer	Displays screen colors as they would appear when printed

Refresh window

Immediately redraws the current window, updating changes and removing any "dirt" left on the screen by earlier manipulation.

Using Data Analysis

Overview: Data Analysis

The Data Analysis function derives statistical analysis curves for any series of chart risers. Use the Data Analysis dialog box to choose options for showing formulas for calculated curves such as Scientific Moving Averages and Financial Moving Averages, or to show correlation coefficients. Click any of the data analysis categories shown below for information about each one:

- Mean
- Standard Deviation
- Connected Line
- Smooth Curve
- Moving Average
- Financial Moving Average
- Scientific Moving Average
- Linear Regression
- Power Law Regression
- Natural Logarithmic Regression
- Exponential Regression
- Polynomial Regression Line
- Order box
- Smooth Factor box
- Show Formula
- Show Correlation Coefficient

Determining Standard Deviation

To find standard deviation:

1. Select one or more chart risers.
2. Choose Data Analysis from the Chart Menu or the right-mouse-button popup.
3. Choose Standard Deviation from the list of Data Analysis methods and click OK. CorelCHART plots the statistical curves requested.

Choosing Data Analysis methods

1. Select one or more chart risers.
2. Choose Data Analysis from the Chart Menu or the right-mouse-button popup.
3. Choose from the list of Data Analysis methods as required and click OK. CorelCHART plots statistical curves and shows formulas and coefficients as requested.

Finding Linear Regression curves

To create/delete a linear regression curve fit:

1. Select a bar or data point from with the right mouse button. On the pop-up menu, choose Data Analysis.
2. In the Data Analysis dialog box, click Linear Regression and click OK.

To remove the line:

In the Data Analysis dialog box, click Linear Regression again and click OK.

Using Power Law Regression

To create/delete a power law regression curve fit:

1. Click a bar or data point from the series with the right mouse button. On the pop-up menu, choose Data Analysis.
2. Click Power Law Regression.

To remove the line:

Click Power Law Regression again and click OK.

Drawing Exponential Regression lines

To create/delete an exponential regression curve fit:

1. Select a bar or data point from a series with the right mouse button. On the pop-up menu, choose Data Analysis.
2. In the Data Analysis dialog box, click Exponential Regression and click OK.

To remove the line:

In the Data Analysis dialog box, click Exponential Regression again.

Plotting Natural Logarithmic Regression curves

To create/delete a natural logarithmic regression curve fit:

1. Select a bar or data point from the series with the right mouse button. On the pop-up menu, choose Data Analysis.
3. Click Natural Log Regression and click OK.

To remove the line:

Click Natural Log Regression again.

Drawing Polynomial Regression lines

To create/delete a polynomial regression curve fit:

1. Select a bar or data point from the series with the right mouse button. On the pop-up menu, choose Data Analysis.
2. Click Polynomial Fit.
3. In the Order text box, enter the Order value (e.g., 3rd order = 3).

To remove the line:

Click Polynomial Fit again.

Finding the Correlation Coefficient

CorelCHART's Data Analysis feature can calculate how closely a curve fit line intersects with the data points it is charting.

To show the correlation coefficient

1. In the Data Analysis dialog box, choose a regression analysis type by clicking its check box.
2. Click Show Correlation Coefficient below the list of regression types and click OK to close the dialog box and return to your chart.

   You'll see the coefficient inside the charting area. The number will be between zero and one; one is a perfect fit and zero is a poor fit. This text can be moved anywhere on the chart, but should be placed close to the line it describes. Only one coefficient per series can be shown.

Showing a Regression Analysis formula

The Show Formula Option, located in the Data Analysis dialog box, allows you to display the formula for the chosen regression type.

To display a data analysis formula:

1. Click or more bar risers.
2. Choose Data Analysis from the Chart Menu.
3. Choose a regression type.
4. Click Show Formula and click OK to close the dialog box and return to your chart. The formula will display inside the charting area. This text can be moved anywhere on the chart, but should be placed close to the line it describes. Only one formula can be shown per series.

Calculating the mean

The mean is a horizontal or vertical line drawn at the mean of the data points. The "mean" equals the sum of the values divided by the number of values (e.g. [P1 + P2 + P3] / 3).

To create/delete a mean average line:

1. Select a bar or data point from the series.
2. Click the right mouse button. On the pop-up menu, choose Data Analysis.
3. Click Mean. To remove the line, click Mean again.

Using Moving Average

How a moving average is calculated:

1. Click Moving Average in the Data Analysis dialog box.
2. As an example, if you then enter 3 for number of periods in the Order text box of the Data Analysis dialog box. CorelCHART averages the first 3 values (P1, P2, P3). It then shifts over one value to take another 3-value average (P2, P3, P4). This continues (in groups of 3) until it reaches the final value.

See also Using Financial Moving Average and Using Scientific Moving Average

Using Scientific Moving Average

How a scientific moving average is calculated:

1. Click Moving Average and Scientific in the Data Analysis dialog box.
2. As an example, if you enter 3 for number of periods, the program averages the first 3 values (P1, P2, P3). It then shifts over one value to take another 3-value average (P2, P3, P4). This continues (in groups of 3) until it reaches the final value.

When the program determines the average of each period, it plots the value in the middle of the period.

Using Financial Moving Average

How a financial moving average is calculated:

1. Click Moving Average and Financial in the Data Analysis dialog box.
2. As an example, if you enter 3 for number of periods in the Order text box of the Data Analysis dialog box, CorelCHART averages the first 3 values (P1, P2, P3). It then shifts over one value to take another 3-value average (P2, P3, P4). This continues (in groups of 3) until it reaches the final value.

When the program determines the average of each period, it plots the value at the right end of the period.

Export EPS dialog box

Use this dialog box to specify how you want to export your EPS file.

Note: CorelCHART can import as EPS, however, files should be saved in the CDR format.

Dialog Box Options

Text

Specify how you want text exported.

As Curves Click to export text contained in the CorelDRAW file as curves.

As Text Click to export text contained in the CorelDRAW file as text.

Include Fonts If the font is not resident in the printer, choose Include Fonts to download the fonts into the EPS file.

Because this option includes the font in the EPS file, you shouldn't use it if you are sending your work to a service bureau or another publishing package that has Adobe versions of the fonts you have used. This option is available only when exporting to EPS format.

No fonts will be downloaded if you export text as curves.

Convert Color Bitmaps to Grayscale

Converts colors in the drawing to appropriate shades of gray. Choose this option if your drawing contains color bitmaps and you plan to print the exported file on a black and white printer.

Fountain Steps

Specify the number of bands, from 2 to 256, you want CorelDRAW to use to render fountain fills in the exported files. Up to a certain point, the higher the number of bands, the smoother the fountain will appear when displayed and printed.

Image Header

Includes a bitmap representation of drawings exported in Encapsulated PostScript (EPS) format. The bitmap makes positioning, sizing and cropping the drawing in page layout programs much easier. It's also used by graphics file managers such as CorelMOSAIC and by CorelDRAW when importing EPS.

CorelDRAW supports TIFF 4.2 headers in monochrome and color. Headers may be Black and White, 4 bit gray or color, 8 bit gray or color or 24 bit color. You can set a header resolution from 1 to 72 dpi. The larger the file size the more detailed the header.

CORELFLT.INI

A text file with information about the import and export filters used by all installed Corel applications. This file is in the CORELDRW\CONFIG subdirectory and can be edited by double-clicking on it in the Windows File Manager. Aside from adding pens and color definitions used by the HPGL filter, there's little reason to edit this file.

HPGL Options dialog box

Use this dialog box to specify the outline color and image size of files exported and imported in HPGL format. The Import and Export dialog boxes have identical "pen management" options, however, the Export dialog box will add more features than the Import dialog box.

Dialog Box Options

Pen Options

Displays the Pen Selection, Pen Libraries and allows you to modify the pen color assigned to each of the plotter's drawing pens, the Pen Width and Pen Velocity. To change a pen's color assignment, for example, choose the pen and then change the Pen Color to the color you want.

- Pen export does not support dashed lines or arrowheads.

Pen Selection
The Pen Selection list contains 256 pens, although not all of the pens may be assigned.

Pen Color
You can change the color assignments by choosing the pen and then choosing a new color for that pen from the Pen Color field.

Choosing Custom colors opens a color definition dialog box that allows you to define a custom color using the RGB values.

You can also change the default color assignment by editing the [CorelHPGLPens] section in your CORELPLT.INI. For information on the INI files, see Technical Support.

Pen Width
You can change the pen width assignments by choosing the pen and then choosing a new width for that pen from the Pen Width field.

Pen Velocity
You can change the pen velocity by choosing the pen and then choosing a new velocity for that pen from the Pen Velocity field.

Pen Unused
Allows you to set a defined pen to (Unused).

Reset
Allows you to reset the current Pen Library pen settings back to the last saved settings.

Pen Libraries
A Pen Library contains the color, width and velocity for each pen. Typically, a library contains 8, 16 or 256 pens. Any pen that is not declared will assume default settings.

You can save and delete Pen Libraries to build custom libraries of your own. After changing the current library, enter a new name in the Pen Library field and click OK.

You delete Libraries by choosing the library to be removed and clicking delete.

Page Options

Choose Bottom Left Origin, or Center Origin. Then if you want to give your graphic a specific size, enable Scale.

Scaling Options
Enable Scale or Fit to Page. If you choose Scale you can scale your image up or down by percentage points in the Scale Percentage field.

Fit to Page Use the Fit to Page command to scale your current page up or down to the destination

page. This option uses your page frame rather than the objects on the page. This maintains the relationship between the page frame and the objects inside the page, preserving white space.

Uses the plotter's automatic scaling features. Some plotter's do not support this option, particularly when a paper roll is loaded. If you encounter problems with this option, use the Scale feature instead.

Scale Choose a scale factor. You cannot define a page larger than 18 x 18.

Page Size
Allows you to define the page size. You can choose a known page size from the Page Size field or create a custom page by defining its dimensions in the Width and Height fields.

Orientation
So that the image is properly positioned when plotted, make sure the page orientation of your CorelCHART file match the plotter page. If the plotted image appears distorted, try changing the orientation of the CorelCHART page then re-export the file.

Plotter Origin
Choose the type of origin for the plotter your are going to output the image to, be it "Center" or "Bottom Left". If the option selected does not match your plotter, the image will not appear in the correct location on the page, and will likely go "out of bounds".

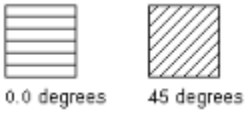
Plotter Units
Sometimes, a small sizing error occurs due to the plotter using different plotter units than the standard 1016 units per inch. This can be corrected by modifying the Plotter Units. Allowable plotter unit limits are between 10 and 10,000. Results for extreme values are not guaranteed.

Advanced Options

Fills
Allows you to set Line Spacing, Line Angle and for the Crosshatch fill, a Second Line Angle.

Line Spacing Sets the spacing between lines for the Parallel Lines and Crosshatch. For a solid fill choose a line spacing smaller than your pen width.

Line Angle Allows you to set the line angle of the fills.



Second Line Angle Allows you to set the line angle on the second line used for Crosshatching.

Line Spacing
Represents the space between lines. To get a Solid fill, set this to the width of your pen (or, slightly smaller than the pen width, to guarantee results.)

Curve Resolution
Specifying curve resolution is useful when for scaling images to very large sizes. The values you can choose represent the number of straight line segments that a Bezier curve will be turned into.

- Curve resolution factor can be set to a value between 0.0 and 1.0 inches. The entered value can be very accurate; up to eight decimal places are accepted. While a setting of 0.0 will result in the highest resolution, it will also increase file size. A curve resolution of 0.004 inches is recommended.

Export Adobe Illustrator (AI) dialog box

Lets you choose the version of Adobe Illustrator you want to export to, and whether text is exported as text or curves.

Dialog Box Options

Format

Choose AI 1.1 if you are planning to use the file in Adobe Illustrator version 1.1.

Choose 88 only if you are planning to use the file in an application that does not support the V3.0 format.

V3.0 supports more of CorelCHART's drawing effects and is therefore the recommended export format.

Exporting Text as Text or Curves

Exporting **Text As Text** will create smaller files, and the text will be editable in the destination application. Fonts and spacing may not be maintained.

- You may also **Use Macintosh Characters**. This is very useful when exporting text using an extended character set, such as foreign language or other special characters.

Exporting **Text As Curves** will create larger files, and the text is not editable as text in the destination application. However, the appearance of the fonts is maintained. Use this option if you:

- used fonts in your chart that are not available in the application in which you intend to use the exported file.
- are not satisfied with the appearance of the exported text.

See also

See also Technical Support

Export Matrix/Imapro SCODL dialog box

Use this dialog box to specify the background in the exported image.

Dialog Box Options

Exporting Background Color

Choose whether you want a white or black background. If there is a background rectangle in the CorelCHART image, the color of the rectangle will override the selection you make here.

Note: Page frames you draw or add through the Page Setup command in the Layout menu may not fit precisely into the SCODL imaging area. Any part of the frame that does not fit in the imaging area will be the color chosen in the dialog box.

Use the Entire Page

While you may use the entire page when exporting to SCODL format, this may result in an overflow error. We recommend using this option with care as results may not be reliable.

Note: As SCODL export is used for slides, to avoid page sizing problems use the "slide" page size.

Export PIF dialog box

Lets you choose how text and curves are exported.

Dialog Box Options

Exporting Text as Text or Curves

Exporting **Text As Text** will create smaller files, and the text will be editable in the destination application. Fonts and spacing may not be maintained.

Exporting **Text As Curves** will create larger files, and the text is not editable as text in the destination application. The appearance of the fonts is maintained. Use this option if you:

- used fonts in your chart that are not available in the application in which you intend to use the exported file.
- are not satisfied with the appearance of the exported text.

See also

See also Technical Support

Export Adobe Type 1/TrueType Fonts dialog box

Use this dialog box to convert the selected object into an Adobe Type 1 or a TrueType compatible typeface character or symbol character.

Dialog Box Options

Fontname

Displays the name of the typeface and style on which the font file selected in the previous dialog box is based.

If you are creating a typeface from a symbol, "Symbol" appears after the typeface name.

Preview Window

Shows the selected object. The crosshair in the lower left corner represents the character's origin, and the vertical line to the right of the character represents its width. If you have not selected Auto With (described below), you can drag the vertical line to the right of the character to change its width.

Design Size

Specifies the point size of the character being exported. Leave the value at 720 points if you are creating a new typeface character or symbol as described in "Preparing Your Object Character" in Appendix C of your *CorelDRAW User's Guide.*

If you are modifying a character in an existing typeface, type or select the size you specified when you added the character to the page.

Character Width

Displays the width of the character you are exporting. If you are modifying an existing typeface and want to maintain the original proportions, leave the value unchanged.

If you are creating a new typeface, either specify the Character Width you want, or select Auto Width and let CorelCHART calculate an appropriate width.

Auto

When selected, this option will calculate a width for the character being exported, based on its shape and design size.

Character Number/List

Displays the character number from the Windows 3.1 Character Set that corresponds to the character you are exporting. You can change the character you are exporting to by typing a value in the text box or by selecting it from the character list. The lowest value is 33.

Characters not in the font file are grayed.

Options

Displays another dialog box that lets you change other information in the font file. Changes you make in that dialog box will be reflected in this one. See Options dialog box.

OK

Click this button to export the character. If you are changing an existing character definition, a message will appear asking whether you want to overwrite this definition.

Cancel

Click this button to cancel the export without changing the font file.

Export Fonts: Options dialog box

Use this dialog box to specify font information for a new typeface or symbol set or to edit the information of an existing one.

Typeface Information

Family Name Displays the name of the typeface on which the font file selected in the previous dialog box is based. If you are creating a new typeface, enter the name you want.

Style If the typeface already exists, one of the four styles will be selected. If it does not exist, select the style you want to assign to the character you are exporting.

Select the style before specifying any other options or values. The style cannot be changed once saved in the font file.

Symbol Font If you are creating a font based on the Windows 3.1 character set (ASCII 33-127 and ANSI 128-255) and you want that font to be available in the Typeface selection list, leave this option disabled. If you are creating a symbol file or non-standard character set that will be available on a character-by-character basis through the Symbols dialog box, enable this option.

Grid Size Available when creating a new TrueType typeface. While this value can be changed from its default of 2048, there is very little reason to do so. Once a Grid Size has been set for the first character in a new typeface, the option becomes available.

You might want to change it if you plan to use your typeface at very large point sizes. A larger grid size (4096) will use more points to describe the character, yielding better results and more complex character descriptions. Once set, this number cannot be changed.

Space Width Specifies the width of the "space" character. You can experiment with different values to get the best results.

Character Information

The following options and controls are available when editing an existing typeface or symbol set.

Number Displays the currently selected character number. You can change the number by entering a new one or selecting it from the Character list box.

Width Enter a new value in this box to change the selected character's width.

Delete Character Click here to delete the selected character from the font file.

Load Font Metrics

Opens a dialog box which lets you apply the width and kerning data from an AFM file to the typeface you are modifying.

See also

See also Technical Support

Export WPG dialog box

Lets you specify whether colors in the exported chart use 16 or 256 colors and whether text is exported as text or curves.

Dialog Box Options

Export Colors

Choosing 256 colors gives good results depending on the screen and printer drivers WordPerfect is using. Choosing 16 colors is useful when you only want 16 colors in WordPerfect. The 256 color export will provide better results.

Export Text As

Choosing Curves converts text in the exported file to curves, while leaving text in the chart as text. Use this option if you:

- used fonts in your chart that are not available in WordPerfect.
- are not satisfied with the appearance of the text in WordPerfect.

See also

See also Technical Support

Export DXF dialog box

Lets you specify the colors and units of measurement in the exported file.

Dialog Box Options

Standard Colors (7), Full Colors (256)

Exports the standard seven colors available in DXF, or the 255 colors available on systems that use the IBM Professional Graphics Controller. Choose seven colors if the chart contains only a few primary colors, or if the 255 colors don't display the way you want. If the chart contains many colors, choose 255 colors, but keep in mind that results will vary depending on the type of graphics adapter and monitor you are using.

Inches, Millimeters

Converts the units of measurement in the chart to either inches or millimeters.

Curve Resolution

Being able to specify curve resolution is useful when you need to scale images to very large sizes. The values you can select from represent the number of straight line segments that a Bezier curve will be turned into.

- Curve resolution factor can be set to a value between 0.0 and 1.0 inches. The entered value can be very accurate, up to eight decimal places are accepted. While a setting of 0.0 will result in the highest resolution it will also greatly increase file size. A curve resolution of 0.004 inches is recommended.

See also

See also Technical Support

Export WMF dialog box

Gives you the option of including a placeable image header with the exported WMF file. Adding the header makes it possible to view the contents of the file in programs such as Ventura and Word for Windows. However, the presence of this header may also make the WMF file impossible to read by applications that don't understand it.

Export JPEG dialog box

Use this dialog box to specify how you want to export files in either of the JPEG or Lead bitmap formats. Images compressed using the JPEG export dialog box can be exchanged between a wide variety of platforms and applications. The JPEG format provides you with superior compression techniques, however, with extra compression comes a loss in file information. The JPEG export dialog box appears asking you to set options for the export. This dialog box is followed by the Bitmap Export dialog box where you can set other options

Dialog Box Options

JPEG Format

Choose from one of the following JPEG export formats.

JPEG Interchange Format (JFIF) Although this is not the pure JPEG format, JFIF is almost identical, and it is the format used most widely for interchanging JPEG images. Note that you should create your JFIF file using the JFF extension. This format is PC, Macintosh, and UNIX compatible.

TIFF JPEG (JTIF) The TIFF JPEG format will create a TIFF 6.0 file using JPEG compression. This is the only way a TIFF JPEG file can be created. TIFF JPEG files cannot be created from CorelCHART's usual TIFF export filter, nor can a TIFF JPEG file be imported through anything but the JPEG import filter.

LEAD Format (CMP) This format will provide you with better compression and better quality than any other JPEG format, however, this is not a standard JPEG format. LEAD CMP files can be read by Corel, Lead applications and any other application that provides support for this format.

Subformat

Choose from one of the following JPEG export subformats.

Standard (4:4:4) This subformat will conform to the standards used by other applications.

Option One (4:1:1) This subformat will provide additional compression by representing four pixels in the original file with a one pixel approximation. Although the file is approximately 1/4 the size of (4:4:4) files, this subformat will sacrifice quality.

Option Two (4:2:2) Option Two provides additional compression by representing two pixels in the original file with a one pixel approximation. This too sacrifices quality while the file is approximately 1/2 the size of a (4:4:4) file.

NOTE: The LEAD bitmap format does not use a subformat.

Quality Factor (2-255)

Use the slide control to select a quality factor. Click and drag with the mouse to move the slide control to the left or right, or use the left and right arrow keys to nudge the slide control by increments of one.

The minimum value on the slide control is two, which represents the highest quality file. Maximum value 255 which provides the highest compression, but at the same time, the lowest quality. Values in between will provide a certain degree of trade off between quality and compressed file size.

Use LEAD Quality Factor

When exporting in LEAD format, you can enable the Use Lead Quality check box. Select a preset quality factor from the list box below the check box. These presets can be used in place of numeric quality factors when exporting the LEAD bitmap format. The presets provide the best compromises between image quality and compressed file size.

There is no way of knowing which preset LEAD Quality Factor is the best for exporting a specific image. You should experiment with each option until you find one that suits your needs. The presets explain themselves by their titles, reflecting the compromises they will make between file size and file quality.

Export CGM dialog box

Exporting Text as Text

Exporting **Text As Text** will create smaller files, and the text will be editable in the destination application. Fonts and spacing may not be maintained.

Exporting Text as Curves

Exporting **Text As Curves** will create larger files, and the text is not editable as text in the destination application. The appearance of the fonts is maintained. Use this option if you:

- used fonts in your chart that are not available in the application in which you intend to use the exported file.
- are not satisfied with the appearance of the exported text.

Export GEM dialog box

Exporting Text as Text

Exporting **Text As Text** will create smaller files, and the text will be editable in the destination application. Fonts and spacing may not be maintained.

Exporting Text as Curves

Exporting **Text As Curves** will create larger files, and the text is not editable as text in the destination application. The appearance of the fonts is maintained. Use this option if you:

- used fonts in your chart that are not available in the application in which you intend to use the exported file.
- are not satisfied with the appearance of the exported text.

TIFF Export dialog box

Export Formats

- TIFF 4.2
- TIFF 5.0
- TIFF 6.0 CMYK Exports CMYK 32-bit TIFF 6.0 images. This type of file is useful for high quality color separation. TIFF 6.0 JPEG is also supported. See Export JPEG dialog box.

See also Technical Support

Export Macintosh PICT dialog box

Exporting Text as Text

Exporting **Text As Text** will create smaller files, and the text will be editable in the destination application. Fonts and spacing may not be maintained.

- You may also **Use Macintosh Characters**. This is very useful when exporting text using an extended character set, such as foreign language or other special characters.

Exporting Text as Curves

Exporting **Text As Curves** will create larger files, and the text is not editable as text in the destination application. The appearance of the fonts is maintained. Use this option if you:

- used fonts in your chart that are not available in the application in which you intend to use the exported file.
- are not satisfied with the appearance of the exported text.

Overview: Outlining and filling chart objects

There are two types of objects in the CorelCHART's charting mode--

- objects that make up the Chart itself, such as risers, axis, background, title and legend, and
- objects, also called annotations, added to the chart using drawing tools--text, lines, curves, polygons, ellipses and rectangles .

Chart Objects are given outline and fill attributes based on the chart template being used. Added objects are automatically given a set of default outline and fill attributes. Fill and outline attributes can be changed for both kinds of objects using the Outline and Fill tools.

Open paths, such as the axis, are given outline attributes such as thickness and color, line style (solid, dashed, etc.) and line-ending shape (round, square, arrowhead, etc.).

Closed paths are given a fill attribute and some of the outline attributes of an open path. The fill attribute can be a solid color, a fountain fill, a pattern or a texture. You can turn either set of attributes off and leave the other visible. Turning off a rectangle's fill for example, makes it transparent, allowing objects behind it to show through.

Choosing Attributes

For flexibility and ease of use, CorelCHART offers four ways to select fill and outline attributes for Chart View objects.

Fly-out menus	Provide quick access to pre-defined line thicknesses and colors for outlining and filling objects. You display the fly-out menus by clicking on the Outline and Fill tools.
Color Palette	Lets you select Outline and Fill colors with the click of a mouse button. A command in the View menu turns the palette on and off and loads it with Spot or Process color.
Roll-Up Window	Lets you apply a wide range of attributes with one or two clicks of your mouse. You can have the window open as you work or hide the controls, leaving just the Title bar visible. You display the roll-up windows by clicking on icons in the in the fly-out menus.
Dialog Boxes	Give you access to all available attributes plus controls for specifying attributes such as line thickness with numeric precision. You display the dialog boxes by clicking on icons in the fly-out menus and the Edit button in the roll-up windows.

Choosing line thicknesses

Choosing a line thickness using the Outline tool flyout

1. Select the object you want to outline.
2. Click the Outline tool. The Outline tool flyout menu appears.
3. Click the line thickness you want. The choice of thicknesses is 1/4 point, 2, 8, 16, and 24 points.

Choosing a line thickness using the Pen Roll-up window

1. Click  in the Outline tool flyout. The Pen roll-up appears.
2. Select the object you want to outline.
3. Select the line thickness you want by clicking the arrows located to the right of the outline width preview. The up arrow increases the current thickness by .01 inches, the down arrow reduces it by the same amount. The preview is updated every time you click the arrows.
4. Click Apply.

Choosing a line thickness using the Outline Pen dialog box

1. Select the object you want to outline.
2. Click the Outline tool.
3. Click the pen icon.
4. In the **Width** box, type or select the line thickness you want.

   To use a different unit of measurement, choose it from the units box. CorelCHART converts it to its equivalent in the new unit

Choosing outline colors

Choosing an outline color with the Outline tool icons

The Outline tool flyout menu includes several icons for applying white, black or shades of gray to your outlines. To apply any other color to an outline, please refer to the other outline color methods.

To choose a color from the Outline tool menu:

1. Select the object you want to outline.
2. Click the Outline tool.
3. Click black, white or the shade of gray you want. The shades vary in increments of 20% from 10% to 90%.

Choosing an outline color with the Pen Roll-up

1. Click  in the Outline tool flyout menu. The Pen roll-up appears.
2. Select the object you want to outline.
3. Click the Color Selector bar. The drop-down color palette appears.
4. Click a color.
5. Click Apply.

Choosing an outline color with the On-screen Color Palette

1. If the palette is not displayed, choose Color Palette in the View menu. Then from the sub-menu, choose the custom palette, Spot color palette or one of the Process colors palettes.
2. Select the object you want to outline.
3. Select the color you want from the palette by clicking it with the right mouse button.

   To scroll the palette one color at a time, click an arrow at either end of the palette with the left mouse button. Click with the right mouse button to scroll the width of the screen.

Choosing an outline color with the Outline Color dialog box

1. Select the object you want to outline.
2. Do one of the following:
   - From the Outline tool menu, click the color wheel icon.
   - From the Pen Roll-up window, click the **Edit** button, then the **Color** button. From the drop-down color palette that appears, click the **More** button.
3. From the **Show** list box, choose the color specification method you want to use.
4. Do one of the following:
   - To select a color from the TRUMATCH, FOCOLTONE or PANTONE palettes by sight, click **Show Color Names** to clear the check mark, then click the color you want.

     If you want a lighter shade of the selected Spot color, type or select a value in the **%Tint** box.
   - To choose a color by name, choose **Show Color Names**, then click the name of the color.

     The **Search** option lets you locate a color by typing part of its name. As you type, the list of names scrolls to the color that most closely matches what you type. You do not need to type the word TRUMATCH, PANTONE or FOCOLTONE.
   - To create a Process color, choose CMYK, RGB or HSB. Create the color you want using the numeric controls or the color adjustment markers.
5. Choose OK, if you are using the Pen Roll-up window, click Apply.

Removing an object's outline

While you can remove an object's outline using the Pen Roll-up window and the Outline Pen dialog box, it's quicker to use the Outline Pen menu or the on-screen color palette.

From the Outline tool menu:

1. Select the object with the outline you want to remove.
2. Select the Outline tool.
3. Click the ☒ button.

From the on-screen color palette:

1. If the palette is not displayed, choose Show Color Palette from the Display menu. Then from the sub-menu, choose either Spot Colors or Process Colors.
2. Select the object with the outline you want to remove.
3. Click the ☒ button at the left end of the palette with the right mouse button.

Choosing dashed or dotted line styles

You can outline objects with a variety of dashed and dotted line styles. You can even create you own line styles and have them added to the existing selection.

Choosing a dashed or dotted line style from the Pen Roll-up

1. Click  on the Outline tool flyout menu. The Pen roll-up appears.
2. Select the object you want to outline.
3. Click the Line Style Selector bar to display a list of line styles.
4. Click the style you want.
5. Click Apply.

Choosing a dashed or dotted line style from the Outline Pen dialog box

1. Select the object you want to outline.
2. Select the Outline tool.
3. Click the pen icon.
4. Click the **Style** box to display a list of line styles.
5. Click the style you want.

   If you want dash segments with rounded ends, choose the second option under Line Caps.

   To create a dotted line, apply round caps to a line style with short, widely spaced segments.

Choosing default outline attributes

Default outline attributes are automatically applied to annotation objects you add to your chart. You can also set new default attributes for outline color, thickness and style or choose to give new objects no outline at all.

To choose default outline attributes:

1. Click a white space in the chart window to ensure there is no object selected.
2. Click the Outline tool. The flyout appears.
3. Do one of the following:
   - choose the tool that corresponds to the individual outline attribute you want to set.
   - click  to set all attributes in the Outline Pen dialog box.
   - click  to give all new annotation objects no outline. The Modify Default dialog box appears.
4. Click **Yes** to confirm you wish to modify the default fill. The dialog box for the chosen outline attribute appears.
5. Set the attributes.

Copying an object's outline

Once you apply an outline to an object, you can quickly apply the same outline to another object by using the Pen Roll-up window.

To copy an object's outline:

1. Click  in the Outline tool flyout menu. The Pen roll-up appears.
2. Select the object you want to change.
3. Click the **Update From** button.

   The mouse pointer changes to an arrow with the word "**From?**"
4. Click the object with the outline you want copied.
5. Click Apply.

Creating calligraphic outlines

Calligraphic outlines vary in thickness giving the object they're applied to a hand-drawn appearance.

To create a calligraphic outline:

1. Select the object with the outline you want to change.
2. Do one of the following:
   - From the Outline tool menu, click the pen icon.
   - From the Pen Roll-up window, click the **Edit** button.
3. In the **Width** box, type the line thickness you want.

   To use a different unit of measurement, choose it from the units box. CorelCHART automatically converts it to its equivalent in the new unit.
4. Define the **Nib Shape** of the Outline Pen by choosing a **Corners** option. The first and third options make the nib square; the second makes it round.

   You can adjust the shape of the nib even further with the **Stretch** setting. Lowering the value makes a square nib rectangular and a round nib oval.
5. Enter a pen angle in the **Angle** box. The angle controls the orientation of the pen to the drawing surface. You can interactively adjust **Stretch** and **Angle** by dragging in the **Nib Shape** box.

To change line widths after creating the calligraphic outline, use the **Width** setting in the Outline Pen dialog box. Choosing a line width from the Outline menu will reset the **Angle** to zero degrees and **Stretch** to 100 percent thus removing the calligraphic effect.

Applying arrowheads and other line-ending shapes

The Pencil tool draws lines and curves. CorelCHART provides an assortment of arrowheads and other line-ending shapes that you can apply to the ends of lines and curves with the Outline tool. The arrows have the attributes you have given to the line or curve. Use Outline tool options to change those attributes.

You can also add arrowheads of your own design to the existing selection using CorelDRAW's Create Arrow command. Please refer to CorelDRAW Online Help for step by step instructions.

After selecting the arrowhead/line-ending shape, you can resize it and adjust its position relative to the end of the path.

See also Editing an arrowhead or line-ending shape

Arrowheads are applied by using one of the following procedures:

Applying line-ending shapes with the Outline Pen dialog box

Applying line-ending shapes with the Pen Roll-up window

Applying line-ending shapes with the Outline Pen dialog box

1. Select a line or curve.
2. Select the Outline tool. Click  .

3. To apply an arrowhead to the start of the line or curve, click the left preview box under **Arrows**, then click the arrowhead you want in the drop-down selection window.
4. To apply an arrowhead to the end of the line or curve, click the right preview box under **Arrows**, then click an arrowhead.

   You can swap the arrowheads by choosing either of the **Options** buttons, followed by **Swap**.

   To remove an arrowhead from a path, click the appropriate box under **Arrows** and select the first option in the list.

5. Click the Color selection box to choose a color for the arrowhead. The selected color is applied to both the arrowhead(s) and line or curve.

Note: the width of the line or curve must be bigger than a hairline in order for the arrowhead to be displayed.

Applying line-ending shapes with the Pen Roll-up

1. Click  in the Outline tool flyout menu. The Pen roll-up appears.
2. Select the path to which you want to apply the arrowhead/line-ending shape.
3. To apply an arrowhead to the start of the path, click the left arrow preview box, then click the arrowhead you want.
4. To apply an arrowhead to the end of the path, click the right arrow preview box, then click the arrowhead you want.

   To remove an arrowhead from a path, click the appropriate Arrowhead Selector and choose the first option in the list.

5. Click Apply.

Editing an arrowhead or line-ending shape

When you apply an arrowhead to a path, its size is determined by the thickness of the path's outline. If you increase the thickness, the arrowhead size increases proportionately. To get a larger arrowhead without changing the outline of the path, use the Arrowhead Editor. You can also use the Editor to adjust the arrowhead's position relative to the end of the path.

To edit an arrowhead or line-ending shape:

1. Select the path with the arrowhead/line-ending shape you want to edit.
2. Do one of the following:
   - From the Outline tool menu, click the pen icon.
   - From the Pen Roll-up window, click the **Edit** button.
3. Under **Arrows**, choose the **Options** button that's beneath the arrowhead you want to edit.
4. Choose **Edit**. The Arrowhead Editor appears.
5. Do one or more of the following:
   - To get closer to the arrowhead/shape , check the **4X zoom** box.
   - To stretch the arrowhead/shape, drag on the solid handles between the corners of its highlighting box. Drag the corner handles to scale it.
   - To move the arrowhead/shape, drag the hollow nodes along its outline. To ensure precise alignment as you approach the dashed lines, the node you are using to move snaps to the line.
   - To move the solid black line representing the line the arrowhead/shape will be applied to, drag the node at its end.
   - To center the arrowhead/shape on the line, choose the **Center** buttons.
   - To flip the arrowhead horizontally or vertically, choose the **Reflect** buttons.

Choosing fill colors

Choosing a fill color from the Fill tool flyout menu

From the Fill tool menu, you can fill objects with black, white and five shades of gray. To fill objects with a uniform color, you can use the on-screen Color Palette or the Uniform Fill dialog box.

To choose a black, white or a shade of gray from the Fill tool menu:

1. Select the object you want to fill.
2. Click the Fill tool. The flyout menu appears.
3. Click black, white or the shade of gray you want. The shades vary in increments of 20% from 10% to 90%.

Choosing a fill color from the on-screen Color Palette

1. If the palette is not displayed, choose Color Palette from the View menu. Then choose one of the color palettes.
2. Select the object you want to fill.
3. Select the color you want from the palette by clicking it with the left mouse button.

   To scroll the palette one color at a time, click an arrow at either end of the palette with the left mouse button. Click with the right mouse button to scroll the width of the screen.

Choosing a fill color with the Uniform Fill dialog box

1. Select the object you want to fill.
2. From the Fill tool menu, click the color wheel icon.
3. From the **Show** list box, choose the color specification method you want to use.
4. Do one of the following:
   - To select a color from the TRUMATCH, FOCOLTONE or PANTONE palettes by sight, click **Show Color Names** to clear the check mark, then click the color you want.

     If you want a lighter shade of the selected Spot color, type or select a value in the **%Tint** box.
   - To choose a color by name, choose **Show Color Names**, then click the name of the color.

     The **Search** option lets you locate a color by typing part of its name. As you type, the list of names scrolls to the color that most closely matches what you type. You do not need to type the words TRUMATCH, FOCOLTONE or PANTONE.
   - To create a Process color, choose CMYK, RGB or HSB. Create the color you want using the numeric controls or the color adjustment markers.

Making an object transparent

You may want to remove an object's fill so that objects behind it show through.

You can remove fills using the Fill Roll-up window and the Uniform Fill dialog box, but it's quicker to use the Fill tool menu or the on-screen color palette.

From the Fill tool menu:

1. Select the object with the fill you want to remove.
2. Select the Fill tool.
3. Click the ☒ button.

From the on-screen Color Palette:

1. If the palette is not displayed choose Color Palette from the Display menu. Then choose one of the color palettes.
2. Select the object whose fill you want to remove.
3. Click the ☒ button at the left end of the palette with the left mouse button.

Creating a fountain fill

A fountain fill is one that flows smoothly from one color to another. The fill can flow in a straight line across the object (linear), in concentric circles from the center of the object out (radial), in concentric rectangle from the center of the object (square) or in rays the from the center of the object out (conical).

See one of the following topics for step by step instructions:

Using the Fountain Fill dialog box

Using the Fill Roll-up

Creating a fountain fill using the Fountain fill dialog box

1. Select the object you want to fill.
2. Select the Fill tool.
3. Click the Fountain fill icon. The Fountain Fill dialog box appears.
4. Choose the type of fountain you want (Linear, Radial, Conical or Square).
5. In the **Color Blend** group, click the **From** color button and then the color you want as the start color. Click the **To** color button and then the color you want as the end color of the fountain.

   To create your own colors or select existing ones by name, choose the **More** button.

   Note: If you are using Spot color, and plan to create color separations, use tints of the same color to specify the start and end colors.

6. Still in the **Color Blend** group, click a color blend method

   Direct makes a fountain fill that goes from one color to another
   Rainbow displays the intermediate colors between the two chosen colors
   Custom lets you specify intermediate colors to be applied in the fountain fill

   See Specifying the intermediate colors in a fountain.

7. To specify the angle of a Linear or Conical fountain do one of the following:
   - Type or select the angle in the **Angle** box.
   - Hold the mouse button down in the Preview box and drag. For Conical fountains use the right mouse button. Holding down the CTRL key as you drag constrains the angle to 15-degree increments.
8. To offset the center of a Radial, Conical or Square fountain do one of the following:
   - In the **Horizontal** and **Vertical** boxes under **Center Offset,** type or select the amount of offset.
   - Hold the mouse button down in the Preview box and drag. Holding down the CTRL key as you drag constrains the amount to 10-percent increments.
9. To increase the percentage of start and end color in the fountain, type or select the percentage in the **Edge Pad** box.

You can save the fountain settings you specified so that you can apply them to other objects. Type a name in the **Presets** box then click the Plus (+) button. Clicking the Minus (-) button removes the selected settings from the Preset list.

Creating a fountain fill using the Fill Roll-up

1. If the window is not displayed, click  in the Fill tool menu.
2. Select the object you want to fill.
3. Click the Fountain fill button.
4. Click  to create a linear fountain,

 to create a radial fountain,

 to create a conical fountain or

 to create a square fountain.

5. Click the left color button,  , and then the color you want as the start color.
6. Click the right color button,  , and then the color you want as the end color.
7. Do any of the following:
   - To change the angle of a Linear fountain, hold the mouse button down in the Preview box and drag. Use the right mouse button for Conical fountains. Holding down the CTRL key as you drag constrains the angle to 15-degree increments.
   - To offset the center of a Radial, Conical or Square fountain, hold the mouse button down in the Preview box and drag. Holding down the CTRL key as you drag constrains the amount to 10-percent increments.
8. Click Apply.

Specifying the intermediate colors in a fountain fill

Most of the time you'll create fountains by picking a beginning and ending color and letting CorelCHART choose the intermediate colors between the two. You can create some interesting effects, however, by selecting the intermediate colors yourself.

To specify the intermediate colors in a fountain:

1. In the Fountain Fill dialog box, choose the beginning and ending colors for the fountain by clicking the palette that appears when you click the **From** and **To** buttons.
2. Do one of the following:
   - Click **Rainbow** to take the intermediate colors from a path around the color wheel. You can specify the direction the path takes by clicking the rotation buttons.
   - Click **Custom** to choose the intermediate colors yourself from the palette. You specify where you want the color to appear by adding markers above the preview box. There are three ways to do that:
     1) dragging from the squares at either end of the preview box.
     2) double-clicking just above the preview box.
     3) specifying a value in the **Position** box.

     After adding a marker choose a color from the palette.

     To reposition a color, select its marker and drag it to the desired spot or edit the value in the Position box.

     To delete a color, select its marker then press Delete, or double-click the marker.

   You can save the fountain settings you specified so that you can apply them to other objects. Type a name in the **Presets** box then click the Plus (+) button.

Choosing a two-color fill pattern

You can fill objects with a pattern composed of repeating bitmap images. CorelCHART supplies a collection of black and white bitmap patterns to which you can add color. You can also create your own patterns from imported bitmaps or from images drawn in CorelCHART.
See also Creating a pattern fill

There are two ways to choose a two-color fill pattern:

- Choosing a two-color pattern from the dialog box
- Choosing a two-color pattern from the Fill Roll-up

Choosing a two-color pattern from the dialog box

1. Select the object you want to fill.
2. Select the Fill tool.
3. Click the two-color pattern icon (checkerboard).
4. Click the arrow in the preview box.
5. Click the pattern you want and choose OK.
6. To color the pattern:
   - Click the **Back** color button and then on the color you want for the background color.
   - Click the **Front** color button and then on the color you want for the foreground color.

   To create your own colors or select existing ones by name, click the **More** button.
7. To specify the pattern size, do one of the following:
   - Choose **Small**, **Medium** or **Large** to select a predefined size of 0.25x0.2, 50.50x0.50 or 1.00x1.00 inches.
   - Choose the **Tiling** button and type or select a custom size (up to 3x3 inches) in the **Width** and **Height** boxes.

   To use a different unit of measure, select it from the units box. CorelCHART will automatically convert the displayed value to its equivalent in the unit you select.
8. To offset the pattern tiles:
   - Choose the **Tiling** button.
   - To offset the entire pattern horizontally and/or vertically, type or select the amount of offset in the **X** and **Y** boxes under **First Tile Offset**.
   - To offset alternating row or columns of tiles, choose **Row** or **Column** under **Row/Column Offset,** then type or select the amount of offset.

Choosing a two-color pattern from the Fill Roll-up

1. If the window is not displayed, click  in the Fill tool menu.
2. Select the object you want to fill.
3. Click the two-color pattern button (checkerboard).
4. Click the arrow in the preview box.
5. Click the pattern you want and choose OK.
6. To color the pattern:
   - Click the left color button,  , and then the color you want for the foreground color.
   - Click the right color button,  , and then the color you want for the background.
7. To scale the pattern tiles:
   - Choose the **Tile** button. A pair of boxes appear inside the object you are filling.
   - Drag the small square along the bottom edge of the boxes to scale the pattern.
8. To offset the pattern tiles:
   - Choose the **Tile** button. A pair of boxes appear inside the object you are filling.
   - To offset the entire pattern, hold the mouse button down inside the left box and drag.
   - To offset alternating columns of tiles, hold the mouse button down inside the right box and drag down.
   - To offset alternating rows of tiles, hold the mouse button down inside the right box and drag down and to the left
9. Click Apply.

Choosing a full-color fill pattern

CorelCHART supplies an extensive selection of Full-Color pattern fills composed of repeating vector images. You can also create your own patterns from imported images, or from images drawn in CorelCHART. See Creating a pattern fill.

There are two ways by which you choose a full-color fill pattern:

- Choosing a full-color pattern from the dialog box
- Choosing a full-color pattern from the Fill Roll-up

Choosing a full-color pattern from the dialog box

1. Select the object you want to fill and click the Fill tool.
2. Click the Full-Color pattern icon (double-headed arrow).
3. Click the arrow in the preview box.
4. Click the pattern you want and choose OK.
5. To specify the size of the pattern, do one of the following:
   - Choose **Small**, **Medium** or **Large** to select a predefined size of 0.25x0.2, 50.50x0.50 or 1.00x1.00 inches.
   - Choose the **Tiling** button and type or select a custom size (up to 3x3 inches) in the **Width** and **Height** boxes.

   To use a different unit of measure, select it from the units box. CorelCHART will automatically convert the displayed value to its equivalent in the unit you select.
6. To offset the pattern tiles:
   - Choose the **Tiling** button.
   - To offset the entire pattern horizontally and/or vertically, type or select the amount of offset in the **X** and **Y** boxes under **First Tile Offset**.
   - To offset alternating row or columns of tiles, choose **Row** or **Column** under **Row/Column Offset,** then type or select the amount of offset.

Choosing a full-color pattern from the Fill Roll-up

1. If the window is not displayed, click the roll-up window icon in the Fill tool menu.
2. Select the object you want to fill.
3. Click the Full-Color pattern button (double-headed arrow).
4. Click the arrow in the preview box.
5. Click the pattern you want and choose OK.
6. To scale the pattern tiles:
   - Choose the **Tile** button. A pair of boxes appear inside the object you are filling.
   - Drag the small square along the bottom edge of the boxes to scale the pattern.
7. To offset the pattern tiles:
   - Choose the **Tile** button. A pair of boxes appears inside the object you are filling.
   - To offset the entire pattern, hold the mouse button down inside the left box and drag.
   - To offset alternating columns of tiles, hold the mouse button down inside the right box and drag down.
   - To offset alternating rows of tiles, hold the mouse button down inside the right box and drag down and to the left
8. Click Apply.

Choosing a Bitmap texture

Bitmap textures are fills that look like clouds, water, gravel, minerals and dozens of other natural and man-made substances. Each texture has a set of parameters that you can change to create millions of variations.

Bitmap textures display on your screen and print to any printer. There are two procedures you can use to apply a bitmap texture to objects:

- Choosing a bitmap texture from a dialog box
- Choosing a bitmap texture from the Fill Roll-up

Choosing a bitmap texture from a dialog box

1. Select the object you want to fill and click the Fill tool.
2. Click the  button.
3. From the Textures Library list box, choose the library containing the texture you want.
4. From the Textures List, choose the name of the texture you want.
5. Adjust the parameters to customize the texture as required. There are two ways to do this:

- Click the **Preview** button to randomly change the unlocked parameters. You lock and unlock parameters by clicking the Lock icon next to it.
- Enter a value in the text box next to the parameter name to change the numeric parameters. To change a color parameter, click the color button and select a new one from the pop-up palette. Click the **More** button if you want to create a color or choose it by name. To see the effect the new parameters have on the texture, click the **Preview** button.

Choosing a bitmap texture from the Fill Roll-up

1. If the roll-up is not displayed, click  in the Fill tool menu.
2. Select the object you want to fill.
3. Click the  button.
4. From the upper list box, choose the library containing the texture you want.
5. Do one of the following:
   - Click the arrow in the bottom-right corner of the preview box to display a list of textures. Click the texture you want and choose OK.
   - Click the name of the texture in the list below the preview box and click Apply.

Saving a custom Bitmap texture

You can save the bitmap textures you create and apply them to objects later.

To save a texture:

1. With the texture you want to save displayed in the Bitmap Texture dialog box, do one of the following:
   - If the texture came from the Styles Library, click Save As.
   - If the texture came from the Samples library and you want to overwrite the original, choose Save. To keep the original, choose Save As.
2. In the Texture Name box, type a name up to 32 characters (including spaces). Skip this step for textures from the Style Library if you want to use the same name.
3. Do one of the following:
   - Add the texture to the Samples library by selecting it from the Library list.
   - Create a new library by typing a name in the Library Name box.

Deleting a custom Bitmap texture

1. Choose the Bitmap Texture fill icon from the Fill tool flyout menu.
2. In the Texture Fill dialog box, select the texture you want to delete. (You cannot delete textures in the Style Library.)
3. Click the Delete button.

Copying an object's fill

Once you apply a fill to an object, you can quickly apply the same fill to another object.

Using the Fill Roll-up window:

1. If the window is not displayed, click  in the Fill tool menu.
2. Select the object you want to change.
3. Click the **Update From** button.

   The mouse pointer becomes an arrow with the word From?

4. Click the object with the fill you want copied.
5. Click Apply.

Choosing the default fill

The default fill is applied automatically to annotation objects when you add them to your chart. You can choose a uniform color, two-color pattern, full-color pattern, bitmap texture, fountain fill or no fill at all as the default.

To choose the default fill:

1. Click a white space in the chart window to ensure there is no object selected.
2. Click the Fill tool. The flyout appears.
3. Choose the tool that corresponds to the type of fill you want as the default fill. Click  to give all new annotation objects no fill. The Modify Default dialog box appears.

4. Click **Yes** to confirm you wish to modify the default fill. The dialog box for the chosen fill type appears.
5. Choose the color(s) and set the attributes in the dialog box. See Uniform Fill, Fountain Fill, two-color Pattern, Full-Color Pattern or Texture Fill dialog boxes.

The attributes set are now applied to annotation objects you create. You may of course change the fill of any individual object.

Applying halftone screens

Filling and outlining objects with Spot color allows you to apply halftone screens to them. You can apply a single screen to the entire drawing or different screens to individual objects. The halftone screen's effect on your drawing won't appear on screen. To see it, you must print your drawing on a PostScript printer.

If you are printing process color separations you can specify the screen frequencies and angles for each of the process colors. You should only do this on the advice of your service bureau or commercial printer to avoid moiré patterns.

See the following topics for step by step instructions:

Applying halftone screens to all objects

Applying halftone screens to individual objects

Applying halftone screens to all objects

Screens applied using this procedure affect objects which have not been assigned other screens from the PostScript Options dialog box.

To apply halftone screens to all objects:

1. Choose Print from the File menu.
2. Click Options. The Print Options dialog box appears.
3. Choose the **Options** tab and, type or select the screen frequency you want to use

   If you are printing process color separations, you can specify screen frequencies and angles for each of the CMYK colors in the **Separations** tab by checking the Use Custom Halftone option and clicking the **Edit** button.

   (Spot colors in your drawing will print using the frequency specified for Black.)
4. Select any other options you need.

Applying halftone screens to individual objects

Objects to which you do not apply screens using this procedure, print using the screen settings specified in the Print Options dialog box.

To apply halftone screens to individual objects:

1. Select the object with the screen settings you want to adjust.
2. Select the Fill tool to apply a screen to the object's fill or the Outline tool to apply it to object's outline.
3. Click the  .
4. Click the PostScript Options button.
5. Choose the screen settings type, frequency and angle you want.

Creating a pattern fill

You can design your own two-color and Full-Color fill patterns to supplement those supplied with CorelCHART. Virtually any graphic may be used as the basis for your pattern: a simple shape, a piece of text, a color vector illustration, or even an imported bitmap or vector image. See the following topics for more information:

- Creating two-color pattern fills
- Creating pattern fills from imported images

Creating two-color pattern fills

CorelCHART's Pattern Editor lets you create your own two-color pattern fills. Patterns you create are added to the ones supplied with the program.

To create two-color pattern fills with the Pattern Editor:

1. Select the object you want to fill with the pattern.
2. Do one of the following
   - From the Fill tool menu, click the two-color pattern button (the checkerboard).
   - From the Fill Roll-up window click the two-color pattern button then choose the Edit button.
   - If you are using the Fill Roll-up window and want to modify the pattern in an object, click the Update From button. Next, click the object then the Edit button.
4. Choose the Create button.
5. Choose the Bitmap Pattern size you want. The size you choose determines the resolution of the pattern.
6. Choose the Pen Size you want. The size you choose determines how many squares in the drawing area are filled when you click with the mouse.
7. Click with the left mouse button to fill squares in the drawing area with black.

   To erase, click with the right mouse button.

   Holding down the mouse button and dragging fills/erases a wide area of squares.

   CorelCHART adds the pattern to the end of the list displayed when you click the arrow in the pattern preview box.

Creating pattern fills from imported images

CorelCHART allows you to create pattern fills from images in any of the formats the program imports. You can use multi-colored images to create Full-Color patterns. But for two-color patterns, you should use images with no more than two colors.

You can use a dialog box or the Fill Roll-up window to import the images.

From a dialog box:

1. Select the object you want to fill with the pattern.
2. Select the Fill tool.
3. Click the pattern button that corresponds to the type of pattern you want to create;
 for Two Color pattern,
 for Full Color pattern.
4. Choose the Import button.
5. From the List Files of Type box, choose the format of the image you want to import.
6. In the File Name box, type or select the name of the file you want to import.

   If the file you want is in another drive or directory, select the drive from the Drives box and the directory from the Directories box.

   CorelCHART adds the pattern to the end of the list displayed when you click the arrow in the pattern preview box.

From the Fill Roll-up window:

1. If the window is not displayed, click  in the Fill tool menu.
2. Click the button that corresponds to the type of pattern you want to create.
4. Click the arrow in the pattern preview box.
5. Click File, then choose Import Pattern.
5. From the List Files of Type box, choose the format of the image you want to import.
7. In the File Name box, type or select the name of the file you want to import.

   If the file you want is in another drive or directory, select the drive from the Drives box and the directory from the Directories box.

8. Choose OK to close the Import dialog box.

   The pattern appears in the preview box and is added to the end of the pattern list.

9. To fill an object with the pattern, select the object, then click Apply.

Note: You can store Full-Color patterns you import and use them again to fill other objects.

Saving and deleting a pattern

Saving Full-Color pattern fills you've imported lets you quickly apply them to objects in other drawings. You can also delete two-color and Full-Color patterns.

To save an imported Full-Color pattern:

1. After importing the graphic, click the arrow in the Fill Roll-up's preview box or the preview box in the Full-Color Pattern dialog box.
2. Click File.
3. Choose the Save Current File.

   CorelCHART adds the fill to the first empty square.

To delete a pattern fill:

1. Click the arrow in the lower-right corner of the Roll-up's preview box or the preview box in the Two- or Full-Color dialog box.
2. Click the pattern you want to delete.
3. Click File, then choose Delete Item.

Editing two-color pattern fills with the Pattern Editor

You can use CorelCHART's Bitmap Editor to modify some of the simpler two-color patterns supplied with the program. If the pattern you select for editing is too complex, it does not appear in the Editor.

When you modify a pattern, CorelCHART keeps the original and adds the modified version to the end of the existing collection.

To edit a two-color pattern fill with the Pattern Editor:

1. Select the object you want to fill with the pattern.
2. Do one of the following
   - From the Fill tool menu, click the two-color pattern button (the checkerboard).
   - From the Fill Roll-up window, click the two-color pattern button, then click the Edit button.
   - To edit the pattern in an object, choose the Update From button in the Fill Roll-up window, click the object, then the Edit button.
3. Click the arrow in the pattern preview box.
4. Click the pattern you want to edit.
5. Choose the Create button.
6. Click with the left mouse button to fill squares in the drawing area with black.

   To erase, click with the right mouse button.

   Holding down the mouse button and dragging fills/erases a wide area of squares.

   When you open the dialog box again, you will find the modified pattern at the end of the pattern list box.

Creating Colors and Managing Color Palettes

With CorelCHART's powerful color-handling capabilities, it's easy to give your work some eye-catching appeal.

CorelCHART comes with a number of color palettes, One of these palettes contains spot colors defined using the PANTONE Matching System--a color specification method used when exact colors are required. You can choose from over 700 spot colors and create many more by adjusting the tint.

The other palettes supplied with the program contain colors defined using the process color method. This method of specifying color is based on the principle that virtually any color can be represented by overlaying cyan, magenta, yellow, and black. The default process color palette contains about 100 named colors. For creating your own process colors, CorelCHART offers a choice of three color models: CMYK, RGB and HSB.

The TRUMATCH palette lets you specify process colors using the TRUMATCH Swatching System. By using this palette along with a TRUMATCH color reference book, you can be reasonably certain how the colors will look when printed. A similar book is available for specify colors with the PANTONE Process palette included with CorelCHART.

You have the option of assigning names to the colors you create and adding them to the palette. You can also delete colors and rearrange their order in the palette. And when you're finished, you can save the palette under a new name and have CorelCHART load it automatically when you start the program.

The ability to customize palettes is especially useful when you're working on a drawing that uses many colors. By limiting the palette to the colors you're using, you'll find it easier to apply them to other objects in the drawing. Also, if you're working on different drawings that use the same colors, a custom palette will help you to apply them consistently.

Creating a custom Process color

You can create your own Process colors and use them to fill and outline objects.

To create a custom Process color:

1. Select the object you want to fill or outline with the color.
2. Do one of the following:
   - From the Fill or Outline tool menu, click the color wheel icon.
   - From the Pen Roll-up window, choose the **Edit** button. From the Outline Pen dialog box, choose the **More** button.
3. From the **Show** box, choose the model--CMYK, RGB, or HSB--you want to use to create the color. See Color Models.
5. Define the color by entering exact percentages in the text boxes or use the color-adjustment markers in Visual Selector boxes.
6. If you want to add the color to the palette:
   - Type a name in the **Color Name** box.
   - In the Custom Palette group, click  , and then choose **Add Color**.
7. Choose OK. If you are using the Pen Roll-up, click the **Apply** button.

   The color is added to the end of the Custom Palette. To display this palette, click  and choose **Open**.

Note: You can save the revised palette under a new name by clicking  and then **Save As**.

Adding a Spot color tint to the palette

Instead of adjusting the tint control every time you want to re-use a particular tint of Spot color, you can just add the tint to the palette.

To add a tint of Spot color to the palette:

1. Select the object you want to outline or fill with the tint of Spot color.
2. Do one of the following:
   - From the Fill or Outline tool menu, click the color wheel icon.
   - From the Pen Roll-up window, choose the **Edit** button. Then, from the Outline Pen dialog box, choose the **More** button.
   - From the Fill Roll-up choose the color wheel and click the Edit button.
3. From the **Show** box, choose PANTONE spot color palette.
4. Click the color whose tint you want to change.
5. Adjust the **%tint** setting to get the desired tint.
6. In the Custom Palette group, click  , and then choose **Add Color**. The tint is added to the end of the palette.
7. Choose OK. If you are using a Roll-up window, click the **Apply** button.

Note: You can save the revised palette under a new name by choosing the **Palette** button and then **Save As**.

Opening and saving a color palette

CorelCHART supplies several different Process color palettes and a single Spot color palette. The Process color palettes have different numbers and ranges of color. With some palettes, the difference is in whether the colors display on the screen as dithered or pure.

If you have a TRUMATCH or PANTONE Process color reference book, you can use the corresponding palettes to specify process colors.

You can add, delete and rearrange colors in these palettes and then save them under a new name.

To open a color palette:

1. Select an object.
2. From the Outline or Fill tool menu, click the color wheel icon.
3. Do one of the following:
   - choose one of the palettes supplied with CorelCHART (TRUMATCH, PANTONE, FOCOLTONE) by clicking its name in the **SHOW** box.
   - choose a custom palette by clicking  and choosing **Open**. Custom palettes have a .CPL file extension.

To save a color palette:

1. From the Outline or Uniform Color dialog box, click  .
2. Do one of the following:
   - To replace the current palette, choose **Save**.
   - To save the palette under a new name or in another drive or directory, choose **Save As**.

     In the **File Name** box, type or select a new name. To save the palette in another drive or directory, select the drive from the **Drives** box, and the directory from the **Directories** box.

Deleting a color from a palette

Colors you do not use can be deleted from custom palettes.

To delete a color from a palette:

1. Select an object.
2. From the Outline or Fill tool menu, click the color wheel icon.
3. In the Custom Palettes group, click  and choose **Open.**
4. Choose the custom palette with the color(s) to delete. The palette appears.
5. Click the color in the Custom Palette you want to delete.
6. Click  and then choose **Delete Color**.
7. Repeat steps 5 and 6 to delete other colors.

Rearranging the order of colors in a palette

If you use some colors more often than others, you can make them easier to find by moving them to the beginning of the palette.

To rearrange the order of colors in a palette:

1. Select an object.
2. From the Outline or Fill tool menu, click the color wheel icon.
3. In the Custom Palettes group, click  , choose **Open** and choose the palette to reorganize.

4. Hold the mouse button down on the color in the Custom Palette you want to move, and drag.

   As you begin dragging, the mouse pointer becomes a crosshair cursor.

5. Release the mouse button when the cursor is over the square you want the color moved to.

   The other colors shift to the left.

6. Repeat steps 4 and 5 to move other colors.

You can save the revised palette under a new name by clicking  and then **Save As**.

Creating a new color palette

You can create your own color palettes from scratch and use them to specify colors for objects in your drawing.

To create a new color palette:

1. Select an object. From the Outline or Fill tool menu, click the color wheel icon.
2. In the Custom Palettes group, click  followed by **New**.

3. From the **Show** list box, choose the color specification method that's appropriate for the type of color palette you want to create.
4. Create or select the color you want to add to the palette.
5. If you created the color using the CMYK, RGB or HSB color models, type a name for it in the **New** box.
6. Click  followed by **Add Color**.
7. Repeat steps 5 to 7 to add additional colors.
8. Save the palette, by clicking  followed by **Save.**
9. Type a name for the palette in the **File Name** box, then choose OK. The new palette is automatically assigned the .CPL file extension.

Applying colors to your spreadsheet

Use the on-screen color palette to apply colors to your spreadsheet. The palette sets color attributes for each cell's background and/or its contents.

To apply colors to your spreadsheet:

1. Select a cell or a range of cells
2. Click the color to be applied to the contents of the cell(s). The color is applied to the text, numbers or formulas contained in the selected cell(s).

   Note: number formats are set using the Numeric Format Interpreter. It supports eight colors. A palette color applied to numeric values is converted to the closest match in those eight colors. If the Formula command (View menu) is enabled, the color is automatically added to that number's numeric format.

3. With the right mouse button, click the color to be applied to the cell background.

   Note: If you have applied a pattern to the cell's background, your choice of a background color described above overrides the pattern selection. The pattern is removed and the chosen color applied to the cell background.

4. Repeat steps 2 and 3 as many times as needed.

Font Management

TTF versus PFB

TTF or **true type fonts** and PFB or **Adobe type 1** fonts offer fast screen redraw and easy font management. TTFs are managed with Windows Control Panel, PFBs with a font manager. You should be able to load more TrueTypes onto your system without crashing some software. They're perfect for printing to an office printer or for in-house publishing. If you don't have a PostScript printing device, you may prefer using TrueType fonts. PostScript fonts offer much better support in the real world of publishing. If you need to print files at a service bureau or on in-house PostScript devices, you should use PFB fonts. If you are not an expert user and you need to use a service bureau occasionally, you may want to use PFB font outlines exclusively.

Controlling PostScript fonts

The primary reasons you use PostScript fonts are:

- better looking printed text
- easier font handling
- easier and more flexible options when printing

How Windows controls PostScript fonts

To understand font management, you need to understand how Windows controls fonts. The font listing appears in your WIN.INI file:

Sample:

```
[PostScript,FILE]

ATM=placeholder
softfonts=31
softfont1=c:\psfonts\pfm\gnbc____.pfm,c:\psfonts\gnbc____.pfb
softfont2=c:\psfonts\pfm\gnc_____.pfm,c:\psfonts\gnc_____.pfb
softfontx...
```

PostScript printer listings

The PostScript fonts available on your system are listed in the PostScript printer listings. You need two PostScript listings in your WIN.INI in order to print fonts correctly.

[PostScript,FILE] for printing to disk or a service bureau

[PostScript,LPT1] for printing to your office laser printer or proofing device

If you are using PostScript fonts, the following two lines will be in your WIN.INI:

ATM=placeholder This line means that Adobe Type Manager is running. (This line appears only if you have Adobe Type Manager installed.)

softfonts=xx This line is a softfonts count. It tells you how many fonts are installed on your system. Your softfont number must be the same as the number of installed fonts. If you add or subtract from the font list manually, update the softfont count.

Font-handling statements

The font-handling statement tracks the fonts installed on your system and indicates whether they will be downloaded to the print file. Following is a sample font-handling statement as it appears in your WIN.INI:

softfont1=c:\psfonts\pfm\gnbc____.pfm,c:\psfonts\gnbc____.pfb

This font statement calls for gnbc____.,pfm, or Gill Sans Bold Condensed. If you are unsure whether a font is installed correctly, you can search your WIN.INI for the font ID (gncb_). If you know the font name (e.g., Gill Sans) but don't know the ID, search your ATM.INI for Gill Sans. If the font has been installed by ATM, the ATM.INI will list the name and the ID.

The WIN.INI font-handling statement is divided into three sections:

softfont1=

The softfont number; this count number must be consecutive and match the softfonts count.

c:\psfonts\pfm\gnbc____.pfm

The font metric name, which contains spacing and kerning information. This listing tells you that the font is installed on your system.

c:\psfonts\gnbc____.pfb

The font outline name, which contains the description of the font and its fill and outline properties. This listing indicates that the font will be downloaded into your print file.

A font is correctly installed but will not automatically download into the print file if the listing reads **softfont1=c:\psfonts\pfm\gnbc____.pfm** because it does not include a font outline statement (**pfb**). If you print with the PostScript font metric statement (**pfm**) alone, your service bureau or printer must have the font resident on their system, or your text will print as their printer default.

A font is correctly installed and will download into the print file if the listing reads:

softfont1=c:\psfonts\pfm\gnbc____.pfm,c:\psfonts\gnbc____.pfb

Downloading fonts into your print file creates larger files which slows down printing.

When to update your font list

Typically, the [PostScript,FILE] listing (for printing to disk or a service bureau) will not have **pfb** listings. You can send your service bureau the font(s) (***.pfb**) on disk to download to their printing device. This makes it easier to transfer files (since the print files are smaller), and it allows your output bureau to impose your print files. Imposing or imposition software places the pages of your print file in the order needed to burn plates for the press. Normally this process is done in "litho", or in the press stripping room. Stripping a print job is a time-consuming process, so imposing your print files should save you money. It also saves the printer film, as they can put multiple pages together on the same sheet of film.
To ensure that fonts do not download into your print file, remove the **pfb** listing from the font list in your WIN.INI.

Your [PostScript,LPT1] list for printing to your office laser printer or proofing device should not have **pfb** listings for the 35 fonts most PostScript devices have resident. The listing should have **pfb** listings for the remaining fonts. If you set up your **pfb** listing to automatically download non-printer-resident fonts, you will achieve the best looking font quality with a minimum of trouble.

If you are updating the font list manually, remember that the number of underscore characters (_) must remain the same.

Image setter

A generic term for printers capable of printing text and graphics (line art and photographs) at resolutions of 1200 dpi or more on film or photographic paper.

DPI

A measure of a printer's resolution in dots per inch. Typical desktop laser printers print at 300 dpi, while image setters are capable of printing at resolutions of 1270 or 2540 dpi. The more dots per inch, the smoother the output.

CORELCHT.INI

A text file with configuration information about CorelCHART. This file is in the COREL suite of applications' \CONFIG subdirectory and can be edited by double-clicking on it in the Windows File Manager. Changes you can make include the interval between backup file creation and the directory in which these backup files are stored.

Filter

A program that translates information from one file format to another. Filters allow files created in one application to be inserted or used in another application. CorelCHART includes many filters enabling you to import data or graphics into CorelCHART and export CorelCHART files to other applications.

Film Recorder

Device that reproduces images from a computer screen on film. The film can then be developed into slides or prints using conventional photographic processes. CorelCHART can export files for use by film recorders that accept files in SCODL format.

CorelTRACE

A program supplied with CorelCHART that automatically traces bitmap images. The result is a vector graphic that you can import into CorelDRAW for editing.

Scanner

A device that converts images on a page or transparency into digital form. CorelCHART can import scanned images (also called "bitmaps") in PCX or TIF format.

ASCII

A standard code for representing characters and non-printable control codes such as carriage returns and page breaks.

PostScript

A page description language or protocol by which programs describe text and graphics they want the printer to output. Several features in CorelCHART require the use of a PostScript printer.

Directory

A directory is part of a structure used to organize files on a disk like a drawer in a filing cabinet. Directories have names and can be divided into subdirectories. For example, you could create a directory called LOGOS for storing logo designs.

Dithered color

Color simulated by putting dots of another color very close together. Windows uses dithering to display colors that the graphics adapter is unable to display. *See also* Pure color.

Image header

An optional bitmap image created when you save a CorelCHART file or export it in .EPS format. If you include an image header, you can see a representation of the file contents before opening. If you export a file with an image header, you can see a representation in programs such as Corel Ventura Publisher and Aldus Pagemaker.

How to...

- Choose a bitmap texture
- Save a custom bitmap texture
- Delete a custom bitmap texture

How to...

- Display legendshow_display_legend>howto
- Modify legend layout

How to...

- Open a KODAK Photo CD image

How to...

- Create a new chart from sample data
- Create a chart from your own data

How to...

- Create 3D text
- Autofit headers in 3D charts

How to...

- Open a CorelCHART file

How to...

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How to...

- Save an existing chart with a new name / new location

How to...

- Apply templates from other charts
- Changing chart types from the Gallery
- Changing chart types with drag and drop

How to...

- Import graphics

How to...

- Set chart page size and orientation

How to...

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- Set chart page size and orientation
- Print a chart to disk
- Position the printed chart
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- Print spreadsheet row numbers and column letters
- Print the spreadsheet grid
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Crop Image dialog box

The Crop Image dialog box allows you to crop an image before loading. The cropping is permanent and reduces the size of the image.

Dialog Box Options:

Preview Window	Displays the entire image with a bounding box. Move the nodes on the bounding box to crop the image. Use the Hand cursor to move the bounding box to a specific area of the image.
Units	Choose the units of measurement.
Max	Click to select entire image or to resize the bounding box to cover the entire area and reselect the cropped area.
Top	Enter a number or use the scroll arrows to position the top of the cropped area.
Left	Enter a number or use the scroll arrows to position the left side of the cropped area.
Width	Enter a number or use the scroll arrows to select the width of the cropped area.
Height	Enter a number or use the scroll arrows to select the height of the cropped area.
New Image Size	Displays the size of the cropped image.

Resample dialog box

The Resample dialog box resizes an image and creates a new file. The Resample option on the Open Bitmap dialog box only resamples to a smaller size.

Dialog Box Options

Units	Choose a unit of measurement from the drop-down list box.
Width	Enter a number or use the scroll arrows to choose a number or enter a percentage in the **%** box. If a number is entered in the first box, the **%** box reflects the change and vice versa. You can enter either a number or percentage but not both.
Height	Enter a number or use the scroll arrows to choose a number or enter a percentage in the **%** box. If a number is entered in the first box, the **%** box reflects the change and vice versa. You can enter either a number or percentage but not both.
Horizontal	Enter a resolution. The maximum is 300 dots per inch.
Vertical	Enter a resolution. The maximum is 300 dots per inch.
Identical Values	When checked, the **Horizontal** and **Vertical** resolutions are always equal.
Original Image Size	Displays the size of the original image.
New Image Size	Displays the size of the resampled version.

Import PostScript (Interpreted) (.EPS, .PS, .AI)

Technical Notes

CorelCHART can interpret EPS, PS, and AI files. This filter is primarily for importing print files and is available in Chart View only.

You may import EPS files for use in CorelCHART either as curves or text.

Importing as text

PostScript files imported as text reduces both the size of the data and the time involved in loading information into your chart. However, fonts not installed on your system will be converted to the next closest default typeface.

- If text was exported as text it should be importable as editable text. Point size, font information should be maintained.
- Imported text will appear as annotations and character length cannot exceed 2,048

Importing as curves

PostScript files imported as curves increases data size and conversion time. Although text converted to curves cannot be edited as text, this option permits the display of any typeface accurately in your chart.

The EPS information that is used when the image is printed to a PostScript printer can be imported into CorelCHART.

- Note: This filter is useful for importing any PostScript files that are not in the AI form.
- PostScript (Interpreted) will import the CorelCHART EPS format.
- Due to the way PostScript describes gradient fills if you are importing a file with large or complex gradient fills you may generate a very large number of objects. This may lead to a very large file, or, if the file grows too large, you may not be able to import the file due to memory limitations.
- If the file you are importing is too large or complex you may not be able to import the file due to memory limitation errors.
- There is an option in CORELFLT.INI to increase the Virtual Memory that the interpreter will allocate when it initializes. This may help you import larger or more complex files. Set VMSize=n (where n is megabytes of allocated memory, 2 is the default) to a larger number.

Note: EPS file formats (AI, EPS placeable, PostScript Interpreted) cannot be imported properly using the All Files import option. To import PostScript Interpreted files successfully choose the PostScript Interpreted import filter.

Import--AutoCAD (DXF)
Technical Notes

Preparing the file in AutoCAD

To create a DXF file from AutoCAD, use the DXFOUT utility while in that program. If the image is 3-D, save it with the view that you want to transfer over to CorelCHART.

Note: DXF v11 and v12 are not fully supported.

DXF File Complexity

If your DXF file is too complex to import into CorelCHART, configure your AutoCAD output device as an HP7475 Plotter and perform a Plot-to-File of your drawing. You should then be able to import this plot file using CorelCHART's HPGL import filter.

General notes and limitations on imported DXF files

- CorelCHART tries to center the imported image in an 18x18 inch area of the charting window. This size is not guaranteed though, especially with 3-D images. Drawings larger than 18x18 inches can be scaled to fit within these dimensions. In most cases, an Import DXF dialog box that allows you to enter a scale factor will open, allowing you to scale an image up or down as long as it is not larger than 18 x 18 inches. However, if you're importing an AutoCAD file from version 11 or 12 of AutoCAD that contains extent information which CorelCHART cannot read, (for example, exponential numbers), this Import DXF dialog box will not open. Instead, CorelCHART estimates the best fit and scales the image up or down accordingly.
- Dashed lines in the DXF file will be given a similar dashed line pattern in CorelCHART.
- If you have a problem with the scattering of dimension entities in your imported file, go back to your original drawing in AutoCAD and explode the dimension entity before creating the DXF file.
- The line width of a polyline is imported as the minimum line width which that polyline had in AutoCAD. The maximum line width is 4 inches. Variable line width information is not retained when the file is imported.
- Curve resolution factor can be set to a value between 0.0 and 1.0 inches. The entered value can be very accurate, up to eight decimal places are accepted. While a setting of 0.0 will result in the highest resolution it will also greatly increase file size. A curve resolution of 0.004 inches is recommended.
- Solid and trace entities are filled, provided the view is not 3-D (i.e., they are filled on x-y axis view only).
- A point is imported as an ellipse of minimum size. An extruded point is imported as a line segment with two nodes. PDMODE is not considered.
- Files exported as "Entities only" may come into CorelCHART incorrectly due to lack of header information.

AutoCAD features not supported in CorelCHART

The following features in AutoCAD are not supported when importing a DXF file into CorelCHART:

- CorelCHART does not support polygon arcs.
- Shape entities--CorelCHART cannot read .SHX files
- Polylines including variable-width polylines, elevation (group 38), mesh M and N

vertex counts (groups 71 and 72), smooth surface M and N densities (groups 73 and 74) and smooth surface type (group 75)

- Special 3-D shapes such as cones, spheres and tori
- 3-D extrusion of circles, arcs, and text
- 3-D extrusion of polylines with width and/or dashed patterns
- Invisible lines in 3-D face entities
- Automatic wireframes
- Hidden lines or hidden-line removal
- Extrusion direction assumed to be parallel to the Z-axis
- Binary DXF format
- Paper Space Entities within a Model Space

Text in the DXF File

Text generated in AutoCAD and imported via DXF will show the following differences:

- Various justifications on text entries may not be preserved. Normal text placement (no justification) works best.
- CorelCHART has limits on values for text's point size and skew. If the AutoCAD text object exceeds these limits, the object is brought within these limits when it is imported.

Special characters in text strings:

- Control characters are ignored.
- Overscore and underscore indicators are ignored.
- If a character is referred to by number, the number must be three digits. i.e. character 65 is %%065.
- %%010 is considered to be a carriage return and line feed.
- Any non-standard characters become a "?" in CorelCHART, including the degrees symbol, the +/- tolerance symbol, and the circle dimensioning symbol.

The typefaces used in AutoCAD are matched by PANOSE font matching with the closest available face in CorelCHART. If a font is not found the default font will be used.

Import--HP Plotter (HPGL)
Technical Notes

Formats Supported

CorelCHART can interpret a SUBSET of the HPGL and HPGL/2 command set. A stepping factor of 1016 plotter units = 1 inch will be used.

Image Size

The dialog box includes a Scale option for resizing the imported image. Use this option to import images larger than CorelCHART's maximum page size. If your image does not fit in the CorelCHART page, it will automatically scaled down unless you select a stretch factor that will make your image smaller than the CorelCHART page.

- Curve resolution factor can be set to a value between 0.0 and 1.0 inches. The entered value can be very accurate, up to eight decimal places are accepted. While a setting of 0.0 will result in the highest resolution it will also greatly increase file size. A curve resolution of 0.004 inches is recommended.

Colors in HPGL Files

The HPGL format does not contain color information. Instead, the various objects in an HPGL file have certain pen numbers associated with them. When imported into CorelCHART, each pen number is assigned a specific color. You can specify the color assigned to a particular pen. This makes it easy to match the original colors of the graphic.

Pen Selection

The Pen Selection list contains 256 pens, although not all of the pens may be assigned.

Pen Color

You can change the color assignments by choosing the pen and then choosing a new color for that pen from the Pen Color field.

Choosing Custom colors brings up a color definition dialog box that allows you to define a custom color using the RGB values.

Pen Width

You can change the pen width assignments by choosing the pen and then choosing a new width for that pen from the Pen Width field.

Pen Velocity

You can change the pen velocity by choosing the pen and then choosing a new velocity for that pen from the Pen Velocity field. This is only useful for exporting HPGL files.

Pen Unused

Allows you to set a defined pen to (Unused).

Reset

Allows you to reset the current Pen Library pen settings back to the last saved settings.

Fills

Only certain types of objects in the HPGL file will be filled in CorelCHART.

Line Types

CorelCHART supports numerous HPGL dotted, dashed and solid line types. The pattern number of a certain line in an HPGL file will be translated to a CorelCHART line type pattern, as shown in the following table:

HPGL line:	***CorelCHART line type:***
#0	Solid
#1	Dotted
#2	Small dash
#3	Large dash
#4,5	Dot-dash
#6	Double dot-dash
#7 and over	As per # 2

Text in HPGL files

- Text will only come into CorelCHART (Chart View only) as editable annotations when the application that generated the file is capable of exporting text as text.
- Once in CorelCHART, text strings will be assigned the Monospaced font, but can subsequently be assigned any typeface and size and may not exceed 2,048 characters.
- Imported text has no outline color, only a fill color. The fill color is based on its associated pen number in the original HPGL file.

Opening a KODAK Photo CD image

You can import images derived from 35mm film negatives or slides which have been converted to digital format and stored on a compact disc (CD).

To open a KODAK Photo CD image:

1. Choose Import from the File Menu. The Import dialog box opens.
2. Choose KODAK Photo CD from the **List Files of Type** drop-down list box.
3. Choose the **Drive** and **Directory**.
4. Click a file in the **File Name** list box.
5. Click **Options** to view file information such as date, file size, file format, image size and Sort by. The Sort by options are: name and date.
6. Click **Preview** to view the file.
7. Click **OK**. The Photo CD options dialog box opens.
8. Choose **Colors** and **Resolution**.

   If you check the **Apply Image Enhancement** check box, the Photo CD Image Enhancement dialog box opens. Choose options in the dialog box.
9. Click OK.

Photo CD dialog box

The Photo CD dialog box allows you to specify resolution, colors and apply image enhancement. *See also* Photo CD Image Enhancement dialog box

Dialog Box Options:

Resolution

When you import PCD files, a dialog box will appear prompting you to choose the desired file resolution.

- Wallet (128x192)
- Snapshot (256x384)
- Standard (512x768)
- Large (1024x1536)
- Poster (2048x3072)

Note: High resolutions require large amounts of disk space.

Colors

- 16.7 million (24 bit)
- 256 colors (8 bit)
- 16 colors (4 bit)
- 256 grayscale (8 bit)

Image Size

The **Image Size** indicator will update to reflect the choices you have made regarding Resolution and Color.

Apply Image Enhancement

Corrects the color of the image before you import it into CorelCHART.

Preview

Click **Preview** to see a thumbnail of the CD image.

Photo CD Image Enhancement dialog box

This dialog box allows you to correct the color of the image before you import it into CorelCHART.
See also Photo CD dialog box

Dialog Box Options:

Color Correction Method

GamutCD (TM)

This color correction method uses gamut mapping to enhance the color fidelity and tonal ranges of the CD image.

Set Active Area	Use the mouse to specify an active area within the image in the view field. This ensures GamutCD will base its color correction on the area of the photo that you are going to use and helps cut out any black borders left over from the original scan.
Set Neutral Colors	Define neutral colors by clicking on pure whites, blacks and grays within the Active Area.
White in Image	Choose this option if you have good white elements in the photo. If you do not have a white, disable this option as the Gamut mapping will overbrighten your picture as it maps the lightest elements of your picture to white. This option will assist GamutCD in enhancing the tonal range of your image and removing color cast. If your white is not pure white you may wish to lower the 255 setting in the number box to the right.
Black in Image	Choose this option if you have good black elements in the photo. If the image does not have blacks, disable this option as the Gamut mapping will darken your picture as it maps the darkest elements of your picture to black. This option will assist GamutCD in enhancing the tonal range of your image and removing color cast. If your black is not pure black you may wish to raise the setting in the number box to the right from 0.
Fast Preview	Displays the effect the GamutCD settings you have chosen will have on the image.
Best Preview	Displays the effect the GamutCD settings you have chosen will have on the image. This method will be more accurate than fast preview but take longer to build.

Kodak Color Correction

This color correction method allows you to alter color tints, adjust Brightness and Color Saturation, as well as make adjustments to the level of contrast.

Remove Scene Balance Adjustment
Turns off the Scene Balance Adjustment the photo finisher applied at the time the original image was scanned and placed on the Photo CD disk.

Color Metric
Allows you to adjust contrast by pre-set amounts.

Show Out-Of-Gamut Colors
If the changes you've made are too extreme the preview will display out-of-gamut pixels

as pure red or pure blue.

Click any menu item below for a description of how each one works.

Click any menu item below for a description of how each one works.

Click a chart type below for a description of how it works.

Click any menu item below for a description of how each one works.

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Exchange information with other applications

Overview

Connections to other applications

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Embedding CorelCHART objects
Embedding a new chart object in CorelDRAW
Embedding an existing chart object in CorelDRAW
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Exporting

Exporting graphics

Connections from other applications

Importing

Importing graphics
Drag and drop graphics

Overview: Object Linking and Embedding

Windows' Object Linking and Embedding (OLE) 2.0 offers two ways to connect files from separate programs--linking and embedding. As the name implies, linked objects are data, text or graphic objects created in one application, a server application, which remain linked to a file created in another program, the client. When you update the original linked file, it can be updated in both client and server applications. Chart View acts as an OLE server but not a client while Data Manager acts as an OLE client. Double-clicking a linked or embedded object switches you back to the original file in a special session of the server application to make your changes. Your computer must have enough Random Access Memory and the system resources to run CorelCHART and the other applications you are using at the same time.

Embedded Objects

Embedded objects place or embed a full-sized picture, called an object, in the file you're working on. Double-click the embedded object to edit it; this activates the server program from within your file. The difference between embedded and linked objects is that for embedded objects, OLE makes a copy of the original file. No link is maintained between an embedded object and the original file--the original file does not update when you edit the embedded object, nor does the embedded object change if the original file is changed.

Embedded objects are more portable than linked objects. If you are moving files between systems, the only requirement is that the new system have both the server and client programs.

Linked Objects

Linked object files can be updated when the original file changes in the server application. Linked objects are not as portable as embedded objects. If you are moving files between computer systems, to preserver the link you must copy both source and destination files to the new system must have both server and client programs installed.

Drag and Drop

Drag and Drop is a popular new feature of OLE 2.0. Drag and Drop allows you to select and drag information from one application and drop it into another. When used from an OLE server to an OLE client application, Drag and Drop can be used to create embedded objects. If the application you are dragging from is not a server, Drag and Drop acts like cut and paste, moving the selected data from place to place.

Linking and embedding procedures vary somewhat between applications. Check the client application's documentation for additional information.

Drag and Drop: From Chart View

You can drag and drop a whole chart, but not its individual parts, from CorelCHART into other applications. Drag and drop creates an embedded object in the client application.

To drag an entire chart to another application:

1. Size the Chart View and client application windows so that you can see both CorelCHART's charting window and the target area of the client application.
2. Click and hold the mouse button in the charting window above the Printable Page (the cursor will not change).
3. Move or "drag" the pointer from the Chart View window to the client application.
4. When the cursor becomes a blinking white arrow with a small rectangle underneath, release the mouse button to "drop" the data into the client program. **Note:** The cursor becomes a black circle with a diagonal line through it when moving over invalid paste areas.

OLE procedures vary somewhat between applications. Check the client application's documentation for additional information.

Embedding CorelCHART objects

You can embed a whole chart but not its individual objects from CorelCHART into client applications.

To embed a CorelCHART object in another application:

1. In the client application, choose Insert Object.
2. Choose the appropriate Object Type from the Insert Object dialog box and click OK.
3. Your system will automatically open or switch to CoreCHART for an embedded session.
4. Create or open the CorelCHART object you want to embed in the client application.
5. When you have completed the chart-building session, choose Exit & Return to [*client filename*].

OLE procedures vary somewhat between applications. Check the client application's documentation for additional information.

See also Insert Object command (Edit Menu)

Embedding a new chart object in CorelDRAW

You can embed a CorelCHART file in CorelDRAW by creating a new chart, as described below, or you can Create from File. *See also* Embedding an existing chart object in CorelDRAW.

To create a new CorelCHART object:

1. In CorelDRAW, choose Insert Object from the Edit menu. The Insert Object dialog box appears.
2. Choose CorelCHART! 5.0 from the Object Type list box and click OK (Create New is the default option).
3. Design your chart.
4. While you are building the chart, you have the following file management options:

   Save Copy As: Saves the chart as a copy of the embedded object

   Update [*original filename*]: Updates your original file

   Close & Return to [*original filename*]: Closes the current file but leaves CorelCHART open

   Exit & Return to [*original filename*]: CorelCHART will disappear, and the embedded chart will appear in CorelDRAW with handles. You can move or resize the object, or double-click it to return to an embedded CorelCHART session to edit it.
5. When you have finished creating your chart, choose Exit & Return from the CorelCHART file menu to return to CorelDRAW.

Embedding an existing chart object in CorelDRAW

You can embed existing CorelCHART objects into CorelDRAW from file as described below or Embed a new CorelCHART object in CorelDRAW

To embed an object from file:

1. In CorelDRAW, choose Insert Object from the Edit menu. The Insert Object dialog box appears.
2. Click the Create from File radio button. A File list box appears.
3. Click Link if you want the resulting object to be updated whenever the original file is updated.
4. Choose Browse to open a Browse files box if you want to locate an existing CorelCHART file (files with the extension .cch) or type in a path and file name and click OK. The embedded object will appear in your CorelDRAW file.

Linking chart objects

To create linked CorelCHART objects using OLE, follow the steps below:

1. Choose Copy Chart from the Edit Menu.
2. In the client application, choose Paste Link or Paste Special from the Edit Menu as required. (Paste Link is only available if the chart has been saved previously).
3. Make the appropriate selection from the resulting dialog box and click OK.

   Double-click the linked CorelCHART object to return to a closed CorelCHART session to edit your CorelCHART file.

OLE procedures vary somewhat between applications. Check the client application's documentation for additional information.

Importing graphics

Chart View's Import function gives you access to graphics created by other illustration programs and presentation packages, as well as clip art and scanned images.

To import a graphic object, choose the Import command as follows:

1. Click the Import button or choose Import from the File menu.
2. From the Import dialog box's List Files of Type box, choose the import format you want.
3. The File Name box shows files in the current directory with the chosen format's extension. If the file you want is in another directory, choose the drive from the Drives box and the directory from the Directories box.
4. In the File Name box, type or select the data you want to import.

Exporting graphics

Exporting saves CorelCHART files in formats used by other programs.

To export graphics for use by other programs:

1. Open the CorelCHART file you want to export.
2. Click the Export button or choose Export from the File menu.
3. From the List Files of Type box, choose the export format you want.
4. Accept the name displayed in the File Name box for the graphic you are exporting or type a new name in the File Name box. CorelCHART automatically adds the extension used by the application you selected.

   The file will now work as any native file in the target application.

Depending on the format selected, another dialog box may appear. Choose your options as required.

Drag and drop graphics

You can drag and drop a bitmap or other supported graphic images directly from other applications or from a Windows file manager into Chart View.

To drag and drop a bitmap into Chart View:

1. Size the charting window and the other application's window so that you can see the relevant parts of each.
2. Click and hold down the mouse pointer on the bitmap file or image in an application window or a Windows file manager.
3. Drag the bitmap file or image into Chart View and release the button when the pointer is over the location where you want the image to appear.

   The bitmap will appear where you have "dropped" it in the charting window.

Exchange data with other applications

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See also:

- CorelQUERY Online Help
- ODBC Help

Drag and drop spreadsheet data

Drag and drop spreadsheet data from Data Manager to other applications as follows:

1. Make sure both the Data Manager window and the other application's window are sized so that you can see the relevant parts of each.
2. Select the data to be dragged from Data Manager to the client application.
3. Point with the mouse pointer to a spot just below the top line of the selected data.

   The pointer will change from a white cross to a white arrow.
4. Click and hold the mouse button while you drag the data to the client application.

See also Drag and drop within Data Manager

Linking objects from other applications

For information about the procedures used by the program from which you want to link data to the Data Manager, consult the application's user documentation. *See also* Paste Special command (Edit Menu)

In general, the following procedures apply:

1. Select the information you want to link to CorelCHART in the server application and choose Copy from the Edit Menu.
2. Switch to CorelCHART's Data Manager and choose Paste Special.
3. Choose Paste Link from inside the Paste Special dialog box and click OK.

   Note: To create Linked Objects, you must choose Paste Special, then Paste Link from **within** the Paste Special dialog box. Paste Link chosen directly from the Edit menu creates a DDE link.

   The information from the server application will flow into the spreadsheet at the cursor location.

OLE procedures vary somewhat between applications. Check the client application's documentation for additional information.

Updating linked objects

You can also update a linked object that has been modified in the server application from within Data Manager.

To update an object linked to the Data Manager:

1. Choose Links in the Data Manager Edit menu.
2. Select the linked object you want to update from the Links list.
3. Click Update Now.
4. If you want the object to update automatically when it is modified, click the Automatic option at the bottom of the dialog box.

OLE procedures vary somewhat between applications. Check the client application's documentation for additional information.

Embedding objects in Data Manager

You can embed objects in Data Manager by Creating from File, which inserts an existing object from a server application immediately, or begin create a new object.

To embed a new OLE object in Data Manager:

1. Place the cursor where you want the object to appear.
2. Choose Insert Object from the Edit Menu.
3. Choose the appropriate Object Type from the Insert Object dialog box and click OK.
4. A closed OLE session will begin in the server application. Create the object you want to appear in Data Manager.

   Note: If you choose Create from File, the object you want to appear will be inserted immediately in Data Manager.

See also Insert Object command (Edit Menu),

Setting up a DDE link with another spreadsheet

Besides using OLE to link spreadsheets, you can set up what is called a Dynamic Data Exchange.

To set up a Dynamic Data Exchange link with Windows-compliant spreadsheets:

1. Open a Data Manager window and the other application's spreadsheet file.
2. Select the range of cells in the spreadsheet you'd like to link.
3. Choose Edit, Copy.
4. Switch to Data Manager and place the cursor at the cell location where you want the linked data to begin.
5. Choose Edit, Paste Link.

   Note: Paste Link chosen directly from the Edit menu creates a DDE link. To create Linked Objects, you must choose Paste Special, then Paste Link from within the Paste Special dialog box.

   The source and target files are now linked. The data will be updated whenever the server spreadsheet's data is updated.

DDE procedures vary somewhat between applications. Check the client application's documentation for additional information about DDE.

Setting up a DDE link with another spreadsheet

Besides using OLE to link spreadsheets, you can set up what is called a Dynamic Data Exchange.

To set up a Dynamic Data Exchange link with Windows-compliant spreadsheets:

1. Open a Data Manager window and the other application's spreadsheet file.
2. Select the range of cells in the spreadsheet you'd like to link.
3. Choose Edit, Copy.
4. Switch to Data Manager and place the cursor at the cell location where you want the linked data to begin.
5. Choose Edit, Paste Link.

   Note: Paste Link, chosen directly from the Edit menu, creates a DDE link. To create Linked Objects, you must choose Paste Special, then Paste Link from within the Paste Special dialog box.

   The source and target files are now linked. The data will be updated whenever the server spreadsheet's data is updated.

DDE procedures vary somewhat between applications. Check the client application's documentation for additional information about DDE.

Exporting spreadsheet data

Use the Data Manager's Export command to save your charts or spreadsheet data in formats used by other popular programs.

To export your data:

1. Open the Data Manager File menu and click Export.
2. The Export Data dialog box will appear, showing a default export file name (sheet1, sheet2, and so on) in the File Name text box. Accept the default or key in a new filename.
3. Choose the file type used by the program you'll be exporting to from the listing in the List Files of Type text box.
4. Choose the drive and directory where you want to send the file.

Click Ansi to Oem if you need to save a file using the OEM standard.

Importing spreadsheet data

Data Manager's Import Data function allows you to import data in a range of spreadsheet formats for use in CorelCHART.

To import a data file into Data Manager:

1. In Data Manager, choose Import from the File menu or click the Import button from the Ribbon Bar.
2. Choose the type of file format you wish to import from the Import Data dialog box.
3. Double-click the name of the file you want to import.
4. The data file will flow into your spreadsheet starting at cell A1.

   Warning: Any data already in the current spreadsheet window is replaced by the imported data.

Overview: Making queries

Using CorelCHART 5's add-on database viewer, CorelQUERY, you have a quick and easy way to gather database information and build query tables. CorelQUERY can view files from database application files which use Microsoft's Open Database Connectivity, such as dBASE, Paradox, FoxPro and SQL Server.

Because you can query database files directly from CorelCHART, using CorelQUERY to process database information can speed your work. Another advantage of CorelQUERY is that you need not own a database program to view files--all you require is CorelCHART and a database file from a third party.

If CorelQUERY is installed on your system, you are ready to make your first database query. To install CorelQUERY, you must run Corel Setup from the Windows Program Manager (i.e., File, Run b:\setup). Consult the CorelDRAW *Installation Guide* for further details.

Notes: CorelQUERY does not create a dynamic link with the source application unless you actually open the server database program and choose Paste Link. If the data in the server file has been updated, use CorelQUERY to repeat the query.

See also Making new data queries and ODBC Help

Making new data queries

1. Click a CorelCHART cell where you want the data to appear.
2. From the Data Menu, choose Get Data From Database , then choose New File... from the flyout menu.
3. Click a data folder. The Query Builder dialog box appears with the Select feature active.
4. Double-click the data table(s) you want to use from the Relations text box. **Note:** Until you are familiar with making complex queries, we recommend that you select only one table for each query.
5. In the Fields list box, double-click the data fields you want to include in your query.
6. Select Criteria and Order/Group choices as required. For example, if you want to change the sort order from Ascending to Descending, click the Order/Group tab, select the relevant fields, and click Descending.
7. Click the SQL tab and click Build.

   CorelQUERY automatically writes your query in Structured Query Language.
8. Click OK. CorelQUERY generates a query table based on the information you requested in the Query Builder dialog box.
9. If you want to save your query file in CorelQUERY, choose Save Copy As... from the CorelQUERY File Menu and give your query table a name. The .dsq extension is automatically appended. If you don't want to save the query table, go to step 6.
10. Choose Exit and Return to [*CorelCHART filename*]. The data will flow into CorelCHART from the active cell downward and left to right. Edit the data as required.

See also Opening data queries

Making new data queries

1. Click a CorelCHART cell where you want the data to appear.
2. From the Data Menu, choose Get Data From Database , then choose New File... from the flyout menu.
3. Click a data folder. The Query Builder dialog box appears with the Select feature active.
4. Double-click the data table(s) you want to use from the Relations text box. **Note:** Until you are familiar with making complex queries, we recommend that you select only one table for each query.
5. In the Fields list box, double-click the data fields you want to include in your query.
6. Select Criteria and Order/Group choices as required. For example, if you want to change the sort order from Ascending to Descending, click the Order/Group tab, select the relevant fields, and click Descending.
7. Click the SQL tab and click Build.

   CorelQUERY automatically writes your query in Structured Query Language.
8. Click OK. CorelQUERY generates a query table based on the information you requested in the Query Builder dialog box.
9. If you want to save your query file in CorelQUERY, choose Save Copy As... from the CorelQUERY File Menu and give your query table a name. The .dsq extension is automatically appended. If you don't want to save the query table, go to step 6.
10. Choose Exit and Return to [*CorelCHART filename*]. The data will flow into CorelCHART from the active cell downward and left to right. Edit the data as required.

    See also Opening data queries

Opening data queries

1. Click a CorelCHART cell where you want the data to appear.
2. Choose Get Data From Database from the Data Menu, then choose Open File... from the flyout menu.
3. Choose any .dsq file from the Load Data Query dialog box and click OK. The data will flow into the spreadsheet from the active cell downward and left to right.

Opening data queries

1. Click a CorelCHART cell where you want the data to appear.
2. Choose Get Data From Database from the Data Menu, then choose Open File... from the flyout menu.
3. Choose any .dsq file from the Load Data Query dialog box and click OK. The data will flow into the spreadsheet from the active cell downward and left to right.

Adding Data Sources

The Add ODBC Data Source dialog box appears when you click the Add button in CorelQUERY's Data Source dialog box.

To add an ODBC Data Source:

1. Choose a driver name (e.g., dBase Files (*.dbf)) from the Add ODBC Data Source dialog box.
2. Click OK.

   When the resulting dialog box appears, key in the required data source information, i.e., name, version, number or location.

Adding Data Sources

The Add ODBC Data Source dialog box appears when you click the Add button in CorelQUERY's Data Source dialog box.

To add an ODBC Data Source:

1. Choose a driver name (e.g., dBase Files (*.dbf)) from the Add ODBC Data Source dialog box.
2. Click OK.

   When the resulting dialog box appears, key in the required data source information, i.e., name, version, number or location.

Print to File--Print Options dialog box

Use to name a file to print to disk.

Dialog Box Options

File Name

Type a name for the file. To overwrite an existing file, select its name from the list.

The file name precedes the .PRN extension and can contain up to eight characters.

Drives

Choose the drive to which you want the file printed.

Directories

Choose the directory in which you want the file printed.

List Files of Type

Shows Print File as file type being created.

Read Only

Choose this option to prevent the file from being overwritten or altered.

Note: Before you print a final print file, or send a print file to an output bureau for film or direct imaging, make sure that you've built your System Color Profile with Color Manager for the output device chosen.

Print Options dialog box

Opens the Print Options dialog box which includes advanced options for controlling the way a chart prints.

Dialog Box Options

Page Window

Shows how a chart will look when printed. The bounding box surrounding the preview image shows the area within which the selected printer is capable of printing. Resize the image by dragging the handles around it. To change its position on the page, click anywhere inside the image and drag. For more precision, specify values in the Position and Size boxes.

Rulers allow to you judge the relative size and placement of the image. Change the rulers' units by clicking on the Units box and selecting a new unit from the list.

Note: Changing the chart's size and position does not affect the chart file, only how it is printed.

Options

Click the tabs below for information on the options they include.

References

Located below the Page Window are the references icons. They add standard printers' marks and file information to your chart when you check the appropriate options. See Printers' References.

Note: For references to appear, the size of the Printable Page (as set in the Page Setup dialog box) must be smaller than the size of the page you are printing on.

Print Options--Layout tab

Position and Size

Lets you adjust the size and position of a chart with numeric precision. **Note:** Changing the chart's size and position does not affect the chart file, only how it is printed.

Top, Left	Adjusts position of chart on page. The value in the Left box represents the location of the top left corner of the chart. The Top value represents the location of the top of the chart.
Width, Height	Adjusts size of the image. When the value in one box is changed, the value in the other changes proportionately to maintain the chart's aspect ratio.
Center	Centers chart on the page.
Fit to Page	Reduces or enlarges chart to fit on the size of paper in the printer. Use this option to proof large charts that exceed the printer's maximum paper size.
Maintain Aspect	Resizes chart when it is printed. Values below 100 shrink chart; values above 100 enlarge it. Useful for proofing very small or very large charts. Use this option with the **Tile** option to print a single page chart as a large poster.
Print Tiled Pages	Prints parts of chart outside the Printable Page on additional pages. Use this option if you are also using the Maintain Aspect option to print your chart at a size larger than the printer's paper size.

Layout Style

Lets you adjust the size and position of a drawing to reflect different printing needs. If you are printing a chart that you want to fit to a three column format to which you will later add text. You could set up the page so that the chart prints

Rows	Sets the number of vertical rows on the page.
Columns	Specifies the number of horizontal columns on the page.
Gutter Width	Sets the size of the gutter between Columns.
Clone Frame	Clones the page frame.

Preview Image:

Displays the current publication in the "page" window.

Printers' References:

Located under the Preview Image area, the Printers' references are represented by a row of buttons. Use the printers' references to add standard printers' marks and file information to your publication.

Note: For references to appear, the size of the Page (as set in the Chapter Settings, Layout dialog box) must be smaller than the size of the page you are printing on. Many imagesetters have an "extra" page setting ("letter extra" is 9.5x12, for example) which enables for crop marks and file information.

Print Options--Separations tab

Use to prepare a file for color separation.

Dialog Box Options

Print Separations

When checked, prints the color information of your slide(s)chart in grayscale separations. Usually these are the four process colors (cyan, magenta, yellow and black) and any spot colors used in the chart. Click on the colors for which you want to print separations.

In Color

When checked, prints the separations in color rather than grayscale. This option is available if you are printing to a color printer or if you are printing to file. Printing on transparencies with this option enabled will allow you to check any traps you've applied to objects in your chart.

Convert Spot to CMYK

Converts spot colors in the chart to their process color equivalents.

Note: Converted color appears the same on screen but will not match Spot color exactly when printed.

Use Custom Halftone

Select this option to specify halftone screen angles and line frequencies for each of the CMYK colors. If left unchecked, your chart prints using the printer's default angle and frequency.

Advanced Screening

Clicking the Edit button opens the Advanced Screening dialog box. Control screening technology, output resolution, line screen, screen angles and frequencies for the four Process colors. Set halftone screen type. The look-up table in CORELPRN.INI defines the default screen frequency and angle for different resolution devices.

Unless you specify a different screen angle in the PostScript Options dialog box, objects with Spot colors print using the screen angle specified for Black.

Colors

Lists four process colors (cyan, magenta, yellow and black) and any spot colors used in the chart. Click the colors for which you want to print separations.

Auto Trapping

Adds trap to certain objects in your chart.

Note: Autotrapping creates spreads, not chokes.

Always Overprint Black

Adds trap to any object that contains 95 percent black. Change value by editing the PSOverprintBlackLimit in the CORELPRN.INI file.

Auto-Spreading

Adds trap to all objects which meet two conditions: they have no outline and they are filled with a uniform color.

In the **Maximum** box, specify the maximum amount of trap you want to add. Actual amount added depends on the object's color: the lighter the color, the greater the

percentage of the maximum value CorelCHART adds.

If **Always Overprint Black** is also checked, black overprinting will occur even if the object does not meet the two conditions for auto-trapping.

Unsharp mask

Use the Unsharp Mask filter to accentuate edge detail as well as sharpen smooth areas in the image. The higher the percentage, the more defined are the edges.

Preview Image:

Displays the current publication in the "page" window.

Printers' References:

Located under the Preview Image area, the Printers' references are represented by a row of buttons. Use the printers' references to add standard printers' marks and file information to your publication.

Note: For references to appear, the size of the Page (as set in the Chapter Settings, Layout dialog box) must be smaller than the size of the page you are printing on. Many imagesetters have an "extra" page setting ("letter extra" is 9.5x12, for example) which enables for crop marks and file information.

Print Options--Options tab

Use to specify additional setting for printed files.

Dialog Box Options

Screen Frequency

Determines the halftone screen frequency used to print your chart. Unless you specify a different one in the PostScript Options dialog box, objects with Spot color print using the screen frequency selected here.

If printing color separations, adjust the screen frequency of each CMYK color in the Separations dialog box in the Use Custom Halftone option. In this case, objects with Spot color print using the frequency specified in the Separations dialog box.

Set Flatness to

Determines how many segments PostScript printers use to draw a curve. Reducing the number of segments helps overcome PostScript limitcheck errors which can prevent charts with complex curves from printing. Curves may become noticeably rough if the Flatness setting is increased too much.

If you are getting PostScript limit check errors, increase the Flatness setting in increments of four or five until the chart prints.

Auto Increase Flatness

Automatically increases flatness setting in increments of one until the chart prints. If the limit of 10 is reached and a particular object still will not print, the printer will skip that object and print the next.

Fountain Steps

Determines the number of stripes or bands printers use to render a fountain fill. Values higher than 40 produce a smooth fountain, but take longer to print. Even higher values may be necessary to create large fountain fills. A similar option in the Preferences dialog box controls how many stripes CorelCHART uses to display fountain fills on your screen.

Note: The Steps setting in the Fountain Fill dialog box overrides the settings in this dialog box and in the Preferences dialog box.

Download Type 1 fonts

Check when using Type 1 fonts that are not resident on your printer. CorelCHART's Type 1 fonts will be used instead of the printer's default font, most probably Courier.

Convert True Type to Type 1

Check to convert the True Type fonts used in your chart to their Type 1 equivalents. Useful when sending work to a service bureau that has Type 1 versions of the fonts you used.

Preview Image:

Displays the current publication in the "page" window.

Printers' References:

Located under the Preview Image area, the Printers' references are represented by a row of buttons. Use the printers' references to add standard printers' marks and file information to your publication.

Note: For references to appear, the size of the Page (as set in the Chapter Settings, Layout

dialog box) must be smaller than the size of the page you are printing on. Many imagesetters have an "extra" page setting ("letter extra" is 9.5x12, for example) which enables for crop marks and file information.

Choosing a default printer

When you print from CorelCHART your chart is automatically sent to the default printer. If you have installed other printers, you can specify which one you want CorelCHART to use. The printer you specify remains active until you exit CorelCHART.

Note: Before you print or send a final color print file to an output bureau for film or direct imaging, make sure that you've built your System Color Profile with Color Manager for the particular output device chosen.

To select a printer:

1. Choose Print Setup from the File menu.
2. From the box under **Printer, Name**, choose a printer and click OK.

   For information on installing printers, see your Microsoft Windows *User's Guide.*

Setting up the active printer

You can specify the default settings for the active printer from CorelCHART.

To set up the active printer:

1. Choose Print Setup from the File menu.
2. Click Setup and accept or change the paper and orientation settings as required. Choose the **Help** button for information about the options.

Printing a chart

You can print an entire chart or selected objects only.

To print a chart:

1. Choose Print from the File menu.
2. Choose the printing options you want.

   You can choose to print all the pages in the print range, selected objects, the current page, set print quality, select a different printer, choose number of copies, collation and other options.

   See also Print command

Printing a chart to disk

"Printing to disk" creates a special print file which allows you to print your chart from computers without CorelCHART installed. You would normally use this feature when you want to send your chart to a service bureau for high-resolution printing.

When you print to file, use the screen frequency specified in the Options dialog box available from the Print dialog.

Note: Before you print your final file or send a print file to an output bureau for film or direct imaging, make sure you've built your System Color Profile with Color Manager for the particular output device chosen.

To print a chart to a disk:

1. Choose Print from the File menu.
2. Check the Print To File check box.

   If you are sending the chart to a service bureau that uses Macintosh computers, check the For Mac check box.
3. Select any other options you want and click OK.
4. The Print to File dialog box appears, prompting for a file name. Accept the name shown or type your own and change directories as required in the File Name box and click OK.

   The file is saved as a print file with the .PRN file extension.

Positioning the printed chart

Before you print your chart, you can use controls in the Print Options, Layout dialog box to change its position on the page. Positioning a chart in the Layout dialog box affects the way it prints; the chart remains unchanged.

To position a chart:

1. Choose Print from the File menu and click the Options button. Check the Preview Image box if it is not already.

   The chart appears in the preview box. Its size and position are proportional to its size and position on the printable page.

2. Make sure the Center option isn't checked, otherwise you won't be able to change the chart's position.
3. Enter values in the Left and top boxes; they determine the location of the top left corner of the chart

Sizing the printed chart

Before you print your chart, you can change its layout and size on the page from the Print Options dialog box - Layout tab. Sizing a chart affects the way it prints; the chart remains unchanged.

To size a chart:

1. Choose Print from the File menu and click Layout.

   The chart appears in the preview box. Its size is proportional to its size on the printable page.

2. Do one of the following:

   - enter a value in the Width box; if Maintain Aspect is enabled, the value in the Height box is proportionally updated to maintain the original aspect ratio.
   - clear the Maintain Aspect box and type values in both the Width and Height boxes; the chart is resized in the preview according to the dimensions entered; the aspect ratio may be different
   - in the Width and Height percentage boxes, specify the percentage by which you want to enlarge or reduce the chart

After sizing the chart, you can center it on the page by clicking Center.

Printing charts larger than the printer's paper size

CorelCHART provides three options for printing charts that exceed your printer's paper size. They affect the printed size of the chart, not its actual size.

To print charts larger than the printer's paper size:

1. Choose Print from the File menu.
2. Click Layout. Choose one of the following:

   Fit To Page: Reduces the chart to fit on the size of paper the printer is using.

   Tile: Prints parts of the chart over the boundaries of the printable page on additional pages.

   Maintain Aspect: Reduces the chart to the percentage you choose of its original size. Preview to ensure that the reduced chart size fits onto the page size your printer supports.
4. Choose other options as required and click OK.

Faster printing with printer fonts

If you use your printer's factory-installed resident fonts or supplied with a font cartridge, your charts print more quickly.

The following procedure can also be used to reduce the size of files created when a chart is printed to a disk. You may want to take advantage of this when sending your work to a service bureau that has Adobe versions of the fonts you used.

To print text in a chart using your printer's fonts:

- Choose only the type faces available in your printer's Read Only Memory or on its Font Cartridge.

Printing fountain fills

To proof charts with fountain fills, you may want to speed up printing by reducing the number of stripes used to print the fountains. The fewer the stripes, the coarser the fountain appears, but the faster the chart prints.

When you are ready to print the final version of your chart, increase the number of stripes to the default setting or higher (128 for PostScript printers and 64 for non-PostScript printers).

Note: Unless you've specified a different number in the Fountain Fill dialog box, all fountains print with the number of stripes specified using the following procedure.

To specify the number of stripes used to print fountain fills:

1. Choose Print from the File menu.
2. Choose Print Options and choose Options.
3. In the Fountain Steps box, select the number of stripes you want.

Printing charts with complex curves faster

When proofing charts with complex curves, you may want to speed up printing by increasing the "flatness" setting. The higher the setting, the rougher the curves appear and the faster the chart prints.

When you are ready to print the final version of your chart, reset the flatness to the default value (1.00).

Increasing printing speed for PostScript printers:

You can also use this procedure to simplify curves too complex to print. See Printing complex charts on a PostScript printer.

1. Choose Print from the File menu.
2. Click **Options** and choose the Options tab.
3. In the Set Flatness To box, type or select the higher flatness setting you want.

Printing complex charts on a PostScript printer

Printing a chart that contains complex curve objects sometimes produces a limitcheck error aborts print jobs. When this happens, you can use the Flatness control in the Print Options dialog box to simplify your chart. You can adjust the control manually or have CorelCHART adjust it in steps until the chart prints.

The flatness value affects the appearance of your chart: If it is set too high, curves may become noticeably rough.

To simplify a complex chart:

1. Choose Print from the File menu.
2. Click **Options** and choose the Options tab.
3. Choose one of the following Flatness options:

   Set Flatness To: Lets you type or select a flatness value. As a general rule, try increasing the value in increments of 4 or 5 until the chart prints.

   Auto Increase: Automatically increases the flatness value in increments of two until the chart prints. If a limit of 10 plus the current Set Flatness To value is reached and a particular object still will not print, the printer will skip that object and print the next.

Other measures you can take to simplify a chart:

- Lower the PSComplexityThreshold setting in your CORELPRN.INI file.
- Remove extraneous objects.
- If you have an older printer, avoid large fountain fills.

Printing complex charts on a PostScript printer

Printing a chart that contains complex curve objects sometimes produces a limitcheck error that aborts print jobs. When this happens, you can use the Flatness control in the Print Options dialog box to simplify your chart. You can adjust the control manually or have CorelCHART adjust it in steps until the chart prints.

The flatness value affects the appearance of your chart: If it is set too high, curves may become noticeably rough.

To simplify a complex chart:

1. Choose Print from the File menu.
2. Click **Options** and choose the Options tab.
3. Choose one of the following Flatness options:

   Set Flatness To: Lets you type or select a flatness value. As a general rule, try increasing the value in increments of 4 or 5 until the chart prints.

   Auto Increase: Automatically increases the flatness value in increments of two until the chart prints. If a limit of 10 plus the current Set Flatness To value is reached and a particular object still will not print, the printer will skip that object and print the next.

Other measures you can take to simplify a chart:

- Lower the PSComplexityThreshold setting in your CORELPRN.INI file.
- Remove extraneous objects.
- If you have an older printer, avoid large fountain fills.

Creating Color Separations

Separating a color chart causes it to print out on several pages, depending on how you assigned the colors to your objects. If you used a process color model, then you'll get four pages--one for each of the CMYK process colors used. Spot colors are printed on a separate page, one page per color. Be careful, if you're printing to a four-color device but you've specified some colors as spot, you could end up with four plates of CMYK plus extra plates of spot color.

CorelCHART's color separator works very well when used on devices setup with the Color Manager. Color Manager sets up prepress controls that prepare the charts for different types of media. Some prepress tools set by Color Manager include Gray Component Replacement, Undercolor Removal and Dot Gain.

CorelCHART provides overprinting features that you can use to create trap. First-time users or people with little color separation experience can take advantage of the program's autotrapping feature.

There are also color calibration controls that allow you to adjust your monitor so that the colors it displays more closely match those in the printed output. *See also* **Using the Color Manager** in How to... change a chart's appearance

You can print color separations on any printer, from a 300 dpi desktop laser printer to a high-resolution PostScript imagesetter.

Creating trap

You can use CorelCHART's Auto Trapping feature to create traps when printing a chart as color separations.

See Print Options--Separations tab.

To create trap:

1. In Chart View, choose Print from the File menu.
2. In the Print dialog box, click **Options.**
3. Choose the Separations tab.
4. In the Auto Trapping group, click **Always Overprint Black** and/or **Auto-Spreading**. If you chose Auto-Spreading, type a value for the maximum point size of the spread in the **Maximum** box.

Printing color separations to disk

Provided you have the appropriate printer driver installed and selected, you can print a chart to disk for a service bureau to output on a PostScript or non-PostScript device. Printing to file lets you output your work on a remote printer not connected to your system.

Note: Before you proceed, check the Printer settings in the Windows Control Panel to ensure that the port connection is not set to "File". If it is your file may not print.

To print a chart to a disk:

1. Choose Print from the File menu.
2. Check the Print To File check box.

   If you are sending the chart to a service bureau that uses Macintosh computers, check the For Mac check box.
3. Select any other options you want and choose OK.

   Another dialog box appears, prompting you to give the file a name. Either accept the name shown (the same name as the file you are printing), or type your own in the File Name box.

   CorelCHART will print the file to the current directory.

To print the file to another drive or directory:

Type the path name in the File Name box or select a new drive and directory.

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   CorelCHART will print the file to the current directory.

To print the file to another drive or directory:

- Type the path name in the File Name box or select a new drive and directory.

Printing color separations to an output device

You can print both Spot and four-color process separations from CorelCHART. Desktop laser printers are suitable for printing proofs of your separations. To create separations that can be used for offset printing, you must use a high-resolution PostScript imagesetter.

You don't actually need an imagesetter connected to your system to create the separations, provided you have the appropriate printer driver installed and selected. You can print the separations to disk and then output them on another computer connected to the imagesetter.

See also Printing color separations to disk

To print color separations:

1. Choose Print from the File menu.
2. Click the **Options** button.
3. Choose the Separations option.
4. Enable the printer's references as required.

   The printer's references only print when the page size of the chart is smaller than the paper size you are printing on. If the page size is 8.5x11 inches, choosing File info within page will print the File information (file name, date, time and color separation information) inside the left margin of your chart. To print outside the margin, the page size must be smaller than the paper size.
4. Select any other options you want.
5. Click OK.

   By default, CorelCHART prints one page for each of the Process and Spot colors listed. To print selected colors only, click on the colors you want to print.

   To avoid printing spot colors when you are preparing a four-color separation choose the Convert Spot Colors to CMYK. As a specified Pantone color may not be matchable with a CMYK separation it's a good idea to work with a CMYK palette when creating files for output to four-color devices.

   You can adjust the screen angle and frequency for each of the four process colors. It's best not to change these values unless your service bureau or commercial printer advises otherwise to avoid moire patterns.

Overview: Color Models

CorelCHART provides three different color models for creating process colors: CMYK (cyan, magenta, yellow, black), RGB (red, green, blue) or HSB (hue, saturation, brightness).

You can create colors using the model you are most comfortable with. If you are going to produce color separations, CorelCHART will convert any RGB and HSB colors into their CMYK equivalents. The conversion will not be exact, however, since the RGB and HSB models create color in a fundamentally different way than the CMYK model.

CMYK Model

The CMYK model, as its name suggests, is based on the colors of the inks used in four-color printing. By combining percentages of cyan, magenta, yellow and black, you can reproduce virtually any color you want.

The advantage of the CMYK model is that you can specify your colors using CMYK color reference charts and be reasonably certain of what the colors will look like when printed. No such charts exist for specifying colors with the RGB and HSB models.

When you use the Visual Selector to specify colors, CorelCHART automatically adjusts the amount of black through a process called Gray Component Replacement (GCR). If you are specifying colors numerically, you must do the gray replacement yourself by entering appropriate percentages of black.

If your chart contains large areas of black, you will want to override the GCR process and increase the percentages of cyan, magenta and yellow. Doing this makes the blacks look much darker. Ask your printer or service bureau for advice on the exact percentages you should use.

RGB Model

The RGB color model uses percentages of red, green and blue to create colors. Each component has 100 levels of intensity, ranging from black to the component's full intensity. Thus, to produce pure red for example, set Red to 100 and Green and Blue to 0. Similarly, set Green to 100 and the others to 0 to produce pure green. To produce a dark but pure shade of one of the three, lower its setting while leaving the others at 0.

White is produced by setting all three components to 100. Setting them all to 0 produces black. Equal amounts of each produces varying shades of gray.

HSB Model

The HSB model, creates color by varying three parameters: hue, saturation and brightness. Hue refers to the quality which makes a particular color different from another. Blue, red, and green, for example, are all hues. Saturation refers to the purity or intensity of a color. By varying the intensity, you can make the color lighter or darker. Brightness refers to the percentage of black in a color, where 0 percent is black and 100 percent is white.

Using unsupported colors in EPS files

To color separate encapsulated PostScript files for PostScript output devices, Corel VENTURA parses EPS files for color comments using Adobe Document Structuring Conventions (DSC). This process identifies what Spot and Process colors the files use.

Where EPS files use Spot or user-defined colors that are not supported by Corel applications (including abbreviated Pantone color names, e.g., PANTONE Wm Red), the string "unknown PANTONE color" appears in the separation colors list of the Print Options--Separations dialog box. The separation will fail, and resulting in an empty separation output.

To eliminate this problem, do one of the following:

- Deselect the unknown color in the list before printing separations,

  or,

- Recreate the EPS file using only colors recognized by Corel applications.

Data Manager Ribbon Bar

The Data Manager's Ribbon Bar includes (from left) New, Open, Save, Print, Cut, Copy and Paste, Import and Export, Set Page Break, Number Format, Borders, Patterns, Go to cell, Enter Formula Sort, Auto Recalculate, Grid Lines and Mosaic Rollup. Clicking a Text Ribbon Bar button activates the command associated with it. Hold the mouse pointer over a Text Ribbon button or list box to see its name or right-click for Context-sensitive Help.

See also Chart View Tools and Ribbon Bars and Data Manager Ribbon Bars

Data Manager Text Ribbon Bar

The Data Manager's Text Ribbon Bar--located just below the Data Manager Ribbon Bar--includes buttons and drop-down list boxes for setting text attributes such as font type and size selection, bold, underline, italic, alignment, inter-character and inter-line spacing. Clicking a Text Ribbon Bar button activates the command associated with it. Hold the mouse pointer over a Text Ribbon button or list box to see its name or right-click for Context-sensitive Help.

See also Chart View Tools and Ribbon Bars and Data Manager Ribbon Bars

Mosaic Roll-Up

Displays Corel MOSAIC, a file management application, as a roll-up window in CorelCHART. The Mosaic roll-up is used to display a collection of thumbnails, each thumbnail representing a file. You can use drag and drop to open or import files displayed in the roll-up in your chart or spreadsheet.

Two Mosaic roll-up windows can be opened at the same time in an application, allowing you to move or copy files between collections using drag and drop.

Control menu box 

Use to roll up, roll down, close the Mosaic roll-up window, arrange all opened roll-up windows or close them all.

Directory drop-down list

Located immediately below the Control menu box, the directory drop-down list allows you to select or change the directory, library or catalog displayed in the Mosaic Roll-Up. A file folder icon precedes each directory name in the list, a book icon precedes catalog names and a book collection precedes library names. An open collection, of any type, has an open file folder preceding its name.

Open collection button 

Use to open a second Mosaic roll-up window. It displays the Open Collection dialog box where you choose the type of collection you wish to open; directory, library (.CLB) or catalog (.CLC). To open a directory, select the file type you want to see, **All Image Files** to see thumbnails of all graphic files or **All Files** to see thumbnails of all files in the directory.

The **Options** button displays additional options to sort files, see notes associated and keywords associated with them and a **Find** button to find files that have specific keywords. The keyword options are not available in every Corel application.

Thumbnail size and orientation

The thumbnail size, orientation and other settings used in the collection are the ones saved when the standalone mode of Corel MOSAIC was last used.

Drag and Drop to the application

You can import a file into the application by clicking its thumbnail and dragging it to the current document in the application. Files of any files formats supported by CorelCHART can be imported.

Moving and copying files between collections

You can copy a file to a different collection by clicking its thumbnail and dragging it to the collection of your choice. Holding down the Shift key while dragging the file moves it instead of copying it.

Catalog

A collection type in which thumbnails of your files, along with keywords and pointers indicating the location of your files are stored. A catalog does not contain the actual files. It is used to visually group files that are saved in different directories yet are of related subject matter.

Collection

A general term referring to master files which contain thumbnails. The thumbnails are associated with files and are displayed in a single window in the display screen. A collection can be a library, a catalog or a directory.

A library contains the actual files it shows as thumbnails in a compressed format. A directory contains the files in an uncompressed format. A catalog contains only references pointing to files located in various directories and keywords associated them.

Batch Operations

A task performed on several consecutive graphic files. Batch printing, importing, exporting/converting and extract/merge-back text are available in Corel MOSAIC (standalone).

Library

A type of collection in which individual graphics files are stored in a compressed format.

Thumbnails

Small bitmapped representations of graphic files created and saved with original drawing files. Thumbnails are used within Corel MOSAIC as a way of organizing, displaying, and selecting graphics files visually rather than by filename.

Corel MOSAIC

A versatile file management utility included with CorelDRAW 5. Corel MOSAIC works in one of two modes; standalone or roll-up. The standalone mode, accessed by double-clicking the Corel MOSAIC icon in the Corel Applications group, provides full functionality. It allows you to create collections, perform batch operations to graphics files, export files, to name just few.

The roll-up mode displays MOSAIC as a roll-up window within another CorelDRAW application. It provides basic functionality by giving you quick access to graphic files and allows you to use drag and drop to import or open files within the application.

Choosing a collection

The Mosaic Roll-Up command allows you to open collections of thumbnails of graphic files. The visual representation of the files makes it easy and fast to select and manage your graphic files.

To choose a collection:

1. Choose Mosaic Roll-Up in the File menu. The Mosaic roll-up window appears and displays a the files of a directory.
2. Click the directory drop-down list located at the top left corner immediately below the control menu box.
3. Choose a collection. Library files have the .CLB extension and catalogs have the .CLC extension.
4. The thumbnails of the graphic files included in the collection appear in the roll-up window. Files of a format not supported by Mosaic appear in the roll-up; a large "X" appears instead of a thumbnail.

Opening a second collection

You can have two Mosaic roll-up windows displayed in any Corel application. This is useful when you need to import files from several collections or to move/copy files between collections.

To open a second collection:

1. Choose Mosaic Roll-Up in the File menu.
2. In the Mosaic roll up, click  .

3. In the Open Collection dialog box, choose a file type in the **List Files of Type** drop-down list box from one of the following:

- .CLC to open a catalog file
- .CLB to open a library file
- another file format in the list to open a directory; only the files of the chosen format appear.
- All Files or All Image files to display files of any format/any graphic format, included in the selected directory.

Resizing the Mosaic roll-up

You may want o resize the roll-up in order to see more thumbnails at one time.

To resize the Mosaic roll-up window:

1. Position the cursor over the horizontal or vertical window border of the Mosaic roll-up window. The cursor changes to a double arrow indicating both directions in which you can move the border.
2. Click and drag the window border until the window is of the desired size. If you drag the window border from a corner, the double arrow is diagonal and allows you to resize the roll-up window horizontally and vertically at the same time.

Importing files using drag and drop

The Mosaic roll-up makes it very easy to import graphic files in CorelCHART with the use of drag and drop.

To import files in a Corel application using the Mosaic roll-up:

1. In a Corel application, open the document in which you want to import graphics.
2. Choose Mosaic Roll-Up in the File menu.
3. If needed, change the current collection by choosing one in the directory drop-down list.
4. Click the thumbnail of the file you want to import. The thumbnail is highlighted.
5. Press and hold down the mouse button, drag the cursor to the application document and drop it by releasing the mouse button.
6. The file associated with the thumbnail is imported in CorelCHART.

Moving and copying files using drag and drop

You can open two Mosaic roll-up windows in a given Corel application. Using drag and drop , you can copy or move files between collections displayed in the roll-up windows.

To copy or move files using drag and drop:

1. In a Corel application, choose Mosaic Roll-Up in the File menu.
2. Choose a collection.
3. Open a second collection by clicking the  .

4. Click the thumbnail of the file you want to move or copy. The thumbnail is highlighted. Press the Ctrl key and click to select multiple thumbnails.
5. Press and hold down the mouse button, drag the cursor to the other Mosaic roll-up and drop it by releasing the mouse button to copy the file. Press the Shift key before releasing the mouse button to move the file.
6. A dialog box appears asking you to confirm the move or copy operation.

Open Collection (File menu)

Opens an existing collection (catalog, library or directory) containing graphic files for viewing in the roll-up window.

The command displays thumbnails of the graphics files included in the collection in the file display screen. If a file is not a graphic file, but is a file type recognized by Corel MOSAIC, the icon representing the program it was created in is displayed.

 indicates that the file is in a format that Corel MOSAIC does not recognize. If CorelCHART supports the format, you can still import, export and print the file.

You can search for specific files by keywords and choose the order (by name or date) the images will be displayed in.

Several collections can be opened at the same time in Corel MOSAIC, allowing you to move or copy files between them using drag and drop.

Dialog Box Options

File Name

Displays the files of the selected file type contained in the current directory. It also lists all catalogs or libraries in the current directory. Double-click a collection name and all thumbnails for the files within the collection display in the display screen.

Directories

Displays a list of directories for selecting catalogs, libraries and directories. Double-click on a directory to display the related sub directories and to list all file names of a given format in the **File Name** box.

List Files of Type

Displays the file formats available for selection, which include Catalog File(.CLC), Library File(.CLB),and supported file formats for all the CorelDRAW applications. When opening a directory, choose a specific file type to have only files of that type display in the display screen. **All Files** displays all files included in a directory and **All Image Files** displays only files of a graphic nature.

Drives

Lists the drives available for selection.

Preview

When enabled, shows a thumbnail image of the graphics file highlighted in the **File Name** box.

Options >>

Displays additional options for searching and sorting files.

Tip

When viewing a collection containing many files, clicking the window as the files are being loaded halts the display. When ready to continue, pressing the ESC key resumes the display.

Open Collection Options (File menu)

The following options appear when the **Options >>** button is clicked in the Open Collection dialog box. Their purpose is to search a collection for files that contain specific keywords and display their thumbnail images in the display screen. The keywords are saved with the original file, in the application used to create it. Not all Corel applications support the use of keywords.

Dialog Box Options

Sort by	Options for sorting files by their file name or date. Both the files listed in the dialog box and the thumbnails in the display screen are sorted according to the chosen Sort by option.
Subdirectories	When selected, Corel MOSAIC searches the current directory and all subdirectories below it for graphics files of a specified file format.
Keywords	Displays the indexing terms associated with the selected file. Keywords can be associated with CorelDRAW and CorelSHOW files only.
Notes	Displays the annotations associated with the selected CorelDRAW file.
Fonts	Displays the names of the fonts used in a selected CorelDRAW file.
Find	Searches a directory for CorelDRAW files that contain specific keywords and displays their thumbnail images in the roll-up window.

Tip

When viewing a collection containing many files, clicking the window as the files are being loaded halts the display. When ready to continue, pressing the ESC key resumes the display.

Overview: Using CorelCHART Roll-ups

Unlike dialog boxes or drop-down menus, CorelCHART roll-ups remain on screen until you close them or exit CorelCHART. And, because they literally roll up and tuck away until you need them again, they never get in the way.

To accept and apply your selections:

- Click Apply

To roll a window up and down:

- Click the arrow in the top right corner, or
- Click the Control button and choose Roll up or Roll down, or
- Double-click the roll-up's Title bar.

To close a Roll-up window:

- Click the Control button and choose Close, or
- Click the Roll-up window and press the ESC key.

To move a Roll-up window:

- Point to the Title bar, hold the left mouse button down and drag to the new location.

To arrange open Roll-up windows:

1. Click the Control button.
2. Choose arrange to roll up the active window and then move it to the top right corner of the drawing window, or
3. Choose Arrange All to roll up all open windows and move to the top corners of the drawing window.

For Help about Roll-up windows:

- Press Shift+F1 and click the Roll-up, or
- Click the Control button and choose Help.

Like conventional windows, CorelCHART roll-ups include a Control menu button at the top left. Click the Control button to choose from the following options:

Menu item	Function
Roll-up/Roll Down	A toggle command, the command shown depends on whether the menu is currently up or down
Arrange	Arranges a single open Roll-ups at the top left of the Drawing window
Arrange All	Arranges two or more Roll-ups at the top left and or right of the Drawing window
Help	Opens CorelCHART Online Help
Close	Closes a single active Roll-up
Close All	Closes all active Roll-ups

Roll-ups also include Maximize and Minimize buttons.

Working with the 3D Roll-up

The 3D Roll-up is enabled, i.e., shown in black on the View menu, when you are working with a 3D riser or 3D scatter chart. The 3D Roll-up is used to:

- alter size, scale and perspective
- modify length of axes and thickness of walls
- rotate a chart

To execute any of the above 3D Roll-up commands:

1. Click a red arrow on any of the tool buttons (described below) at the top of the Roll-up. Deselect Show Graph for a wireframe outline of your chart which reflects the changes as you make them.

 moves the chart vertically or horizontally diagonally

 enlarges or reduces the chart

 changes axis lengths

 tilts the chart in three dimensions

2. Hold the mouse button down until you achieve the desired result. The longer you hold down the mouse button, the more of the effect you'll get.
3. Click Redraw if you are satisfied with your results or Undo if you want to try again.

See also 3D Roll-up Command (View Menu)

Choosing chart types

When choosing chart types, you must determine which one best emphasizes the point you want to make. Click the categories below for information about each chart type and what types of presentations they are suited for.

Bar, Line, Area and Pie charts

Vertical bar chart
Vertical line chart
Vertical area chart
Horizontal bar chart
Horizontal line chart
Horizontal area chart
Pie chart

3D charts

3D Riser chart
3D Floating chart
3D Connect Series chart
3D Connect Group chart
3D Surface chart
3D Scatter chart

Other chart types

Scatter chart
Polar chart
Radar chart
Bubble chart
High-Low-Open-Close chart
Spectrally-mapped chart
Gantt chart
Histogram
Table chart

Vertical bar chart

A chart that uses bars to show the magnitudes of several categories. Bars run vertically, while the numeric scale travels in the same direction as the bars.

Vertical Bar chars show how values change over time. In contrast to line charts, vertical bar charts are best for a limited time series--just a few years, quarters, months, or whatever time period you're working with. Vertical bar charts are good for handling multiple series for comparison purposes.

Subtypes: Side-by-Side, Stacked, Dual Axis Side-by-Side, Dual Axis Stacked, Bipolar Side-by-Side, Bipolar Stacked, Percent

Vertical line chart

A chart that uses lines to show the magnitudes of several categories. The numeric scale is perpendicular to the lines.

Vertical Line charts are best for showing changes in a group of values over longer periods of time. If you're trying to plot three or four series of values on a line chart, and they intersect so often you lose track of which is which, consider a vertical bar or vertical area chart.

Subtypes: Absolute, Stacked, Bipolar Absolute, Bipolar Stacked, Dual Axis Absolute, Dual Axis Stacked and Percent

Vertical area chart

A chart that uses area risers to show the magnitudes of several categories. The numeric scale is perpendicular to the areas.

Shows continuous proportions and totals. Like line charts, vertical area charts don't handle multiple series well; the areas representing larger quantities tend to obscure those representing smaller quantities. If this is the problem with your vertical area chart, consider a stacked vertical bar chart.

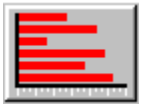
Subtypes: Absolute, Stacked, Bipolar Absolute, Bipolar Stacked, Dual Axis Absolute, Dual Axis Stacked and Percent

Horizontal bar chart

A chart that uses bars to show the magnitudes of several categories. Bars run horizontally, while the numeric scale travels in the same direction as the bars.

Horizontal Bar charts are best for simple comparisons of different individual values at one time. If you want to express change in a value or values over time, switch to a line, area or 3D riser chart.

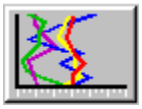
Subtypes: Side-by-side, Stacked, Dual Axis Side-by-Side, Dual Axis Stacked, Bipolar Side-by-Side, Bipolar Stacked, Percent



Horizontal line chart

Best for showing changes in a group of values over longer periods of time. If you're trying to plot three or four series of values on a line chart, and they intersect so often you lose track of which is which, consider a horizontal bar or horizontal area chart.

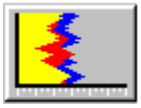
Subtypes: Absolute, Stacked, Bipolar Absolute, Bipolar Stacked, Dual Axis Absolute, Dual Axis Stacked, Percent



Horizontal area chart

Useful for graphing data that frequently intersects, making visual tracking easier.

Subtypes: Absolute, Stacked, Bipolar Absolute, Bipolar Stacked, Dual Axis Absolute, Dual Axis Stacked, Percent



Pie chart

Shows the relative sizes of data points, compared to their sums. The slices show proportions, not absolute values. Slice labels name the slice and can include the slice's percentage or its absolute value.

For **multiple pie** charts, if you assign each pie to represent a time period, each conveys the contribution of parts to a whole and how the whole itself can grow or shrink over time.

Subtypes: Pie, Ring Pie, Multiple Pie, Multiple Ring Pie, Multiple Proportional Pie, Multiple Proportional Ring Pie

3D Riser chart

Three-dimensional (3D) charts suggest a connection between three groups of data. 3D Riser charts represent data using three-dimensional bars or other riser shapes that rise from the floor of the chart.

Subtypes: Bar, Pyramid, Octagon and Cut-Corner Bar

3D Floating chart

Three-dimensional (3D) charts suggest a connection between three groups of data. 3D Floating charts represent data with three-dimensional cubes or spheres in three dimensions.

Subtypes: Cube and Sphere

3D Connect Series chart

Three-dimensional (3D) charts suggest a connection between three groups of data. In 3d Connect Series charts, markers or data points in a series are connected to form three-dimensional floating lines or areas, usually representing year-over-year economic performance. Ribbon and step lines let you see below them, while areas rise from the floor.

Subtypes: Area, Ribbon and Step

3D Connect Group chart

Three-dimensional (3D) charts suggest a connection between three groups of data. Markers or data points in a group are connected to form three-dimensional floating "lines" or areas. Ribbon and step lines let you see below them, while areas rise from the floor.

Subtypes: Area, Ribbon and Step

3D Surface chart

Three-dimensional (3D) charts suggest a connection between three groups of data. Data points are connected to form a net. The areas between the points are planes that can be colored to make the net look like a solid surface rather than a wireframe. For large amounts of data, surface charts help show hot spots both high and low areas in the data.

A 3D surface with contour lines can be made by activating grid lines for the riser and making the edges of the riser surface transparent.

Subtypes: Surface, Surface with Sides and Honeycomb Surface

3D Scatter chart

Three-dimensional (3D) charts suggest a connection between three groups of data. 3D scatter chart data is random along all three axes. Unlike the other 3D charts, the data is not spaced evenly along the floor (X and Y axes).

Since the data points are floating in space, there are several visual methods to help gauge their values:

- *Color by* distance from floor, left wall, or right wall
- *Tie* lines to the floor, left wall, right wall, or neighbor.

Subtypes: XYZ Scatter and XYX Scatter with Labels

Scatter chart

Show the correlation of two sets of numbers by plotting where the variables intersect. Scatter charts are useful when the co-ordinates on the horizontal scale--often time intervals--are irregular.

Subtypes: X-Y Scatter, X-Y Dual Axes, X-Y with Labels, X-Y Dual Axes with Labels

Polar chart

This chart type is based on an X-Y plane in which each data point represents the distance (or radius) and angle from the X axis, i.e., distance, angle.

Subtypes: Single and Dual Axis

Radar chart

Used to display the occurrence of data or the variation of data in relation to each other. Several series of data can be represented on a single radar chart. The different data points in a series are connected by lines.

Subtypes: Regular, Stacked Radar and Dual Axis Radar

Bubble chart

Similar to a scatter chart, a bubble chart represents three-variable (also known as trivariate) data: the standard X and Y axis and the Z variable, represented by the size of the data point or bubble as it is called in this chart type.

Subtypes: Bubble, Dual Axis Bubble, Bubble with Labels and Dual Axis Bubble with Labels

High-Low-Open-Close chart

This is a traditional stock-market chart type. Vertical lines indicate the highest and lowest values, while horizontal bars indicate the opening and closing values.

Subtypes: HiLo, HiLo Dual Axes, HiLoOpen, HiLoOpen Dual Axes, HiLoOpenClose, HiLoOpenClose Dual Axes

Spectrally-mapped chart

Spectral maps are specialized charts used with data that carries some kind of spatial relationship, such as geographical data. Showing a population density across a group of contiguous areas of a city would be one application for a spectrally-mapped chart.

Gantt chart

This chart type is used to represent the duration and start and end times of particular events.

Histogram

Displays the distribution of data. The difference between the largest and smallest data values is broken into equally-spaced intervals. The histogram displays a count of the number of data points in each interval. The shape of the chart is often the traditional Gaussian or bell-shaped normal distribution curve.

Subtypes: Vertical Histogram and Horizontal Histogram

Table

Displays data in columns and rows. This format is often used for data that is difficult to chart in any other way, or in scientific and technical settings where a graph's data is shown next to it in a table.

Maximize button

Clicking on the Maximize button expands the active window to fill the entire screen. After you expand a window, the button changes to the Restore button  . Use the Restore button to return the window to its former size.

- You can also maximize a window by choosing the Control Maximize command.
- You can also restore a maximized window to its former size by choosing the Control Restore command.

Minimize button

Clicking on the Minimize button shrinks the window to an icon at the bottom of the screen.

- As an icon, CorelCHART stays in memory, but its window does not take up space on your screen.
- To restore the window, double-click on its icon or click once on the icon and choose Control Restore.

Restore button 

Restores a window enlarged with the Maximize button or the Control Maximize command to its previous size and location.

- You can also restore a window by choosing the Control Restore command.
- Does not affect a window moved or resized with the Control Move or Control Size commands.

On Screen Color Palette

The On Screen Color Palette is used in to select outline and fill colors for chart elements and spreadsheet data cells.

To fill an object or data cell, select the object and then click the color you want in the color palette with the left mouse button. The object or cell will be filled with the desired color.

To fill an object or data cell's outline, select the object, then click the color you want in the color palette. The object or cell's outline will fill with the chosen color.

 Applies a transparent fill or outline

 Scrolls through the color palette

 Displays the palette on several lines to show more colors at once

Title Bar

The CorelCHART title bar shows the name of the program plus the name and location of files in fully-expanded presentation windows. For new charts you have not yet saved, the title bar shows the word "Untitled-1," "Untitled-2," and so forth. If a window is not maximized, dragging the title bar moves the window.

The Title Bar may contain the following buttons for controlling the window:

 Maximize button

 Minimize button

 Restore button

 Control Menu button

Toolbox

Includes the eight tools available in Chart View. The toolbox is inoperative in Data Manager. The tools perform various functions such as object selection, zoom, text and drawing operations. Each tool is described in Chart View Tools and Ribbon Bar.

Menu Bar

CorelCHART's drop-down commands lists. There are two Menu bars, one for Chart View and one for Data Manager. For details about the menus and the commands they include see Chart View menus and/or Data Manager menus.

Data Manager button 

Use this button to toggle from Chart View to Data Manager. The Data Manager button allows you to switch from a view of the chart itself to the spreadsheet containing that chart's data.

Printable Page (Chart View)

Only objects within this rectangular area will print. You can adjust the size of the printable page in the Page Setup dialog box, opened by choosing File, Page Setup in either Chart view or the Data Manager.

Note that the printable page corresponds to the paper size you've specified in the Page Setup dialog box, not the printer's "image area," which includes margins. Margin width are determined by your printer.

Charting window

Includes everything contained in the large white area of the Chart View window. In CorelCHART, you cannot draw or place objects outside the printable page. Click at the top of the current charting window during drag and drop operations.

Text Ribbon Bar--Chart View

Gives you quick access to several text formatting options, such as font, size and other text attributes in your chart. *See also* Chart View Tools and Ribbon Bars

Text Ribbon Bar--Data Manager

The Text Ribbon gives you quick access to several text formatting options such as font, size and the user-defined formatting styles to be applied to your spreadsheet text. *See also* Data Manager Ribbon Bars

Control Menu Box 

The Control Menu box displays commands for sizing and positioning the CorelCHART window. Control Menu boxes are located at the top left of the CorelCHART Title Bar and, for individual chart and data files, at the left side of the Menu Bar.

Row buttons

Every row in the Data Manager spreadsheet is numbered. The row button can be used to set row height or select an entire row. Data Manager spreadsheets contain 16,384 rows. *See also* Column buttons

Column buttons

All columns in Data Manager spreadsheets are identified by a letter or pair of letters on the button at the top of each column. Clicking a column button selects all cells in that column. Data Manager spreadsheets have 256 columns. The columns are labeled from A to Z, then from AA to AZ and so on up to IF. *See also* Row buttons

Chart Preview

This section of the Data Manager screen gives you a visual representation of the currently selected chart type. When you click the various types of data (e.g., Title or Column header) in a spreadsheet, Chart Preview highlights its location in Chart View and its tag appears in the Tag List. Clicking a cell in the data range, changes your Chart Preview to a graphic representation of a spreadsheet.

Chart View button 

This button allows you to switch the current window from Data Manager to Chart View. In other words, it allows you to switch from the spreadsheet containing the chart data to the chart itself. In Chart View, click the Data Manager button to toggle back to your spreadsheet.

Tag list

Contains the names of the "tags" or "labels" you must assign to spreadsheet cells after entering data. Tags ensure that the correct cells are used to represent the different chart elements--title, axis title, data range and so on. *See also* How to... Use Data Manager

Formula bar 

Data entered in the Data Manager appears in both the Formula bar and the current cell. The cell's address is displayed in the Current Cell Address box to the left of the formula bar. Formulas may contain text, numbers or functions. *See also* Spreadsheet functions

Formula bar 

Data entered in the Data Manager appears in both the Formula bar and the current cell. The cell's address is displayed in the Current Cell Address box to the left of the formula bar. Formulas may contain text, numbers or functions. Use the following buttons when editing formulas:

 **Enter button:** Enters a completed formula

 **Cancel button:** Clears a formula

Current Cell Address box: Identifies the currently active cell

See also Spreadsheet functions

Current Cell Address box 

As its name suggests, this area displays the selected cell's address. The address is made up of the column heading and the row number, such as A3 or AB5. If multiple cells are selected, only the address of the first cell in the range of cells is displayed.

Cancel button 

This button, available only when the cursor is in the Formula bar, abandons changes made to a cell's contents when clicked before the current changes are entered. You must click the Cancel button or press the Esc key to exit a cell if you enter an invalid formula.

Enter button 

Click this button, available only when the cursor is in the Formula bar, when you have finished editing a cell's contents to make your changes take effect.

Autoscan

Autoscan tags spreadsheet cells automatically for display in your charts by looking for your chart elements--title, data range, footnote and so on--in particular places. When placing your data, you must place the data in the same configurations as the sample data used for the sample chart for the chart type you want to create. *See also* Tagging cells manually and Tagging cells automatically

Scroll Bars

Use the scroll bars--located at the bottom and right side of the CorelCHART screen--to move through large spreadsheets or zoomed areas of the charting window. *See also* Scrolling and selecting cells

Click	To
An arrow	move the current view 10% in selected direction
An elevator	move the view by one window at a time
A thumb and drag	move the view an arbitrary amount in any direction (most useful for moving over long distances within a chart or data window)

Data cells

The CorelCHART spreadsheet is made up of data cells. A cell is the white rectangular area formed at the intersection of a row and column. Cells contain data in the form of text, numbers, values or functions.

Note: Text that is wider than the current cell is visible unless the adjacent cell also contains data. To display any text hidden in this way, widen its column. Where a number contains more digits than can be displayed in the current column width, number signs appear in the cell. To display the number correctly, widen its column.

See also Row buttons and Column buttons

Refresh button

Use the refresh button, located at the intersection of the column and row buttons under the Chart Preview area, to redraw the active spreadsheet window. Just as when you press Ctrl+Home, after a Data Manager refresh the active cell is A1, located at the top left-hand corner of the spreadsheet.

Status Line

Displays information about the tools and menu items as you navigate through CorelCHART.

Ribbon Bar--Chart View

The Chart View ribbon bar gives quick access to commands such as cut, copy, paste, data analysis, alignment and much more. *See also* the Tools section

Ribbon Bar--Data Manager

The Data Manager ribbon bar gives quick access to commands such as cut, copy, paste, enter formula, sort and much more. *See also* the Tools section

System Info dialog box

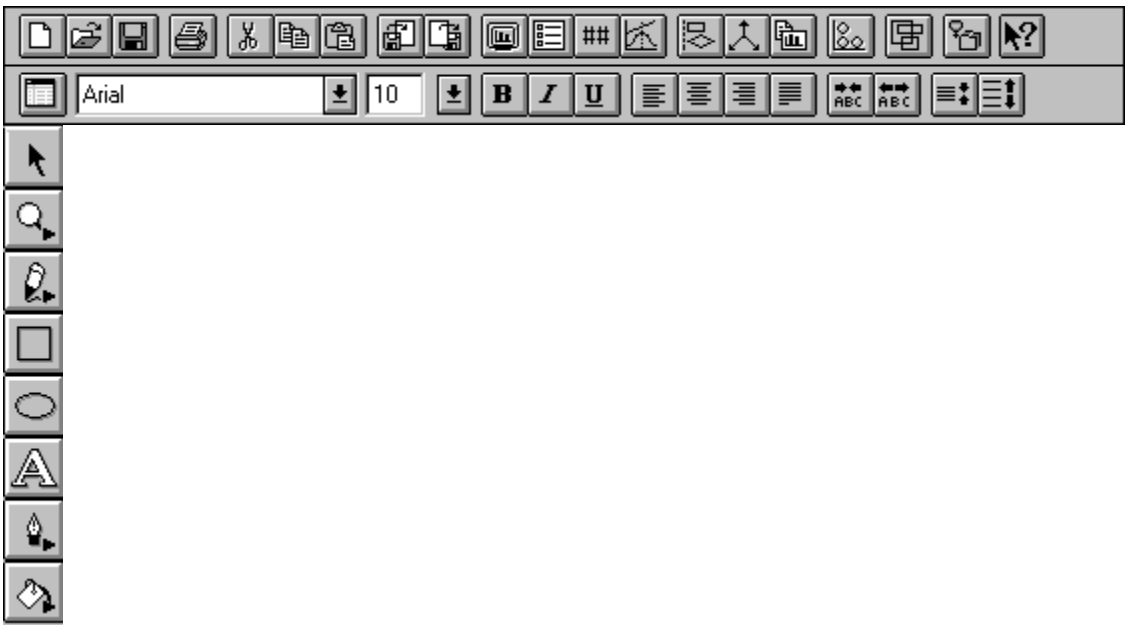
Use System Info to display information about your system, display, network, printing, Corel EXEs and dlls and system DLLs.

Dialog Box Options

Choose a category	Choose a category from the drop-down list box. The categories are: System, Display, network, printing, Corel EXEs and DLLs and system DLLs.
List box	Displays the system information for the chosen category. System: information about your computer. For example, Windows version, DOS version, processor, and so on. Display: information about your monitor. For example, driver, driver version, etcetera. Network: information about the network. For example, drivers, whether a network is installed, etcetera. Printing: information about installed printers. Corel EXEs and DLLs: lists all of the Corel EXEs and DLLs. System DLLs: lists all of the system DLLs.
Save	Saves all of the selected category's details to a predefined file.

Chart View Tools and Ribbon Bars

Click the tools or buttons below for information on how they work. *See also* Data Manager Ribbon Bars



The **View menu** for 3D charts contains a special 3D Roll-up used to edit three-dimensional charts.

The **On-screen Color Palette** appears across the bottom of the Chart View window. Most elements can be colored by selecting the element with the Pick tool, then clicking a color in the color palette.

Data Manager Ribbon Bars

Click the tools or buttons below for information on how they work.

See also Chart View Tools and Ribbon Bars

Data Manager button 

Click this button to switch to the Data Manager window to enter data for the current chart.

In Data Manager, click the Chart View button to return to Chart View  .

Pick tool 

In Chart View, used to select, move or alter objects.

Use the Pick tool to interactively move, stretch and scale objects as well as select text for modification. After you select an object, you can use commands in the menus or toolbox to alter the object.

Zoom tool 

In Chart View, changes the size of the viewing window.

Click the Zoom tool icon, move the cursor along the flyout menu to select the required view, then release the mouse button. The flyouts are described below, from left to right:

- Zoom In Tool
- Zoom Out Tool
- Zoom To Actual Size Tool--displays objects at the size they will print (the default)
- Zoom To Page Tool--brings all objects into view

Pencil tool 

In Chart View, draws lines, polygons, curves, and arrows.

Click the Pencil tool to open a flyout menu used to choose the desired drawing option.

To draw a straight line, click the option, move to where you want to start the line and click the mouse button. Hold the button and drag the mouse to where you want the line to end. Release the button.

To draw a polygon, click the option, move to where you want to start the polygon and click the mouse button. Release the mouse button and move to another location and click again. Repeat this process until you have the desired shape, then double-click to close the polygon.

Used for freehand drawing. Click the option, move to where you want to start the line and click the mouse button. Hold the mouse button down while drawing.

Note: Lines and curves drawn with the Pencil tool are automatically assigned the current default outline color and thickness attributes. Use the Outline tool to modify these attributes.

Rectangle tool 

In Chart View, draws rectangles and squares. Objects drawn with the Rectangle tool are automatically assigned the current default fill and outline attributes.

Ellipse tool 

In Chart View, draws ellipses and circles. Objects drawn with the Ellipse tool are automatically assigned the current default fill and outline attributes.

Text tool 

In Chart View, adds and edits text for annotations of up to 2,048 characters. Text can be formatted using the options available in the text ribbon. Click **How to...** for a list of step-by-step instructions.

Outline tool 

In Chart View, opens a flyout menu from which you can select outline thickness and color. (You can also choose outline colors from the On Screen Color Palette.)

Menu Icons

Outline Pen 

Opens the Outline Pen dialog box where you can enter a custom value for the outline thickness, choose an outline color, a dashed or dotted line style, arrowheads and other special effects.

Pen Roll-up 

Opens the Pen Roll-up, for quick access to various outline attributes. See Pen Roll-up window

None 

Removes outlines from the selected object(s).

You can also remove outlines by clicking with the right mouse button on the  button at the left end of the color palette.

Line Widths 

Selects line thicknesses ranging from 1/4 (hairline), 3, 5, 7, and 9 points.

Outline Color dialog box 

Opens the Outline Color dialog box to choose or create colors to be applied to the outline.

White, Black, Gray 

Offers white, black and successive shades of gray for the outline color.

Outline Pen dialog box

Controls the color, width, shape of the pen used to outline objects. It also allows you to apply arrowheads, dashed and dotted line styles and calligraphic effects.

Dialog Box Options

Color

Displays the object's current outline color. Clicking the color button displays a drop-down palette with other colors you can choose.

Use the scroll bars to see other colors in the list. Clicking **More** Displays the Outline Color dialog box for creating custom colors and selecting them by name.

Width

Varies the thickness of the outline.

A value of 0.00 prints a line one pixel wide at the printer's current resolution. If you change to a higher resolution printer, be aware that the line will print much thinner.

If you want to use a different unit of measurement, select it from the units box. CorelCHART will automatically convert the displayed value to its equivalent in the unit you select.

Corners

Controls how outlines are drawn on objects with sharp corners.

Draws mitered corners. You may need to adjust the **Miter Limit** setting in the Preferences dialog box to prevent corner points from extending too far.

Draws rounded corners

Draws blunted corners

Line Caps

Controls how the ends of lines and open curves are drawn.

Squares the line off at each end

Draws round caps extending beyond the ends of the line

Draws square caps extending beyond the ends of the line

Behind Fill

Specifies whether the outline is placed behind, or in front of the object's fill.

When placed behind, only half the outline's thickness will be visible.

Scale With Image

Specifies whether the thickness of the object's outline remains the same or changes in proportion to the object's size. If selected, the outline thickness increases when the object is enlarged (either by scaling or stretching) and decreases when reduced.

Also causes the **Pen Shape Angle** to rotate along with the object.

Arrows

Displays a selection of arrowheads and symbols you can apply to the ends of lines. The left button selects an arrowhead for the beginning of the line, the right button for the end of the line.

Click one of the preview boxes to see the drop-down list of existing arrowheads. Use the scroll bars to see other colors in the list. When you find the one you want, click on it. To close the box without making a selection, press the ESC key.

Options...

Displays a menu with the following commands.

None Removes the displayed arrowhead.

Swap Puts the arrowhead at the other end of the line.

Edit Displays the Arrowhead Editor which let you change the size and placement of the arrowhead.

Delete From List Deletes the displayed arrowhead from the list.

Style

Displays a box with a selection of dashed and dotted line styles. Use the scroll bars to see other colors in the list. When you find the one you want, click on it. To close the box without making a selection, press the ESC key.

Dotted lines are created by applying round **Line Caps** to a line style with short, widely spaced segments.

Calligraphy

Controls the shape and orientation of the Outline Pen. Used to create calligraphic pen effects.

Nib Shape Shows the effects of varying **Angle** and **Stretch**. You can vary **Angle** and **Stretch** by dragging in this box.

Angle Varies the angle of the pen.

Stretch Changes the **Pen Shape** from square to rectangular or from round to elliptical.

Default Resets **Angle** to 0.0 degrees and **Stretch** to 100%.

Pen Roll-up window

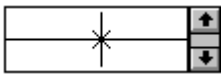
The Pen Roll-up window gives you quick access to a variety of outline attributes.

If you choose an attribute with no object selected and then Click the **Apply** button, a dialog box appears allowing you to assign that attribute as the default for a particular type of new object.

Roll-up Controls

Roll window icon 

Hides the controls leaving just the title bar visible.

Thickness Selector 

Selects a line thickness from .001 to 0.5 inches. Each click on the scroll arrows changes the thickness by .01 inches. Scroll down repeatedly for the hairline or no outline options.

Arrowhead Selectors 

Displays a box with a selection of arrowheads you can apply to the ends of open paths. The left and right selectors let you choose different arrowheads for both ends of the path.

Use the scroll bars to see other arrowheads in the list. When you find the one you want, click on it. To close the box without making a selection, press the ESC key.

Line Style Selector 

Displays a selection of dashed and dotted line styles.

Use the scroll bars to see other styles in the list. When you find the one you want, click on it. To close the box without making a selection, press the ESC key.

Color Selector 

Displays a palette of outline colors. Use the scroll bars to see other colors in the list. When you find the one you want, click on it. To close the box without making a selection, press the ESC key.

You can rearrange colors in the list by dragging them to different spots.

Update From...

After making changes choose the **Apply** button.

You can also use Update From to copy another object's outline to the selected object. Click the object with the outline you want to copy, Click the **Update From...** button, then on the **Apply** button.

Edit

Displays the Outline Pen dialog box where you can access all of the available Outline Pen controls.

Apply

Applies your choices to the selected object.

Outline Color, Uniform Fill and Select Color dialog boxes

Use this dialog box to specify the selected object's outline or uniform fill color using various models and custom palettes. As well, you can select colors from existing files in the Mixing area.

If you are using a color monitor, remember that the colors you see will not match the printed colors exactly. To accurately specify Process colors, use the *CorelDRAW Process Color Chart*. If you are choosing colors from the TRUMATCH or FOCOLTONE palettes or either of the PANTONE palettes, use the corresponding Color Reference.

Dialog Options

Show

Selects the color model. The options are: CMYK, RGB, HSB, Grayscale, Standard Colors, FOCOLTONE, PANTONE Spot colors, PANTONE Process colors, TRUMATCH, Custom Palette.

Preview

The color model selected determines the display of the colors in the Preview box.

CMYK	Shows CMYK model and list boxes for each of the components.
RGB	Shows RGB model and list boxes for each of the components.
HSB	Shows HSB model and list boxes for each of the components.
Grayscale	Shows grayscale model and **Gray Level** list box.
Standard Colors	Shows Standard Colors model.
FOCOLTONE	Shows FOCOLTONE model, **Show Color Names** check box and a **Search for:** box.
PANTONE Spot	Shows spot colors, **Show Color Names** check box, **Tint** and **Search for:** boxes.
PANTONE Process	Shows process colors, **Show Color Names** check box, **Tint** and **Search for:** boxes.
TRUMATCH	Shows TRUMATCH colors, **Show Color Names** check box, **Tint** and **Search for:** boxes.
Current/New color	Displays the current color in the top half and the new selected color in the bottom half.

New

Field used for the entry of a new color name.

PostScript Options...

Displays the PostScript Options dialog box. Only available when working with Spot colors. Used to specify halftone screens for Spot colors. See the Postscript Options dialog box.

Custom Palettes

Click the arrow button to display the following menu choices:

- **Add Color**, **Delete Color** and **New** palette commands
- Open Palette dialog box
- Save Palette As dialog box
- **Set As default** command, used to set the current palette as the default. The **Preview** box displays the colors in the selected custom palette.

Mixing Area

Used to choose colors from existing files, the **Show** Preview box, the **Custom Palette** Preview box or any combination of the three. Click the arrow button to display the following menu choices:

- Load Paint Area File dialog box
- Save Paint Area File As dialog box
- **Clear** paint area command.

The **Paintbrush** button paints the selected color in the **Paint Area** and can mix that color with colors already in the paint area. The **Eyedropper** button selects a color from the paint area which is then displayed in the **Current/New** preview box.

Load Paint Area File dialog box

Loads previously mixed paint colors into the Mixing Area.

Dialog Box Options

The **File Name, List Files of Type, Directories** and **Drives** lists and boxes allow you to choose bitmap (.BMP) files from the drives and directories on your computer system.

Save Paint Area File As dialog box

Saves newly mixed colors in the Mixing Area as bitmaps.

Dialog Box Options

The **File Name, List Files of Type, Directories** and **Drives** lists and boxes allow you to choose bitmap (.BMP) files from the drives and directories on your computer system.

More Color dialog box

Use this dialog box to specify the selected object's outline or uniform fill color using various models and custom palettes. As well, you can select colors from existing files in the Mixing area.

If you are using a color monitor, remember that the colors you see will not match the printed colors exactly. To accurately specify Process colors, use the *CorelDRAW Process Color Chart*. If you are choosing colors from the TRUMATCH or FOCOLTONE palettes or either of the PANTONE palettes, then use the corresponding Color Reference.

Dialog Options

Show

Selects the color model. The options are: CMYK, RGB, HSB, Grayscale, Standard Colors, FOCOLTONE, PANTONE Spot colors, PANTONE Process colors, TRUMATCH, Custom Palette.

Preview

The color model selected determines the display of the colors in the Preview box.

CMYK	Shows CMYK model and list boxes for each of the components.
RGB	Shows RGB model and list boxes for each of the components.
HSB	Shows HSB model and list boxes for each of the components.
Grayscale	Shows grayscale model and **Gray Level** list box.
Standard Colors	Shows Standard Colors model.
FOCOLTONE	Shows FOCOLTONE model, **Show Color Names** check box and a **Search for:** box.
PANTONE Spot	Shows spot colors, **Show Color Names** check box, **Tint** and **Search for:** boxes.
PANTONE Process	Shows process colors, **Show Color Names** check box, **Tint** and **Search for:** boxes.
TRUMATCH	Shows TRUMATCH colors, **Show Color Names** check box, **Tint** and **Search for:** boxes.
Current/New color	Displays the current color in the top half and the new selected color in the bottom half.

New

Field used for the entry of a new color name.

PostScript Options...

Displays the PostScript Options dialog box. Only available when working with Spot colors. Used to specify halftone screens for Spot colors. See the Postscript Options dialog box.

Custom Palettes

Click the arrow button to display the following menu choices:

- **Add Color**, **Delete Color** and **New** palette commands
- Open Palette dialog box
- Save Palette As dialog box
- **Set As default** command, used to set the current palette as the default. The **Preview** box displays the colors in the selected custom palette.

Mixing Area

Used to choose colors from existing files, the **Show** Preview box, the **Custom Palette** Preview box or any combination of the three. Click the arrow button to display the following menu choices:

- Load Paint Area File dialog box
- Save Paint Area File As dialog box
- **Clear** paint area command.

The **Paintbrush** button paints the selected color in the **Paint Area** and can mix that color with colors already in the paint area. The **Eyedropper** button selects a color from the paint area which is then displayed in the **Current/New** preview box.

#Color Models

CorelCHART provides three different color models for creating process colors: CMYK (cyan, magenta, yellow, black), RGB (red, green, blue) or HSB (hue, saturation, brightness).

You can create colors using the model you are most comfortable with. If you are going to produce color separations, CorelCHART will convert any RGB and HSB colors into their CMYK equivalents. The conversion will not be exact, however, since the RGB and HSB models create color in a fundamentally different way than the CMYK model.

CMYK Model

The CMYK model, as its name suggests, is based on the colors of the inks used in four-color printing. By combining percentages of cyan, magenta, yellow and black, you can reproduce virtually any color you want.

The advantage of the CMYK model is that you can specify your colors using CMYK color reference charts and be reasonably certain of what the colors will look like when printed. No such charts exist for specifying colors with the RGB and HSB models.

When you use the Visual Selector to specify colors, CorelCHART automatically adjusts the amount of black through a process called Gray Component Replacement (GCR). If you are specifying colors numerically, you must do the gray replacement yourself by entering appropriate percentages of black.

If your drawing contains large areas of black, you will want to override the GCR process and increase the percentages of cyan, magenta and yellow. Doing this makes the blacks look much darker. Ask your printer or service bureau for advice on the exact percentages you should use.

RGB Model

The RGB color model uses percentages of red, green and blue to create colors. Each component has 100 levels of intensity, ranging from black to the component's full intensity. Thus, to produce pure red for example, set Red to 100 and Green and Blue to 0. Similarly, set Green to 100 and the others to 0 to produce pure green. To produce a dark but pure shade of one of the three, lower its setting while leaving the others at zero.

White is produced by setting all three components to 100. Setting them all to 0 produces black. Equal amounts of each produces varying shades of gray.

HSB Model

The HSB model, creates color by varying three parameters: hue, saturation and brightness. Hue refers to the quality which makes a particular color different from another. Blue, red, and green, for example, are all hues. Saturation refers to the purity or intensity of a color. By varying the intensity, you can make the color lighter or darker. Brightness refers to the percentage of black in a color, where 0 percent is black and 100 percent is white.

PostScript Options dialog box

Controls halftone screens used to print the selected object's fill or outline.

- Screens are available only when printing Spot colors to a PostScript printer.
- The effect of varying the halftone screen parameters will not appear on screen, but they will show up when printed.
- All other objects except those whose screen settings you specify in this dialog box print using the screen settings specified in the Print Options dialog box.

Dialog Box Options

PostScript Halftone Screen

Type Lists the types of screens by the shape of the halftone dots.

The Default type uses the printer's default screen parameters unless overridden in the Print dialog box. A dot screen with 60 lines per inch at 45 degrees has typical screen parameters for a 300 dot per inch laser printer.

Frequency Controls the resolution of the screen. The lower the frequency, the more apparent the screen will appear when printed.

Choosing an appropriate frequency depends on the resolution of your printer and the results you want to achieve. For example, settings of 100 or more are appropriate when printing on a high-resolution image setter. When printing on a 300 dpi laser printer, use a value from 60 to 80. Values below 40 are useful for creating special effects.

Frequency also affects the number of gray levels in the printed output: the higher the frequency, the fewer the number of gray levels.

Angle Controls the angle of the screen.

Screen angle does not change when you rotate or skew an object. These, along with other transformations such as stretching and scaling, can significantly change the appearance of coarse line screens.

Open Palette dialog box

Use this dialog box to load different Process color palettes supplied with CorelCHART and any you have modified and saved with the Save Palette As command.

- The default process color palette, loaded when you first installed CorelCHART, is the CORELDRW.PAL palette. Another palette with the same colors, PURE99.PAL, is provided as a backup to the default one.
- The TRUMATCH palette is used to specify Process colors using the TRUMATCH Swatching System. By using this palette along with a TRUMATCH color reference book, you can be reasonably certain how the colors will look when printed. A similar book is available for use with the PANTONE Process palette included with CorelCHART.
- The other Process color palettes differ in the number and range of colors they contain. They also differ in the way in which their colors are displayed on the screen: one uses dithered color while the others use pure color.
- There is only one Spot color palette, CORELDRW.IPL.

Dialog Box Options

File Name

Select the palette you want to open. Either type the name of the file or select it from the list.

Directories

Select the directory in which the palette you want to open is stored.

Drives

Select the drive in containing the file you want to open.

List Files of Type

Select the type of palette--Process or Spot--you want to open.

Save Palette As dialog box

Allows you to save a palette that you have modified by adding, deleting or rearranging colors. Creating custom palettes makes it easier to apply colors to complex drawings that uses many colors. They also save time when working on different drawings that use the same colors.

You can create as many custom palettes you want and load them when required with the Load New Palette command.

Dialog Box Options

File Name

Type a name for the new palette. If you want or overwrite an existing palette, select its name from the list.

Directories

Select the directory in which you want the palette file stored.

Drives

Select the drive in which you want the palette file stored.

List Files of Type

Shows the type of palette--Process or Spot--being saved.

Fill tool 

In Chart View, displays a menu with a variety of icons used to specify an object's fill.

Menu Icons

Uniform Fill Color 

Displays the Uniform Fill dialog box for selecting or creating a uniform color fill.

Fill Roll-up Window 

Displays the Fill Roll-up window for quick access to various fills.

None 

Makes the object transparent, allowing objects behind it to show through.

Fountain Fill 

Displays the Fountain Fill dialog box, used to set fountain fills.

Two-Color Pattern 

Displays the Two-Color Pattern dialog box from which you can choose a two-color pattern fill.

Full-Color pattern 

Displays the Full-Color pattern dialog box from which you can choose a full-color pattern fill.

Bitmap Textures 

Displays the Texture Fill dialog box from which you can choose a Bitmap texture fill.

Pictograph Roll-up 

Displays the Pictograph Roll-up from which you can choose a CorelDRAW (.CDR) picture as a fill for an object.

Patterns and Solid 

Selects white or black solid fills and various patterns.

Fill Roll-up

The Fill Roll-up window gives you access to color, texture and pattern fills.

Roll-up Controls

Roll window icon 

Hides the roll-up, leaving just the title bar visible.

Uniform Fill 

Displays the current color palette for choosing uniform color fill. When the **Uniform Fill** button is enabled, clicking the **Edit** button displays the Uniform Fill dialog box for choosing a color model and palette.

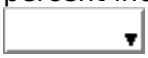
Fountain Fill 

Displays controls for creating fountain fills.

 Clicking the button selects a linear, radial, conical or square fountain.

You can change the angle of a linear fountain and the center of a radial, square or conical fountain by dragging the control in the preview box.

Holding down the CTRL key while dragging, constrains the angle of a linear fountain to multiples of 15 degrees and the amount of offset for a radial or conical fountain to 10 percent increments.

 **Colors** Displays a palette for choosing the start and end colors. Click the left button to specify the start color, the right button to specify the end color.

Clicking the fountain fill button with no object selected displays a dialog box for assigning the currently displayed fountain as the default fill for a particular type of new object.

Two-Color pattern Fills 

Displays controls for selecting and coloring two-color pattern fills.

 **Colors** Displays a palette used in choosing foreground and background colors. Click the left button to specify a foreground color, the right button to specify a background color.

 **Pattern List** Clicking the white preview box displays a list of patterns. Click the pattern you want and choose OK. Choosing **Cancel** ignores your selection and closes the list.

Choosing **File** displays a menu for saving, deleting, and importing patterns

Delete Item: Deletes the selected pattern from the list.

Import Pattern: Displays another dialog box used to create a pattern from an imported graphic.

Note: For best results, limit the use to no more than two-colors in the graphic you import.

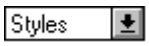
Tile Displays two squares in the selected object. Dragging the control point in the squares stretches or scales sets the tile size to use to apply the pattern. A small tile size results in a

smaller size pattern; a bigger tile size makes the pattern bigger, therefore more visible.

Bitmap Textures 

Displays controls for selecting and editing bitmap texture fills.

 **Texture List** Clicking the white preview box displays a list of textures. Click the texture you want and choose **OK**. Choosing **Cancel** ignores your selection and closes the list.



Select the Texture Library containing the texture you want.

Click the name of the texture you want.

Edit

Displays a different dialog box depending on the type of fill. See, Fountain Fill, Two-Color Fill Pattern, Full-Color Fill Pattern or Bitmap Texture dialog box.

Full-Color pattern Fills 

Displays controls for selecting two-color pattern fills.

 **Pattern List** Clicking the white preview box displays a list of patterns. Click the pattern you want and choose OK. Choosing **Cancel** ignores your selection and closes the list.

Choosing **File** displays a menu for saving, deleting and importing patterns.

Delete Item: Deletes the selected pattern from the list.

Import Pattern: Displays another dialog box used to create a pattern from an imported graphic.

Tile Displays two squares in the selected object. Dragging the control point in the squares stretches or scales sets the tile size to use to apply the pattern. A small tile size results in a smaller size pattern; a bigger tile size makes the pattern bigger, therefore more visible.

Apply

Applies your choices to the selected object.

Fountain Fill dialog box

Displays controls for creating fountain fills.

Dialog Box Options

Preview Box Shows you how the fountain fill will look with the colors you have chosen.

Type Select the type of fountain you want to create.

- **Linear** Selects a fountain fill that changes color in one direction.
- **Radial** Selects a fountain fill that changes color in concentric circles from the center of the object outwards.
- **Conical** Selects a fountain fill that radiates from the center of the object like rays of light.
- **Square** Selects a fountain fill that changes color in concentric squares from the center of the object outwards.

Palette Contains colors you can select to create a custom fountain.

Center Offset Repositions the center of a radial, conical, or square fountain fill so that it no longer coincides with the center of the object. Negative values shift the center down and to the left; positive values shift the center up and to the right.

You can also move the center by dragging the crosshairs that appear when you click anywhere in the Preview box. For Conical fountains, you must hold down the SHIFT key will dragging.

Holding down the CTRL key while dragging, constrains the amount of offset to 10 percent increments.

Options Adjust any of these settings to customize the appearance of the fountain.

Angle

Determines the angle of gradation in a linear, conical, or square fountain fill. The Preview box shows the effect of changing the angle.

If you rotate the object, the fountain angle adjusts automatically.

You can also change the angle by dragging the line that appears when you click anywhere in the Preview box. Use the right mouse button (or the left mouse button and SHIFT) to change the angle for conical and square fountains.

Holding down the CTRL key while dragging, constrains the angle to multiples of 15 degrees.

Steps

Displays the number of bands used to display and print the fountain. You can change these settings for the selected object by clicking the Lock button and entering a value in the text box.

Edge Pad

Increases the amount of start and end color in the fountain fill. Used primarily with circles and irregularly shaped objects in which the first and/or last few

bands of color lie between the object and its highlighting box. This option is not available for conical fountain fills, and therefore, is greyed out.

Color Blend Indicate the colors you want to use.

Direct

Takes the intermediate colors along a straight line beginning at the **From** color and continuing across the color wheel to the **To** color.

Rainbow

Takes the intermediate colors from a path around the color wheel. You can specify the direction the path takes by clicking the rotation buttons. The **From** and **To** colors coincide with endpoints of the path.

Custom

You can select up to 99 intermediate colors from the palette at the right of the dialog box. Specify where you want the color to appear by adding markers above the preview box. There are two ways to do that:

- double-clicking just above the preview box.
- select the "to" or "from" color squares at either end of the preview ribbon and specify a new value in the **Position** box.

After adding a marker choose a color from the palette.

To reposition a color, select its marker and drag it to the desired spot or edit the value in the Position box.

To delete a color, double-Click the marker.

Note: More than one color marker can be selected at a time be holding down the SHIFT key when selecting or deselecting.

Presets You can save the fountain settings you specified so that you can apply them to other objects. Type a name in the **Presets** box then click the plus sign. Clicking the minus sign removes the selected settings from the Preset list.

Two-Color Pattern dialog box

Use this dialog box to select, edit, create and import Two-Color patterns.

Dialog Box Options

Preview Box

Displays the pattern, if any, in the selected object. The display changes as you choose patterns from the Selection Box and adjust the Tile Size and Tile Offset settings.

Pattern List 

Clicking the arrow in the top right corner of the preview box displays a list of patterns. Click the pattern you want and choose OK. Choosing **Cancel** ignores your selection and closes the list.

Choosing **File** displays a menu for deleting, and importing patterns.

Delete Item Deletes the selected pattern from the list.

Import Pattern Displays another dialog box used to create a pattern from an imported graphic.

Note: Graphics you import should use no more than two colors for best results.

Create

Displays the Two-Color pattern Editor which you can use to create your own patterns and edit certain existing ones.

Import

Displays another dialog box used to create patterns from imported images in any of the formats CorelCHART supports.

Back/Front Color

Clicking the color boxes displays a list of colors you can apply to the background and foreground of the pattern.

Use the scroll bars to see other colors in the list. Clicking the **More** button displays the Uniform Fill dialog box which you can use to create custom colors and select colors by name.

Small, Medium, Large

Selects a pattern tile size of 0.25x0.2, 50.50x0.50, or 1.00x1.00 inches.

PostScript Options

Displays the PostScript Options dialog box. If you are producing spot color separations, you can use this dialog box to specify halftone screens.

Tiling

Displays additional controls for sizing and offsetting the tiles that make up the pattern.

Width/Height Specifies a custom pattern tile size up to 3x3 inches.

If you want to use a different unit of measurement, open the units list then choose the unit you want.

First Tile Offset Specifies the placement of the first tile relative to the upper left

	corner of the object's highlighting box.
Row/Column Offset	Shifts alternating rows or columns by the amount specified.
Scale Pattern with Object	If checked, the pattern will be scaled as you scale the object. Otherwise, the pattern keeps its size when you scale the object; it is repeated more times if the object is enlarged, fewer if it is reduced.

Two-Color Pattern Editor

Used to create your own Two-Color patterns. You can also edit existing patterns provided their resolution is no more than 64x64 pixels. If the selected pattern's resolution is too high, it will not appear in the editor's charting area when you choose the **Create** button in the previous dialog box.

Dialog Box Options

Drawing Area

You create patterns by clicking with the left mouse button to fill a square with black, or the right mouse button to fill it with white. Holding down the mouse button as you draw enables you to fill a wide area of pixels.

Each square represents a pixel. The **Bitmap Size** options specify the number of pixels which in turn determines the resolution of the pattern.

Bitmap Size

Determines the resolution of the pattern. Choose the smallest size (16x16) to create simple patterns consisting of rectangular shapes and horizontal or vertical lines. For more intricate patterns with curves and diagonal lines, use one of the other two sizes.

Note: If you choose a Bitmap Size option, whatever you have drawn up to that point will be erased. Also, if you Click OK without drawing anything, an empty pattern is created.

Pen Size

Determines how many pixels are filled when you click in the charting area. For example, 2x2 fills four pixels at a time.

Full-Color Pattern dialog box

Used to choose a full color fill pattern and specify the size of the tiles that make up the pattern. Also used to shift the entire pattern inside the object you are filling and stagger the individual pattern tiles.

Dialog Box Options

Preview Box

Displays a tile of the selected pattern.

Pattern List 

Clicking the arrow in the top right corner of the preview box displays a list of patterns. Click the pattern you want and choose OK. Choosing **Cancel** ignores your selection and closes the list.

Choosing **File** displays a menu for deleting, and importing patterns.

Delete Item	Deletes the selected pattern from the list.
Import Pattern	Displays another dialog box used to create a pattern from an imported graphic.

Load

Displays a dialog box for you to load full-color patterns saved in other directories.

Import

Displays another dialog box used to create a pattern from an imported graphic.

Tiling

Displays additional controls for sizing and offsetting the tiles that make up the pattern.

Small, Medium	Selects a pattern tile size of 0.25x0.2, 50.50x0.50 or 1.00x1.00 inches.
Large	
Width/Height	Specifies a custom pattern tile size up to 3x3 inches. If you want to use a different unit of measurement, open the units list then choose the unit you want.
First Tile Offset	Specifies the placement of the first tile relative to the upper left corner of the object's highlighting box.
Row/Column Offset	Shifts alternating rows or columns by the amount specified.

Scale Pattern with Object

If checked, the pattern will be scaled as you scale the object. Otherwise, the pattern keeps its size when you scale the object; it is repeated more times if the object is enlarged, fewer if it is reduced..

Texture Fill dialog box

Use this dialog box to select one of the 100-plus bitmap texture fills included in CorelCHART. Each texture has a set of parameters that you can change to create millions of variations.

- Bitmap textures add significantly to the size of your file and the time it takes to print. As such, you should avoid filling numerous and/or large objects with them.
- The textures look best on color monitors. If you are using a monochrome monitor, you may not get a very good representation of the texture's appearance.
- When you rotate an object with a texture fill, the fill does not rotate.
- Resizing an object with a texture fill can distort the texture. To restore its appearance, open the Bitmap Texture dialog box and choose OK.

Dialog Box Options

Texture Library

Select the library that contains the texture you want. The Samples and Textures libraries contain textures which you can alter and save for later use. When you save them, however, you must store them in another library. You cannot save modified textures to the Styles Library.

Texture List

Displays textures in the selected library. Click the one you want.

Preview

Varies the appearance of the selected texture by randomly changing all unlocked parameters. Lock and unlock parameters by clicking the Lock icon next to it.

You must use the **Preview** button to update a texture after changing the parameters manually.

Save

After changing the parameters of a texture in a library choose save to overwrite the original. Textures from the styles library cannot be overwritten but can be saved to another library.

Save As

Opens the Save Texture As dialog box for naming (or renaming) a texture you've created.

Delete

Deletes the selected texture. You can only delete textures from any library but the Styles Library. When you click the Delete texture button, a dialog box appears asking for confirmation before the style is deleted.

Style Name <texture name>

Lists parameters for the selected texture. Changing one or more of these parameters alters the appearance of the texture.

Note: Available parameters change depending on the type of texture selected. Some of the bitmap textures available in the three categories include: aerial photography, biology, blend corners, blend edges, bubble mania, clouds, cosmic, cotton, drapes, eclipse, fiber, flames, hypnotic, leather, mandel, mineral, noise, patches, pizzazz, pottery wheel, putty,

raindrops, recycled paper, rings, ripples, rock and water colors.

The left side of the Style Name field lists up to six numeric parameters. All textures have a Texture Number parameter which ranges from 0 to 32,768. The names of the other parameters vary with the texture and have a range from 0 to 100 or -100 to 100.

To change a numeric parameter, enter a value in the text box and click the Preview button.

The right side of the field lists up to six color parameters. To change a color, click the color button (e.g., Shade, Mid-Shade, Light) and choose a new color from the pop-up palette. Click the More button if you want to create a color or choose one by name from the More Color dialog box. To see the effect a new color has on the texture, click the Preview button.

Save Texture As dialog box

Use this dialog box to save a modified texture under its own name. Saving a texture makes it easier to apply to other objects later on. You can also create and rename libraries in this dialog box.

Dialog Box Options

Texture Name

Type a name up to 32 characters (including spaces).

Library Name

Type a name in this box if you want to create a new library in which to store the textures you create. You can type up to 32 characters (including spaces).

Library List

Select the library you want to store the modified texture in.

Note: You must save modified Style textures in a new library.

Text Ribbon

The Text Ribbon appears across the top of the main screen and gives you quick access to several text formatting options.

Font Name list box 

Type or select the typeface you want to apply. CorelCHART includes over 825 fonts available in both True Type or Type 1 formats. *See also* Font Management

Font Size list box 

Type or select the point size you want to apply.

Bold button 

Applies or clears bold formatting.

Italic button 

Applies or clears italic formatting.

Underline button 

Applies or removes underlining from selected text or cell contents.

Left Alignment button 

Aligns text with the left side of its bounding box.

Center Alignment button 

Centers text in its bounding box.

Right Alignment button 

Aligns text with the right side of its bounding box.

Justify button 

Increases spacing between characters to align the text with the left and right sides of its bounding box.

Wide Spacing button 

Increases spacing between characters.

Single Spacing button 

Decreases spacing between lines.

Double Spacing button 

Increases spacing between lines.

Narrow Spacing button 

Decreases spacing between characters.

Display Status button 

Gives you quick access to the Display Status dialog box to choose hidden or displayed chart elements.

Legend button 

Gives quick access to the Legend dialog box for controlling how the chart legend will look on screen.

Number format button 

Use this button to change the formatting of numeric values displayed on your chart.

Data Analysis button 

Gives quick access to the Data Analysis dialog box.

Align objects button 

Aligns objects on the chart page horizontally or vertically. *See also* Align command

3D Roll-up button 

Displays the 3D Roll-up window for controlling the orientation, perspective, elements size and proportions and other attributes specific to 3D charts. The button is only available when the current chart is a 3D chart. Otherwise it is dimmed. *See also* 3D Roll-Up

Copy Chart button 

Copies the current chart to the clipboard.

Show as Pictograph button 

This button is available for bar charts and histograms. It divides the bar risers in equal sections allowing you to select images, symbols or clipart with which to fill the bars to create a pictograph.

Wireframe button 

Displays the chart in wireframe mode. Only the chart's outline and other objects' outlines appear on screen. This increases the speed at which you work as the redraw is much faster.

Numeric format button 

Displays the numeric dialog box where you can modify the format of one or several cells and create custom formats. *See also* Numeric dialog box

Border button 

Displays the Borders dialog box, used to emphasize selected cells by adding ruling lines or borders. *See also* Borders command

Display Grid button 

Press this button to display or turn off the grid.

Auto Recalc button 

Press this button to activate, or deactivate the Auto Recalc feature which automatically recalculates dependent formulas every time you make a change to a value or formula.

Chart View button 

Click this button to switch to Chart View.

Style list box 

Drop-down list of available styles for the current spreadsheet. The styles are used to format cells. You can create and save styles. See Styles command.

Auto alignment button 

Auto alignment gives numeric entries a right alignment and a left alignment to text entries.

Center Across Selection button 

Centers one or several cells' contents across a range of several cells.

Open file button 

Opens chart and corresponding spreadsheet files. *See also* Open command

Save file button 

Saves your chart or spreadsheet. *See also* Save command

Print button 

Prints your chart or spreadsheet. *See also* Print command (Chart View) or Print command (Data Manager)

New file button 

Opens the New Chart dialog box. *See also* New command

Cut button 

Cuts selected annotations from the current chart and places them onto the clipboard

Copy button 

Places a copy of the selected annotations to the clipboard.

Paste button 

Pastes a cut or copied annotation from the clipboard onto the current chart.

Import button 

Imports graphics in your chart or data for your spreadsheet. *See also* Import command (Chart View) or Import command (Data Manager)

Export button 

Exports your chart or data for use in other applications. *See also* Export command (Chart View) or Export command (Data Manager)

Page break button 

Inserts a manual page break in your spreadsheet. *See also* Set Page Break command

Center alignment button 

Centers text and numerical values in cells.

Pattern button 

Applies a pattern to the selected cell(s). *See also* Patterns command

Go To button 

Moves to a specific cell using that cell's address.

Enter Formula button 

Opens the Enter Formula dialog box.

Sort button 

Sorts the selected data according to the criteria and order you select.

Mosaic Roll-up button 

Displays the Mosaic file management utility as a Roll-up window. The Mosaic Roll-up allows you to drag and drop files in your current CorelCHART document.

Screen/menu Help button 

Displays a question mark pointer. Click a screen item or an available menu command to get information about the item chosen.

3D Tool Roll-up

Open the 3D Roll-up by choosing 3D Roll-up from the View menu when the current chart is a 3D riser or 3D scatter. You can use the 3D Roll-up to:

- alter size, scale and perspective
- modify the length of axes and thickness of walls
- rotate charts

Click a red arrow and hold the mouse button down until you achieve the desired result. The longer you hold down the mouse button, the more of the effect you'll get. **Caution:** You cannot undo a movement after you select the redraw button.

Button/
Check box Action


Moves the chart vertically or diagonally forward and backward.


Makes the chart larger or smaller without changing its position on the page.

2D Pan moves the chart vertically or diagonally anywhere on the page without changing the size of the chart.

3D Perspective controls the chart's perspective by making part of the chart appear closer and larger and part of the chart appear further away and smaller. The less parallel the lines of the chart are, the more distorted the chart is. The chart can become very distorted as though seen through a fisheye lens or have very little distortion as seen through a telephoto lens. Increasing distortion can give the chart a dramatic look and emphasize data by placing it closer to the viewer.


Changes the length of any of the axes.


Tilts the chart in three dimensions.

Show Graph Clearing the box leaves a wire-frame outline reflecting changes in the original chart.

Undo Undoes the changes you have made and returns you to the chart window.

Redraw Redraws the chart to show changes.

Pictograph Roll-up

Used to fill an object with an imported graphic. Clicking an object and then selecting the picture will fill the entire object with that picture.

Choose Show as Pictograph from the Chart menu. Select any bar in a series and select a picture from the Pictograph Roll-up. Multiple copies of the picture will form each bar. The size of each picture is set by the width of the bars and the frequency of the major grid lines on the data axis.

Roll-up Controls

Roll-up window icon 

Hides the controls leaving just the title bar visible.

Pattern List 

Clicking in the preview box displays a list of patterns. Click the pattern you want and choose OK. Choosing **Cancel** ignores your selection and closes the list.

Choosing **File** displays a menu for saving, deleting and importing patterns.

Delete Item	Deletes the selected pattern from the list.
Import Pattern	Displays another dialog box that lets you create a pattern from an imported graphic.

Import

Displays another dialog box that lets you create a pattern from an imported graphic.

Apply

Applies your choices to the selected object.

The topics below are duplicates of some topics located above in the file. They were duplicated (and adapted a bit)so that they could be included in the browse sequence for Data Manager as well as Chart View tools. The characters _DUP were added to each context string. They have no keywords so will only be accessed with the Browse buttons.

Open file button 

Opens a chart and its corresponding spreadsheet files. *See also* Open command

Save file button 

Saves your chart or spreadsheet. *See also* Save command

Print button 

Prints your chart or spreadsheet. *See also* Print command (Chart View) or Print command (Data Manager)

New file button 

Creates a new file. *See also* New command

Cut button 

Cuts selected data from the current spreadsheet and places it on the clipboard

Copy button 

Places a copy of the selected cells in the Clipboard.

Paste button 

Pastes cut or copied data onto the current spreadsheet.

Import button 

Imports graphics in your chart or data for your spreadsheet. *See also* Import command (Chart View) or Import command (Data Manager)

Export button 

Exports your chart or data for use in other applications. *See also* Export command (Chart View) or Export command (Data Manager)

Mosaic Roll-up button 

Displays the Mosaic file management utility as a Roll-up window. The Mosaic Roll-up allows you to drag and drop files in your current CorelCHART document.

Screen/menu Help button 

Displays a question mark pointer. Click a screen item or an available menu command to get information about the item chosen.

Font Name list box 

Type or select the typeface you want to apply

Font Size list box 

Type or select the point size you want to apply.

Bold button 

Applies or clears bold formatting.

Italic button 

Applies or clears italic formatting.

Underline button 

Applies or removes underlining from selected cell contents.

Left alignment button 

Aligns text and numbers with the left side of the current cell.

Right alignment button 

Aligns text and numbers with the right side of the current cell.

Technical Support

The Technical Support Help file contains information pertaining to:

- New features
- Corel Support Services
- Common Error Messages
- Printing Information
- Import and Export File Filter information
- INI files
- and other technical information

Please click the highlighted text below to open the Technical Support Help file.

Technical Support

Spreadsheet Functions: An Alphabetical Listing

ABS()	Calculates the absolute value of a number
ACCRINTM()	Calculates interest accrued on a security returning interest upon maturation
ACOS()	Calculates the inverse cosine of the expression
ACOSH()	Calculates the inverse hyperbolic cosine of the expression
AND()	Result is 1 if all arguments in the list are TRUE and 0 if only one is FALSE
ANGSTROMS	Converts linear measures into angstroms
ASIN()	Calculates the inverse sine of the expression
ASINH()	Calculates the inverse hyperbolic sine of a value
ATAN()	Calculates the inverse tangent of the expression
ATANH()	Calculates the inverse hyperbolic tangent of a number
ATOMMAS	Converts mass measures into atom mass units (u)
AVEDEV()	Calculates the average of absolute deviations of values in a data list from the mean
AVG()	Calculates the average of the range or list of arguments
BESSELI()	Calculates the modified Bessel function In(x)
BESSELJ()	Calculates the Bessel function Jn(x)
BESSELK()	Calculates the modified Bessel function Kn(x)
BESSELY()	Calculates the Bessel function Yn(x)
BETADIST()	Calculates the cumulative beta probability density distribution, widely used in the statistical testing of production quality
BETAINV()	Calculates the inverse value of the cumulative beta probability density function
BINOMDIST()	Calculates the magnitude of the individual term binomial probability distribution
CEILING()	Calculates the number rounded to the nearest multiple of significance
CELSIUS	Converts temperature values into Celsius
CHAR()	Returns the number of the Windows font character from 1 to 255 referenced by your computer
CHIDIST()	Calculates the one-tailed probability of the chi-squared (e^{2}) distribution
CHIINV()	Calculates the inverse of the chi-squared (e^{2}) distribution
CHITEST()	Calculates the result of the test of independence
CHOOSE()	Chooses the specified number from a list based on the index number given
CLEAN()	Deletes non-printable Windows font characters from 1 to 255 referenced by your computer from the text string
CNT()	Calculates the number of cells in a range containing only numbers and formulas
CNTA()	Calculates the number of cells in the range containing data
CODE()	Result is a numeric code matching the code used in the Windows character set for the first character in the given string
COLUMNS()	Calculates the number of columns in a list
COMBIN()	Calculates the number of combinations of a given size from a given population without regard to order.
CONFIDENCE()	Calculates the confidence interval, in accordance with known

	probability, for a population mean
CORREL()	Calculates the correlation coefficient between two ranges of data
COS()	Calculates the cosine of an angle
COSH()	Calculates the hyperbolic cosine of a number
COUPDAYBS()	Calculates the duration of the coupon period in days from the beginning to date of settlement
COUPDAYS()	Calculates the duration of the coupon period (in days) when the settlement occurs
COUPDAYSNC()	Calculates number of days between date of settlement and the next coupon issue date
COUPNCD()	Calculates the next coupon date following date of settlement
COUPNUM()	Calculates coupons payable between the date of settlement and date of maturation
COUPPCD()	Calculates coupon date prior to the date of settlement
COVAR()	Calculates covariance, the average of the products of paired deviations, of two ranges of data.
CRITBINOM()	Calculates the smallest value for which the accumulated binomial distribution is greater than or equal to a criterion value
CUMIPMT()	Calculates cumulative interest paid from the first to last periods specified
CUMPRINC()	Calculates cumulative principal paid against a loan from first to last periods specified
CUPS	Converts volume measures into cups
DATE()	Calculates the serial value of a specified date
DATEVALUE()	Converts date values to serial values for use in formulas
DAY()	Calculates the day of the month for the given serial value, returning an integer from 1 to 31 inclusive
DAYS360()	Calculates a value for the number of days between two dates based on a 360-day year
DAYS	Converts time measures into days
DB()	Uses the fixed-declining balance method to calculate real depreciation of assets over a given period
DDB()	Uses the double-declining balance method to calculate asset depreciation
DDE/External	Creates a Dynamic Data Exchange with a DDE server application. Use DDE/External to link data directly to Data Manager from DDE-compliant spreadsheets.
DEGREES	Converts radian angular measures into degrees
DELTA()	Tests whether two numbers are equal
DEVSQ()	Calculates the sum of the squared deviations of data points from their sample mean
DISC()	Calculates securities' discount rates
DOLLAR()	Rounds a numeric value to a given number of decimals using financial format and returns the result as text
DOLLARDE()	Converts dollar prices from fractions to decimals
DOLLARFR()	Converts dollar prices from decimals to fractions
DYNES	Converts mass measures into dynes
EFFECT()	Calculates effective annual interest rate

ERF()	Calculates the error function
ERFC()	Calculates the value of the complementary error function integrated between **x** and infinity
EVEN()	Rounds the expression up to the nearest even integer
EXP()	Raises *e* to a given exponent
EXPONDIST()	Calculates the magnitude of the exponential distribution probability
Exponential Functions	Used in the multiplication of metric measures
FACT()	Calculates the factorial of the expression
FACTDOUBLE()	Calculates the double factorial of the expression
FAHRENH	Converts temperature values into Fahrenheit
FALSE()	Result is the logical value 0
FDIST()	Calculates the F probability distribution
FEET	Converts linear measures into feet
FIND()	Finds the substring **txt** in the text string **intxt** beginning with the specified position **st**. Result is the number of position in **intxt** where the substring is situated.
FINV()	Calculates the inverse of the F probability distribution
FISHER()	Calculates the Fisher transformation
FISHERINV()	Calculates the inverse of the Fisher transformation
FIXED()	Rounds a numeric value to a given number of decimals and converts the result to text
FLOOR()	Rounds a real number to the nearest multiple at the given significance
FORECAST()	Calculates predicated values along a linear regression
FTEST()	Calculates the result of the F-test, which checks the variance of two samples to determine whether they are significantly different
FV()	Calculates future value of investments where interest rates and periodic payments are constant
FVAL()	Calculates future value of investments where payments and interest rates are constant in each period
FVSCHEDULE()	Applies compound interest rates and computes projected value of the initial principal
GALLONS	Converts volume measures into gallons
GAMMADIST()	Calculates the magnitude of the gamma distribution
GAMMA	Calculates the Gamma function, G(x)
GAMMAINV()	Calculates the inverse of the gamma cumulative distribution
GAMMALN()	Calculates a value for the natural logarithm of the gamma function, G(x)
GCD()	Calculates the greatest common divisor--the largest integer that divides each number in the list without leaving a remainder--of a series of numbers.
GEOMEAN()	Calculates the geometric mean of a data range containing only positive values
GESTEP()	Compares two values; result is 1 if **num** is ' **step** and 0 if not
GRAMS	Converts mass measures into grams
HARMEAN()	Calculates the harmonic mean of a data range
HLOOKUP()	Scans through the top row of the table or range from left to right (a) searching for the first instance of the value **x**, and (b) selecting the value a given number of rows down
HORSEPOWS	Converts power measures into horsepower
HOUR()	Converts the serial value for a given time value to an integer representing

hours from 0 to 23 inclusive

HOURS	Converts time measures into hours
HYPGDIST()	Calculates the hypergeometric distribution probability
IF()	Result is one of the specified values depending on the logical condition
INCHES	Converts linear measures into inches
INT()	Calculates the integer value of the expression
INTERCEPT()	Calculates the intercept of the linear regression
INTRATE()	Calculates fully invested securities' interest rates
IPMT()	Calculates interest payments for investments for a set period based on a constant interest rate
IRR()	Calculates an internal rate of return for a range of cash flows
ISBLANK()	Result is 1 if the argument refers to a blank cell and 0 otherwise
ISERROR()	Result is 1 if the argument refers a cell containing an error value and 0 otherwise
ISEVEN()	Result is 1 if the argument is an even number and 0 otherwise
ISNONTEXT()	Result is 1 if the argument refers to non-text data
ISNUMBER()	Result is 1 if the argument refers to a cell containing a number and 0 otherwise
ISODD()	Result is 1 if the argument is an odd number and 0 otherwise
ISTEXT()	Result is 1 if the argument refers to a cell containing text and 0 otherwise
KELVIN	Converts temperature values into Kelvin
KURT()	Calculates the kurtosis coefficient of a data range
LARGE()	Calculates the specified largest value in a data range
LCM()	Calculates the least common multiple of two or more integers
LEFT()	Finds the specified number of initial characters in the text string and returns the characters as a text string
LEN()	Result is the number of characters in the text string
LITERS	Converts volume measures into liters
LN()	Calculates the natural log of the expression
LOG()	Calculates the log of an expression to a given base
LOG10()	Calculates the log base 10 of the expression
LOGINV()	Calculates the inverse magnitude of the lognormal distribution
LOGNORDIST()	Calculates the magnitude of the lognormal distribution probability
LOWER()	Converts any uppercase letters in a text string to lower case
MAX()	Returns the highest number in the data range
MDETERM()	Calculates the matrix determinant of an array
MEDIAN()	Returns the median value in the data range
METERS	Converts linear measures into meters
MID()	Returns the number of characters in a text string, beginning at a given position
MIN()	Returns the lowest number in the data range
MINUTE()	Calculates a minute value from 0 to 59 inclusive for a serial value
MINUTES	Converts time measures into minutes
MIRR()	Calculates a modified internal rate of return for a list of values
MOD()	Calculates the modulus (remainder) of expression 1 divided by expression 2
MODE()	Calculates the value of the most frequently repeated data points in the

	data range
MONTH()	Converts a serial value for a month to an integer from 1 to 12 inclusive
MROUND()	Rounds a number to a specified multiple
MULTINOM()	Calculates the multinomial of a list of expressions, a ratio of the factorial of the sum of the list to the product of factorials
nCOLUMN()	Calculates the number of the column for the cell where nCOLUMN is executed
NEGBINDIST()	Calculates negative binomial distribution
NEWTONS	Converts mass measures into Newtons
NMILES	Converts linear measures into natural miles
NOMINAL()	Calculates an annual nominal interest rate
NORMDIST()	Calculates the magnitude of the normal distribution for the specified mean and standard deviation
NORMINV()	Calculates inverse magnitude of the normal distribution
NORMSDIST()	Calculates the standard normal distribution function
NORMSINV()	Calculates inverse magnitude of the standard normal distribution
NOT()	Result is the reverse of the logical expression
NOW	Calculates the serial value for the current date and time held in your computer's operating system
NPER()	Calculates the number of periods, or payments, needed to repay a loan based on the given payment, interest rate per period and amount of principal
NPV()	Calculates the net present value of a loan for the given interest rate and list of payments. Use this function when payments will not be constant.
nROW()	Calculates the number of the row for the cell containing nROW
ODD()	Rounds up an expression to the nearest odd integer
OR()	Result is 1 if any argument in the list is TRUE and 0 if all arguments are FALSE
OUNCES	Converts mass measures into ounces
PAYMT()	Calculates the periodic payment for annuities where payments and interest rates are constant
PCT	Divides the number given as an argument by 100
PEARSON()	Calculates the Pearson product moment correlation coefficient
PERCENTILE()	Calculates the k-th percentile of the values contained in a data range
PERCRANK()	Calculates the percentage rank of a value contained in a data range compared with the other values
PERMUT()	Calculates how many permutations may result from a defined number of objects
PI()	Calculates the value of π
PINTS	Converts volume measures into pints
PMT()	Calculates the periodic payment for the given principal amount, interest rate per period and number of regular payment periods. PMT assumes that interest is paid at the end of each period.
POISSON()	Calculates the Poisson probability distribution
POODS	Converts mass measures into poods
POUNDS	Converts mass measures into pounds
PPMT()	Calculates payment against principal for investments for given periods.

	Payments and interest rates are constant.
PRICE()	For securities returning periodic interest, PRICE calculates price for each $100 face value
PRICEDISC()	For each $100 face value of discounted securities, PRICEDISC calculates sale price
PRICEMAT()	For securities paying interest upon maturation, PRICEMAT calculates price per $100 face value
PROB()	Calculates the probability that the values belong to the specified interval
PRODUCT()	Calculates the product of a list of expressions
PROPER()	Converts the first letter in each word of the given text string to upper case
PV()	Calculates an investment's present value, the total present worth of a series of future payments
QUARTILE()	Calculates the representation of placement and dispersion of a random variable value
QUARTS	Converts volume measures into quarts
QUOTIENT()	Calculates the integer portion of *x/y*
RADIANS	Converts angular measures expressed in degrees to radians
RAND()	Calculates a random number between zero and one
RANK()	Calculates the rank of a number in an array of values
RATE()	Calculates annuity interest rates per period
RECEIVED()	For fully invested securities, RECEIVED calculates amount paid upon maturation
REPLACE()	Replaces specified number of characters of the text string from the start position with the new string
RIGHT()	Computes the number of end characters in the text string, returning the result as text
RNDBETW()	Calculates a random number between two specified numbers
ROMAN()	Rounds the value to an integer and converts it to a Roman numeral
ROUND()	Rounds an expression to a specified number of decimal places
ROWS()	Calculates the number of rows referenced in a list
RSQ()	Calculates the square of the Pearson product moment correlation coefficient
SEARCH()	Result is the position of the substring text1 in the text string text2
SECOND()	Calculates seconds given as a serial value to an integer from 0 to 59 inclusive
SECONDS	Converts time measures into seconds
SERIESSUM()	Calculates the sum of a power series
SGN()	Determines the sign of a number
SIN()	Calculates the sine of an angle
SINH()	Calculates the hyperbolic sine of an expression
SKEW()	Calculates the skewness of a distribution
SLN()	Calculates depreciation for an asset for a single period using the straight-line method of depreciation
SLOPE()	Calculates the linear regression slope
SLUGS	Converts mass measures into slugs
SMALL()	Calculates the specified smallest value in a data range

SMILES	Converts linear measures into sea miles
SQRT()	Calculates the positive square root of the expression
SQRTPI()	Calculates the positive square root of the expression multiplied by π $\sqrt{(p \cdot h)}$
STANDDIZE()	Calculates a standardized value for a variable
STD()	Calculates an estimate of standard deviation of the numbers in the range
STDP()	Calculates the standard deviation for a population based on the numbers in the range
STEYX()	Calculates the standard error of the forecast y-value for the x-values of a regression
SUBST()	Searches for the given substring in the text string and replaces it with a new one
SUM()	Adds the values in a list of arguments
SUMPROD()	Calculates the sum of the products of corresponding arrays
SUMSQ()	Calculates the sum of the squares of all the parameters in a list
SUMX2MY2()	Calculates the sum of the difference of squares of corresponding values in two ranges
SUMX2PY2()	Calculates the sum of the sum of squares of corresponding values in two ranges
SUMXMY2()	Calculates the sum of squares of differences of corresponding values in two ranges
SYD()	Calculates depreciation for an asset for given periods using the straight-line method of depreciation
TABLESPS	Converts volume measures into tablespoons
TAN()	Calculates the tangent of an angle
TANH()	Calculates the hyperbolic tangent of the expression
TBILLPRICE()	Calculates Treasury bill price per $100 face value
TBILLYIELD()	Calculates Treasury bill yields
TDIST()	Calculates a student's T-distribution with **df** (degrees of freedom)
TEASPS	Converts volume measures into teaspoons
TIME()	Calculates a serial value for a specified time. The returning value is a decimal fraction from 0 to 0.9999999999 inclusive
TIMEVALUE()	Converts the current time from text to a serial value
TINV()	Calculates the inverse of a student's T-distribution with **df** (degrees of freedom)
TODAY()	Calculates the serial value corresponding to the current date held in your computer's operating system
TONS	Converts mass measures into tons
TRIM()	Deletes spaces in text strings, leaving only single spaces between words
TRIMEAN()	Calculates the mean of a range within a data range
TRUE()	Result is the logical value 1
TRUNC()	Truncates an expression to an integer with a specified number of digits
TTEST()	Calculates the probability involved with a student's T-test
TYPE()	Result is a number indicating the data type in a specified cell
UPPER()	Converts lower-case letters in a text string to upper case
VALUE()	Converts a text argument to a number
VAR()	Estimates the variance of the numbers in a data range
VARP()	Calculates the variance of a population for the numbers in the range

VDB()	Calculates depreciation of assets for specified periods using the double declining balance or other specified methods
VLOOKUP()	Scans down the lefthand column of the table or range, searching for the first occasion of the value **x**, then selecting the value a given number of columns to the right
WATTS	Converts power measures into watts
WEEKDAY()	Calculates a day of the week for a given serial value. The value returned is a positive integer between one and seven, where one is equal to Sunday, two is equal to Monday, and so on.
WEIBULL()	Calculates the magnitude of the Weibull probability distribution
XIRR()	Calculates internal rate of return for regular or irregular cash flow schedules
XNPV()	Calculates net present value for regular or irregular cash flow schedules
YARDS	Converts linear measures into yards
YEAR()	Calculates a year between 1900 and 2077 for a given serial value
YEARS	Converts time measures into hours
YIELD()	Calculates yield on securities returning periodic interest
YIELDDISC()	Calculates discounted securities' annual yield
YIELDMAT()	For securities paying interest upon maturation, YIELDMAT calculates annual yield
ZTEST()	Calculates the two-tailed probability for the standard normal distribution and a standard score for x relative to the data range

Exponential Functions

The exponential functions below can be used in conversion formulas involving metric measures:

Exponential Function	Value	Exponential Function	Value
exa	10^{+18}	deci	10^{-1}
peta	10^{+15}	centi	10^{-2}
tera	10^{+12}	milli	10^{-3}
giga	10^{+9}	micro	10^{-6}
mega	10^{+6}	nano	10^{-9}
kilo	10^{+3}	pico	10^{-12}
hecto	10^{+2}	femto	10^{-15}
deka	10^{+1}	atto	10^{-18}

Syntax

exponential function(value, "current units")

Arguments	Definitions
value	any value you want to convert
current units	the current unit of measure

Example

To convert 2 centimeters into feet, write the following formula:

= feet(2, "centimeters")

= 6.5616798E-2

ATOMMAS

Description

Converts mass measures into atom mass units (u)

Syntax

ATOMMAS(exp, unit)

Arguments	Definitions
exp	a real value representing a mass measure (in units specified by the second argument) to be converted into atom units
unit	a text string representing any mass unit included in CorelCHART's Conversion Functions

Notes and Error Messages

ATOMMAS returns the #BAD DATA! error value if the second argument is an unrecognized mass unit.

Example

ATOMMAS(1,"grams") = 6.02217E+23 u

GRAMS

Description

Converts mass measures into grams

Syntax

GRAMS(exp, unit)

Arguments	Definitions
exp	a real value representing a mass measure (in units specified by the second argument) to be converted into grams
unit	a text string representing any mass unit included in CorelCHART's Conversion Functions

Notes and Error Messages

If the second argument is an unrecognized mass unit GRAMS returns the #BAD DATA! error value.

Example

GRAMS(1000,"milligrams") = 1 gram

DYNES

Description

Converts mass measures into dynes

Syntax

DYNES(exp, unit)

Arguments	Definitions
exp	a real value representing a mass measure (in units specified by the second argument) to be converted into dynes
unit	a text string representing any mass unit included in CorelCHART's Conversion Functions

Notes and Error Messages

If the second argument is an unrecognized mass unit DYNES returns the #BAD DATA! error value.

Example

DYNES(1,"newtons") = 1000 dynes

NEWTONS

Description

Converts mass measures into Newtons

Syntax

NEWTONS(exp, unit)

Arguments	Definitions
exp	a real value representing a mass measure (in units specified by the second argument) to be converted into Newtons
unit	a text string representing any mass unit included in CorelCHART's Conversion Functions

Notes and Error Messages

If the second argument is an unrecognized mass unit NEWTONS returns the #BAD DATA! error value.

Example

NEWTONS(1,"kilograms") = 9.81 Newtons

OUNCES

Description

Converts mass measures into ounces

Syntax

OUNCES(exp, unit)

Arguments	Definitions
exp	a real value representing a mass measure (in units specified by the second argument) to be converted into ounces
unit	a text string representing any mass unit included in CorelCHART's Conversion Functions

Notes and Error Messages

If the second argument is an unrecognized mass unit OUNCES returns the #BAD DATA! error value.

Example

OUNCES(1,"kilograms") = 35.27397 ounces

POODS

Description

Converts mass measures into poods

Syntax

POODS(exp, unit)

Arguments	Definitions
exp	a real value representing a mass measure (in units specified by the second argument) to be converted into poods
unit	a text string representing any mass unit included in CorelCHART's Conversion Functions

Notes and Error Messages

If the second argument is an unrecognized mass unit POODS returns the #BAD DATA! error value.

Example

POODS(16.033,"kilograms") = 1.00000474 poods

POUNDS

Description

Converts mass measures into pounds

Syntax

POUNDS(exp, unit)

Arguments	Definitions
exp	a real value representing a mass measure (in units specified by the second argument) to be converted into pounds
unit	a text string representing any mass unit included in CorelCHART's Conversion Functions

Notes and Error Messages

If the second argument is an unrecognized mass unit POUNDS returns the #BAD DATA! error value.

Example

POUNDS(454,"grams") = 1.000898803 pounds

SLUGS

Description

Converts mass measures into slugs

Syntax

SLUGS(exp, unit)

Arguments	Definitions
exp	a real value representing a mass measure (in units specified by the second argument) to be converted into slugs
unit	a text string representing any mass unit included in CorelCHART's Conversion Functions

Notes and Error Messages

If the second argument is an unrecognized mass unit SLUGS returns the #BAD DATA! error value.

Example

SLUGS(1,"tons") = 69.6184 slugs

TONS

Description

Converts mass measures into tons

Syntax

TONS(exp, unit)

Arguments	Definitions
exp	a real value representing a mass measure (in units specified by the second argument) to be converted into slugs
unit	a text string representing any mass unit included in CorelCHART's Conversion Functions

Notes and Error Messages

If the second argument is an unrecognized mass unit TONS returns the #BAD DATA! error value.

Example

TONS(1016,"kilograms") = 1 ton

ANGSTROMS

Description

Converts linear measures into angstroms

Syntax

ANGSTROMS(exp, unit)

Arguments	Definitions
exp	a real value representing a linear measurement (in units specified by the second argument) to be converted into angstroms
unit	a text string representing any length unit included in CorelCHART's Conversion Functions

Notes and Error Messages

If the second argument is an unrecognized length unit ANGSTROMS returns the #BAD DATA! error value.

Example

ANGSTROMS(1,"micrometers") = 10,000 angstroms

FEET

Description

Converts linear measures into feet

Syntax

FEET(exp, unit)

Arguments	Definitions
exp	a real value representing a linear measurement (in units specified by the second argument) to be converted into feet
unit	a text string representing any length unit included in CorelCHART's Conversion Functions

Notes and Error Messages

If the second argument is an unrecognized length unit FEET returns the #BAD DATA! error value.

Example

FEET(1,"yards") = 3 feet

INCHES

Description

Converts linear measures into inches

Syntax

INCHES(exp, unit)

Arguments	Definitions
exp	a real value representing a linear measurement (in units specified by the second argument) to be converted into inches
unit	a text string representing any length unit included in CorelCHART's Conversion Functions

Notes and Error Messages

If the second argument is an unrecognized length unit INCHES returns the #BAD DATA! error value.

Example

INCHES(1,"yards") = 36 inches

METERS

Description

Converts linear measures into meters

Syntax

METERS(exp, unit)

Arguments	Definitions
exp	a real value representing a linear measurement (in units specified by the second argument) to be converted into meters
unit	a text string representing any length unit included in CorelCHART's Conversion Functions

Notes and Error Messages

If the second argument is an unrecognized length unit METERS returns the #BAD DATA! error value.

Example

METERS(1,"nmiles") = 1852 meters

NMILES

Description

Converts linear measures into natural miles

Syntax

NMILES(exp, unit)

Arguments	Definitions
exp	a real value representing a linear measurement (in units specified by the second argument) to be converted into natural miles
unit	a text string representing any length unit included in CorelCHART's Conversion Functions

Notes and Error Messages

If the second argument is an unrecognized length unit NMILES returns the #BAD DATA! error value.

Example

NMILES(1,"smiles") = 0.868976242 natural miles

SMILES

Description

Converts linear measures into sea miles

Syntax

SMILES(exp, unit)

Arguments	Definitions
exp	a real value representing a linear measurement (in units specified by the second argument) to be converted into sea miles
unit	a text string representing any length unit included in CorelCHART's Conversion Functions

Notes and Error Messages

If the second argument is an unrecognized length unit SMILES returns the #BAD DATA! error value.

Example

SMILES(1,"nmiles") = 1.150779448 sea miles

YARDS

Description

Converts linear measures into yards

Syntax

YARDS(exp, unit)

Arguments	Definitions
exp	a real value representing a linear measurement (in units specified by the second argument) to be converted into yards
unit	a text string representing any type of length unit included in CorelCHART's Conversion Functions

Notes and Error Messages

If the second argument is an unrecognized length unit YARDS returns the #BAD DATA! error value.

Example

YARDS(1,"nmiles") = 2025.371829 yards

DAYS

Description

Converts time units into days

Syntax

DAYS(exp, unit)

Arguments	Definitions
exp	a real value representing a time period (in units specified by the second argument) to be converted into days
unit	a text string representing any time unit included in CorelCHART's Conversion Functions

Notes and Error Messages

If the second argument is an unrecognized time unit DAYS returns the #BAD DATA! error value.

Example

DAYS(1,"years") = 365.2422 days

HOURS

Description

Converts time units into hours

Syntax

HOURS(exp, unit)

Arguments	Definitions
exp	a real value representing a period of time (in units specified by the second argument) to be converted into hours
unit	a text string representing any time unit included in CorelCHART's Conversion Functions

Notes and Error Messages

If the second argument is an unrecognized time unit HOURS returns the #BAD DATA! error value.

Example

HOURS(1,"years") = 8765.8128 hours

MINUTES

Description

Converts time units into minutes

Syntax

MINUTES(exp, unit)

Arguments	Definitions
exp	a real value representing a period of time (in units specified by the second argument) to be converted into minutes
unit	a text string representing any time units included in CorelCHART's Conversion Functions

Notes and Error Messages

If the second argument is an unrecognized time unit MINUTES returns the #BAD DATA! error value.

Example

MINUTES(1,"years") = 525948.768 minutes

SECONDS

Description

Converts time units into seconds

Syntax

SECONDS(exp, unit)

Arguments	Definitions
exp	a real value representing a period of time (in units specified by the second argument) to be converted into seconds
unit	a text string representing any type of the available time units

Notes and Error Messages

If the second argument is an unrecognized time unit SECONDS returns the #BAD DATA! error value.

Example

SECONDS(1,"years") = 31556926.08 seconds

YEARS

Description

Converts time units into hours

Syntax

YEARS(exp, unit)

Arguments	Definitions
exp	is a real value representing a period of time (in units specified by the second argument) to be converted into years
unit	is a string representing any time unit included in CorelCHART's Conversion Functions

Notes and Error Messages

If the second argument is an unrecognized time unit YEARS returns the #BAD DATA! error value.

Example

YEARS(1,"gigaseconds") = 31.68876454 years

DEGREES

Description

Converts radian angular measures into degrees

Syntax

DEGREES(angle_in_rad)

Arguments	Definitions
angle_in_rad	is a real value in radians to be converted into degrees

Example

DEGREES(pi) = 180 degrees

RADIANS

Description

Converts angular measures expressed in degrees to radians

Syntax

RADIANS(angle_in_degr)

Arguments	Definitions
angle_in_degr	a real value in degrees to be converted into radians

Example

RADIANS(180) = 3.141592654 radians

TEASPS

Description

Converts volume measures into teaspoons

Syntax

TEASPS(exp,unit)

Arguments	Definitions
exp	a real value representing a volume measure (in units specified by the second argument) to be converted into teaspoons
unit	a text string representing any volume unit included in CorelCHART's Conversion Functions

Notes and Error Messages

If the second argument is an unrecognized volume unit TEASPS returns the #BAD DATA! error value

Example

TEASPS(1,"tablesps") = 3 teaspoons

TABLESPS

Description

Converts volume measures into tablespoons

Syntax

TABLESPS(exp,unit)

Arguments	Definitions
exp	a real value representing a volume measure (in units specified by the second argument) to be converted into tablespoons
unit	a text string representing any volume unit included in CorelCHART's Conversion Functions

Notes and Error Messages

If the second argument is an unrecognized volume unit TABLESPS returns the #BAD DATA! error value.

Example

TABLESPS(3,"teasps") = 1 tablespoon

CUPS

Description

Converts volume measures into cups

Syntax

CUPS(exp,unit)

Arguments	Definitions
exp	a real value representing a volume measure (in units specified by the second argument) to be converted into cups
unit	a text string representing any volume unit included in CorelCHART's Conversion Functions

Notes and Error Messages

If the second argument is an unrecognized volume unit CUPS returns the #BAD DATA! error value

Example

CUPS(1,"liters") = 4.225833333 cups

PINTS

Description

Converts volume measures into pints

Syntax

PINTS(exp,unit)

Arguments	Definitions
exp	a real value representing a volume measure (in units specified by the second argument) to be converted into pints
unit	a text string representing any volume unit included in CorelCHART's Conversion Functions

Notes and Error Messages

If the second argument is an unrecognized volume unit PINTS returns the #BAD DATA! error value.

Example

PINTS(1,"pints") = 1 pint

QUARTS

Description

Converts volume measures into quarts

Syntax

QUARTS(exp,unit)

Arguments	Definitions
exp	a real value representing a volume measure (in units specified by the second argument) to be converted into quarts
unit	a text string representing any volume unit included in CorelCHART's Conversion Functions

Notes and Error Messages

If the second argument is an unrecognized volume unit QUARTS returns the #BAD DATA! error value.

Example

QUARTS(1,"pints") = 0.5 of a quart

GALLONS

Description

Converts volume measures into gallons

Syntax

GALLONS(exp,unit)

Arguments	Definitions
exp	a real value representing a volume measure (in units specified by the second argument) to be converted into gallons
unit	a text string representing any volume unit included in CorelCHART's Conversion Functions

Notes and Error Messages

If the second argument is an unrecognized volume unit GALLONS returns the #BAD DATA! error value.

Example

GALLONS(1,"pints") = 0.125 of a gallon

LITERS

Description

Converts volume measures into liters

Syntax

LITERS(exp,unit)

Arguments	Definitions
exp	a real value representing a volume measure (in units specified by the second argument) to be converted into liters
unit	a text string representing any volume unit included in CorelCHART's Conversion Functions

Notes and Error Messages

If the second argument is an unrecognized volume unit LITERS returns the #BAD DATA! error value.

Example

LITERS(1,"gallons") = 3.786235457 liters

CELSIUS

Description

Converts temperature values into Celsius

Syntax

CELSIUS(exp,unit)

Arguments

exp	a real value representing a temperature measure (in units specified by the second argument) to be converted into Celsius
unit	a text string representing any type of the temperature units included in CorelCHART's Conversion Functions

Notes and Error Messages

If the first argument is an invalid value of temperature in the scale given by the second parameter or the second argument is an unrecognized temperature unit CELSIUS returns the #BAD DATA! error value.

Example

CELSIUS(273.15,"kelvin") = 0 Celsius

FAHRENH

Description

Converts temperature values into Fahrenheit

Syntax

FAHRENH(exp,unit)

Arguments	Definitions
exp	a real value representing a temperature measure (in units specified by the second argument) to be converted into Fahrenheit
unit	a text string representing any temperature unit included in CorelCHART's Conversion Functions

Notes and Error Messages

If the first argument is an invalid value of temperature in the scale given by the second parameter or the second argument is an unrecognized temperature unit FAHRENH returns the #BAD DATA! error value.

Example

FAHRENH(100,"celsius") = 212 degrees Fahrenheit

KELVIN

Description

Converts temperature values into Kelvin

Syntax

KELVIN(exp,unit)

Arguments	Definitions
exp	a real value representing a temperature measure (in units specified by the second argument) to be converted into Kelvin
unit	a text string representing any temperature unit included in CorelCHART's Conversion Functions

Notes and Error Messages

If the first argument is an invalid value of temperature within the scale given by the second parameter or the second argument is an unrecognized temperature unit KELVIN returns the #BAD DATA! error value.

Example

KELVIN(-273.15,"celsius") = 0 degrees Kelvin

HORSEPOWS

Description

Converts power measures into horsepower

Syntax

HORSEPOWS(exp,unit)

Arguments	Definitions
exp	a real value representing a power measure (in units specified by the second argument) to be converted into horsepower
unit	a text string representing any power unit included in CorelCHART's Conversion Functions

Notes and Error Messages

If the second argument is an unrecognized power unit HORSEPOWS returns the #BAD DATA! error value.

Example

HORSEPOWS(1,"kilowatts") = 1.34102

WATTS

Description

Converts power measures into watts

Syntax

WATTS(exp,unit)

Arguments	Definitions
exp	a real value representing a power measure (in units specified by the second argument) to be converted into watts
unit	a text string representing any power unit included in CorelCHART's Conversion Functions

Notes and Error Messages

If the second argument is an unrecognized power unit WATTS returns the #BAD DATA! error value.

Example

WATTS(1,"horsepows") = 745.7010335 watts

Conversion Functions

CorelCHART 5 provides the following conversion functions used for interchanging a wide array of units of measure:

Function	Description
Exponential Functions	Used in the multiplication of metric measures
Linear measures	
ANGSTROMS	Converts linear measures into angstroms
FEET	Converts linear measures into feet
INCHES	Converts linear measures into inches
METERS	Converts linear measures into meters
NMILES	Converts linear measures into natural miles
SMILES	Converts linear measures into sea miles
YARDS	Converts linear measures into yards
Mass	
ATOMMAS	Converts mass measures into atom mass units (u)
GRAMS	Converts mass measures into grams
DYNES	Converts mass measures into dynes
NEWTONS	Converts mass measures into Newtons
OUNCES	Converts mass measures into ounces
POODS	Converts mass measures into poods
POUNDS	Converts mass measures into pounds
SLUGS	Converts mass measures into slugs
TONS	Converts mass measures into tons
Time	
DAYS	Converts time measures into days
HOURS	Converts time measures into hours
MINUTES	Converts time measures into minutes
SECONDS	Converts time measures into seconds
YEARS	Converts time measures into hours
Angles	
DEGREES	Converts radian angular measures into degrees
RADIANS	Converts angular measures expressed in degrees to radians
Volumes	
TEASPS	Converts volume measures into teaspoons
TABLESPS	Converts volume measures into tablespoons
CUPS	Converts volume measures into cups
PINTS	Converts volume measures into pints

QUARTS	Converts volume measures into quarts
GALLONS	Converts volume measures into gallons
LITERS	Converts volume measures into liters
Power	
HORSEPOWS	Converts power measures into horsepower
WATTS	Converts power measures into watts
Temperature	
CELSIUS	Converts temperature values into Celsius
FAHRENH	Converts temperature values into Fahrenheit
KELVIN	Converts temperature values into Kelvin

Date and Time Functions

Date and Time Functions are multipliers that help you compute serial values for dates and times for use in a wide range of mathematical calculations. Click any of the Date and Time Functions shown at left below for more details on how they work. **Note:** DATEVALUE, DAYS360 and TIMEVALUE are the only Date and Time Functions which normally recognize alphanumeric values.

See also Entering dates and times and Using alphanumeric date and time values

Date Functions

Function	Description
DATE()	Calculates the serial value of a specified date
DATEVALUE()	Converts date values to serial values for use in formulas
DAY()	Calculates the day of the month for the given serial value, returning an integer from 1 to 31 inclusive
DAYS360()	Calculates a value for the number of days between two dates based on a 360-day year
MONTH()	Converts a serial value for a month to an integer from 1 to 12 inclusive
WEEKDAY()	Calculates a day of the week for a given serial value. The value returned is a positive integer between one and seven, where one is equal to Sunday, two is equal to Monday, and so on.
YEAR()	Calculates a year between 1900 and 2077 for a given serial value
Time Functions	
HOUR()	Converts the serial value for a given time value to an integer representing hours from 0 to 23 inclusive
MINUTE()	Calculates a minute value from 0 to 59 inclusive for a serial value
NOW	Calculates the serial value for the current date and time held in your computer's operating system
SECOND()	Calculates seconds given as a serial value to an integer from 0 to 59 inclusive
TIME()	Calculates a serial value for a specified time. The returning value is a decimal fraction from 0 to 0.9999999999 inclusive
TIMEVALUE()	Converts the current time from text to a serial value
TODAY()	Calculates the serial value corresponding to the current date held in your computer's operating system

DAYS360

Definition

Calculates a value for the number of days between two dates based on a 360-day year

Syntax

DAYS360(sdate, edate)

Arguments	Description
sdate	start date: integers expressed in date and time formats recognized by the Data Manager
edate	end date: integers expressed in date and time formats recognized by the Data Manager

Notes:

The argument can be given as text, such as "15-Jan", or numerically.

If sdate occurs after edate, the function returns a negative value.

Day, month and year must be separated by hyphens "-" or obliques "/", and hours, minutes and seconds by obliques.

Examples

DAYS360("2.9.53","2.9.53") =

DAYS360((DATEVALUE("14-Feb"),(DATEVALUE("12-Dec")) = 301

DAYS360(33660,33690) = 30

Associated Function

DAY

DATE

Definition

Calculates the serial value of a specified date

Syntax

DATE(day, month, year)

Arguments	Description
day	integers from 1 to 31 inclusive
month	integers from 1 to 12 inclusive
year	integers from 1, the serial value for Dec. 31, 1899, to -1, the serial value for June 4, 2079 inclusive

Notes and Error Messages

The day value must be valid for the month, i.e., if *month* is 6 (June) then *day* cannot be greater than 30, because June has only 30 days.

To convert the serial value, display the result of the DATE function as a date, apply a Date Format to the cell using the Numeric Format Interpreter.

Use alphanumeric dates with this function or convert them using DATEVALUE; otherwise DATE returns a syntax error message.

Use commas or semicolons as separators; using hyphens will return a list separator error message.

Example

DATE(25,2,94) = 34390, the serial value for February 25, 1994

Associated Functions

DATEVALUE and NOW

DATEVALUE

Definition

Converts date values to serial values for use in formulas

Syntax

DATEVALUE("text")

Argument	Description
"text"	any alphanumeric date enclosed in quotation marks and corresponding to any Data Manager date format

Note:

If you use alphanumeric dates, separate them by obliques or hyphens. Periods are not recognized.

Examples

DATEVALUE("7.1.92") = #BAD DATA!

DATEVALUE("7/1/92") = 33786, the serial value for July 1, 1992

DATEVALUE("Jan-12-1994") = 34346

Associated Functions

DATE and TIMEVALUE

NOW

Definition

Calculates the serial value for the current date and time held in your computer's operating system

Syntax

NOW

Notes:

The whole number portion of the real number produced represents today's date; the decimal portion represents the current time.

To display the result of NOW in a specific date format, apply a Data Manager date format to the cell.

If you omit a serial value, Data Manager will automatically compute the current date and time.

Be sure column-width settings are wide enough to permit full display of the number. *See also* Adjusting column width using the mouse

Example

If today's date is February 24, 1994, and the time 4:00:53 PM, the NOW function produces 34389.66573.

To turn the above date and time serial value (34389.66573) into a date and time, click the right mouse button on its Data Manager cell, select Numeric and choose a date and time format. The date and time will then display in a conventional format.

Associated Functions

DATE, YEAR, MONTH, DAY, HOUR and MINUTE

TIME

Definition

Calculates the serial value for a specified time. The returning value is a decimal fraction from 0 to 0.9999999999 inclusive.

Syntax

TIME(hh, mm, ss)

Arguments	Description
hh	hours: integers from 0 (representing midnight) to 23 inclusive
mm	minutes: integers from 0 to 59 inclusive
ss	seconds: integers from 0 to 59 inclusive

Note: To display the result of TIME as a conventional time, apply a Data Manager time format to the cell.

Example

TIME(16,15,50) computes the serial value for 4:15:50 PM, which is 0.67766.

Associated Functions

TIMEVALUE

TIMEVALUE

Definition

Converts the current time from text to a serial value

Syntax

TIMEVALUE(text)

Argument	Description
text	any textual time format recognized by the Data Manager enclosed in double quotation marks

Notes and Error Messages:

If the argument is mistaken, the function returns the #BAD DATA! error value.

Use TIMEVALUE to convert time entered as text to its serial value for use in calculations.

Example

TIMEVALUE("1:45 PM") produces the serial value 0.572916667

Associated Functions

TIME

TODAY

Description

Calculates the serial value corresponding to the current date held in your computer's operating system

Syntax

TODAY

Note: To display the result of the TODAY function as a date, apply a Data Manager date format to the cell.

Example

TODAY(*any date value)* produces a serial value corresponding to the current date.

Associated Functions

NOW and DAY

DAY

Description

Calculates the day of the month for the given serial value, returning an integer from 1 to 31 inclusive

Syntax

DAY(serial value)

Argument	Description
serial value	any real number which can be derived from a date and/or time code the whole number portion of the serial value represents the number of days since December 31, 1899 numbers shown to the right of the decimal point represent the number of seconds since midnight for the day entered

Note:

Convert alphanumeric dates to serial values before using day, or, if you use text and numbers, separate them by obliques or hyphens and nest the DATEVALUE function in the formula, e.g., July-16-1994.

Examples

DAY(DATEVALUE("July-16-1994")) = 16

DAY(DATEVALUE("7/16/1994")) = 16

DAY(34531) = 16

Associated Functions

DATE, YEAR, SECOND, HOUR and MINUTE

HOUR

Description

Converts the serial value for a given time value to an integer representing hours from 0 to 23 inclusive

Syntax

HOUR(serial value)

Arguments	Description
serial value	any real number which can be derived from a date and/or time code numbers shown to the right of the decimal point represent seconds from midnight for the day entered

Example

HOUR(0.4999) = 11

Associated Functions

DATE, YEAR, SECOND, DAY and MINUTE

MINUTE

Description

Calculates a minute value from 0 to 59 inclusive for a serial value

Syntax

MINUTE(serial value)

Arguments	Description
serial value	any real number which can be derived from a date and/or time code numbers to the right of the decimal point represent seconds from midnight for the day entered

Notes and Error Messages:

If the argument is negative, the function returns the #BAD DATA! error value.

The argument can be given as text, such as "1:15:00 PM" or as a number.

Examples

MINUTE((TIMEVALUE("1:15:00 PM")) = 15

MINUTE(9.48) = 31

Associated Functions

DATE, YEAR, SECOND, DAY and HOUR

MONTH

Description

Converts a serial date value for a month to an integer from 1 to 12 inclusive

Syntax

MONTH(serial value)

Argument	Description
serial value	any real number which can be derived from a date and/or time code the whole number portion of the serial value represents the number of days since December 31, 1899 numbers shown to the right of the decimal point represent seconds from midnight for the day entered

Notes and Error Messages:

Convert alphanumeric dates to serial values before using MONTH, or, if you use text and numbers, separate them by obliques or hyphens and nest the DATEVALUE function in the formula, e.g., MONTH(DATEVALUE(July-16-1994).

If the argument is negative, the function returns the #BAD DATA! error value.

The argument can be given as text, such as "July 12, 1994" or as a number.

Examples

MONTH(15666) = 11

MONTH(345) = 12

MONTH(202) = 7

MONTH(A1) = 3, if A1 contains 3/12/96

MONTH(A1) = 4, if A1 contains Thursday April-14-1994

MONTH(DATEVALUE("July-12-1994")) = 7

Associated Functions

DATE, YEAR, SECOND, DAY, HOUR and MINUTE

SECOND

Description

Calculates seconds given as a serial value to an integer from 0 to 59 inclusive

Syntax

SECOND(serial value)

Argument	Description
serial value	any real number which can be derived from a date and/or time code numbers shown to the right of the decimal point are measured in seconds, beginning with 0 at midnight for the day entered

Note: If the argument is negative, the function returns the #BAD DATA! error value.

Examples

SECOND(0.4999)	= 51
SECOND(555.4999)	= 51
SECOND(TODAY())	= 0, because the TODAY function returns only the whole number portion of a real number

Associated Functions

DATE, YEAR, MONTH, DAY, HOUR and MINUTE

WEEKDAY

Description

Calculates a day of the week for a serial date value. The value returned is a positive integer between one and seven, where one is equal to Sunday, two is equal to Monday, and so on.

Syntax

WEEKDAY(serial value)

Arguments

serial value A date/time code or any real number which can be derived from a date and/or time code. The whole number portion of the serial value represents the number of days since December 31, 1899.

numbers shown to the right of the decimal point are measured in seconds, beginning with 0 at midnight for the day entered

Note: If the serial value is less than one, the function returns the #BAD DATA! error value.

Example

WEEKDAY(TODAY()) = 3, if today is Tuesday

Associated Functions

MONTH and YEAR

YEAR

Description

Calculates a year between 1900 and 2077 for a given serial date value.

Syntax

YEAR(serial value)

Argument	Description
serial value	any real number from 1 to 65,000 which is a recognized date-time code.

Note: If an argument is non-numeric or out of the range, the function returns the #BAD DATA! error value.

Example

YEAR(NOW()) = 1994

Associated Functions

MONTH and WEEKDAY

DDE/External

Description

Creates a Dynamic Data Exchange with a DDE server application. Use DDE/External to link data directly to Data Manager from DDE-compliant spreadsheets.

Syntax

|app|filename|range

Arguments	Definitions
app	the DDE server application name
filename	the path and name of the file you want to bring into the Data Manager
range	the cell range you want to bring in from the server application's file

Notes and Error Messages

You must use the keyboard symbol "|" as a separator, otherwise DDE returns the #N/A! error value.

DDE automatically appends the parameter [1][1].

Example

If you were to use the following formula on a computer system equipped with Microsoft Excel, keying the formula would load Excel and the specified file. The DDE formula will appear in your Data Manager cell as indicated below:

|Excel|*path**filename.xls*|R1C1:R5C5|[1][1]

[1][1] refers to the co-ordinates of a specific cell in the specific range R1C1:R5C5.

You may also specify a one-cell range when entering the formula as follows:

|Excel|*path**filename.xls*|R1C1:R5C5|

R1C1:R5C5 specifies a range from cell(Row1,Col 1) to cell (Row 5,Col 5)

Associated Functions

Setting up a DDE link with another spreadsheet

See also How to... Exchange data with other applications

Engineering Functions

Function	Description
BESSELI()	Calculates the modified Bessel function In(x)
BESSELJ()	Calculates the Bessel function Jn(x)
BESSELK()	Calculates the modified Bessel function Kn(x)
BESSELY()	Calculates the Bessel function Yn(x)
DELTA()	Tests whether two numbers are equal
ERF()	Calculates the error function
ERFC()	Calculates the value of the complementary error function integrated between **x** and infinity
GAMMA	Calculates the Gamma function, G(x)
GAMMALN()	Calculates a value for the natural logarithm of the gamma function, G(x)
GESTEP()	Compares two values; result is 1 if **num** is ≥ **step** and 0 if not

BESSELI

Description

Calculates the modified Bessel function *I*n(x). The Besseli function is the Bessel function *J*n(x) using purely imaginary arguments.

Syntax

BESSELI(x, n)

Arguments	Definitions
x	any real number; specifies the value at which to evaluate the function
n	an integer; specifies the order of the Bessel function

Notes and Error Messages

If **n** is not an integer, it is trucated.

BESSELI returns the #BAD DATA! error value for non-numeric arguments.

The following is an example of the simplest of the BESSEL functions, the **Bessel function of the first kind** of order zero:*

$$J_0 = \sum_{k=0}^{\infty} \frac{(-1)^k (x/2)^{2k}}{(k!)^2}$$

Example

BESSELI(1.2, 2) = 0.202595682

Associated Functions

BESSELJ, BESSELK and BESSELY

* Source: The HarperCollins Dictionary of Mathematics, 1991

BESSELJ

Description

Calculates the Bessel function

Syntax

BESSELJ(x, n)

Arguments	Definitions
x	any real number; specifies the value to be used in evaluating BESSELJ
n	an integer; specifies the order of the Bessel function

Notes and Error Messages

BESSELJ truncates **n** if it is not an integer.

BESSELJ returns the #BAD DATA! error value for non-numeric arguments or if **n** is less than 0.

The following is an example of the simplest of the BESSEL functions, the **Bessel function of the first kind** of order zero:*

$$J_0 = \sum_{k=0}^{\infty} \frac{(-1)^k (x/2)^{2k}}{(k!)^2}$$

Example

BESSELJ(1.2, 2) = 0.159349018

Associated Functions

BESSELI, BESSELK and BESSELY

* Source: The HarperCollins Dictionary of Mathematics, 1991

BESSELK

Description

Calculates the modified Bessel function *K*n(x). BESSELK equates to the Bessel functions *J*n and *Y*n evaluated for purely imaginary arguments.

Syntax

BESSELK(x, n)

Arguments	Definitions
x	any real number; specifies the value to be used to evaluate BESSELK.
n	an integer number; specifies the order of the Bessel function.

Notes and Error Messages

BESSELK truncates **n** if it is a non-integer.

For non-numeric arguments or if **n** < 0, BESSELK returns the #BAD DATA! error value.

The following is an example of the simplest of the BESSEL functions, the **Bessel function of the first kind** of order zero:*

$$J_0 = \sum_{k=0}^{\infty} \frac{(-1)^k (x/2)^{2k}}{(k!)^2}$$

Example

BESSELK(1.7,1) = 0.209362488

Associated Functions

BESSELI, BESSELJ and BESSELY

* Source: The HarperCollins Dictionary of Mathematics, 1991

BESSELY

Description

Calculates the Bessel function Yn(x). The BESSELY function is also referred to as the Neumann or Weber function.

Syntax

BESSELY(x, n)

Argument	Definitions
x	any real number; specifies the value to use in evaluating BESSELY
n	an integer number; specifies the order of the Bessel function

Notes and Error Messages

If n is not an integer, it is trucated.

BESSELY returns the #BAD DATA! error value for non-numeric arguments or if **n** < 0.

The following is an example of the simplest of the BESSEL functions, the **Bessel function of the first kind** of order zero:*

$$J_0 = \sum_{k=0}^{\infty} \frac{(-1)^k (x/2)^{2k}}{(k!)^2}$$

Example

BESSELY(1.2, 2) = -1.263310803

Associated Functions

BESSELI, BESSELJ and BESSELK

* Source: The HarperCollins Dictionary of Mathematics, 1991

DELTA

Description

Compares two values and returns 1 if **num1** is strictly equal to **num2**; returns 0 otherwise.

Syntax

DELTA(num1, *num2)*

Arguments	Definitions
num1	any real number
num2	any real number

Notes and Error Messages

If the second argument is omitted, it is assumed to be equal to 0.

DELTA returns the #BAD DATA! error value for non-numeric arguments.

Examples

DELTA(11.23654, 12.253) = 0

DELTA(12.735, 12.735) = 1

Associated Functions

GESTEP

ERF

Description

Calculates the value of the error function integrated between **low_lim** and **up_lim**.

Syntax

ERF(low_lim, up_lim)

Arguments	Definitions
low_lim	any real number; specifies the lower bound for integration
up_lim	any real number; specifies the upper bound for integration

Notes and Error Messages

ERF calculates the integral from 0 to **low_lim** if the second argument is omitted.

ERF returns the #BAD DATA! error value for non-numeric or negative arguments, or if **up_lim** is less than **low_lim**.

Example

ERF(1.2, 2) = 0.085008287

Associated Functions

ERFC

ERFC

Description

Calculates the value of the complementary error function integrated from **x** to infinity

Syntax

ERFC(x)

Argument

x	any real number; specifies the lower limit of integration

Notes and Error Messages

ERFC returns the #BAD DATA! error value if the argument is non-numeric or negative.

Example

ERFC(1) = 0.157299207

Associated Functions

ERF

GAMMA

Description

Calculates the value of the Gamma function, G(x)

Syntax

GAMMA(num)

Arguments	Definitions
num	any positive real number; specifies the value at which to evaluate the function

Notes and Error Messages

GAMMA returns returns the #BAD DATA! error value if the argument is non-numeric or negative.

The formula for the GAMMA function is:

$$G(x) = \int_0^\infty x^{z-1} e^{-z} dz$$

Example

GAMMA(12.85) = 39,916,800.00

Associated Functions

BESSELJ and GAMMALN

GAMMALN

Description

Calculates the value of the natural logarithm applied to the Gamma function, (x).

Syntax

GAMMALN(num)

Argument

num	any positive real number; specifies the value at which to evaluate the function

Notes and Error Messages

GAMMALN returns the #BAD DATA! error value for non-numeric or negative arguments.

Example

GAMMALN(7.2) = 6.579251212

Associated Functions

FACT

GESTEP

Description

Compares two values; result is 1 if **num** is ' **step** and 0 if not

Syntax

GESTEP(num, step)

Arguments	Definitions
num	any real number to be compared to step
step	any real number

Notes and Error Messages

If the second argument is omitted, it is assumed to equal 0.

GESTEP returns the #BAD DATA! error value for non-numeric arguments.

Examples

GESTEP(5, 2) = 1

GESTEP(-5, 2) = 0

GESTEP(2.5, 2.5) = 1

Associated Functions

DELTA

ACCRINTM

Description

Accrued Interest at Maturity: Calculates interest accrued on a security returning interest upon maturation

Syntax

ACCRINTM(iss, mat, coup, *par, b)*

Arguments	Definitions
iss	the serial date value for issue date of the security
mat	the serial date value for the date of maturation of the security
coup	the annual coupon rate for the security
par	the par value. If no par value is entered, $1,000 is used as a default
b	the day-count basis used

Notes and Error Messages:

Iss, **mat**, and **b** are rounded to integers.

ACCRINTM returns the #BAD DATA! error value if:

- **iss** or **mat** is not a valid serial date value
- **coup** < 0 or if **par** < 0
- **b** is not 0, 1, 2 or 3

Example

ACCRINTM(DATE(1;6;1990);DATE(1;1;1991);0.1;100;1) = 5.8333333

Associated Functions

DATE()

COUPDAYBS

Description

Coupon Days (beginning to date of settlement)**:** Calculates the duration of the coupon period in days from the beginning to date of settlement

Syntax

COUPDAYBS(set, mat, fr, *b*)

Arguments	Definitions
set	the serial date value for the date of settlement of the security
mat	the serial date value for the date of maturation of the security
fr	the number of annual coupon payments. Frequency = 1 for annual, 2 for semiannual, and 4 for quarterly payments
b	the day-count basis used

Notes and Error Messages:

The arguments are rounded to integers.

COUPDAYBS returns the #BAD DATA! error value if:

- **set** or **mat** is not a valid serial date value
- **fr** is not 1, 2, or 4
- **b** is not 0, 1, 2, or 3
- **set** > **mat**

Example

COUPDAYBS(date(1;1;1993);date(1;6;1994);2;0) = 30

Associated Functions

COUPDAYS(), COUPDAYSNC(), COUPNCD(), COUPNUM() and COUPPCD()

COUPDAYS

Description

Coupon Days: Calculates the duration of the coupon period (in days) when the settlement occurs

Syntax

COUPDAYS(set, mat, fr, *b)*

Arguments	Definitions
set	the serial date value for the date of settlement of the security
mat	the serial date value for the date of maturation of the security
fr	the number of annual coupon payments. Frequency = 1 for annual, 2 for semiannual, and 4 for quarterly payments
b	the day-count basis used

Notes and Error Messages:

COUPDAYS returns the #BAD DATA! error value if:

- **set** or **mat** is not a valid serial date value
- **fr** is not 1, 2, or 4
- **b** is not 0, 1, 2, or 3
- **set** > **mat**

The arguments are rounded to integers.

Example

COUPDAYS(date(1;1;1993);date(3;6;1994);2;1) = 182

Associated Functions

COUPDAYBS(), COUPDAYSNC(), COUPNCD(), COUPNUM() and COUPPCD()

COUPDAYSNC

Description

Coupon Days (date of settlement to next coupon date): Calculates number of days between date of settlement and the next coupon issue date

Syntax

COUPDAYSNC(set, mat, fr, *b)*

Arguments	Definitions
set	the serial date value for the date of settlement of the security
mat	the serial date value for the date of maturation of the security
fr	the number of annual coupon payments. Frequency = 1 for annual, 2 for semiannual, and 4 for quarterly payments
b	the day-count basis used

Notes and Error Messages:

The arguments are rounded to integers.

COUPDAYSNC returns the #BAD DATA! error value if:

- **fr** is not 1, 2, or 4
- **b** is not 0, 1, 2, or 3
- **set** or **mat** is not a valid serial date value
- **set** > **mat**

Example

COUPDAYSNC(date(27,1,1994), date(1,3,1994),2,1) = 33

Associated Functions

COUPDAYBS(), COUPDAYS() COUPNCD() COUPNUM() and COUPPCD()

COUPNCD

Description

Next Coupon Date after Settlement: Calculates the next coupon date following date of settlement

Syntax

COUPNCD(set, mat, fr, *b)*

Arguments	Definitions
set	the serial date value for the date of settlement of the security
mat	the serial date value for the date of maturation of the security
fr	the number of annual coupon payments. Frequency = 1 for annual, 2 for semiannual, and 4 for quarterly payments
b	the day-count basis used

Notes and Error Messages:

The arguments are rounded to integers.

COUPNCD returns the #BAD DATA! error value if:

- **set** or **mat** is not a valid serial date value
- **fr** is not 1, 2, or 4
- **b** is not 0, 1, 2, or 3
- **set** > **mat**

Example

COUPNCD(date(27;1;1993);date(1;3;1994);2;1) = 1 Mar 1993

Associated Functions

COUPDAYBS(), COUPDAYS(), COUPDAYSNC(), COUPNUM() and COUPPCD()

COUPNUM

Description

Coupons, Number Payable: Calculates coupons payable between the date of settlement and date of maturation

Syntax

COUPNUM(set, mat, fr, *b*)

Arguments	Definitions
set	the serial date value for the date of settlement of the security
mat	the serial date value for the date of maturation of the security
fr	the number of annual coupon payments. Frequency = 1 for annual, 2 for semiannual, and 4 for quarterly payments
b	the day-count basis used

Notes and Error Messages:

The arguments are rounded to integers.

COUPNUM returns the #BAD DATA! error value if:

- **set** or **mat** is not a valid serial date value
- **fr** is not 1, 2, or 4
- **b** is not 0, 1, 2, or 3
- **set** > **mat**

Example

COUPNUM(date(27;1;1994);date(1;3;1995);2;1) = 3

Associated Functions

COUPDAYBS(), COUPDAYS(), COUPDAYSNC(), COUPNCD() and COUPPCD()

COUPPCD

Description

Coupon Date (prior to date of settlement): Calculates coupon date prior to the date of settlement

Syntax

COUPPCD(set, mat, fr, *b)*

Arguments	Definitions
set	the serial date value for the date of settlement of the security
mat	the serial date value for the date of maturation of the security
fr	the number of annual coupon payments. Frequency = 1 for annual, 2 for semiannual, and 4 for quarterly payments
b	the day-count basis used

Notes and Error Messages:

The arguments are rounded to integers.

COUPPCD returns the #BAD DATA! error value if:

- **set** or **mat** is not a valid serial date value
- **fr** is not 1, 2, or 4
- **b** is not 0, 1, 2, or 3
- **set** > **mat**

Example

COUPPCD(date(27;1;1994);date(1;3;1994);2;1) = 1 Sep 1993

Associated Functions

COUPDAYBS(), COUPDAYS(), COUPDAYSNC(), COUPNCD() and COUPNUM()

CUMIPMT

Description

Cumulative Interest Payments: Calculates cumulative interest paid from the first to last periods specified

Syntax

CUMIPMT(rate, nper, pv, st, end, t)

Arguments	Definitions
rate	interest rate
nper	total payment periods
pv	present value
st	start period in the calculation
end	final period in the calculation. Period numbers begin at 1
t	Time of payment: 0--payment takes place at the end of the period 1--payment takes place at the beginning of the period

Notes and Error Messages:

Nper, **st** and **end** are rounded to integers.

CUMIPMT returns the #BAD DATA! error value if:

- the arguments are non-numeric
- **rate** is less than or equal to 0, or **nper** is less than or equal to 0, or **pv** is less than or equal to 0
- **st** < 1, **end** < 1, or **st** > **end**
- **t** ' 0 or 1

Example

Let rate be 3% annual (**rate** = 0.03 / 12 = 0.0025).

Term, 1 year (**nper** = 1*12 = 12)

Present value $10,000.

The total interest paid in the first half-year (periods 1 through 6) is:

CUMIPMT(0.0025,12,10000,1,6,0) = -119

Associated Functions

CUMPRINC()

CUMPRINC

Description

Cumulative Principal: Calculates cumulative principal paid against a loan from first to last periods specified

Syntax

CUMPRINC(rate, nper, pv, st, end, t)

Arguments	Definitions
rate	interest rate
nper	total payment periods
pv	present value
st	start period in the calculation
end	final period in the calculation. Period numbers begin at 1
t	Time of payment: 0--payment takes place at the end of the period 1--payment takes place at the beginning of the period

Notes and Error Messages:

Nper, **st** and **end** are rounded to integers.

CUMPRINC returns the #BAD DATA! error value if:

- the arguments are non-numeric
- **rate** 0, **nper** 0, or **pv** 0
- **st** < 1, **end** < 1, or **st** > **end**
- **t** 0 or 1

Example

Let annual interest rate be 3% (**rate** = 0.03 / 12 = 0.0025)

Term, 1 year (**nper** = 1*12 = 12)

Present value $10,000

The cumulative principal paid in the first half-year (periods 1 through 6) is:

CUMPRINC(0.0025,12,10000,1,6,0) = -4962.5475

Associated Function

CUMIPMT()

DB

Description

Declining Balance: Uses the fixed-declining balance method to calculate real depreciation of assets over a given period

Syntax

DB(cost, sal, lif, per, *mon)*

Arguments	Definitions
cost	original asset cost
sal	salvage value after depreciation
lif	a real number specifying the number of periods, or lifetime, over which you want to determine asset deprecation
per	periods for which depreciation is calculated
mon	the number of months in the first year. If omitted, assumed to be 12. Inclusion of the *Mon* argument is mandatory.

Notes and Error Messages:

DB returns the #BAD DATA! error value if:

- the arguments are non-numeric
- **sal** > **cost**, or **per** > **lif**, or **mon** > 12

Examples

If an equipment purchase costs $20,000,000 and is used for two years, its salvage value is $20,000. The following example shows depreciation over its lifetime:

DB(20000000,20000,2,1) = 19,368,000

DB(20000000,20000,2,2) = 612,028

Associated Functions

DDB(), SLN(), SYD() and VDB()

DDB

Description

Double-Declining Balance: Uses the double-declining balance method to calculate asset depreciation

Syntax

DDB(cost, sal, lif, per)

Arguments	Definitions
cost	original asset cost
sal	salvage value after depreciation
lif	a real number specifying the number of periods, or lifetime, over which you want to determine asset deprecation
per	periods for which depreciation is calculated

Notes and Error Messages:

DDB returns the #BAD DATA! error value if:

- the arguments are non-numeric
- **sal** > **cost**, or **per** > **lif**

Examples

A tool costs $20,000,000 and requires replacement every two years. The salvage value of the tool is $20,000. The following example shows depreciation according to the double-declining balance method over the life of the tool.

DDB(20000000,20000,2,1) = $19,980,000

DDB(20000000,20000,2,2) = $0

Associated Functions

DB(), SLN(), SYD() and VDB()

DISC

Description

Discount: Calculates securities' discount rates

Syntax

DISC(set, mat, pr, redempt, *b)*

Arguments	Definitions
set	the serial date value for the date of settlement of the security
mat	the serial date value for the date of maturation of the security
pr	the price for each $100 face value of the security
redempt	the redemption value for each $100 face value of the security
b	the day-count basis used

Notes and Error Messages:

Set, **mat** and **b** are rounded to integers.

DISC returns the #BAD DATA! error value if:

- **set** or **mat** is not a valid serial date value
- **b** is not 0, 1, 2, or 3
- **set** > **mat**

Example

DISC(date(1;1;94);date(1;6;94);90;100) = 0.24

Associated Functions

PRICEDISC() and YIELDDISC()

DOLLARDE

Description

Dollars to decimals: Converts dollar prices from fractions to decimals

Syntax

DOLLARDE(fr_num, fr)

Arguments	Definitions
fr_num	a fractional number
fr	the fraction's denominator

Notes and Error Messages:

DOLLARDE returns the #BAD DATA! error value if:

- either argument is non-numeric
- **fr** is negative

Fr is truncated if it is not an integer.

Example

In the following example, the number 1.04 represents the fractional number 1 and 4/40. DOLLARDE multiplies expression one by expression two, returning a decimal as shown.

DOLLARDE(1.04;40) = 1.1

Associated Function

DOLLARFR()

DOLLARFR

Description

Dollars to fractions: Converts dollar prices from decimals to fractions.

Syntax

DOLLARFR(dec_num, fract)

Arguments	Definitions
dec_num	a decimal number
fr	the fraction's denominator

Notes and Error Messages:

DOLLARFR returns the #BAD DATA! error value if:

- either argument is non-numeric
- **fr** is negative

Fr is truncated if it is not an integer.

Example

In the following example, the expression 1.1 is a decimal number. DOLLARFR multiplies expression one by expression two, returning a fraction as shown. The number 1.04 = 1 and 4/40.

DOLLARFR(1.1;40) = 1.04

Associated Functions

DOLLARDE()

EFFECT

Description

Calculates **effective annual interest rate**

Syntax

EFFECT(nom_rate, npery)

Arguments	Definitions
nom_rate	nominal interest rate
npery	the number of annual compounding periods

Notes and Error Messages:

Npery is rounded to an integer

EFFECT returns the #BAD DATA! error value if:

- the arguments are non-numeric
- **nom_rate** is less than or equal to 0 or **npery** < 1

Example

EFFECT(0.1, 4) = 0.103812

Associated Function

NOMINAL()

FV

Description

Future Value: Calculates future value of investments where interest rates and periodic payments are constant

Syntax

FV(pmt, int, nper)

Arguments	Definitions
pmt	the payment you make each period
int	the interest rate for each period
nper	the total payment periods

Notes and Error Messages:

FV returns the #BAD DATA! error value if the arguments are non-numeric.

FV function is analogous to the FVAL, but it is retained for compatibility with CorelCHART 4.

Example

If you make a $100 payment each month (**pmt** = 100) to an bank account in the bank which pays 2% annual interest (**int** = 0.02/12 = 0.001667). The future value of your investment is:

FV(100,0.001667,12) = $1,211

Associated Functions

FVAL(), FVSCHEDULE(), IPMT() and PV()

FVAL

Description

Future Value: Calculates future value of investments where payments and interest rates are constant in each period

Syntax

FVAL(rate, nper, pmt, *pv*, *t*)

Arguments	Definitions
rate	interest rate
nper	the total payment periods
pmt	the fixed, equal payment you make each pay period
pv	present value of future payments or initial lump sum payment
t	Type:
	0--at the end of period payment (default)
	1--at the beginning of the period payment

Notes and Error Messages:

FVAL calculates the future value of an investment making fixed payments and returning a constant interest rate in each period.

Cash debits are to be represented as negative values; cash revenues are to be represented by positive values.

Example

Suppose you have $500 in an account initially (**pv**=-500) and make a $100 payment each month (**pmt** = -100). The bank pays 2% annual interest (**int** = .02/12 = 0.001667) and returns in 12 months:

FVAL(0.001667;12;-100;-500) = $1,721.16

Associated Functions

FV(), FVSCHEDULE(), IPMT() and PV()

FVSCHEDULE

Description

Future Value Schedule: Applies compound interest rates and Calculates projected value of the initial principal

Syntax

FVSCHEDULE(princ, sched)

Arguments	Definitions
princ	the initial sum
sched	a series of interest rates charged

Notes and Error Messages:

FVSCHEDULE returns the #BAD DATA! error value if **princ** is non-numeric.

Example

An account with an opening balance of $100 which grows 10% each period will have the balance shown below at the end of 12th period.

FVSCHEDULE(100;{0.1;0.1;0.1;0.1;0.1;0.1;0.1;0.1;0.1;0.1;0.1;0.1}) = $313.8428377

Associated Functions

FV(), FVAL(), IPMT() and PV()

INTRATE

Description

Interest Rates: Calculates fully invested securities' interest rates

Syntax

INTRATE(set, mat, inv, red, *b)*

Arguments	Definitions
set	the serial date value for the date of settlement of the security
mat	the serial date value for the date of maturation of the security
inv	sum invested in the security
red	amount redeemed at maturity
b	the day-count basis used

Notes and Error Messages:

Set, **mat**, and **b** are rounded to integers.

INTRATE returns the #BAD DATA! error value if:

- **set** or **mat** is not a valid serial date value
- **b** is not 0, 1, 2, or 3
- **set** > **mat**

Example

INTRATE(date(1;3;94);date(1;5;94);500;550) = 0.6, i.e., 60% annually

Associated Functions

RECEIVED()

IPMT

Description

Interest Payments: Calculates interest payments for investments for a set period based on a constant interest rate

Syntax

IPMT(rate, per, nper, pv)

Arguments	Definitions
rate	rate of interest
per	the period for which interest must be found
nper	the total payment periods
pv	present value of future payments

Notes and Error Messages:

IPMT returns the #BAD DATA! error value if the arguments are non-numeric.

Per must be in the range 1 to nper inclusive.

Cash debits are to be represented as negative values; cash revenues are to be represented by positive values.

Example

To calculate the interest due after one year for a two-year $1,000 loan at 12% annual interest:

IPMT(0.12/12,12,24,1000)= -$6

Associated Functions

ACCRINTM(), CUMIPMT(), INTRATE(), PMT(), PPMT(), PV() and RATE()

IRR

Description

Internal Rate of Return: Calculates an internal rate of return for a range of cash flows

Syntax

IRR(vals, guess)

Arguments	Definitions
vals	the range containing values whose internal rate of return you wish to calculate
guess	optional argument--your estimate of the result of the function

Notes and Error Messages:

Arrays should be represented as a range of cells, for example B1:B6.

At least one of the **vals** at the beginning of a list must be negative and at least one positive.

Example

Suppose you invest $1,000 and expect $200, $300, $400, $500 incomes within the next periods respectively. Let cells B1-B5 contain: -1000, 200, 300, 400, 500. Your internal rate will amount to:

IRR(b1:b6) = 0.128, i.e., 12.8%

Associated Functions

MIRR(), NPV(), RATE(), XIRR() and XNPV()

MIRR

Description

Modified Internal Rate of Return: Calculates a modified internal rate of return for a list of values, taking into account both the cost of the initial investment and the interest on reinvestment of incomes.

Syntax

MIRR(vals, frate, rrate)

Arguments	Definitions
vals	the array that contains payment values (negative values) and income (positive values) in each period
frate	the interest rate paid on funds borrowed for investment
rrate	the interest rate you receive on reinvested funds

Notes and Error Messages:

The array used in **vals** should be represented as a range of cells; for example B1:B6.

At least one of the **vals** must be negative, and at least one positive. Otherwise, the function returns #DIV/0! error value.

Example

If cells B1 to B5 contain -1,000, 200, 300, 400, 500 respectively,

MIRR(B1:B5, 0.08, 0.009) = .0906, i.e., 9%

Associated Functions

IRR(), RATE(), XIRR() and XNPV()

NOMINAL

Description

Nominal Interest Rate: Calculates an annual nominal interest rate

Syntax

NOMINAL(e_rate, npery)

Arguments	Definitions
e_rate	the effective rate of interest
npery	the number of annual compounding periods

Notes and Error Messages:

Npery is rounded to an integer.

NOMINAL returns the #BAD DATA! error value if the arguments are non-numeric.

Example

NOMINAL(1;12) = 0.7135

Associated Functions

EFFECT()

NPER

Description

Number of Repayment Periods: Calculates the number of periods, or payments, needed to repay a loan based on the given payment, interest rate for each period and amount of principal

Syntax

NPER(pmt, int, per)

Arguments	Definitions
pmt	the payment you make each period
int	the rate of interest for each period
per	the present value

Notes and Error Messages:

NPER returns the #BAD DATA! error value for non-numeric arguments.

Example

This example assumes payment is made at the end of the period.

NPER(100, 0.3/12, 1000) = 11.65

Associated Functions

FV(), IPMT(), PMT(), PPMT(), PV() and RATE()

NPV

Description

Calculates the net present value of a loan for the given interest rate and list of payments. Use this function when payments will not be constant.

Syntax

NPV(int, list)

Arguments	Definitions
int	the rate of discount
list	the array representing the payments and incomes in each period

Notes and Error Messages:

NPV returns the #BAD DATA! error value for non-numeric arguments.

Funds paid out are to be written as negative values, funds you receive are positive.

Examples

NPV(0.1;{-1000;100;1000}) = $75.13 (assuming payment of $1,000 is made at the end of the first period)

Associated Functions

FV(), IRR(), PV() and XNPV()

PAYMT

Description

Payment: Calculates the periodic payment for annuities where payments and interest rates are constant

Syntax

PAYMT(rate, nper, pv, *fv*, *t)*

Arguments	Definitions
rate	a real number specifying interest rate
nper	the total payment periods
pv	a real number specifying present value
fv	a real number specifying the future value that should be attained after the last payment. If omitted, 0 is assumed.
t	Time of payment: 0 - payment takes place at the end of the period 1 - payment takes place at the beginning of the period

Notes and Error Messages

PAYMT returns the #BAD DATA! error value for non-numeric arguments.

Cash debits are represented by negative values, while cash revenues are represented by positive values.

Examples

To compare your monthly payments at the start or end of the month for a 10-month $2,000 mortgage with a 9% annual interest rate, enter the following:

PAYMT(0.09/12, 10, 2000) = -$208.34

PAYMT(0.09/12, 10, 2000, 0, 1) = -$206.79

Associated Functions

FV(), IPMT(), NPER(), PMT(), PPMT(), PV() and RATE()

PMT

Description

Payment: Calculates the periodic payment for the given principal amount, interest rate for each period and number of regular payment periods. PMT assumes that interest is paid at the end of each period.

Syntax

PMT(pv, int, nper)

Arguments	Definitions
pv	a real number specifying the present value
int	a real number specifying the interest rate
nper	the total payment periods

Notes and Error Messages

PMT returns the #BAD DATA! error value for non-numeric arguments.

Cash debits are represented by negative values; cash revenues are represented by positive values.

Example

To calculate a monthly payment for a 5-year loan of $20,000 at an annual 12% interest rate, enter the following:

PMT(20000, 0.12/12, 5*12) = $444.89

Associated Functions

FV(), IPMT(), NPER(), PAYMT(), PPMT(), PV() and RATE()

PPMT

Description

Payment Against Principal: Calculates payment against principal for investments for given periods, such as the last year of a loan. Payments and interest rates are constant.

Syntax

PPMT(rate, per, nper, pv)

Arguments	Definitions
rate	a real number specifying the interest rate
per	a real number specifying the period; must be from 1 to **nper**
nper	number of payment periods
pv	a real number specifying present value

Notes and Error Messages

PPMT returns the #BAD DATA! error value if:

- any argument is non-numeric
- **per** is out of range

Example

The following function returns the principal payment for the last year of an 11-year, $2,500 loan at 7% annual interest:

PPMT(0.07, 11, 11, 2500) = -$311.58

Associated Functions

FV(), IPMT(), NPER(), PAYMT(), PMT(), PV() and RATE()

PRICE

Description

Securities Price: For securities returning periodic interest, PRICE calculates price for each $100 face value

Syntax

PRICE(set, mat, rate, yld, red, fr, *b)*

Arguments	Definitions
set	a serial date value specifying the security's date of settlement
mat	a serial date value specifying the security's date of maturation
rate	a real number specifying the interest rate
yld	a real number specifying the security's annual yield
red	a real number for the security's redemption value for each $100 face value
fr	an integer specifying the number of annual coupon payments. For annual payments, **fr** = 1; for semiannual, **fr** = 2; for quarterly, **fr** = 4.
b	an integer from 0 to 4, specifying the type of day-count basis to use. If omitted, 0 is supposed.

Notes and Error Messages

PRICE returns the #BAD DATA! error value if:

- the arguments are non-numeric
- **set** or **mat** is not a valid serial date value
- **rate** or **yld** is negative
- **b** or **fr** is out of range
- **set** is greater than or equal to **mat**

If **set, mat, fr** and **b** are non-integers they are truncated.

Example

PRICE could be used for a bond with the terms shown below:

The date of settlement is February 10, 1991
The date of maturation is November 15, 1991
The semiannual coupon is 5.89%
The yield is 7.12%
The redemption value is $80
The frequency is semiannual and based on 30/360

The bond price (in the 1900 Date System) is:

PRICE(33279, 33557, 0.0589, 0.0712, 80, 2, 0) = 80.12896169

Associated Functions

DATE and YIELD

PRICEDISC

Description

Securities Discount Price: For each $100 face value of discounted securities, PRICEDISC calculates sale price

Syntax

PRICEDISC(set, mat, disc, red, *b)*

Arguments	Definitions
set	a serial date value specifying the security's date of settlement
mat	a serial date value specifying the security's date of maturation
disc	a real number specifying the security's discount rate
red	a real number for the security's redemption value for each $100 face value
b	an integer from 0 to 4 specifying the type of day-count basis to use. If omitted, 0 is assumed.

Notes and Error Messages

PRICEDISC returns the #BAD DATA! error value if:

- **set** or **mat** is not a valid serial date value
- **disc** or **red** is negative
- **b** is out of the range
- **set** is greater than or equal to **mat**

If **set, mat** and **b** are non-integers they are truncated.

Example

PRICEDISC works as shown in the bond calculation below:

The date of settlement is February 10, 1991
The date of maturation is November 15, 1991
The discount rate is 5.89%
The redemption value is $80 and based on 30/360

The bond price (in the 1900 Date System) is:

PRICEDISC(33279, 33557, 0.0589, 80, 0) = 76.40055556

Associated Functions

DATE(), DISC() and YIELDDISC()

PRICEMAT

Description

Securities Price at Maturity: For securities paying interest upon maturation, PRICEMAT calculates price for each $100 face value

Syntax

PRICEMAT(set, mat, iss, rate, yld, *b*)

Arguments	Definitions
set	a serial date value specifying the security's date of settlement
mat	a serial date value specifying the security's date of maturation
iss	a serial date value specifying the security's date of issue
rate	a real number specifying the interest rate
yld	a real number specifying the security's annual yield
b	an integer from 0 to 4 specifying the type of day-count *basis* to use. If omitted, 0 is assumed.

Notes and Error Messages

If **set, mat, iss** and **b** are non-integers they are truncated.

PRICEMAT returns the #BAD DATA! error value if:

- the arguments are non-numeric
- **set, iss** or **mat** is not a valid serial date value
- **rate** or **yld** is negative
- **b** is out of the range
- **set** is greater than or equal to **mat**

Example

PRICEMAT could be used for a bond with the terms shown below:

The date of settlement is February 10, 1991
The date of maturation is November 15, 1991
The date of issue is September 12, 1990
The semiannual coupon is 5.75%
The yield is 5.77% and based on 30/360

The price (in the 1900 Date System) is:

PRICEMAT(33279, 33557, 33128, 0.0575, 0.0577, 0) = 136.8498472

Associated Functions

DATE() and YIELDMAT()

PV

Description

Present Value: Calculates an investment's present value, the total present worth of a series of future payments

Syntax

PV(rate, nper, pmt)

Arguments	Definitions
rate	a real number specifying interest rate
nper	a real number specifying total payment periods
pmt	a real number specifying the payment made each period; cannot change over the life of the annuity

Notes and Error Messages

PV returns the #BAD DATA! error value for non-numeric arguments.

Cash debits are represented by negative values; cash revenues are represented by positive values.

Example

PV is useful in the following types of analysis. Which is better, to pay $25,000 up front, or $450 per month for the next 10 years at 7.5% interest?

PV(0.075/12, 12*10, 450) = $37,910.13

This tells you that the loan's present value is $12,910.13 more than the initial $25,000 payment.

Associated Functions

FV(), IPMT(), NPER(), PMT(), PPMT() and RATE

RATE

Description

Rate: Calculates annuity interest rates per period

Syntax

RATE(nper, pmt, pv*, type, g)*

Arguments	Definitions
nper	a real number specifying total payment periods
pmt	real number specifying the payment made each period; fixed for the life of the annuity
pv	a real number specifying the present value
type	type is an optional argument
g	Guess, your estimate of the result, is an optional argument

Notes and Error Messages

RATE returns the #BAD DATA! error value for non-numeric arguments.

Example

The following example shows how to calculate the rate of a three-year, $5,000 loan with monthly payments of $120:

RATE(3*12, -120, 5000) = 0.0077

Associated Functions

FV(), IPMT(), NPER(), PMT(), PPMT() and PV()

RECEIVED

Description

Amount Received on Maturity: For fully invested securities, RECEIVED calculates amount paid upon maturation

Syntax

RECEIVED(set, mat, inv, disc, *b*)

Arguments	Definitions
set	a serial date value specifying the security's date of settlement
mat	a serial date value specifying the security's date of maturation
inv	security investment amount
disc	a real number specifying the security's discount rate
b	an integer from 0 to 4 specifying the type of day-count *basis* to use. If omitted, 0 is supposed

Notes and Error Messages

RECEIVED returns the #BAD DATA! error value for non-numeric arguments or if:

- **set** or **mat** is not a valid serial date value
- **b** is out of the range
- **set** is greater than or equal to **mat**

If **set, mat** and **b** are non-integers they are truncated.

Example

RECEIVED could be used for a bond with the terms shown below:

The date of settlement is February 10, 1990
The date of maturation is November 15, 1993
The discount rate is 5.75%
Amount invested in the security
and based on 30/360

The total to be received upon maturation (in the 1900 Date System) is:

RECEIVED(32914, 34288, 0.0575, 100000,0) = -0.000000153

Associated Functions

DATE() and INTRATE()

SLN

Description

Straight-line Depreciation: Calculates depreciation for an asset for a single period using the straight-line method of depreciation

Syntax

SLN(cost, sal, lif)

Arguments	Definitions
cost	a real number specifying the original asset cost
sal	a real number specifying the asset's salvage value after depreciation
lif	a real number specifying the number of periods, or lifetime, over which you want to determine asset deprecation

Notes and Error Messages

SLN returns the #BAD DATA! error value for non-numeric arguments.

Example

If the original purchase price of a given piece of equipment is $15,000, useful lifetime is 15 years and salvage value $2,300, the annual depreciation allowance would be:

SLN(15000, 2300, 15) = $846.67

Associated Functions

DDB(), SYD() and VDB()

SYD

Description

Sum of Years' Depreciation: Calculates depreciation for an asset for given periods using the straight-line method of depreciation

Syntax

SYD(cost, sal, lif, per)

Arguments	Definitions
cost	a real number specifying the original asset cost
sal	a real number specifying the salvage value after depreciation
lif	a real number specifying the number of periods, or lifetime, over which you want to determine asset deprecation
per	a real number specifying the period; must use the same units as **lif**

Notes and Error Messages

SYD returns the #BAD DATA! error value for non-numeric arguments.

Examples

If the original purchase price of a given piece of equipment is $15,000, useful lifetime is 15 years and salvage value $2,300, the first-year's depreciation allowance would be:

SYD(15000, 2300, 15, 1) = $1,587.50

The yearly depreciation allowance for the 12th year would be:

SYD(15000, 2300, 15, 12) = $423.33

Associated Functions

DDB(), SLN() and VDB

TBILLPRICE

Description

T-Bill Price: Calculates Treasury bill price per $100 face value

Syntax

TBILLPRICE(set, mat, disc)

Arguments	Definitions
set	a serial date value specifying the security's date of settlement
mat	a serial date value specifying the security's date of maturation
disc	a real number specifying the security's discount rate

Notes and Error Messages

TBILLPRICE returns the #BAD DATA! error value for non-numeric arguments or if:

- **set** or **mat** is not a valid serial date value
- **disc** is non-positive

If **set** and **mat** are non-integers they are truncated.

Example

TBILLPRICE could be used for a Treasury bill with the terms shown below:

The date of settlement is February 10, 1990
The date of maturation is November 15, 1993
The discount rate is equal to 7%

The Treasury bill price (in the 1900 Date System) is:

TBILLPRICE(32914, 34288, 0.07) = 73.28333333

Associated Functions

DATE() and TBILLYIELD

TBILLYIELD

Description

T-Bill Yield: Calculates Treasury bill yields

Syntax

TBILLYIELD(set, mat, disc)

Arguments	Definitions
set	a serial date value specifying the security's date of settlement
mat	a serial date value specifying the security's date of maturation
pr	a real number specifying the Treasury bill's price for each $100 face value.

Notes and Error Messages

TBILLYIELD returns the #BAD DATA! error value for non-numeric arguments or if:

- **set** or **mat** is not a valid serial date value
- **pr** is non-positive

If **set** and **mat** are non-integers they are truncated.

Example

TBILLYIELD could be used for a Treasury bill with the terms shown below:

The date of settlement is February 10, 1990
The date of maturation is November 15, 1993
The price for each $100 face value is equal to 72.22

The Treasury bill yield (in the 1900 Date System) is:

TBILLYIELD(32914, 34288, 72.22) = 10.08%

Associated Functions

DATE() and TBILLPRICE

VDB

Description

Variable Declining Balance: Calculates depreciation of assets for specified periods using the double declining balance or other specified methods

Syntax

VDB(cost, sal, lif, sper, eper)

Arguments	Definitions
cost	the initial asset cost
sal	the salvage value after depreciation
lif	a real number specifying the number of periods, or lifetime, over which you want to determine asset deprecation
sper	an integer specifying the starting period for which depreciation is to be calculated
eper	an integer specifying the ending period for which depreciation is to be calculated

Notes and Error Messages

VDB returns the #BAD DATA! error value for non-numeric or negative arguments.

Examples

The following examples show depreciation for a pair of new microcomputers purchased for $4,000 with lifetimes of five years and salvage value of $490.

VDB(4000, 490, 5*365, 0, 1) = $4.38, the first day's depreciation

VDB(4000, 490, 5*12, 0, 1) = $133.33, the first month's depreciation

VDB(4000, 490, 5, 0, 1) = $1,600.00, the first year's depreciation

VDB(4000, 490, 5*12, 4, 15) = $1,087.21, the depreciation calculated between the 4th and 15th months

Associated Functions

DDB(), SLN() and SYD()

XIRR

Description

Cash Internal Rate of Return: Calculates internal rate of return for regular or irregular cash flow schedules

Syntax

XIRR(values, dates, g)

Arguments	Definitions
values	an array of cash flows matched to a series of payments and dates
dates	an array of payment dates matched with cash flow payments
g	a guess; your speculated result of XIRR

Notes and Error Messages

Numbers in **dates** are truncated to integers.

XIRR returns the #BAD DATA! error value for non-numeric arguments or if:

- arrays have a different number of values
- **value** doesn't contain at least one positive cash flow and one negative cash flow
- **dates** contains invalid serial date value(s)
- any serial date value is earlier than the serial date value of the starting date

Examples

If you invested $5,000 on January 1, 1994, and the return was $1,000 on the first of each month for the next 6 months, you would compute Cash Internal Rate of Return as follows:

XIRR({-5000,1000,1000,1000,1000,1000,1000},
{34335,34366,34394,34425,34455,34486,34516}) = .908230878

Suppose that you invested $24,000 into an enterprise on December 15, 1992 and the payment returned $3,500 on March 15, 1993, $2,835 on June 15, 1993, $4,750 on September 15, 1993, and $6,000 on December 15, 1993. Compute Cash Internal Rate of Return as follows:

XIRR({-14000,3500,2835,4750,6000},A1:A5,0.1) = 0.33958219 or - 33.958219%, if range A1:A5 contains DATE(15,12,92), DATE(15,3,93), DATE(15,6,93) DATE(15,9,93) and DATE(15,12,93)

Associated Functions

IRR(), MIRR(), NPV(), RATE() and XNPV

XNPV

Description

Cash Net Present Value: Calculates net present value for regular or irregular cash flow schedules

Syntax

XNPV(rate, values, dates)

Arguments	Definitions
rate	a real number specifying the discount rate to apply to cash flows
values	an array containing a series of cash flows matched with a schedule of payments and dates
dates	an array containing payment dates that match the cash flow payments

Notes and Error Messages

Numbers in **dates** are truncated to integers.

XNPV returns the #BAD DATA! error value for non-numeric arguments or if:

- arrays have a different number of values
- **dates** contains invalid serial value(s)
- any serial date value is less than the serial date value of the starting date

Examples

If you invested $5,000 on January 1, 1994, the investment returned $1,000 on the first of each month for the next six months and you wanted to discount the cash flow at 10%, you would compute Cash Net Present Value as follows:

XNPV(0.1,{-5000,1000,1000,1000,1000,1000,1000},
{34335,34366,34394,34425,34455,34486,34516}) = 837.7471231

Suppose you invested $24,000 into an enterprise on December 15, 1992, and the payment returned $3,500 on March 15, 1993, $2,835 on June 15, 1993, $4,750 on September 15, 1993, and $6,000 on December 15, 1993, based on a 5% interest rate. You would compute Cash Net Present Value as follows:

XNPV(0.05,{-14000,3500,2835,4750,6000},A1:A5,0.1) = 2967.637955 if range A1:A5 contains DATE(15,12,92), DATE(15,3,93), DATE(15,6,93) DATE(15,9,93) and DATE(15,12,93)

Associated Functions

IRR(), MIRR(), NPV(), RATE() andXIRR

YIELD

Description

Yield on Securities: Calculates yield on securities returning periodic interest

Syntax

YIELD(set, mat, rate, pr, red, fr, *b)*

Arguments	Definitions
set	a serial date value specifying the security's date of settlement
mat	a serial date value specifying the security's date of maturation
rate	a real number specifying the security's annual coupon rate
pr	a real number specifying the security's price for each $100 face value
red	a real number representing the security's redemption value for each $100 face value
fr	an integer specifying the number, or frequency, of annual coupon payments. for annual payments, **fr** = 1 for semiannual, **fr** = 2 for quarterly, **fr** = 4
b	an integer from 0 to 4 specifying the type of day-count basis is to use. If omitted, 0 is supposed.

Notes and Error Messages

Convert dates to serial values before proceeding or type them into another cell and reference them in the formula.

YIELD returns the #BAD DATA! error value for non-numeric arguments or if:

- **set** or **mat** is an invalid serial date value
- **rate** or **pr** is negative
- **b** is out of range

YIELD truncates **set, mat** and **b** to integers.

Example

YIELD works as shown in the bond calculation below:

The date of settlement is February 10, 1991
The date of maturation is November 15, 1991
The coupon rate is 5.75%
The price is equal to 120.2222
The redemption value is $80
The frequency is semiannual and based on 1

The bond yield (in the 1900 Date System) is:

YIELD(33279,33557,5.75/100,120.2222,80,1) = -0.385791894

Associated Functions

NOW() and PRICE()

YIELDDISC

Description

Yield on Discounted Securities: Calculates discounted securities' annual yield

Syntax

YIELDDISC(set, mat, pr, red, *b)*

Arguments	Definitions
set	a serial date value specifying the security's date of settlement
mat	a serial date value specifying the security's date of maturation
pr	a real number specifying the security's price for each $100 face value
red	a real number for the security's redemption value for each $100 face value
b	an integer from 0 to 4 specifying the type of day-count *basis* to use. If omitted, 0 is supposed.

Notes and Error Messages

Convert dates to serial values before proceeding or type them into another cell and reference them in the formula.

YIELDDISC returns the #BAD DATA! error value for non-numeric arguments or if:

- **set, iss** or **mat** is an invalid serial date value
- **red** or **pr** is negative
- **b** is out of range
- **set** is greater than or equal to **mat**

If **set, mat, iss** and **b** are non-integers they are truncated.

Example

YIELDDISC works as shown in the bond calculation below:

The date of settlement is February 10, 1991
The date of maturation is November 15, 1991
The price is equal to 120.2222
The redemption value is $80
and based on 30/360

The bond yield (in the 1900 Date System) is:

YIELDDISC(33279,33557,120.2222,80,30/360) = -0.43797665

Associated Functions

DISC(), NOW() and PRICEDISC

YIELDMAT

Description

Yield on Securities at Maturity: For securities paying interest upon maturation, YIELDMAT calculates annual yield

Syntax

YIELDMAT(set, mat, iss, rate, pr, *b)*

Arguments	Definitions
set	a serial date value specifying the security's date of settlement
mat	a serial date value specifying the security's date of maturation
iss	a serial date value specifying the security's date of issue
rate	a real number specifying the security's interest rate at date of issue
b	an integer from 0 to 4 specifying the type of day-count *basis* to use. If omitted, 0 is supposed.

Notes and Error Messages

Convert dates to serial values before proceeding or type them into another cell and reference them in the formula.

YIELDMAT returns the #BAD DATA! error value for non-numeric arguments or if:

- **set, iss** or **mat** is an invalid serial date value
- **rate** or **pr** is negative
- **b** is out of range
- **set** is greater than or equal to **mat**

If **set, mat, iss** and **b** are non-integers they are truncated.

Example

YIELDMAT could be used for a bond with the terms shown below:

The date of settlement is February 10, 1991
The date of maturation is November 15, 1991
The date of issue is September 12, 1990
The semiannual coupon rate is 5.75%
The price is equal to 120.2222 and based on 30/360

The yield (in the 1900 Date System) is:

YIELDMAT(33279,33557,33128,5.75,120.2222,30/360) = 1.5381667

Associated Functions

DATE() and PRICEMAT()

Financial Functions

Function	Description
ACCRINTM()	**Accrued Interest at Maturity:** Calculates interest accrued on a security returning interest upon maturation
COUPDAYBS()	**Coupon Days** (beginning to date of settlement)**:** Calculates the duration of the coupon period in days from the beginning to date of settlement
COUPDAYS()	**Coupon Days:** Calculates the duration of the coupon period (in days) when the settlement occurs
COUPDAYSNC()	**Coupon Days** (date of settlement to next coupon date): Calculates number of days between date of settlement and the next coupon issue date
COUPNCD()	**Next Coupon Date after Settlement**: Calculates the next coupon date following date of settlement
COUPNUM()	**Coupons, Number Payable:** Calculates coupons payable between the date of settlement and date of maturation
COUPPCD()	**Coupon Date** (prior to date of settlement): Calculates coupon date prior to the date of settlement
CUMIPMT()	**Cumulative Interest Payments:** Calculates cumulative interest paid from the first to last periods specified
CUMPRINC()	**Cumulative Principal:** Calculates cumulative principal paid against a loan from first to last periods specified
DB()	**Declining Balance:** Uses the fixed-declining balance method to calculate real depreciation of assets over a given period
DDB()	**Double-Declining Balance:** Uses the double-declining balance method to calculate asset depreciation
DISC()	**Discount:** Calculates securities' discount rates
DOLLARDE()	**Dollars to decimals:** Converts dollar prices from fractions to decimals
DOLLARFR()	**Dollars to fractions:** Converts dollar prices from decimals to fractions
EFFECT()	Calculates **effective annual interest rate**
FV()	**Future Value:** Calculates future value of investments where interest rates and periodic payments are constant
FVAL()	**Future Value:** Calculates future value of investments where payments and interest rates are constant in each period
FVSCHEDULE()	**Future Value Schedule:** Applies compound interest rates and computes projected value of the initial principal
INTRATE()	**Interest Rates:** Calculates fully invested securities' interest rates
IPMT()	**Interest Payments:** Calculates interest payments for investments for a set period based on a constant interest rate
IRR()	**Internal Rate of Return:** Calculates an internal rate of return for a range of cash flows
MIRR()	**Modified Internal Rate of Return:** Calculates a modified internal rate of return for a list of values
NOMINAL()	**Nominal Interest Rate:** Calculates an annual nominal interest rate

NPER()	**Number of Repayment Periods:** Calculates the number of periods, or payments, needed to repay a loan based on the given payment, interest rate per period and amount of principal
NPV()	**Net Present Value:** Calculates the net present value of a loan for the given interest rate and list of payments. Use this function when payments will not be constant.
PAYMT()	**Payment:** Calculates the periodic payment for annuities where payments and interest rates are constant
PMT()	**Payment:** Calculates the periodic payment for the given principal amount, interest rate per period and number of regular payment periods. PMT assumes that interest is paid at the end of each period.
PPMT()	**Payment Against Principal:** Calculates payment against principal for investments for given periods. Payments and interest rates are constant.
PRICE()	**Securities Price:** For securities returning periodic interest, PRICE calculates price for each $100 face value
PRICEDISC()	**Securities Discount Price:** For each $100 face value of discounted securities, PRICEDISC calculates sale price
PRICEMAT()	**Securities Price at Maturity:** For securities paying interest upon maturation, PRICEMAT calculates price per $100 face value
PV()	**Present Value:** Calculates an investment's present value, the total present worth of a series of future payments
RATE()	**Rate:** Calculates annuity interest rates per period
RECEIVED()	**Amount Received on Maturity:** For fully invested securities, RECEIVED calculates amount paid upon maturation
SLN()	**Straight-line Depreciation:** Calculates depreciation for an asset for a single period using the straight-line method of depreciation
SYD()	**Sum of Years' Depreciation:** Calculates depreciation for an asset for given periods using the straight-line method of depreciation
TBILLPRICE()	**T-Bill Price:** Calculates Treasury bill price per $100 face value
TBILLYIELD()	**T-Bill Yield:** Calculates Treasury bill yields
VDB()	**Variable Declining Balance:** Calculates depreciation of assets for specified periods using the double declining balance or other specified methods
XIRR()	**Cash Internal Rate of Return:** Calculates internal rate of return for regular or irregular cash flow schedules
XNPV()	**Cash Net Present Value:** Calculates net present value for regular or irregular cash flow schedules
YIELD()	**Yield on Securities:** Calculates yield on securities returning periodic interest
YIELDDISC()	**Yield on Discounted Securities:** Calculates discounted securities' annual yield
YIELDMAT()	**Yield on Securities at Maturity:** For securities paying interest upon maturation, YIELDMAT calculates annual yield

Spreadsheet Functions

Function categories

Conversion
Date and Time
DDE/External
Engineering
Financial
Information
Logical
Lookup and Reference
Math and Trig
Statistical
Text

Related Help topics

Procedures

Editing a formula using the formula bar
Editing a formula directly in a cell
Entering formulas directly into a cell
Using alphanumeric date and time values
Using Context-sensitive Help with Functions
Using the Enter Formula command
Using the Formula Bar

The Enter Formula dialog box

Enter Formula dialog box (Data menu)

Reference

List of Operators
Reference materials
Spreadsheet error values
Spreadsheet Functions: An Alphabetical Listing

Reference materials

The books listed below provide useful information in the subject areas covered by the spreadsheet functions. *See also* Spreadsheet Functions

Engineering

Reich, Jens G. C Curve Fitting and Modeling for Scientists and Engineers. New York: McGraw-Hill, Inc., 1992.

Reid, David M. Reed's Mathematical Tables and Engineering Formulae. London: Thomas Reed Publications Limited, 1974.

Vetterling, William T. et al. Numerical Recipes Example Book (C), Second Edition. Cambridge: The Press Syndicate of the University of Cambridge, 1992.

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Lutzig, Peter and Schwab, Bernhard. Managerial Finance in a Canadian Setting, Third Edition. Toronto: Butterworth and Co. (Canada) Ltd., 1983.

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Mathematics

Allendoerfer, C.B., and Oakley, C.O. Fundamentals of Freshman Mathematics. New York: McGraw-Hill Book Company, Inc., 1959.

Borowski, E.J., and Borwein, J.M. The HarperCollins Dictionary of Mathematics. New York: Harper Perennial, 1991.

Clapham, Christopher. The Concise Oxford Dictionary of Mathematics. New York: Oxford University Press, 1990.

Del Grande, J.J. and Egsgard, J.C. Relations: Elements of Modern Mathematics. Toronto: Gage Educational Publishing Limited, 1972.

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Salem, Lionel, Testard, Frédéric and Salem, Coralie. The Most Beautiful Mathematical Formulas. Translated by James D. West. New York: John Wiley and Sons, Inc., 1992.

Statistics

Albright, S. Christian. Statistics for Business and Economics. New York: Macmillan Publishing Company, 1987.

Harnett, Donald L. Statistical Methods, Third Edition. Reading, Mass.: Addison-Wesley Publications Company, 1982.

Mansfield, Edwin. Statistics for Business and Economics: Methods and Applications, Third Edition. New York: W.W. Norton and Company, 1987.

Porkess, Roger. The HarperCollins Dictionary of Statistics. New York: Harper Perennial, 1991.

List of Operators

You can use the following operators to build your formulas.

Operator	Action
+	Addition. If both arguments are text strings enclosed in double quotation marks, the plus sign links the two strings.
-	Subtraction
*	Multiplication. If the first operand is a number and the second is a string of characters enclosed in quotation marks, this operation repeats the text string the number of times given in the first operand.
/	Division
^	Raise to a power
( )	Group parts of a formula or function
{ }	Group constant arrays of 10 values or fewer

Spreadsheet error values

The Data Manager displays the following spreadsheet error values. **NB**: To edit a formula after you receive an error value, use the Home, End, Backspace or Delete keys. You cannot use the arrow keys unless you press F2 first.

Error Value	Explanation
Expecting a comma	You have omitted a comma between arguments.
Expecting a list separator	List separators such as commas, semicolons, or double periods must be used to separate values in Data Manager formulas.
Illegal value for location	You have used the wrong data type for one or more of the arguments.
Syntax error	Operators, variables or arguments incorrectly positioned.
Unbalanced parenthesis	Parenthesis missing or included out of place
Formula too complex	Data Manager formulas must not exceed 255 characters in length.
#ARG CNT!	Incorrect number of arguments. Verify the number of arguments in the formula.
#BAD DATA!	The data are not of the type implied by the argument..
#CALC ERR!	Error during calculation. Verify that values used as arguments are of the proper type.
#CELL!	The values of cells used as arguments are not of appropriate type expected by a function.
#DIV/0!	The formula attempts to divide by zero. Examine cell reference for blanks or zeros. Formula may be written incorrectly so that it attempts to divide by zero.
#FATAL ERR!	Internal error of the command interpreter. Verify all formulas in your spreadsheet.
#NUM!	The formula has a problem with a number. The numeric argument is out of acceptable range of inputs, or the function calculates the result given the arguments you have entered.
#REF!	Illegal function reference
#N/A!	Data not available
#RECURSIVE!	The formula contains a recursive reference. Check the chain of references for circular arguments.
########	Where a number contains more digits than can be displayed in the current column width, number signs appear in the cell.

Information Functions

Function	Description
ISBLANK()	Result is 1 if the argument refers to a blank cell and 0 otherwise
ISERROR()	Result is 1 if the argument refers a cell containing an error value and 0 otherwise
ISEVEN()	Result is 1 if the argument is an even number and 0 otherwise
ISNONTEXT()	Result is 1 if the argument refers to non-text data
ISNUMBER()	Result is 1 if the argument refers to a cell containing a number and 0 otherwise
ISODD()	Result is 1 if the argument is an odd number and 0 otherwise
ISTEXT()	Result is 1 if the argument refers to a cell containing text and 0 otherwise
TYPE()	Result is a number indicating the data type in a specified cell

ISBLANK

Description

Result is 1 if the argument refers to a blank cell and 0 otherwise

Syntax

ISBLANK(val)

Argument

val	contents of the cell referenced

Notes and Error Messages

If the argument is not a reference to the cell, the function returns 0.

Examples

ISBLANK(12) = 0

ISBLANK(A1) = 1 , if A1 is an empty cell

Associated Functions

ISERROR, ISEVEN, ISNONTEXT, ISNUMBER, ISODD and ISTEXT

ISERROR

Description

Result is 1 if the argument refers a cell containing an error value and 0 otherwise

Syntax

ISERROR(val)

Argument

val	a reference to the investigated cell

Example

ISERROR(A1) = 1, if A1 contains any error value

Associated Functions

ISBLANK, ISEVEN, ISNONTEXT, ISNUMBER, ISODD and ISTEXT

ISEVEN

Description

Result is 1 if the argument is an even number and 0 otherwise

Syntax

ISEVEN(val)

Argument

val	any integer

Notes and Error Messages

If the argument is non-numeric, the funtion returns the #BAD DATA! error value.

If the argument is a non-integer, it is truncated.

Examples

ISEVEN(-1) = 0

ISEVEN(7.23) = 0

ISEVEN(4.216) = 1

Associated Functions

ISODD

ISNONTEXT

Description

Result is 1 if the argument refers to non-text data

Syntax

ISNONTEXT(val)

Argument

val	any kind of data to be investigated

Notes and Error Messages

The argument can be a reference to the cell containing the value to test.

If the argument refers to a blank cell, the function returns 1.

Examples

ISNONTEXT(12) = 1

ISNONTEXT("12") = 0

Associated Functions

ISTEXT

ISNUMBER

Description

Result is 1 if the argument refers to a cell containing a number and 0 otherwise

Syntax

ISNUMBER(val)

Argument

val	a number to be tested

Notes and Error Messages

The argument can be a reference to the cell containing the value to test.

Examples

ISNUMBER(12) = 1

ISNUMBER("12") = 0

Associated Functions

ISERROR, ISEVEN, ISNONTEXT, ISNUMBER, ISODD and ISTEXT

ISODD

Description

Result is 1 if the argument is an odd number and 0 otherwise

Syntax

ISODD(val)

Argument

val	any integer number

Notes and Error Messages

If argument is non-numeric, the funtion returns the #BAD DATA! rerror value.

If the argument is a non-integer, it is truncated.

Examples

ISODD(-1) = 1

ISODD(7.253) = 1

ISODD(4.235) = 0

Associated Functions

ISEVEN

ISTEXT

Description

Result is 1 if the argument refers to a cell containing text and 0 otherwise

Syntax

ISTEXT(val)

Argument

val	refers to text

Notes and Error Messages

The argument can be a reference to the cell containing the value to test.

Examples

ISTEXT("12") = 1

ISTEXT(A1) = 1 if A1 contents the text value.

Associated Functions

ISNONTEXT()

TYPE

Description

Result is a number indicating the data type in a specified cell

Syntax

TYPE(cell)

Argument

cell	the address of a cell containing a value to be tested

Values	**Returning type**
Blank	0
Number	1
Text	2

Error Values	**16-24:**
"#CALC ERR!"	16
"#CELL!"	17
"#DIV/0!"	18
"#BAD DATA!"	19
"#ARG CNT!"	20
"#NUM!"	21
"#FATAL ERR!"	22
"N/A!"	23
"RECURSIVE!"	24

Notes and Error Messages

The TYPE function is useful in finding out what type of data was returned by other functions.

TYPE returns 0, if there is no data in the addressed cell.

Example

If A1 contains the value 12

TYPE(A1) = 1

Logical Functions

Function	Description
AND()	Result is 1 if all arguments in the list are TRUE and 0 if only one is FALSE
FALSE()	Result is the logical value 0
IF()	Result is one of the specified values depending on the logical condition
NOT()	Result is the reverse of the logical expression
OR()	Result is 1 if any argument in the list is TRUE and 0 if all arguments are FALSE
TRUE()	Result is the logical value 1

AND

Description

Result is 1 if all arguments in the list are TRUE and 0 if only one is FALSE

Syntax

AND(list)

Argument

List represents any combination of numbers, expressions, cell references separated by commas; or an array of values.

Notes and Error Messages

AND returns the #BAD DATA! errror value if arguments are not logical values or arrays whose references contain logical values.

Examples

AND(1+2=4, 3+4=7, 4+4=8) = 0

AND(TRUE, TRUE, TRUE) = 1

AND(TRUE, FALSE, TRUE) = 0

Enter the value 12 in cell B1, then:

AND(3<B1, B1<20) = 1

Associated Functions

NOT and OR

FALSE

Description

Result is the logical value 0

Syntax

FALSE()

Notes and Error Messages

Many types of spreadsheets and formulas interpret FALSE as the logical value 0.

Example

AND(TRUE, FALSE, TRUE) = 0 (FALSE)

Associated Functions

TRUE

IF

Description

Result is one of the specified values depending on the logical condition. IF returns the value contained in **t** if the condition **exp** is true, otherwise it returns the value contained in **f**.

Syntax

IF(exp, t, f)

Arguments	Definitions
exp	any logical expression
t	any numeric value or text enclosed in double quotation marks
f	any numeric value or text enclosed in double quotation marks

Notes and Error Messages

Nesting of the IF statement is limited by the number of characters permitted in the Formula bar (255).

Example

IF([cell reference]>= 1000, "Small Cash")

Associated Functions

AND, FALSE, NOT, OR and TRUE

NOT

Description

Result is the reverse of the logical expression

Syntax

NOT(exp)

Argument

exp	any logical value

Examples

NOT(TRUE)	= 0 (FALSE)
AND(NOT(2+1=5), TRUE)	= 1 (TRUE)

Associated Functions

AND and OR

OR

Description

Result is 1 if any argument in the list is TRUE and 0 if all arguments are FALSE

Syntax

OR()

Argument

List represents any combination of numbers, expressions, cell references separated by commas; or an array of values.

Notes and Error Messages

OR returns the #BAD DATA! errror value if the arguments are not logical values or arrays of references containing logical values.

Examples

OR(1+2=4, 3+4=7, 4+4=8) = 1

OR(TRUE, TRUE, TRUE) = 1

OR(FALSE, FALSE, FALSE) = 0

If cell B1 contains the value 2, then:

OR(3<B1, B1<20) = 1

Associated Functions

AND and NOT

TRUE

Description

Result is the logical value 1

Syntax

TRUE()

Notes and Error Messages

TRUE is interpreted as the logical value 0 in many types of spreadsheets and formulas.

Example

OR(1+2=4, 3+4=7, 4+4=8) = 1 (TRUE)

Associated Functions

FALSE

CHOOSE

Description

Chooses the specified number from a list based on the index number given. The first argument is the argument counter, which specifies the numbered argument to select. If the argument counter is zero, the first case will be selected, if the argument counter is one, the second case will be selected, and so on.

Syntax

CHOOSE(n, c1, *c2*, ...)

Arguments	Definitions
n	any non-negative integer; indicates the location of the returning value in the list of arguments to select
c1, *c2*, ...	a list of any kind of data (from one to 37 arguments) separated by commas

Notes and Error Messages

CHOOSE truncates **n** if it is not an integer.

CHOOSE returns the #ARG CNT! error value if the argument counter **n** is negative or if its value is greater than the number of the selected arguments minus one.

You must reference the place of each case with a comma even if you do not have a case for each test value.

Examples

CHOOSE(2, "CASE1", "CASE2", "CASE3", "CASE4") = "CASE3"

CHOOSE(4, "CASE1", "CASE2", "CASE3", "CASE4") = #ARG CNT!

COLUMNS

Description

Calculates the number of columns in a list. If there are several references in the list to one column, the column will be counted the given number of times.

Syntax

COLUMNS(list)

Arguments	Definitions
list	any combination of references to a range of cells separated by commas

Notes and Error Messages

If there are several references to one column in the list, the column will be counted the given number of times.

Examples

COLUMNS(A1:C3, H5:M18) = 9

COLUMNS(D1:D3) = 1

Associated Functions

ROWS

HLOOKUP

Description

Scans through the top row of the table or range from left to right (a) searching for the first instance of the value **x**, and (b) selecting the value a given number of rows down. If the particular value is found, the search stops at that column and HLOOKUP returns the value contained in the row index (**r_index**) of the column.

Syntax

HLOOKUP(x, list, y)

Arguments	Definitions
x	any numeric or character string; specifies the value being looked up in the top row of the data table
range	a reference to a range or an array name; specifies the data table
r_index	any integer; indicates how many rows down in the column the returning value is located; can be any number from one to the number of rows in the data table

Notes and Error Messages

HLOOKUP returns the #BAD DATA! error value if the search for the value **x** in the top row of the data table fails, or **y** is non-positive or greater than the number of rows in the data table.

HLOOKUP truncates **y** if it is not an integer.

HLOOKUP is not case-sensitive or sensitive to diacritical marks used in languages other than English.

Examples

	A	B	C
1.	**First Name**	**Last Name**	**Salary**
2.	Tyler	Bennett	$32,000
3.	John	Rappl	$47,000
4.	George	Woltman	$53,500
5.	Adam	Smith	$18,000

HLOOKUP("FIRST NAME", A1:C5, 3) = "John"

HLOOKUP("FIRST", A1:C5, 3) = #BAD DATA!

HLOOKUP("SALARY", A1:C5, 4) = 53,500

Associated Functions

VLOOKUP

nCOLUMN

Description

Calculates the number of the column for the cell where nCOLUMN is executed. The columns are numbered in ascending alphabetical order. nCOLUMN is widely used in Fill Series.

Syntax

nCOLUMN

Notes and Error Messages

nCOLUMN returns the same values for all cells in the column.

Examples

nCOLUMN	=	3, if nCOLUMN is contained in cell C4
TAN(PI/nCOLUMN)	=	1, if nCOLUMN is contained in cell D7

Associated Functions

nROW

nROW

Description

Calculates the number of the row for the cell containing nROW. The function is widely used in Fill Series.

Syntax

nROW(list_of_ranges)

List of ranges refers to the cells to be included in nROW.

Notes and Error Messages

nROW returns the same values for all cells in the row.

Examples

nROW	=	7, if nROW is contained in cell C7
TAN(PI/nROW)	=	1, if nROW is contained in cell D4

Associated Functions

nCOLUMN

ROWS

Description

Calculates the number of rows referenced in a list. If there are several references to one row in the list, this row will be counted the given number of times.

Syntax

ROWS(list_of_ranges)

List of ranges refers to the cells to be included in the function.

Arguments	Definitions
list	any combination of references to the range of cells; separated by commas

Notes and Error Messages

If there are several references to one row in the list, this row will be counted the given number of times.

Examples

ROWS(A1:C3, H5:M18)	= 17
ROWS(D1:D3)	= 3

Associated Functions

COLUMNS

VLOOKUP

Description

Scans down the lefthand column of the table or range, searching for the first occasion of the value **x**, then selecting the value a given number of columns to the right. If the particular value is found, the search stops at that row and the function returns the value contained in the column index (**c_index**) of that row.

Syntax

VLOOKUP(x, range, c_index)

Arguments	Definitions
x	any numeric or character string; specifies the value to be looked up in the lefthand column of the data table
range	a reference to a data table--a range or an array name
c_index	column index: any integer; c_index indicates how many columns to the right in the row the returning value is located; c_index may be any value from one to the number of columns in the data table

Notes and Error Messages

VLOOKUP truncates y if it is a non-integer.

VLOOKUP is not case-sensitive or sensitive to diacritical marks used in languages other than English.

VLOOKUP returns the #BAD DATA! error value if:

- the search of the **x** value in the lefthand column of the data table fails.
- **y** is non-positive or greater than the number of columns in the data table.

Examples

	A	B	C
1.	**FIRST NAME**	**LAST NAME**	**SALARY**
2.	Tyler	Bennett	$32,000
3.	John	Rappl	$47,000
4.	George	Woltman	$53,500
5.	Adam	Smith	$18,000

VLOOKUP("FIRST NAME", A1:C5, 3) = "SALARY"

VLOOKUP("Bennett", A1:C5, 1) = #BAD DATA!

VLOOKUP("Adam", A1:C5, 2) = "Smith"

Associated Functions

HLOOKUP

Lookup and Reference Functions

Function	Description
CHOOSE()	Chooses the specified number from a list based on the index number given
COLUMNS()	Calculates the number of columns in a list
HLOOKUP()	Scans through the top row of the table or range from left to right (a) searching for the first instance of the value **x**, and (b) selecting the value a given number of rows down
nCOLUMN()	Calculates the number of the column for the cell where nCOLUMN is executed
nROW()	Calculates the number of the row for the cell containing nROW
ROWS()	Calculates the number of rows referenced in a list
VLOOKUP()	Scans down the lefthand column of the table or range, searching for the first occasion of the value **x**, then selecting the value a given number of columns to the right

Math and Trig Functions

Function	Description
ABS()	Calculates the absolute value of a number
ACOS()	Calculates the inverse cosine of the expression
ACOSH()	Calculates the inverse hyperbolic cosine of the expression
ASIN()	Calculates the inverse sine of the expression
ASINH()	Calculates the inverse hyperbolic sine of a value
ATAN()	Calculates the inverse tangent of the expression
ATANH()	Calculates the inverse hyperbolic tangent of a number
CEILING()	Calculates the number rounded to the nearest multiple of significance
COMBIN()	Calculates the number of combinations of a given size from a given population without regard to order.
COS()	Calculates the cosine of an angle
COSH()	Calculates the hyperbolic cosine of a number
EVEN()	Rounds the expression up to the nearest even integer
EXP()	Raises *e* to a given exponent
FACT()	Calculates the factorial of the expression
FACTDOUBLE()	Calculates the double factorial of the expression
FLOOR()	Rounds a real number to the nearest multiple at the given significance
GCD()	Calculates the greatest common divisor--the largest integer that divides each number in the list without leaving a remainder--of a series of numbers.
INT()	Calculates the integer value of the expression
LCM()	Calculates the least common multiple of two or more integers
LN()	Calculates the natural log of the expression
LOG()	Calculates the log of an expression to a given base
LOG10()	Calculates the log base 10 of the expression
MDETERM()	Calculates the matrix determinant of an array
MOD()	Calculates the modulus (remainder) of expression 1 divided by expression 2
MROUND()	Rounds a number to a specified multiple
MULTINOM()	Calculates the multinomial of a list of expressions, a ratio of the factorial of the sum of the list to the product of factorials
ODD()	Rounds up an expression to the nearest odd integer
PCT	Divides the number given as an argument by 100
PI()	Calculates the value of π
PRODUCT()	Calculates the product of a list of expressions
QUOTIENT()	Calculates the integer portion of *x/y*
RAND()	Calculates a random number between zero and one

RNDBETW() Calculates a random number between two specified numbers

ROUND() Rounds an expression to a specified number of decimal places

SERIESSUM() Calculates the sum of a power series

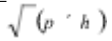
SGN() Determines the sign of a number

SIN() Calculates the sine of an angle

SINH() Calculates the hyperbolic sine of an expression

SQRT() Calculates the positive square root of the expression

SQRTPI() Calculates the positive square root of the expression multiplied by π



SUM() Adds the values in a list of arguments

SUMPROD() Calculates the sum of the products of corresponding arrays

SUMSQ() Calculates the sum of the squares of all the parameters in a list

SUMX2MY2() Calculates the sum of the difference of squares of corresponding values in two ranges

SUMX2PY2() Calculates the sum of the sum of squares of corresponding values in two ranges

SUMXMY2() Calculates the sum of squares of differences of corresponding values in two ranges

TAN() Calculates the tangent of an angle

TANH() Calculates the hyperbolic tangent of the expression

TRUNC() Truncates an expression to an integer with a specified number of digits

ABS

Description

Calculates the absolute value of a number. Absolute value is expressed as a positive value, and works as follows: if the expression is positive, the sign is positive; if the expression is negative, the absolute value is the inverse of the number.

Syntax

ABS(exp)

Argument	Description
exp	any real number

Examples

ABS(-3) = 3

ABS(3) = 3

ABS(0) = 0

Associated Functions

SGN

ACOS

Description

Calculates the inverse cosine of the expression. **Example:** If ACOS(COS(exp)) equals exp, the result is an angle bounded below by 0 (0 degrees) and above by π (180 degrees).

Syntax

ACOS(exp)

Argument	Definition
exp	any real number from -1 to 1, inclusive; specifies the cosine of the angle

Notes and Error Messages

To convert the result from radians to degrees, use the Conversion function DEGREES or multiply it by 180/PI().

If the argument is greater than 1 or less than -1.

Examples

ACOS(-0.75)	= 2.418858406
DEGREES(ACOS(-0.75))	= 138.5903779 (degrees)

Associated Functions

SGN, ACOSH and PI

ACOSH

Description

Calculates the inverse hyperbolic cosine of the expression and operates as the inverse function to COSH(), so ACOSH(COSH(exp)) equals exp.

Syntax

ACOSH(exp)

Argument

exp	the hyperbolic cosine of an angle; must be greater than or equal to 1

Examples

ACOSH(1)	= 0
ACOSH(12)	= 3.17631318

Associated Functions

ACOS and COSH

ASIN

Description

Calculates the inverse sine of the expression. The result is an angle bounded below by -π /2 (-90 degrees) and bounded above by

π /2 (90 degrees).

Syntax

ASIN(exp)

Argument

exp	any real number from -1 to 1 inclusive; specifies the sine of an angle

Note

To convert the result of ASIN from radians to degrees, use the Conversion function DEGREES or multiply it by 180/PI().

Examples

ASIN(1)	= 1.570796327
ASIN(0.25)	= 0.2526802551
DEGREES(ASIN(-0.75))	= -48.59037789(degrees)
DEGREES(ASIN(0.5))	= 30(degrees)

Associated Functions

SGN, ASINH and PI

ASINH

Description

Calculates the inverse hyperbolic sine of an expression

Syntax

ASINH(exp)

Argument

exp	any real number; specifies the hyperbolic sine of an angle

Notes and Error Messages

ASINH operates as the inverse function to SINH(), such that ASINH(SINH(exp)) equals exp.

ASINH returns the #BAD DATA! error value if the argument is non-numeric.

Examples

ASINH(1.5) = 1.818446459

ASINH(-0.75) = -0.6931471806.

Associated Functions

ACOSH, SINH and ATANH

ATAN

Description

Calculates the inverse tangent of the expression. The result is an angle bounded below by -/2 (-90 degrees) and above by /2 (90 degrees).

Syntax

ATAN(exp)

Argument

exp	any real number; specifies the tangent of an angle

Note

To convert the of ATAN result from radians to degrees, use Conversion function DEGREES or multiply it by 180/PI().

Examples

ATAN(-0.75)	= -0.6435011088
DEGREES(ATAN(-0.75))	= -36.86989765(degrees)

Associated Functions

ATANH, PI and TANH

ATANH

Description

Calculates the inverse hyperbolic tangent of the expression and determines the inverse of TANH(), so ATANH(TANH(exp)) equals exp.

Syntax

ATANH(exp)

Argument

exp	any real number from -1 to 1, exclusive; specifies the hyperbolic tangent of an angle.

Notes and Error Messages

ATANH returns the #BAD DATA! error value if the argument is non-numeric.

Examples

ATANH(-0.75) = -0.9729550745

ATANH(0.9) = 1.472219469

Associated Functions

ACOSH, ASINH and TANH

CEILING

Description

Calculates a number rounded to the nearest multiple of significance. The result is the nearest multiple of the second number.

Syntax

CEILING(exp, sign)

Arguments	Definitions
exp	any real number
sign	any integer; specifies the multiple expression you want to round to

Notes and Error Messages

CEILING returns the #BAD DATA! error value if:

- either argument is non-numeric.
- the signs for **exp** and **sign** are different.

Whatever of the sign of **exp**, numbers are rounded upward for calculations away from zero. The value is not rounded if **num** is an exact multiple of significance.

If **sign** is a non-integer, CEILING truncates it.

Examples

CEILING(7.5, 1) = 8

CEILING(-3.5, -4) =-8

CEILING(-6.5, 5) = #BAD DATA!

CEILING(3.6, 0.1) = 3.6

CEILING(0.587, 0.01) = 0.59

Associated Functions

EVEN, FLOOR, INT, ODD, ROUND and TRUNC

COMBIN

Description

Calculates the number of combinations of a given size from a given population without regard to order. Determines the binomial coefficient for **num** and **num_c**. The binomial coefficient is the coefficient by degrees in decomposition of the binomial formula and determines the total possible number of groups for a given number of objects.

Syntax

COMBIN(num, num_c)

Arguments	Definitions
num	any positive integer
num_c	any positive integer less than or equal to **num**

Notes and Error Messages

The arguments are non-integers, they are truncated.

COMBIN returns the #BAD DATA! error value if:

- either argument is non-numeric.
- **num** <0, **num_c** < 0, or **num** < **num_c**.

The formula of the coefficient is:

$$C_n^k = \frac{n!}{k!(n-k!)}, 0 \pounds k \pounds n$$

Example

In how many ways can you choose 2 balls from a basket containing 7 differently colored balls.

COMBIN(7, 2) = 21

Associated Functions

FACT

COS

Description

Calculates the cosine of an angle. The result of COS is a number from -1 to 1 inclusive.

Syntax

COS(exp)

Argument	Definition
exp	any real number corresponding to the angle measured in radians

Note

Use the Conversion function RADIANS or multiply the angle by PI()/180 if the angle is expressed in degrees.

Examples

COS(30) = 0.15425145 (degrees)

COS(RADIANS(0.5)) = 0.7071067812 (radians)

Associated Functions

ACOSH, COSH and PI

COSH

Description

Calculates the hyperbolic cosine of an expression. The value of the result is greater than or equal to 1.

Syntax

COSH(exp)

Argument	Definition
exp	any real number

Note

The hyperbolic cosine formula is:

$$COSH(x) = \frac{e^{x} + e^{-x}}{2}$$

Examples

COSH(0.75) = 1.294683285

COSH(-5) = 74.20994852

Associated Functions

ACOSH, SINH and TANH

EVEN

Description

Rounds up the expression to the nearest even integer

Syntax

EVEN(exp)

Argument	Definition
exp	any real number

Notes and Error Messages

EVEN returns the #BAD DATA! value for non-numeric expressions.

Positive and negative numbers are rounded away from zero. Even integers are not rounded.

Examples

EVEN(-2) = -2

EVEN(5.69) = 6

Associated Functions

CEILING, FLOOR, INT, ODD, ROUND and TRUNC

EXP

Description

Raises *e* to a given exponent--*e* equals 2.71828182845904, the base of the natural logarithm. The value of the expression is always positive.

Syntax

EXP(exp)

Argument	Definition
exp	any real number

Notes and Error Messages

EXP returns the #BAD DATA! error value if **exp** is greater than 599--the result is too large.

EXP is the inverse of the natural logarithm of number (LN).

Examples

EXP(-3.25) = 0.038774208

EXP(7.89) = 2670.44392

Associated Functions

LN and LOG

FACT

Description

Calculates the factorial of an **num**. The factorial of an **num** equals the product of all the integers greater than 1 and equal to **num**.

Syntax

FACT(num)

Argument	Definition
num	any non-negative number

Notes and Error Messages

If **num** is a non-integer, it is truncated.

FACT returns the #BAD DATA! error value if **num** is non-numeric or negative.

If **num** is greater than or equal to 171, FACT returns 0.

Examples

FACT(5) = 120

FACT(21.56) = 5.109094E+19

Associated Functions

FACTDOUBLE and PRODUCT

FACTDOUBLE

Description

Calculates the double factorial of **num**

Syntax

FACTDOUBLE(num)

Argument	Definition
num	any non-negative number

Notes and Error Messages

If **num** is a non-integer, it is truncated.

FACTDOUBLE returns the #BAD DATA! error value for non-numeric or negative arguments.

If **num** is greater than or equal to 171, FACTDOUBLE returns 0.

If **num** is even:

If number is odd:

Examples

FACTDOUBLE(4) = 8

FACTDOUBLE(5) = 15

Associated Functions

FACT

FLOOR

Description

Rounds a real number to the nearest multiple at the given significance.

Syntax

FLOOR(exp, sign)

Arguments	Definitions
exp	any real number
sign	any integer; specifies the multiple of the expression must be round

Notes and Error Messages

FLOOR returns the #BAD DATA! error value if either argument is non-numeric or **num** and **sign** have different signs.

Positive and negative numbers are rounded away from zero. The value is not rounded if **num** is an exact multiple of significance.

Examples

FLOOR(4.5, 1)	= 4
FLOOR(-3.5, -3)	= -3
FLOOR(1.5, 0.1)	= 1.5
FLOOR(0.234, 0.01)	= 0.23
FLOOR(-5.5, 4)	= #BAD DATA!

Associated Functions

CEILING, EVEN, INT, ODD, ROUND, and TRUNC

GCD

Description

Calculates the greatest common divisor--the largest integer that divides each number in the **list** without leaving a remainder--of a series of numbers.

Syntax

GCD(list)

Argument

List represents any combination of integers, cell references separated by commas, or an array of values.

Notes and Error Messages

GCD truncates non-integers.

GCD returns the #BAD DATA! error value if any argument is non-numeric or less then zero.

Examples

GCD(2, 4) = 2

GCD(14,56,77) = 7

Associated Functions

LCM

INT

Description

Calculates the integer value of the expression

Syntax

INT(exp)

Arguments

exp	any real number

Note

Do not use INT function for displaying values as integers, but calculating the values to their full precision.

Examples

INT(33.27) = 33

INT(33.95) = 33

Associated Functions

CEILING, FLOOR, MOD, MROUND, ROUND and TRUNC

LCM

Description

Calculates the least common multiple of two or more integers. Use LCM--the smallest positive multiple integer of all arguments--to add fractions with different denominators.

Syntax

LCM(list)

Argument

List represents any combination of integers, cell references separated by commas, or an array of values.

Notes and Error Messages

LCM returns the #BAD DATA! error value if:

- any argument is non-numeric or a non-integer.
- the arguments are greater than 1.

Examples

LCM(4, 8, 6) = 24

LCM(3, 5, 2) = 30

Associated Functions

GCD

LN

Description

Calculates the natural logarithm, based on the constant e (2.71828182845904), of an expression.

Syntax

LN(exp)

Arguments

exp	any positive real number

Notes and Error Messages

LN is the inverse of the EXP() function, so LN(EXP(exp)) equals exp.

LN returns the #BAD DATA! error value if **exp** is negative or 0.

Examples

LN(1.2)	= 0.1823215568
LN(30)	= 3.401197382

Associated Functions

EXP, LOG and LOG10

LOG

Description

Calculates the logarithm of the expression to a given base.

Syntax

LOG(exp, b)

Arguments	Definitions
exp	any positive real number
b	any positive real number; specifies the base of the logarithm

Note

If base is omitted, LOG assumes 10.

Example

LOG(3, 2) = 1.5849625

Associated Functions

EXP, LN, and LOG10

LOG10

Description

Calculates the log base 10 of the expression.

Syntax

LOG10(exp)

Argument

exp	any positive real number

Example

LOG10(3) = 0.4771212547

Associated Functions

EXP, LN and LOG

MDETERM

Description

Calculates the matrix determinant of an array. Matrix determinants are generally used for solving systems of mathematical equations that involve several variables.

Syntax

MDETERM(array)

Argument

array	a numeric array comprised of an equal number of rows and columns

Notes and Error Messages

MDETERM returns the #BAD DATA! error value if **array** does not have an equal number of rows and columns.

Example

Let A be the following 2 x 2 matrix:

$$\begin{matrix} a_1 & b_2 \\ a_2 & b_1 \end{matrix}$$

The expression $a_1b_2 - a_2b_1$ would be the determinant of A and would be written as follows:

$$A = \begin{vmatrix} a_1 & b_1 \\ a_2 & b_2 \end{vmatrix} = a_1b_2 - a_2b_1$$

Source: Allendoerfer and Oakley, "Simultaneous Equations and Matrices," Fundamentals of Freshman Mathematics, New York: McGraw-Hill, p. 140.

See also Reference materials

MOD

Description

Calculates the modulus (remainder) of expression 1 divided by expression 2. The result has the same sign as expression 2.

Syntax

MOD(e1, e2)

Arguments	Definitions
e1	any integer; specifies divisor
e2	any integer by which you want to divide **e1**

Notes and Error Messages

MOD returns the #DIV/0! error value if divisor is 0.

MOD can be expressed in relation to the INT function:

MOD(e1, e2) = e1 - e2*INT(e1/e2)

Examples

MOD(-14, 3) = -2

MOD(4, 3) = 1

Associated Functions

INT, ROUND and TRUNC

MROUND

Description

Rounds a number to the specified multiple

Syntax

MROUND(exp, mult)

Arguments	Definitions
exp	any integer; specifies the value to be rounded
mult	any integer; specifies the multiple to which you want to round **exp**

Notes and Error Messages

MROUND returns the #BAD DATA! error value if the arguments have different signs.

If the remainder of the dividing number by multiple is half the value of the multiple, MROUND rounds away from zero.

Examples

MROUND(15, 31) = 0

MROUND(-15, -25) = -25

MROUND(6.7, 0.5) = 6.5

Associated Functions

CEILING, EVEN, FLOOR, ODD ROUND and TRUNC

MULTINOM

Description

Calculates the multinomial of a list of expressions, a ratio of the factorial of the sum of the list to the product of factorials

Syntax

MULTINOM(list)

Argument

List represents any combination of integers, cell references separated by commas, or an array of values.

Notes and Error Messages

MULTINOM returns the #BAD DATA! error value for non-numeric arguments.

The formula of the multinom is:

$$MULTINOM(x,y,z) = \frac{(x+y+z)!}{x!y!z!}$$

Example

MULTINOM(5,6,7) = 14,702,688

Associated Functions

FACT and FACTDOUBLE

ODD

Description

Rounds up an expression to the nearest odd integer

Syntax

ODD(exp)

Arguments

exp	any real number

Notes and Error Messages

ODD returns the #BAD DATA! error value if **exp** is non-numeric.

Positive and negative numbers are rounded away from zero. **Exp** is not rounded if it is an odd integer.

Examples

ODD(5.5) = 5

ODD(7) = 7

ODD(6) = 7

ODD(-5) = -5

ODD(-4) = -5

Associated Functions

CEILING, EVEN, FLOOR, INT, ROUND and TRUNC

PCT

Description

Divides the expression or number value given as an argument by 100

Syntax

PCT(exp)

Arguments

Exp is any real number

Notes and Error Messages

PCT returns the #BAD DATA! error value for non-numeric arguments.

Examples

PCT(50) = 0.5

PCT(50/9) = 0.056

PCT(56) = 0.56

PCT(20 = 0.2

PI

Description

Calculates the value of the mathematical constant π (3.141592654), the ratio of a circumference of a circle to its diameter.

Syntax

PI()

Examples

TAN(PI()/2) = 1.632455E+16

PI()/2 = 1.570796327

Associated Functions

COS, SIN and TAN

PRODUCT

Description

Calculates the product of a list of expressions

Syntax

PRODUCT(list)

Arguments

List represents any combination of integers, cell references separated by commas, or an array of values.

Examples

PRODUCT(2, 4, 76) = 608

PRODUCT(3, 65.3, 12.4) = 2429.16

Associated Functions

FACT, SUM and SUMPROD

QUOTIENT

Description

Calculates the integer portion of *x/y*.

Syntax

QUONTIENT(numer, denom)

Arguments	Definitions
numer	any real number; specifies the dividend
denom	any real number (except 0); specifies the divisor

Notes and Error Messages

QUOTIENT returns the #BAD DATA! error value for non-numeric arguments.

Examples

QUOTIENT(7, 7) = 1

QUOTIENT(33.5, 3.1) = 10

QUOTIENT(-11, 5.35) = -2

Associated Functions

MOD

RAND

Description

Calculates a random number between 0 and 1. A new random number is calculated whenever the formula is moved or the spreadsheet recalculates.

Syntax

RAND()

Notes

If you wish to compute random a real number between other numbers, use: RAND()*(y-x)+x

To generate a random real number within the range, use the RNDBETW function.

Example

To compute a random number greater than or equal to 10 but less than 60: RAND()*(60-10)+10

Associated Functions

RNDBETW

RNDBETW

Description

Calculates a random number between two specified numbers. A new random number is calculated whenever the formula is moved or the spreadsheet recalculates.

Syntax

RNDBETW(bottom, top)

Arguments	Definitions
bottom	any real number; specifies the smallest random value
top	any real number; specifies the largest random value

Example

To compute a random number from 12.5 and 12.6 inclusive: RNDBETW(12.5, 12.6)

Associated Functions

RAND

ROUND

Description

Rounds an expression to a specified number of decimal places

Syntax

ROUND(exp, dec)

Arguments	Definitions
exp	any real number
dec	the number of decimal places to you wish to round the number to

Notes

Exp is rounded to the left of the decimal point if **dec** is less than 0.

Exp is rounded to the indicated number of decimal places if **dec** is greater than 0.

ROUND rounds the number to the nearest integer if **dec** is 0.

Examples

ROUND(3.55, 1)	=	3.6
ROUND(3.1499, 1)	=	3.1
ROUND(-115.33,-1)	=	-120
ROUND(221.5, -1)	=	221

Associated Functions

CEILING, FLOOR, INT, MOD, MROUND and TRUNC

SERIESSUM

Description

Calculates the sum of a power series. The following formula serves as the basis for SERIESSUM:

$$SERIES(x,p,q,J) = a_1 x^{p} + a_2 x^{(p+q)} + a_3 x^{(p+2q)} + \ldots + a_j x^{(p+(j-1)q)}$$

Syntax

SERIESSUM(x, n, m, coeff)

Arguments	Definitions
x	any real number; specifies the input value to the power series
n	any real number; specifies the initial degree to raise **x**
m	any real number; specifies the amount to increase or decrease **n** for each term in the series
coeff	any real number or an array of real numbers; specifies the coefficients by which successive powers of **x** are multiplied

Notes and Error Messages

The quantity of values in **coeff** dictates number of terms in the power series.

SERIESSUM returns the #BAD DATA! error value if any argument is non-numeric.

Examples

SERIESSUM(2,-1.5,0.05,2, 5.6, 3) = 3.89361418

SERIESSUM(2,-1.5,0.05,2) = 0.7071067812

SGN

Description

Determines the sign of an expression. Returns -1 if the number is negative, 0 if the number is 0, and 1 if the sign of the number is positive.

Syntax

SGN(exp)

Argument	Definition
exp	any real number

Examples

SGN(5) = 1

SGN(0) = 0

SGN(-0.021) =-1

Associated Functions

ABS

SIN

Description

Calculates the sine of an angle. The result of SIN is the expression from -1 to 1, inclusive.

Syntax

SIN(exp)

Argument	Definition
exp	any real number corresponding to the angle measured in radians

Note

Use the Conversion function RADIANS or multiply the angle by PI()/180 to convert to radians if the angle is expressed in degrees.

Examples

SIN(PI()/4) = 0.7071067812

SIN(RADIANS(45)) = 0.7071067812

Associated Functions

ASINH, SINH and PI

SINH

Description

Calculates the hyperbolic sine of the expression

Syntax

SINH(exp)

Argument	Definition
exp	any real number between -710 and 710

Note

The formula for the hyperbolic sine is:

$$SINH(x) = \frac{e^{x} - e^{-x}}{2}$$

Examples

SINH(0.523599) =0.5478537298

SINH(-0.25) =-0.2526123168

Associated Functions

ASINH, COSH and TANH

SQRT

Description

Calculates the positive square root of the expression

Syntax

SQRT(exp)

Argument	Definition
exp	any non-negative real number

Notes and Error Messages

SQRT returns the #BAD DATA! error value if **exp** is a negative number.

Example

SQRT(0.175)= 0.4183300133

Associated Functions

SQRTPI

SQRTPI

Description

Calculates the positive square root of the **exp** multiplied by $\sqrt{(p \cdot h)}$

Syntax

SQRTPI(exp)

Argument	Definition
exp	any real number

Notes and Error Messages

SQRTPI returns the #BAD DATA! error value if **exp** is negative.

Example

SQRTPI(0.175) = 0.7414706429

Associated Functions

SQRT and PI

SUM

Description

Adds the values in a list of arguments.

Syntax

SUM(list)

Argument

List represents any combination of integers, cell references separated by commas, or an array of values.

Notes and Error Messages

Numbers, logical values and text strings are included.

Error values or text that cannot be translated into numbers are excluded.

Examples

SUM(12, 156, 0.87) = 168.87

SUM("text",{12, 15, TRUE}) = 28

SUM(5, TRUE, 3) = 9, because the logical value TRUE is translated into the number 1

If cells A3:C3 contain 25, 35 and 50

SUM(A3:C3) = 110

SUM(A3:C3, 200) = 310

Associated Functions

PRODUCT and SUMPROD

SUMPROD

Description

Calculates the sum of the products of corresponding arrays

Syntax

SUMPROD(arr1, arr2, ...)

Argument	Definition
arr1, arr2, ...	are 2 to *n* arrays of the real numbers.

Notes and Error Messages

Array arguments must have equal dimensions. If not, SUMPROD returns the #BAD DATA! error value.

Non-numeric array entries are read as zeros.

Examples

SUMPROD({3,4;8,6;1,9}, {2,7;6,7;5,3}) = 156

The formula works as follows:

3*2 + 4*7 + 8*6 + 6*7 + 1*5 + 9*3 = 156

Associated Functions

PRODUCT and SUM

SUMSQ

Description

Calculates the sum of the squares of all the parameters in a list

Syntax

SUMSQ(list)

Arguments

List represents any combination of integers, cell references separated by commas, or an array of values.

Note

You can also use a sequence of arrays and numbers separated by commas.

Examples

SUMSQ(12, 3) = 153

SUMSQ({12, 3}, 3)= 162

Associated Functions

SUM and SUMPROD

SUMX2MY2

Description

Calculates the sum of the difference of squares of corresponding values in two ranges

Syntax

SUMX2MY2(arr_x, arr_y)

Arguments	Definitions
arr_x	a range or array of values; can be any of the real numbers
arr_y	a second range or array of values; can be any of the real numbers

Notes

Arrays or arguments containing text, logical values, or empty cells are excluded; however, cells with the value zero are included.

SUMX2MY2 returns the #BAD DATA! error value if **arr_x** and **arr_y** do not contain the same number of values.

The expression for the sum of the difference of squares is:

Example

SUMX2MY2({2, 3, 5}, {6, 12, 4}) = -158

Associated Functions

SUMPROD, SUMX2PY2 and SUMXMY2

SUMX2PY2

Description

Calculates the sum of the sum of squares of corresponding values in two ranges

Syntax

SUMX2PY2(arr_x, arr_y)

Arguments	Definitions
arr_x	a range or array of values; can be any of the real numbers
arr_y	a second range or array of values; can be any of the real numbers

Notes and Error Messages

All arguments must be numeric, but may include arrays or references containing numbers.

SUMX2PY2 returns the #BAD DATA! error value if **arr_x** and **arr_y** do not contain the same number of values.

The expression for the sum of the sum of squares is:

Example

SUMX2PY2({2, 3, 5}, {6, 12, 4}) = 234

Associated Functions

SUMPROD SUMX2MY2 and SUMXMY2

SUMXMY2

Description

Calculates the sum of squares of differences of corresponding values in two ranges

Syntax

SUMXMY2(arr_x, arr_y)

Arguments	Definitions
arr_x	the first array or range of values, can be any real number.
arr_y	the second array or range of values, can be any real number.

Notes and Error Messages

All arguments must be numeric, but may include arrays or references containing numbers.

SUMXMY2 returns the #BAD DATA! error value if **arr_x** and **arr_y** have a different number of values.

The expression for the sum of squared differences is:

Example

SUMXMY2({2, 3, 5}, {6, 12, 4}) = 98

Associated Functions

SUMPROD, SUMX2MY2 and SUMX2PY2

TAN

Description

Calculates the tangent of an angle

Syntax

TAN(exp)

Argument	Definition
exp	any real number corresponding to the angle measured in radians

Note

Use the Conversion function RADIANS or multiply the angle by PI()/180 if the angle is expressed in degrees.

Examples

TAN(0.5)	= 0.5463024898
TAN(RADIANS(60))	= 1.732050808

Associated Functions

ATAN and PI

TANH

Description

Calculates the hyperbolic tangent of the expression

Syntax

TANH(exp)

Argument	Definition
exp	any real number

Note

The formula for the hyperbolic tangent is:

Example

TANH(0.75) = 0.6435011099

Associated Functions

ATANH, COSH and SINH

TRUNC

Description

Truncates an expression to an integer with a specified number of digits

Syntax

TRUNC(exp, n_dig)

Arguments	Definitions
exp	any real number you want to truncate
n_dig	a number which determines the precision of the truncation

Notes

The difference between TRUNC and INT is that TRUNC removes the fractional part of the number, but INT rounds numbers down to the nearest integer based on the value of the fractional part of the number. They are different only when using negative numbers: TRUNC(-5.4) returns -5, but INT(-5.4) returns -6, because -6 is the lower number.

Examples

TRUNC(14.9) = 14

TRUNC(-14.9) = -14

TRUNC(PI()) = 3

Associated Functions

CEILING, FLOOR, INT and ROUND

AVEDEV

Description

Calculates the average of absolute deviations of values in a data list from the mean. AVEDEV measures variability in data sets.

Syntax

AVEDEV(list)

Argument

List represents any combination of numbers, expressions, cell references separated by commas; or an array of values.

Note

AVEDEV does not process empty cells and cells containing text; however, cells containing values equal to 0 are included.

Example

AVEDEV(1, A1:A2, {3, 5, -6}) = 3.144444444, if A1 = 0.5, A2 = -3.4

Associated Functions

MEDIAN and MODE

AVG

Description

Calculates the average of the range or list of arguments

Syntax

AVG(list)

Argument

List represents any combination of numbers, expressions, cell references separated by commas, or an array of values.

Note

The AVG function does not include empty cells and cells containing text in its calculations; however, the cells with values equal to 0 are included.

Examples

AVG(5, 10, 25, 30)	= 17.5
AVG(5, 10, 25, B1..B3)	= 12.16666667, if B1=32, B2=0, B3=1
AVG(1, A1:A2, {3, 5, -6})	= 0.016666667, if A1 = 0.5, A2 = -3.4

Associated Functions

STD

BETADIST

Description

Calculates the cumulative beta probability density distribution, widely used in the statistical testing of production quality. Many methods of a production quality estimation are based on the assumption that a group of non-high-quality products have the beta distribution.

Syntax

BETADIST(x, alpha, beta, A, B)

Arguments	Definitions
x	any real number from **A** to **B** inclusive
alpha	any positive real number specifying the distribution parameter
beta	any positive real number specifying the distribution parameter
A	any real number specifying the lower limit of **x**
B	any real number specifying the upper limit of **x**

Notes and Error Messages

If values ***A*** and ***B*** are omitted the function returns the standard cumulative beta distribution, assuming ***A*** = 0 and ***B*** = 1.

BETADIST returns the #BAD DATA! error value if:

- any argument is out of range or non-numeric.
- ***x*** is less than ***A***, ***x*** is greater than ***B*** or ***A*** = ***B***.

Example

BETADIST(3, 2.3, 3.5, 1, 8) = 0.3125812752

BETAINV

Description

Calculates the inverse value of the cumulative beta probability density function such that if p=BETADIST(x, alpha, beta ,A, B), then x=BETAINV(p, alpha, beta ,A, B).

Syntax

BETAINV(prob, alpha, beta, *A*, *B*)

Arguments	Definitions
prob	any non-negative real number to be used with the beta distribution
alpha	any positive real number which is a parameter to the distribution
beta	any positive real number which is a parameter to the distribution
A	any real number; specifies a lower limit of **x**
B	any real number; specifies an upper limit of **x**

Notes and Error Messages

BETAINV returns the #BAD DATA! error value if:

- **prob** is negative or greater than 1.
- any argument is out of the range or non-numeric.

If values ***A*** and ***B*** are omitted, BETAINV returns the inverse standard cumulative beta distribution, that ***A*** = 0 and ***B*** = 1.

Example

BETAINV(0.3125812752, 2.3, 3.5, 1, 8) = 3

Associated Function

BETADIST

BINOMDIST

Description

Calculates the magnitude of the individual term binomial probability distribution

Syntax

BINOMDIST(num_s, num_t, prob, cum)

Arguments	Definitions
num_s	any integer; specifies the number of successes in trials
num_t	any integer; specifies the number of independent trials
prob	any non-negative real number; specifies the probability of success of each trial
cum	a logical value (TRUE or FALSE); specifies the form of the function

Notes and Error Messages

If **num_s** or **num_t** is real, BINOMDIST rounds it to an integer.

BINOMDIST returns the #BAD DATA! error value if **prob** is negative or greater than 1.

If **cum** is FALSE, BINOMDIST returns the value of the distribution density function; if TRUE, BINOMDIST returns the probability of obtaining exactly **num_s** successes in the **num_t** independent trials.

The BINOMDIST formula is:

$$B(s,t,p) = C_t^s p^t (1 - p)^{t-s}, k = 0,1,\ldots,t$$

where s is the number of successes in trials, t is the number of independent trials, p is the probability of success on each trial.

Examples

Suppose, that 500 students studied in a given faculty. Find the probability that September 1, is the birthday of k students, simultaneously. Where k can be 0,1,2,...

If A1=1/365, then

BINOMDIST(0, 500, A1, false) = 0.253664444

BINOMDIST(1, 500, A1, false) = 0.34844017

BINOMDIST(2, 500, A1, false) = 0.238834677

BINOMDIST(3, 500, A1, false) = 0.108919111

Associated Functions

CRITBINOM, FACT, HYPGDIST, NEGBINDIST and PERMUT

CHIDIST

Description

Calculates the one-tailed probability of the chi-squared (e^{2}) distribution

Syntax

CHIDIST(x, df)

Arguments	Definitions
x	any non-negative real number
df	any positive integer; specifies the number of degrees of freedom

Notes and Error Values

CHIDIST returns the #BAD DATA! error value if **x** is < 0 or if **df** is 0.

The formula of the distribution density function is:

$$f_X(x) = \begin{cases} 0, & \text{if } x \le 0, \\ \dfrac{1}{2^{n/2}G(n/2)} x^{\frac{n}{2}-1} e^{-\frac{x}{2}}, & \text{if } x > 0. \end{cases}$$

where $G(x)$ is the gamma function.

Example

CHIDIST(1.345, 9) = 0.9963973196

Associated Functions

CHIINV and CHITEST

CHIINV

Description

Calculates the inverse of the chi-squared (χ^2) distribution, such that if p=CHIDIST(x, df), then x=CHIINV(p, df)

Syntax

CHIINV(prob, df)

Arguments	Definitions
prob	any non-negative real number; specifies the probability to be used with the chi-squared distribution
df	any positive integer; specifies the number of degrees of freedom

Error Message

CHIINV returns the #BAD DATA! error value if **prob** is negative or greater than 1, or if **df** is less than 1 or equal to 0.

Example

CHIINV(A1, 9) = 1.34500122, if A1 contains formula CHIDIST(1.345, 9)

Associated Functions

CHIDIST and CHITEST

CHITEST

Description

Calculates the result of the test of independence. The chi-squared test can be used to verify hypothesized results.

Syntax

CHITEST(act_range, expect_range)

Arguments	Definitions
act_range	any references to the cells or expressions of returned values, separated by commas; or an array of values; specifies the observations to test
expect_range	any references to the cells or expressions of returned values, separated by commas; or an array of values; specifies the expected data

Notes and Error Messages

CHITEST returns the #BAD DATA! error value if the arrays have a different number of references.

CHITEST does not include empty cells and cells containing text in its calculations; however, cells with values equal to 0 are included.

Example

The formula for the test statistic for goodness of fit is:

$$X^2_{(c-1d.f.)} = \sum_{i=1}^{c} \frac{(O_i - E_i)^2}{E_i}$$

The hypothetical example below shows the data for expected and actual results for 100 students and 100 employees taking the same training course. In this case, the expectation is that the students will retain more or less of the training information than the employees.

	Students	Employees
Actual		
Improved	60	40
Worse	5	20
Unchanged	35	40
Expected		
Improved	70	60
Worse	5	10
Unchanged	25	30

The result of the chi-squared test of independence computes as follows:

= CHITEST(B3:C5,B9:C11) = 3.007848E-6

Therefore, the return probability is low.

Associated Functions

CHIDIST and CHIINV

CNT

Description

Calculates the number of cells in a range containing only numbers and formulas

Syntax

CNT(list)

Argument

List represents any combination of numbers, expressions, cell references separated by commas; or an array of values.

Note

CNT does not include empty cells and cells containing text in its calculations; however, cells with values equal to 0 are included.

Examples

CNT(2, 3.4, 5, Hello)	= 3
CNT(A1, A2, A3, A4)	= 2, if A1=Hello, A2 is empty, A3=2, A4=34

Associated Functions

CNTA

CNTA

Description

Calculates the number of cells in the range containing data

Syntax

CNTA(list)

Argument

List represents any combination of numbers, expressions, cell references separated by commas; or an array of values.

Note

CNTA includes cells with values equal to 0 in its calculations.

Examples

CNTA(2, 3.4, 5, Hello)	= 4
CNT(A1, A2, A3, A4)	= 3, if A1=Hello, A2 is empty, A3=2, A4=34

Associated Function

CNT

CONFIDENCE

Description

Calculates the confidence interval, in accordance with known probability, for a population mean. The confidence interval for any value **Q** is an interval **(Q_1, Q_2)** covering the value with known probability equals 1-**alpha.**

Syntax

CONFIDENCE(alph, dev, size)

Argument	Definitions
alpha	any positive real number which is a parameter to the distribution
dev	any positive real number; specifies the standard deviation for the data
size	variable integer greater than 1, representing sample size

Notes and Error Messages

CONFIDENCE returns the #BAD DATA! error value for any non-numeric argument.

The CONFIDENCE probability equals 1 - **alpha**

Dev is assumed to be known.

If **size** is a real number, it is rounded down to the nearest integer.

Example

Suppose, that 16 apples have an average weight equal to 120 grams with the standard mean square deviation of 15. With 90 percent of confidence, the population mean is within intervals from 113.8317985 to 126.1682015, because

90% = 100(1-**alpha**)%, therefore alpha = 0.1

CONFIDENCE(0.1, 15, 16) = 6.168201506

113.8317985 = 120 - 6.168201506

126.1682015 = 120 - 6.168201506

Associated Functions

ZTEST

CORREL

Description

Calculates the correlation coefficient between two ranges of data. The correlation coefficient is a standardized covariance and determines the degree of linear relationship of two random variables. The function returns the value from -1 to 1, inclusive. Two random variables are called non-correlated variables, if their correlation coefficient equals 0. Two random variables have a function dependence if the correlation coefficient equals 1 or -1.

Syntax

CORREL(arr1, arr2)

Arguments	Definitions
arr1	an array of real numbers or a data range of values
arr2	an array of real numbers or a data range of values

Notes and Error Messages

CORREL returns the #BAD DATA! error value if:

- the arrays have a different number of references.
- the standard deviation of any random variable equals 0.

CORREL does not include empty cells and cells containing text in its calculations; however, the cells with values equal to 0 are included.

The correlation coefficient is expressed in the following formula:

$$r_{x,y} = \frac{Cov(X,Y)}{s_x * s_y}$$

where *Cov(X,Y)* is covariance (see COVAR) and *Sx*, *Sy* are standard deviations.

Example

Suppose, that the first array contains the height of a number of trees and the second one contains their mean diameters.

CORREL({17, 18, 19, 20, 21, 22, 23, 24, 25}, {19, 19, 18, 20, 23, 25, 27, 30, 32}) = 0.957591, which means those two random events are interdependent

Associated Functions

COVAR, FISHER and FISHERINV

COVAR

Description

Calculates covariance, the average of the products of paired deviations, of two ranges of data. The function reflects the relationship of two random variables. The positive value of the function means that two events have common dependencies, otherwise the events are not interdependent.

Syntax

COVAR(arr1, arr2)

Arguments	Definitions
arr1	an array of real numbers or a range of data values
arr2	an array of real numbers or a range of data values

Notes and Error Messages

COVAR returns the #BAD DATA! error value if the arrays have a different number of references.

COVAR does not include empty cells and cells containing text in its calculations; however, cells with values equal to 0 are included.

The formula for covariance is:

$$Cov(X,Y) = \frac{1}{n} \sum_{i=1}^{n} (x_i - m_X) \times (y_i - m_y)$$

where mx, my are the mean values of the arrays

Example

COVAR({17, 18, 19, 20, 21, 22, 23, 24, 25}, {19, 19, 18, 20, 23, 25, 27, 30, 32}) = -0.2177777778, if A1=3.4, A2=2, A3=2

Associated Functions

CORREL, FISHER and FISHERINV

CRITBINOM

Description

Calculates the smallest value for which the cumulative binomial distribution is greater than or equal to a criterion value

Syntax

CRITBINOM(trials, prob, alpha)

Arguments	Definitions
trials	any integer; specifies the number of Bernoulli trials
prob	any non-negative real number; specifies the probability of success for each trial
alpha	any positive real number which is a parameter to the distribution

Notes and Error Messages

If **trials** is real, CRITBINOM truncates it to integer.

CRITBINOM returns the #BAD DATA! error value if **prob** is greater than 1.

Example

CRITBINOM(12, 0.9, BINOMDIST(4, 12, 0.9, TRUE)) = 4

Associated Functions

BINOMDIST, FACT, HYPGDIST, PERMUT and PROB

DEVSQ

Description

Calculates the sum of the squared deviations of data points from their sample mean. The returning value is always positive.

Syntax

DEVSQ(list)

Argument

List represents any combination of numbers, expressions, cell references separated by commas; or an array of values.

Notes and Error Messages

The formula for DEVSQ is:

$$DEVSQ = \sum_{i=1}^{N} x_i - \frac{\left(\sum_{k=1}^{N} x_k\right)^2}{N}$$

where N is the number of values in the **list**.

Example

DEVSQ(3, -4.5, 75, 22) = 3858.1875

Associated Functions

AVEDEV, STD, VAR and VARP

EXPONDIST

Description

Calculates the magnitude of the exponential distribution probability. The exponential distribution is often used to model processes in the theory of reliability and queuing.

Syntax

EXPONDIST(x, lambda, cum)

Arguments	Definitions
x	any non-negative real number
lambda	any positive real number; specifies the function's parameter
cum	a logical value (TRUE or FALSE); specifies the form of the function

Notes and Error Messages

EXPONDIST returns the #BAD DATA! error value if any argument is out of the range or non-numeric.

If **cum** is FALSE, EXPONDIST returns the value of the distribution density function; if TRUE, EXPONDIST returns the cumulative distribution function.

The formula of the distribution density function is:

$$f(x,l) = l\,e^{-l\,x}$$

The cumulative distribution function equals:

$$F(x,l) = \int_{-\infty}^{x} f(t,l)\,dt = 1 - e^{-l\,x}$$

Examples

EXPONDIST(2.76, 3.2, TRUE)	= 0.999854014
EXPONDIST(2.76, 3.2, FALSE)	= 0.0004672

Associated Functions

GAMMADIST and POISSON

FDIST

Description

Calculates the F probability distribution. The function is useful in determining degrees of diversity between data ranges.

Syntax

FDIST(x, df1, df2)

Arguments

x	any non-negative real number
df1	any positive integer; specifies the number of degrees freedom
df2	any positive integer; specifies the number of degrees freedom

Notes and Error Messages

FDIST returns the #BAD DATA! error value if:

- **x** is negative, or if any value of the degrees freedom or equal to 0.
- **df1** or **df2** is less than 1.

If **df1** or **df2** is a real number, the function truncates it to an integer.

Examples

FDIST(7.146381829;5;50)= .025

FDIST(3.251,2,8) = 0.092607966

Associated Functions

FINV and FTEST

FINV

Description

Calculates the inverse of the F probability distribution, such that if p=FDIST(x, df1, df2), then x=FINV(p, df1, df2).

Syntax

FINV(prob, df1,df2)

Arguments	Definitions
prob	any non-negative real number; specifies the probability of success on each trial used with the F distribution
df1	any positive integer; specifies the numerator degrees of freedom
df2	any positive integer; specifies the denominator degrees of freedom

Notes and Error Messages

FINV returns the #BAD DATA! error value if:

- **prob** is negative or greater than 1, or if any value of the degrees of freedom is 0.
- **df1** or **df2** is less than 1.

If **df1**or **df2** is a non-integer, FINV truncates it.

Examples

FINV(0.25,5,5) = 7.146381829

FINV(0.092607966,2,8) = 3.251

Associated Functions

FDIST

FISHER

Description

Calculates the Fisher transformation. The transformation produces a normally distributed function.

Syntax

FISHER(x)

Argument	Definition
x	any real number from -1 to 1, exclusive

Notes and Error Messages

FISHER returns the #BAD DATA! error value if **x** is out of the range or a non-numeric value.

The formula of the Fisher transformation is:

$$FISHER(x) = \frac{1}{2}\ln\left(\frac{1+x}{1-x}\right)$$

Example

FISHER(0.832) = 1.194599783

Associated Functions

CORREL, COVAR and FISHERINV

FISHERINV

Description

Calculates the inverse of the Fisher transformation. If FISHER(x)=y, then FISHERINV(y)=x

Syntax

FISHERINV(y)

Arguments	Definition
y	any real number

Notes and Error Messages

FISHERINV returns the #BAD DATA! error value if **y** is non-numeric.

The formula for the inverse of the Fisher transformation is:

$$FISHERINV(y) = \frac{e^{2y} - 1}{e^{2y} + 1}$$

Example

FISHERINV(1.194599783) = 0.832

Associated Functions

CORREL, COVAR and FISHER

FORECAST

Description

Calculates a predicted value of the dependent variable for the independent variable **x** based on a linear regression. Independent variable **x** has a random range because of observing, measuring and other errors. Values in **arry** depend on values contained in **arrx**, the range of independent variables.

Syntax

FORECAST(x, arry, arrx)

Arguments	Definitions
x	any real number
arry	the dependent array; a range of data values
arrx	the independent array; a range of regression variables

Notes and Error Messages

FORECAST returns the #BAD DATA! error value if:

- **x** is non-numeric.
- the arrays have a different number of references.

FORECAST does not include empty cells and cells containing text in its calculations; however, cells with values equal to 0 are included.

Example

Suppose that in a laboratory experiment the outcome of product **Y** (kg per hour) depends on the reaction temperature **x** (C). The following table shows dependence of outcome from the reaction temperature:

x: 51, 32, 80, 73, 64, 45, 83, 44, 93, 28, 35, 40, 29, 53, 58, 65

y: 52.7, 15.2, 89.5, 94.8, 76, 39.3, 114.8, 36.5, 137.4, 5.3, 20.7, 21.7, 9.19, 55.4, 64.3, 79.1

Predict the outcome of the product when the reaction temperature equals 75 (C).

FORECAST(75, B1:B16, A1:A16) = 96.31364489, if A1:A16 contains independent variables, B1:B16 contains dependent variables.

Associated Functions

CORREL and SLOPE

FTEST

Description

Calculates the result of the F-test, which checks the variance of two samples to determine whether they are significantly different.

Syntax

FTEST(arr1, arr2)

Arguments	Definition
arr1	an array or range of real numbers
arr2	another array or range of real numbers

Notes and Error Messages

FTEST returns the #BAD DATA! error value if the arrays have a different number of references.

FTEST does not include empty cells and cells containing text in its calculations; however, cells with 0 values are included.

Examples

FTEST({5,4,7,8,12,11},{14,23,21,16,19,25}) = 0.567008623

FTEST({12,14,12.5},{17,18,16}) = 0.96

Associated Functions

FDIST and FINV

GAMMADIST

Description

Calculates the magnitude of the gamma distribution.

Syntax

GAMMADIST(x, alpha, beta, cum)

Arguments	Definitions
x	any non-negative real number; specifies the value at which the distribution must be evaluated
alpha	any positive real number; specifies the parameter of the distribution
beta	any positive real number; specifies the parameter of the distribution
cum	a logical value (TRUE or FALSE); specifies the form of the function

Notes and Error Messages

GAMMADIST returns the standard Gamma distribution if **beta** equals 1.

GAMMADIST returns the #BAD DATA! error value if any argument is out of the range or non-numeric.

If **cum** is FALSE, GAMMADIST returns the value of the distribution density function; if TRUE, GAMMADIST returns the cumulative distribution function.

The formula of the distribution density function is:

$$f(x) = \frac{b^{a}}{G(a)} x^{a-1} e^{-bx}$$

where $G(a)$ is the gamma function.

Examples

GAMMADIST(7, 4.67, 3.44, FALSE) = 0.034859326

GAMMADIST(7, 4.67, 3.44, TRUE) = 0.078691295

Associated Functions

CHIDIST, EXPONDIST, GAMMA and GAMMAINV

GAMMAINV

Description

Calculates the inverse of the gamma cumulative distribution. If p=GAMMADIST(x, alpha, beta, TRUE), then x=GAMMAINV(p, alpha, beta)

Syntax

GAMMAINV(prob, alpha, beta)

Arguments	Definitions
prob	any non-negative real number; specifies the probability to be used with the gamma distribution
alpha	any positive real number; specifies the parameter of the distribution
beta	any positive real number; specifies the parameter of the distribution

Notes and Error Messages

GAMMAINV returns the #BAD DATA! error value if:

- any argument value is non-numeric.
- **prob** is negative or greater than 1.

Example

GAMMAINV(0.078691295, 4.67, 3.44) = 7

Associated Functions

CHIINV, EXPONDIST, GAMMA and GAMMADIST

GEOMEAN

Description

Calculates the geometric mean of the data range containing only positive values

Syntax

GEOMEAN(list)

Arguments

List represents any combination of numbers, expressions, cell references separated by commas, or an array of values.

Notes and Error Messages

GEOMEAN returns the #BAD DATA! error value if any value in *list* is negative.

The formula of the geometric mean is:

$$GEOMEAN(x_1,\ldots,x_n) = \sqrt[n]{x_1 \times x_2 \times \ldots \times x_n}$$

Examples

GEOMEAN(2, {1, 2}) = 1.587401052

GEOMEAN(A1, {1, 2}) = 1.587401052, if A1 contains 2

Associated Functions

AVG, HARMEAN, MEDIAN, MODE and TRIMEAN

HARMEAN

Description

Calculates the harmonic mean of a data range. The harmonic mean is the ratio of the number of data points in the list to the sum of the reciprocals.

Syntax

HARMEAN(list)

Argument

List represents any combination of numbers, expressions, cell references separated by commas, or an array of values.

Notes and Error Messages

HARMEAN returns the #BAD DATA! error value if any value in **list** is negative.

The formula of the harmonic mean is:

$$HARMEAN(x_1, x_2, \ldots, x_n) = \frac{n}{\sum_{i=1}^{n} \frac{1}{x_i}}$$

Examples

HARMEAN(2, {1, 2}) = 1.5

HARMEAN(A1, {1, 2}) = 1.5, if A1 contains 2

Associated Functions

AVG, GEOMEAN, MEDIAN, MODE and TRIMEAN

HYPGDIST

Description

Calculates the hypergeometric distribution probability

Syntax

HYPGDIST(succ, num_c, pop, num_p)

Arguments	Definitions
succ	any positive integer; specifies the number of successes in the sample
num_s	any positive integer; specifies the size of the sample
pop	any positive integer; specifies the number of successes in the population
num_p	any positive integer; specifies the population size

Notes and Error Messages

The function rounds non-integers to the next lowest integer.

The use of negative arguments returns the #BAD DATA! error value.

HYPGDIST returns the #BAD DATA! error value if:

- **succ** is greater than the lesser value of **num_s** or **pop**, or is less than the greater value of 0 or **num_s**+**pop**+**num_p**.
- **num_s** is greater than **num_p**.
- **pop** is greater than **num_p**.

The hypergeometric distribution is calculated as follows:

$$P(X = x) = \frac{C_x^M \times C_{n-x}^{N-M}}{C_n^N}$$

where:

C is the number of combinations for a given number of objects
x is the number of successes in the sample
n is the size of the sample
M is the number of successes in the population
N is the population size

Examples

Suppose you have 25 golf balls, 6 of which are fluorescent yellow and you randomly select 12. Find the probability that only two will turn out to be fluorescent yellow.

HYPGDIST(2,12,6,24) = 0.242726381

Suppose you have 14 coins in your pocket. Ten of them are nickels and the others are quarters. Find the probability that if you randomly take three coins from your pocket that two will be nickels.

HYPGDIST(2,3,10,14) = 0.494505495

Associated Functions

BINOMDIST, FACT, NEGBINDIST and PERMUT

INTERCEPT

Description

Calculates the intercept of the linear regression. Calculations are based on the dependent and independent arrays of data points. The intercept value indicates the point of intersection between the linear regression and the y-axis.

Syntax

INTERCEPT(arry, arrx)

Arguments	Definitions
arry	the dependent array or data range of values
arrx	the independent array or range of regression variables

Notes and Error Messages

INTERCEPT returns the #BAD DATA! error if the arrays have a different number of references.

INTERCEPT does not include empty cells and cells containing text in its calculations; however, zero values are included.

The intercept of the linear regression has the following equation:

$b_0 = \bar{y} - b_1 \times \bar{x}$

where

$\bar{x} = \frac{1}{n}\sum x_i \quad \bar{y} = \frac{1}{n}\sum y_i$

and the slope is calculated as:

$$b_1 = \frac{\sum (x_i - \bar{x}) \times (y_i - \bar{y})}{\sum (x_i - \bar{x})^2}$$

Example

Evaluate the intercept of the linear regression for the following data:

x: 51, 32, 80, 73, 64, 45, 83, 44, 93, 28, 35, 40, 29, 53, 58, 65

y: 52.7, 15.2, 89.5, 94.8, 76, 39.3, 114.8, 36.5, 137.4, 5.3, 20.7, 21.7, 9.19, 55.4, 64.3, 79.1

INTERCEPT(B1:B16, A1:A16) = -47.9824 If A1:A16 contains independent variables, B1:B16 contains dependent variables.

Associated Functions

FORECAST, PEARSON, RSQ, SLOPE and STEYX

KURT

Description

Calculates the kurtosis coefficient of a data range. The kurtosis coefficient reflects the relative peakedness or flatness of a distribution relative to the normal distribution. A positive result indicates a relatively peaked distribution. A negative value of the coefficient indicates a relatively flat distribution.

Syntax

KURT(list)

Argument

List represents any combination of numbers, expressions, cell references separated by commas, or an array of values.

Notes and Error Messages

KURT does not include empty cells and cells containing text in its calculations; however, zero values are included.

KURT returns the #BAD DATA! error value if **list** contains less than four numeric values.

Example

KURT(3, -4, 5, {6, 7.77}) = 2.432420372

Associated Functions

SKEW., STD., STDP., VAR and VARP

LARGE

Description

Calculates the specified largest value in a data range. The second argument determines what largest value to return in their ascending order.

Syntax

LARGE(arr, k)

Arguments	Definitions
arr	an array or range reference of real numbers
k	any positive integer less than the number of values in **arr**

Notes and Error Messages

LARGE returns the #BAD DATA! error value if **arr** is empty or **k** is greater than the number of values in **arr**.

If **k** = 1, LARGE returns the largest value in **arr**.

If **k** = N, LARGE returns the smallest value in **arr**; where N is the number of data values in the **arr**.

Example

If A1:A16 contains the following data:

52.7, 15.2, 89.5, 94.8, 76, 39.3, 114.8, 36.5, 137.4, 5.3, 20.7, 21.7, 9.19, 55.4, 64.3, 79.1

LARGE(A1:A16, 2) = 114.8

Associated Functions

PERCENTILE, PERCRANK, QUARTILE and SMALL

LOGINV

Description

Calculates the inverse magnitude of the lognormal distribution.

Syntax

LOGINV(prob, mean, dev)

Arguments	Definitions
prob	any positive real number; specifies the probability to be used with the lognormal distribution
mean	any real number; specifies the mean value of the random variable
dev	any positive real number; specifies the deviation of the random variable.

Notes and Error Messages

LOGINV returns the #BAD DATA! error value if:

- any argument is out of the range or non-numeric.
- **prob** is negative or greater than 1.

Example

LOGINV(0.118678153, 3, 1.75) = 2.5400000

Associated Functions

EXP, LN, LOG, LOG10 and LOGNORDIST

LOGNORDIST

Description

Calculates the magnitude of the lognormal distribution probability of **x**, where random variable y=ln(x) is normally distributed with parameters **mean** and **dev**.

Syntax

LOGNORDIST(x, mean, dev)

Arguments	Definitions
x	any positive real number; specifies the value at which the distribution must be evaluated
mean	any real number; specifies the mean value of the random variable
dev	any positive real number; specifies the deviation of the random variable

Notes and Error Messages

LOGNORDIST returns the #BAD DATA! error value if any argument is out of the range or non-numeric.

The formula of the distribution density function is:

$$f(x) = \frac{1}{x s \sqrt{2p}} e^{-\frac{(\ln x - m)^2}{2s^2}}$$

where m is the mean value and
s is the deviation of the random variable.

Example

LOGNORDIST(2.54, 3, 1.75) = 0.118678153

Associated Functions

EXP, LN, LOG, LOG10 and LOGINV

MAX

Description

Returns the highest number in the data range

Syntax

MAX(list)

Argument

List represents any combination of numbers, expressions, cell references separated by commas, or an array of values.

Notes and Error Messages

MAX does not include empty cells and cells containing text in its calculations; however, cells with zero values are included.

If all arguments in the **list** are non-numeric, MAX returns 0.

Example

MAX(3, -4, 2.999, {5, 4.32}) = 5

Associated Functions

MIN

MEDIAN

Description

Returns the median value in the data range. The median is a value at the mid-point of a list of data points; half the values in the list are greater than the median and half are smaller.

Syntax

MEDIAN(list)

Argument

List represents any combination of numbers, expressions, cell references separated by commas, or an array of values.

Notes and Error Messages

MEDIAN does not include empty cells and cells containing text in its calculations; however, zero values are included.

Example

MEDIAN(3, 9, 7.6, 4.5, 7.6, 3, 3) = 4.5

Associated Functions

AVG, CNT, CNTA, MODE and SUM

MIN

Description

Returns the lowest number in the data range

Syntax

MIN(list)

Argument

List represents any combination of numbers, expressions, cell references separated by commas, or an array of values.

Notes and Error Messages

MIN does not include empty cells and cells containing text in its calculations; however, the cells with zero values are included.

If all arguments in the **list** are non-numeric, MIN returns 0.

Example

MIN((3, -4, 2.999, {5, 4.32}) = -4

Associated Functions

MAX

MODE

Description

Calculates the value of the most frequently repeated data points in the data range

Syntax

MODE(list)

Argument

List represents any combination of numbers, expressions, cell references separated by commas, or an array of values.

Notes and Error Messages

MODE returns the #BAD DATA! error value if **list** does not contain duplicated data points.

MODE does not include empty cells and cells containing text in its calculations; however, zero values are included.

Example

MODE(3, 9, 7.6, 4.5, 7.6, 3, 3) = 3

Associated Functions

AVG, GEOMEAN, HARMEAN, MEDIAN and TRIMEAN

NEGBINDIST

Description

Calculates the negative binomial distribution. The returning value specifies the probability that **f** number of failures will occur before **s** number of successes, where the probability of success in each trial equals **prob**.

Syntax

NEGBINDIST(f, s, prob)

Arguments	Definitions
f	any non-negative integer; specifies the number of failures on each trial
s	any non-negative integer; specifies the threshold number of successes on each trial
prob	any non-negative real number; specifies the probability of success on each trial

Notes and Error Messages

NEGBINDIST returns the #BAD DATA! error value if:

- any argument is negative.
- **prob** is greater than 1.

If **f** or **s** is real, NEGBINDIST truncates it to an integer.

Example

NEGBINDIST(1, 5, 0.9) = 0.295245

Associated Functions

BINOMDIST, FACT, HYPGDIST and PERMUT

NORMDIST

Description

Calculates the magnitude of the normal distribution for the specified mean and standard deviation. The function is widely used in mathematical statistics and especially in hypothesis testing.

Syntax

NORMDIST(x, mean, dev, cum)

Arguments	Definitions
B	any real number specifying the upper limit of **x**
x	any real number to be measured for its distribution
mean	any real number; specifies the mean value of the random variable
dev	any positive real number; specifies the deviation of the random variable
cum	a logical value (TRUE or FALSE); specifies the form of the function

Notes and Error Messages

NORMDIST returns the #BAD DATA! error value if any argument is out of range or non-numeric.

If **cum** is FALSE, NORMDIST returns the value of the distribution density function; if TRUE, it returns the cumulative distribution function.

The formula of the distribution density function is:

$$f(x) = \frac{1}{s \times \sqrt{2p}} e^{-\frac{(x-m)^2}{2s^2}}$$

where m is the mean value and
s is the deviation of the random variable.

Example

NORMDIST(12, 11, 1.75, TRUE) = 0.7161454169

Associated Functions

NORMINV and ZTEST

NORMINV

Description

Calculates inverse magnitude of the normal distribution

Syntax

NORMINV(prob, mean, dev)

Arguments	Definitions
prob	any positive real number; specifies the probability to be used with the standard normal distribution
mean	any real number; specifies the mean value of the random variable
dev	any positive real number; specifies the deviation of the random variable

Notes and Error Messages

NORMINV returns the #BAD DATA! error value if:

- **prob** is negative or greater than 1.
- any argument is out of the range or non-numeric.

Example

NORMINV(0.7161454169, 11, 1.75) = 12

Associated Functions

NORMDIST and ZTEST

NORMSDIST

Description

Calculates the standard normal distribution function. The distribution is the special case of the normal distribution, which has a mean value equal to zero and a standard deviation equal to one.

Syntax

NORMSDIST(z)

Argument

z	any real number; specifies the value at which the standard distribution is to be evaluated

Notes and Error Messages

NORMSDIST returns the #BAD DATA! error value if the argument is non-numeric.

Example

NORMSDIST(2.3454) = 0.9904966618

Associated Functions

NORMDIST, NORMINV, NORMSINV and ZTEST

NORMSINV

Description

Calculates inverse magnitude of the standard normal distribution

Syntax

NORMSINV(prob)

Argument

prob	any non-negative real number; specifies the probability to be used with the standard normal distribution

Notes and Error Messages

NORMSINV returns the #BAD DATA! error value if **prob** is negative or greater than 1.

Example

NORMSINV(0.9904966618) = 2.345399857

Associated Functions

NORMDIST, NORMINV and ZTEST

PEARSON

Description

Calculates the Pearson product moment correlation coefficient, R., reflecting the extent of a linear relationship between two data sets. The returning value is in the range from -1.0 to 1.0 inclusive.

Syntax

PEARSON(arr1, arr2)

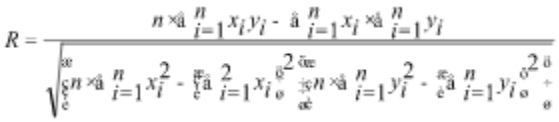
Arguments	Definitions
arr1	the dependent array or a data range of values
arr2	the independent array or range of regression variables

Notes and Error Messages

PEARSON returns the #BAD DATA! error value if the arrays have a different number of references.

PEARSON does not include empty cells and cells containing text in its calculations; however, cells zero values are included.

The formula for the R value of the regression is:



Example

PEARSON({2, 4, 5, 2, 1, 2}, {4, 2, 6, 3, 7, 1}) = 0.019114485

Associated Functions

CORREL, COVAR, INTERCEPT, RSQ, SLOPE and STEYX

PERCENTILE

Description

Calculates the k-th percentile of the values contained in a data range.

Syntax

PERCENTILE(arr, k)

Arguments	Definitions
arr	an array or range reference of real numbers
k	any real number from 0 to 1 inclusive

Notes and Error Messages

PERCENTILE returns the #BAD DATA! error value if:

- **k** is non-numeric or out of range.
- **arr** contains non-numeric data or is empty.

Example

A 10-cell range (C11 to C20) containing the values 1 to 10, returns the following PERCENTILE result:

PERCENTILE(C11..C20,0.5) = 5.5

Associated Functions

LARGE, MAX, MEDIAN, MIN, PERCRANK, QUARTILE and SMALL

PERCRANK

Description

Calculates the percentage rank of a value contained in a data range compared with the other values

Syntax

PERCRANK(arr, x, s)

Arguments	Definitions
arr	an array or range reference of real numbers
x	any number from **arr**; the value whose percentage rank you want to establish
s	an integer value; specifies the number of significant digits for the percentage value returned

Notes and Error Messages

PERCRANK returns the #BAD DATA! error value if:

- **arr** contains non-numeric data or is empty.
- **s** is less than 1.

Examples

PERCRANK returns the following for the 10-cell range (C11 to C20) containing the values 1 to 10:

PERCRANK(c11..c20,c16,3) = 0.555

Associated Functions

LARGE, MAX, MEDIAN, MIN, PERCENTILE, QUARTILE and SMALL,

PERMUT

Description

Calculates how many permutations may result from a defined number of objects. The internal order of objects is significant for the permutation.

Syntax

PERMUT(num, num_c)

Arguments	Definitions
num	any non-negative integer; specifies the number of objects
num_c	any non-negative integer; specifies the number of objects in each permutation

Notes and Error Messages

PERMUT returns the #BAD DATA! error value if:

- any argument is negative.
- **num_c** is greater than **num**.

The number of permutations is determined by the following formula:

$$P_{k,n} = \frac{n!}{(n - k)!}$$

Example

PERMUT(15, 4) = 32760

Associated Functions

BINOMDIST, CRITBINOM, FACT, HYPGDIST and NEGBINDIST

POISSON

Description

Calculates the Poisson probability distribution. The Poisson distribution can be obtained from the binomial distribution when the number of trials is very large and the probability of success is small, provided that their product is constant.

Syntax

POISSON(x, mean, cum)

Arguments

a	any positive real number; specifies the value at which the distribution must be evaluated
mean	any positive real number; specifies the mean value of the random variable
cum	a logical value (TRUE or FALSE); specifies the form of the function

Notes and Error Messages

POISSON returns the #BAD DATA! error value if any argument is out of the range or non-numeric.

If **cum** is FALSE, POISSON returns the value of the probability mass function; if TRUE, it returns the cumulative distribution function.

The formula of the probability mass function is:

$$f(k) = \frac{l^k}{k!} e^{-l}$$

The formula of the cumulative Poisson probability is:

$$F(k) = \sum_{i=0}^{k} \frac{e^{-l}}{k!}$$

Examples

Suppose, that 500 students studied at a faculty. Find the probability that September 1, is the birthday of k students simultaneously where k can be 0,1,2,...

Let A1 equal 500/365, then

POISSON(0, A1, FALSE) = 0.2541417711

POISSON(1, A1, FALSE) = 0.3481394125

POISSON(2, A1, FALSE) = 0.2384516524

Associated Functions

BINOMDIST and EXPONDIST

PROB

Description

Calculates the probability that the values in **xrange** belong to the interval bounded by **lim1** and **lim2**.

Syntax

PROB(xrange, probrange, lim1, lim2)

Arguments	Definitions
xrange	the array for which you wish to associate probabilities
probrange	probabilities to be used with values in the **xrange**
lim1	any real number; specifies the lower limit of the interval
lim2	any real number; specifies the upper limit of the interval

Notes and Error Messages

PROB returns the #BAD DATA! error value if:

- the arrays have a different number of references.
- any probability value is negative or greater than 1, or the sum of values in the **probrange** is not equal to 1.

Examples

PROB({20.33, 25.87, 26, 23,57}, {0.6, 0.1, 0.16, 0.14}, 23, 34) = 0.4

PROB({20.33, 25.87, 26, 23,57}, {0.6, 0.1, 0.16, 0.14}, 12, 19) = 0

Associated Functions

BINOMDIST and CRITBINOM

QUARTILE

Description

Calculates the representation of placement and dispersion of a random variable value

Syntax

QUARTILE(arr, q)

Arguments	Definitions
arr	an array or range reference of real numbers
q	an integer number from 0 to 4; specifies which value is to be returned

Notes and Error Messages

If **q** = 0, the function returns the minimum value in the array.
If **q** = 1, the function returns the first quartile of the array.
If **q** = 2, the function returns the median value in the array.
If **q** = 3, the function returns the third quartile of the array.
If **q** = 4, the function returns the maximum value in the array.

QUARTILE returns the #BAD DATA! error value if:

- **q** is out of range or non-numeric.
- **arr** contains non-numeric values.

Examples

QUARTILE({2,3,5,2.1,-3.4}) = 2

QUARTILE({2,3,5,2.1,-3.4},2) = 2.05

Associated Functions

LARGE, MAX, MEDIAN, MIN, PERCENTILE, PERCRANK and SMALL

RANK

Description

Calculates the rank of a number in an array of values. Numbers are ranked by position in the array of values.

Syntax

RANK(num, ref, *ord)*

Arguments	Definitions
num	any real number
ref	an array or range of reference of real numbers
ord	any number specifying the type of ranking, the **num**

Notes and Error Messages

RANK does not include empty cells and cells containing text in its calculations; however, cells with zero values are included.

If **ord** is omitted or equals zero, RANK returns the rank of the **num** as if the **ref** is sorted by descending order; otherwise RANK returns the rank of the **num** as if the **ref** is sorted by ascending order.

RANK returns the #BAD DATA! error value if **num** value is absent in the **ref**.

The duplicated numbers **num** have the same rank.

Examples

RANK(2, {3,5,6,1,2}, 1) = 2

RANK(2, {3,5,6,1,2}) = 4

RSQ

Description

Calculates the square of the Pearson product moment correlation coefficient, R, based on two known arrays of data. The interpretation of the r-squared value reflects the proportion of the variance in **arry** attributable to the variance in **arrx**.

Syntax

RSQ(arry, arrx)

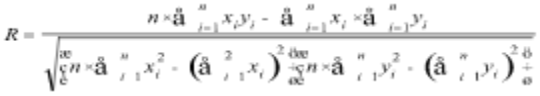
Arguments	Definitions
arry	the dependent array or data range of values
arrx	the independent array or range of regression variables

Notes and Error Messages

RSQ returns the #BAD DATA! error value if the arrays have a different number of references.

RSQ does not include empty cells and cells containing text in its calculations; however, cells with zero values are included.

The formula for the R value of the regression is:



Example

RSQ({2, 4, 5, 2, 1, 2}, {4, 2, 6, 3, 7, 1}) = 0.000365364

Associated Functions

CORREL, COVAR, INTERCEPT, PEARSON, SLOPE and STEYX

SKEW

Description

Calculates the skewness of a distribution. The concept of skewness specifies the degree of a distribution around its mean. Skewness can be positive, negative and zero. If the function returns a positive value, it means that a distribution has an asymmetric tail extended toward positive values; if the function returns negative value, a distribution has asymmetric tail extended toward negative values. A distribution has symmetric tails if the function returns zero.

Syntax

SKEW(list)

Argument

List represents any combination of numbers, expressions, cell references separated by commas, or an array of values.

Notes and Error Messages

SKEW returns the #BAD DATA! error value if there are fewer than three data points, or sample standard deviation is zero.

SKEW does not include empty cells and cells containing text in its calculations; however, cells with zero values are included.

The formula for skewness is:

$$SKEW(x_1,\ldots,x_n) = \frac{n}{(n-1)(n-2)} \times \sum_{i=1}^{n} \left(\frac{x_i - \bar{x}}{s} \right)^3$$

where $\bar{x}$ is the mean value of the data contained in the **list** and
s is the standard deviation.

Example

SKEW({4, -3.22, 2}, -12.345) = -1.098255616

Associated Functions

KURT, STD, STDP, VAR and VARP

SLOPE

Description

Calculates the slope of the linear regression. Calculations are based on the dependent and independent arrays of data points.

Syntax

SLOPE(arry, arrx)

Arguments	Definitions
arry	the dependent array or data range of values
arrx	the independent array or range of regression variables

Notes and Error Messages

SLOPE returns the #BAD DATA! error value if the arrays have a different number of references.

SLOPE does not include empty cells and cells containing text in its calculations; however, cells with zero values are included.

The formula of the linear regression slope is:

$$b_1 = \frac{\sum (x_i - \bar{x}) \times (y_i - \bar{y})}{\sum (x_i - \bar{x})^2}$$

where

$$\bar{x} = \frac{1}{n}\sum x_i \qquad \bar{y} = \frac{1}{n}\sum y_i$$

The intercept of the linear regression has the following equation:

$$b_0 = \bar{y} - b_1 \times \bar{x}$$

Example

Evaluate the slope of the linear regression for the following data:

x: 51, 32, 80, 73, 64, 45, 83, 44, 93, 28, 35, 40, 29, 53, 58, 65

Y: 52.7, 15.2, 89.5, 94.8, 76, 39.3, 114.8, 36.5, 137.4, 5.3, 20.7, 21.7, 9.19, 55.4, 64.3, 79.1

SLOPE(B1:B16, A1:A16) =1.923950701. If A1:A16 contains independent variables, B1:B16 contains dependent variables.

Associated Functions

FORECAST

SMALL

Description

Calculates the specified smallest value in a data range. The second argument determines what smallest value to return in their ascending order.

Syntax

SMALL(arr, k)

Arguments	Definitions
arr	an array or range reference of real numbers
k	any positive integer less than the number of values in **arr**

Notes and Error Messages

SMALL returns the #BAD DATA! error value if:

- **arr** is empty or **k** is greater than the number of values in **arr**.
- **k** = 1, the function returns the smallest value in **arr**.

If **k** = N, SMALL returns the largest value in **arr**; where N is the number of data values in the **arr**.

Example

Let A1:A16 contain the following data:

52.7, 15.2, 89.5, 94.8, 76, 39.3, 114.8, 36.5, 137.4, 5.3, 20.7, 21.7, 9.19, 55.4, 64.3, 79.1

SMALL(A1:A16, 2) = 9.19

Associated Functions

LARGE, MAX, MEDIAN, MIN and PERCENTILE

STANDDIZE

Description

Calculates standardized value of the variable **x** from a distribution characterized by the mean value (**mean**) and standard deviation (**dev**).

Syntax

STANDDIZE(x, mean, dev)

Arguments	Definitions
x	any real number
mean	any real number; specifies the mean value of the distribution
dev	any positive real number; specifies the standard deviation of the distribution

Notes and Error Messages

STANDDIZE returns the #BAD DATA! error value if:

- any argument is non-numeric
- **dev** is negative or zero.

The formula of standardization is:

$$STANDDIZE(X, m, s) = \frac{X - m}{s}$$

where m is the mean value of the distribution and s is the standard deviation.

Example

STANDDIZE(24, 20, 1.75) = 2.285714286

Associated Functions

NORMDIST, NORMINV, NORMSDIST, NORMSINV and ZTEST

STD

Description

Calculates the estimate of standard deviation of the numbers in the range. The standard deviation is a measure of data dispersion from the mean.

Syntax

STD(list)

Argument

List represents any combination of numbers, expressions, cell references separated by commas, or an array of values.

Notes and Error Messages

STD does not include empty cells and cells containing text in its calculations; however, cells with zero values are included.

The formula of the estimate of standard deviation is as follows:

$$STD(x_1,\ldots,x_n) = \sqrt{\frac{n \times \sum_{i=1}^{n} x^2 - \left[\sum_{i=1}^{n} x\right]^2}{n \times (n-1)}}$$

Example

Let A1:A16 contain the following sample data:

52.7, 15.2, 89.5, 94.8, 76, 39.3, 114.8, 36.5, 137.4, 5.3, 20.7, 21.7, 9.19, 55.4, 64.3, 79.1

STD(A1:A16) = 39.34216173

Associated Functions

STDP, VAR and VARP

STDP

Description

Calculates the standard deviation for a population based on the numbers in the range. The standard deviation is a measure of data dispersion from the mean.

Syntax

STDP(list)

Argument

List represents any combination of numbers, expressions, cell references separated by commas, or an array of values.

Notes and Error Messages

STDP does not include empty cells and cells containing text in its calculations; however, cells with zero values are included.

The formula of the standard deviation is as follows:

$$STDP(x_1,\ldots,x_n) = \sqrt{\frac{n \times \sum_{i=1}^{n} x^2 - \left[\sum_{i=1}^{n} x\right]^2}{n^2}}$$

Example

Let A1:A16 contain the following data:

52.7, 15.2, 89.5, 94.8, 76, 39.3, 114.8, 36.5, 137.4, 5.3, 20.7, 21.7, 9.19, 55.4, 64.3, 79.1

STDP(A1:A16) = 38.0928843

Associated Functions

STD, VAR and VARP

STEYX

Description

Calculates the standard error of the forecast y-value for the x-values of a regression. The standard error is a measure of the quality of approximation *x* by *y*.

Syntax

STEYX(arry, arrx)

Arguments	Definitions
arry	the dependent array or a data range of values
arrx	the independent array or range of regression variables

Notes and Error Messages

STEYX returns the #BAD DATA! error value if the arrays have a different number of references.

STEYX does not include empty cells and cells containing text in its calculations; however, cells with zero values are included.

The formula of the standard error of the linear regression is:

$$S(y_1,\ldots,y_2;x_1,\ldots,x_n) = \sqrt{\frac{1}{n\times(n-2)}\left(n\times\sum_{i=1}y^2 - \left(\sum_{i=1}y\right)^2 - \frac{n\times\sum_{i=1}xy - \sum_{i=1}x\times\sum_{i=1}y}{n\times\sum_{i=1}x^2 - \left(\sum_{i=1}x\right)^2}\right)}$$

Example

x: 51, 32, 80, 73, 64, 45, 83, 44, 93, 28, 35, 40, 29, 53, 58, 65

y: 52.7, 15.2, 89.5, 94.8, 76, 39.3, 114.8, 36.5, 137.4, 5.3, 20.7, 21.7, 9.19, 55.4, 64.3, 79.1

STEYX(B1:B16, A1:A16) =5.350158454, if A1:A16 contains independent variables, B1:B16 contains dependent variables

Associated Functions

INTERCEPT, PEARSON, RSQ and SLOPE

TDIST

Description

Calculates the student's T-distribution with **df** (degrees of freedom). The T-distribution is widely used in the hypothesis testing and finding a confidence interval for a unknown value.

Syntax

TDIST(x, df, tails)

Arguments	Definitions
x	any real number
df	any positive integer number; specifies the degrees of freedom of the distribution
tails	can be 1 or 2; specifies the number of distribution tails to be returned

Notes and Error Messages

TDIST returns the #BAD DATA! error value if any argument is non-numeric or out of range.

The formula of the student's T-distribution density function is:

$$f(x) = \frac{G(\frac{k+1}{2})}{G(\frac{k}{2}) \times \sqrt{pk}} (1 + \frac{x^2}{k})^{-\frac{k+1}{2}}$$

where $G(z)$ is the gamma function, k is the degrees of freedom of the distribution.

Example

TDIST(1.4, 34, 1) = 0.085286294

Associated Functions

TINV and TTEST

TINV

Description

Calculates the inverse of the student's T-distribution with **df** (degrees of freedom)

Syntax

TINV(prob, df)

Arguments	Definitions
prob	any non-negative real number; specifies the probability to be used with the student's T-distribution
df	any positive integer; specifies the degrees of freedom of the distribution

Notes and Error Messages

TINV returns the #BAD DATA! error value if **prob** is negative or greater than 1.

Examples

TINV(0.054587,60) = 1.960484194

TINV(0.100032988,3) = 2.3530000004

Associated Functions

TDIST and TTEST

TRIMEAN

Description

Calculates the mean of a range within a data range

Syntax

TRIMEAN(arr, percent)

Arguments	Definitions
arr	an array or range reference of real numbers
percent	any real number from 0 to 1 exclusive; specifies the fractional number of values to be excluded from the calculation

Notes and Error Messages

TRIMEAN does not include empty cells and cells containing text in its calculations; however, cells with zero values are included.

Examples

If the range C11 to C20 contains the values 1 to 10,

TRIMEAN(c11..c20,0.33) = 5.5

TRIMEAN({2,3,5,2.1,-3.4},0.25) = 1.74

Associated Functions

AVG, HARMEAN, GEOMEAN, MEDIAN and MODE

TTEST

Description

Calculates the probability associated with a student's T-test. The TTEST determines the homogeneity or similarity of two normal samples.

Syntax

TTEST(arr1, arr2, tails, t)

Arguments	Definitions
arr1	an array or range reference of real numbers
arr2	an array or range reference of real numbers
tails	can be 1 or 2; specifies the number of distribution tails to return
t	can be 1, 2 or 3; specifies the **type** of the test to perform

Notes and Error Messages

TTEST returns the #BAD DATA! error value if the arrays have a different number of references.

The function does not include empty cells and cells containing text in its calculations; however, cells with zero values are included.

If **t** equals 1, the function performs the paired test.
If **t** equals 2, the function performs the homoscedastic test.
If **t** equals 3, the function performs the heteroscedastic test.

Examples

TTEST({2;3;4;5};{4.5;6.7;7.8901;10};2;2) = 0.028688116

TTEST({5;6;7;4;6;7;7;8;6;5};{8;6;7;7;9;8;7;5;7;9};2;1) = 0.103888131

Associated Functions

TDIST and TINV

VAR

Description

Estimates the variance of the numbers in a data range

Syntax

VAR(list)

Argument

List represents any combination of numbers, expressions, cell references separated by commas, or an array of values.

Notes and Error Messages

VAR does not include empty cells and cells containing text in its calculations; however, cells with zero values are included.

The formula of an estimate for the variance of the numbers is:

$$VAR(x_1,\ldots,x_n) = \frac{n \times \hat{a}^{n}_{i=1} x_i^2 - \left(\hat{a}^{n}_{i=1} x_i\right)^2}{n \times (n-1)}$$

Example

VAR(12, 14, 14.74, 11.24, 10.5, 16.8, 10.8) = 5.727714286

Associated Functions

STD, STDP and VARP

VARP

Description

Calculates the variance of a population for the numbers in the range

Syntax

VARP(list)

Argument

List represents any combination of numbers, expressions, cell references separated by commas, or an array of values.

Notes and Error Messages

VARP does not include empty cells and cells containing text in its calculations; however, cells with zero values are included.

The formula of the variance of a population is:

$$VARP(x_1,\ldots,x_n) = \frac{n \times \sum_{i=1}^{n} x_i^2 - \left(\sum_{i=1}^{n} x_i\right)^2}{n^2}$$

Example

VARP(12, 14, 14.74, 11.24, 10.5, 16.8, 10.8) = 4.909469388

Associated Functions

STD, STDP and VAR

WEIBULL

Description

Calculates the magnitude of the Weibull probability distribution. The Weibull distribution is used to estimate the probable life of electronic equipment and approximate different non-symmetrical distributions in mathematical statistics.

Syntax

WEIBULL(x, alpha, beta, cum)

Arguments	Definitions
x	any real number; specifies the value at which the distribution has to be evaluated
alpha	any real number; specifies the parameter of the distribution
beta	any real number; specifies the parameter of the distribution
cum	a logical value (TRUE or FALSE); specifies the form of the WEIBULL function

Notes and Error Messages

WEIBULL returns the #BAD DATA! error value if any argument is out of the range or non-numeric.

If **cum** is FALSE, WEIBULL returns the value of the distribution density function; if TRUE, WEIBULL returns the cumulative distribution function.

The formula of the cumulative distribution function is:

$$F(x,\alpha,\beta) = 1 - e^{-\left(\frac{x}{\beta}\right)^{\alpha}}$$

The formula of the distribution density function is:

$$f(x,\alpha,\beta) = \frac{\alpha}{\beta}\left(\frac{x}{\beta}\right)^{\alpha-1} e^{-\left(\frac{x}{\beta}\right)^{\alpha}}$$

Examples

WEIBULL(75, 43, 81, FALSE)	= 0.020198365
WEIBULL(75, 43, 81, TRUE)	= 0.03588128

Associated Functions

EXPONDIST

ZTEST

Description

Calculates the two-tailed probability for the standard normal distribution and a standard score for x relative to the data range

Syntax

ZTEST(arr, x)

Arguments	Definitions
arr	an array or range reference of real numbers
x	any real number; specifies the value to be tested

Notes and Error Messages

ZTEST returns the #BAD DATA! error value if **arr** contains no data or **x** is non-numeric.

The formula of the z-test is as follows:

$$ZTEST(arr,x) = 1 - NORMDIST\left(\frac{m - x}{s \div \sqrt{n}}\right)$$

where m is the mean value of the distribution,
s is the standard deviation and n is the number of values in the **arr**.

Examples

ZTEST({80,76,70,60,90,87,67,89,77,76,56,60,95,66,57},75,) = 0.649761781

ZTEST((1;2;3;4;5;6};3) = 0.2563458

Associated Functions

CONFIDENCE, NORMDIST, NORMINV, NORMSDIST, NORMSINV and STANDDIZE

Statistical Functions

Function	Description
AVEDEV()	Calculates the average of absolute deviations of values in a data list from the mean
AVG()	Calculates the average of the range or list of arguments
BETADIST()	Calculates the cumulative beta probability density distribution, widely used in the statistical testing of production quality
BETAINV()	Calculates the inverse value of the cumulative beta probability density function
BINOMDIST()	Calculates the magnitude of the individual term binomial probability distribution
CHIDIST()	Calculates the one-tailed probability of the chi-squared (c^2) distribution
CHIINV()	Calculates the inverse of the chi-squared (c^2) distribution
CHITEST()	Calculates the result of the test of independence
CNT()	Calculates the number of cells in a range containing only numbers and formulas
CNTA()	Calculates the number of cells in the range containing data
CONFIDENCE()	Calculates the confidence interval, in accordance with known probability, for a population mean
CORREL()	Calculates the correlation coefficient between two ranges of data
COVAR()	Calculates covariance, the average of the products of paired deviations, of two ranges of data.
CRITBINOM()	Calculates the smallest value for which the accumulated binomial distribution is greater than or equal to a criterion value
DEVSQ()	Calculates the sum of the squared deviations of data points from their sample mean
EXPONDIST()	Calculates the magnitude of the exponential distribution probability
FDIST()	Calculates the F probability distribution
FINV()	Calculates the inverse of the F probability distribution
FISHER()	Calculates the Fisher transformation
FISHERINV()	Calculates the inverse of the Fisher transformation
FORECAST()	Calculates predicated values along a linear regression
FTEST()	Calculates the result of the F-test, which checks the variance of two samples to determine whether they are significantly different
GAMMADIST()	Calculates the magnitude of the gamma distribution
GAMMAINV()	Calculates the inverse of the gamma cumulative distribution
GEOMEAN()	Calculates the geometric mean of a data range containing only positive values
HARMEAN()	Calculates the harmonic mean of a data range
HYPGDIST()	Calculates the hypergeometric distribution probability
INTERCEPT()	Calculates the intercept of the linear regression
KURT()	Calculates the kurtosis coefficient of a data range
LARGE()	Calculates the specified largest value in a data range

LOGINV()	Calculates the inverse magnitude of the lognormal distribution
LOGNORDIST()	Calculates the magnitude of the lognormal distribution probability
MAX()	Returns the highest number in the data range
MEDIAN()	Returns the median value in the data range
MIN()	Returns the lowest number in the data range
MODE()	Calculates the value of the most frequently repeated data points in the data range
NEGBINDIST()	Calculates negative binomial distribution
NORMDIST()	Calculates the magnitude of the normal distribution for the specified mean and standard deviation
NORMINV()	Calculates inverse magnitude of the normal distribution
NORMSDIST()	Calculates the standard normal distribution function
NORMSINV()	Calculates inverse magnitude of the standard normal distribution
PEARSON()	Calculates the Pearson product moment correlation coefficient
PERCENTILE()	Calculates the k-th percentile of the values contained in a data range
PERCRANK()	Calculates the percentage rank of a value contained in a data range compared with the other values
PERMUT()	Calculates how many permutations may result from a defined number of objects
POISSON()	Calculates the Poisson probability distribution
PROB()	Calculates the probability that the values belong to the specified interval
QUARTILE()	Calculates the representation of placement and dispersion of a random variable value
RANK()	Calculates the rank of a number in an array of values
RSQ()	Calculates the square of the Pearson product moment correlation coefficient
SKEW()	Calculates the skewness of a distribution
SLOPE()	Calculates the linear regression slope
SMALL()	Calculates the specified smallest value in a data range
STANDDIZE()	Calculates a standardized value for a variable
STD()	Calculates an estimate of standard deviation of the numbers in the range
STDP()	Calculates the standard deviation for a population based on the numbers in the range
STEYX()	Calculates the standard error of the forecast y-value for the x-values of a regression
TDIST()	Calculates a student's T-distribution with **df** (degrees of freedom)
TINV()	Calculates the inverse of a student's T-distribution with **df** (degrees of freedom)
TRIMEAN()	Calculates the mean of a range within a data range
TTEST()	Calculates the probability involved with a student's T-test

VAR()	Estimates the variance of the numbers in a data range
VARP()	Calculates the variance of a population for the numbers in the range
WEIBULL()	Calculates the magnitude of the Weibull probability distribution
ZTEST()	Calculates the two-tailed probability for the standard normal distribution and a standard score for x relative to the data range

Text Functions

Function	Description
CHAR()	Returns the number of the Windows font character from 1 to 255 referenced by your computer
CLEAN()	Deletes non-printable Windows font characters from 1 to 255 referenced by your computer from the text string
CODE()	Result is a numeric code matching the code used in the Windows character set for the first character in the given string
DOLLAR()	Rounds a numeric value to a given number of decimals using financial format and returns the result as text
FIND()	Finds the substring **txt** in the text string **intxt** beginning with the specified position **st**. Result is the number of position in **intxt** where the substring is situated.
FIXED()	Rounds a numeric value to a given number of decimals and converts the result to text
LEFT()	Finds the specified number of initial characters in the text string and returns the characters as a text string
LEN()	Result is the number of characters in the text string
LOWER()	Converts any uppercase letters in a text string to lower case
MID()	Returns the number of characters in a text string, beginning at a given position
PROPER()	Converts the first letter in each word of the given text string to upper case
REPLACE()	Replaces specified number of characters of the text string from the start position with the new string
RIGHT()	Computes the number of end characters in the text string, returning the result as text
ROMAN()	Rounds the value to an integer and converts it to a Roman numeral
SEARCH()	Result is the position of the substring text1 in the text string text2
SUBST()	Searches for the given substring in the text string and replaces it with a new one
TRIM()	Deletes spaces in text strings, leaving only single spaces between words
UPPER()	Converts lower-case letters in a text string to upper case
VALUE()	Converts a text argument to a number

CHAR

Description

Returns the number of the Windows font character from 1 to 255 referenced by your computer

Syntax

CHAR(exp)

Argument

exp	any integer number from 1 to 255 inclusive

Examples

CHAR(67) = C

CHAR(72) = H

CHAR(65) = A

CHAR(82) = R

CHAR(84) = T

Associated Functions

CODE

CLEAN

Description

Deletes non-printable Windows font character from 1 to 255 referenced by your computer from the text string

Syntax

CLEAN(text)

Argument

text	any text string

Examples

Since character 9 is nonprintable, you could eliminate it as follows.

CLEAN(CHAR(9)+"Sample Text") = Sample Text

CLEAN(A1) = "Test of CLEAN func", if A1 contains the text string "Test of"+CHAR(12)+"CLEAN func"+CHAR(7)

Associated Functions

CHAR and TRIM

CODE

Description

Result is a numeric code matching the code used in the Windows character set for the first character in the given string

Syntax

CODE(text)

Argument

text	any text string

Examples

CODE("C") = 67

CODE("Corel") = 67

Associated Functions

CHAR

DOLLAR

Description

Rounds a numeric value to a given number of decimals using financial format and returns the result as text.

Syntax

DOLLAR(num, *dec)*

Arguments	Definitions
num	any real number
dec	an integer--specifies the number of digits to round to

Notes and Error Messages

DOLLAR returns the #BAD DATA! error value for non-numeric arguments.

The first argument can be a reference to a cell which contains a numeric value or a reference to a formula which returns a numeric value.

If **dec** is negative, the number is rounded to the left of the decimal point, and if **dec** is not included, it is assumed to be 2.

Examples

DOLLAR(72.989, 3) = "$72,989"

DOLLAR(72.989, -1) = "$70"

DOLLAR(-72.989, 2) = "$72.989999999"

DOLLAR(72.989) = "$72.989999999"

Associated Functions

FIXED and VALUE

FIND

Description

Finds text string **txt** in the string **intxt** starting from the position **st**. Result is the position of **txt** in **intx1**.

Syntax

FIND(txt, intxt, st)

Arguments	Definitions
txt	any text string specifying the sample to be found
intxt	any text string specifying the lookup string to be found
st	any positive integer

Notes

FIND returns 0 if:

- it does not find **txt** in **intxt.**
- **st** is greater than the number of characters in the **intxt.**
- **st** is negative.

The function is case-sensitive and sensitive to diacritical marks used in non-English languages.

Examples

FIND("mem", "Commemorate", 1) = 4, because mem (sample to find) is at position 4

FIND(B1, B2,1)	= 2 (if B1 contains election and B2 contains selection)
FIND("d", "end", 4)	= #BAD DATA!, because the last argument is greater than the number of characters in the lookup string

Associated Functions

LEN and SEARCH

FIXED

Description

Rounds a numeric value to a given number of decimals and converts the result to text

Syntax

FIXED(num, *dec)*

Arguments	Definitions
num	any real number
dec	an integer--specifies the number of digits to round

Notes

If **dec** argument is omitted, it is assumed to be 2.

If **dec** is negative, **num** is rounded to the left of the decimal point.

FIXED converts the result to text.

Examples

```
FIXED(45287, 3)              = "45,287.28"
TYPE(FIXED(45287.28, 3))  = ""
FIXED(45287.2834, -2)             = "45300"
```

Associated Functions

DOLLAR, ROUND and VALUE

LEFT

Description

Finds the specified number of initial characters in the text string and returns the characters as a text string

Syntax

LEFT(text, exp)

Arguments	Definitions
text	any text string; must be enclosed in a quotation marks
exp	any non-negative integer--specifies the number of initial characters to return

Notes and Error Messages

If **exp** is greater than the length of **text** tested, the function returns all of **text**.

The number of characters returned is never greater than the length of the **text**.

If the first argument is not a text string, LEFT returns the #BAD DATA! error value.

Examples

LEFT("Olympiad", 7) = "Olympia"

LEFT("Olympiad", 15) = "Olympiad"

Associated Functions

MID and RIGHT

LEN

Description

Result is the number of characters in the text string

Syntax

LEN(text)

Argument

text	any text string; must be enclosed in quotation marks

Examples

LEN("Example") = 7

LEN("") = 0

Associated Functions

SEARCH

LOWER

Description

Converts any uppercase letters in a text string to lower case

Syntax

LOWER(text)

Argument

text	any text string; must be enclosed in quotation marks

Notes and Error Messages

If the argument is not a text string, LOWER returns the #BAD DATA! error value.

The argument can be a reference to a which cell contains the corresponding value.

Example

LOWER("We All Live In ...") = "we all live in ..."

Associated Functions

UPPER and PROPER

MID

Description

Returns the number of characters in a text string, beginning at a given position

Syntax

MID(text, st, exp)

Arguments	Definitions
text	any text string; must be enclosed in quotation marks
st	any positive integer
exp	any positive integer--specifies the number of leftmost characters to return

Notes

If one or both of the numeric arguments equals 0, they are assumed to be 1.

If **st** is greater than the length of text, MID returns 0.

Any argument can be a reference to a cell which contains corresponding values.

Examples

MID("Rolling Stones", 9, 6) = "Stones"

MID("Rolling Stones", 9, 5) = "Stone"

MID("Rolling Stones", 1, 25) = "Rolling Stones"

MID(A3, A4, A5) = "Rolling", if A3 contains "Rolling Stones"

A4 contains 1, A5 contains 7

Associated Functions

CODE, FIND, LEFT RIGHT and SEARCH

PROPER

Description

Converts the first letter in each word of the given text string to upper case

Syntax

PROPER(text)

Argument

text	any text string; must be enclosed in quotation marks

Notes

The argument can be a reference to a cell which contains the referenced text.

Examples

PROPER("aBrAcAdAbRa") = "Abracadabra"

PROPER("WHEN the sUN is BRIGHT...") = "When The Sun Is Bright..."

Associated Functions

LOWER and UPPER

REPLACE

Description

Replaces the specified number of characters of the text string from the start position with the new string

Syntax

REPLACE(text, st, num, n_text)

Arguments	Definitions
text	any text string; must be enclosed in quotation marks
st	any positive integer--specifies the start position for **n_text** (the new text)
num	any positive integer--specifies the number of characters to replace
n_text	any text string; must be enclosed in quotation marks--specifies the new text to insert

Notes and Error Messages

If **st** is larger than the length of the **text**, REPLACE appends **n_text** to **text**.

If **num** is 0, REPLACE inserts **n_text** into **text** at the place specified by **st**.

Any argument can be a reference to a cell which contains corresponding values.

If any argument does not conform to its type, REPLACE returns the #BAD DATA! error value.

Examples

REPLACE("Corelchart",6,9,"CHART 5.0" = "CorelCHART 5.0"

REPLACE("Coca Cola",1,4,"Hershi") = "Hershi Cola"

Associated Functions

FIND, MID and SEARCH

RIGHT

Description

Computes the number of end characters in a text string, returning the result as text

Syntax

RIGHT(text, exp)

Arguments	Definitions
text	any text string; must be enclosed in quotation marks
exp	any non-negative integer--specifies the number of end characters to return

Notes and Error Messages

If **exp** is greater than the length of **text**, RIGHT returns all **text**.

The number of characters returned is never greater than the length of **text**.

If the first argument is not a text string, RIGHT returns the #BAD DATA! error value.

Any argument can be a reference to a cell containing corresponding values.

Examples

RIGHT("You can do it all with CorelCHART 5.0",9) = "CHART 5.0"

RIGHT(A1, A2) = "PEACE", if A1 contains "GREENPEACE", A2 contains 5

RIGHT("WEATHER",3) = "HER"

Associated Functions

MID and LEFT

ROMAN

Description

Rounds the value to an integer and converts it to a Roman numeral

Syntax

ROMAN(exp)

Argument

exp	any positive real number

Notes and Error Messages

If the argument is negative or non numeric, ROMAN returns the #BAD DATA! error value.

The argument can be a reference to a cell which contains a corresponding value.

The result is returned as text.

Example

ROMAN(12.789) = "XIII"

Associated Functions

FIXED

SEARCH

Description

Result is the position of the substring text1 in the text string text2

Syntax

SEARCH(text1, text2, st)

Arguments	Definitions
text1	any text string; must be enclosed in quotation marks--specifies the text to search
text2	any text string; must be enclosed in quotation marks--specifies the text string to search
st	any positive integer--specifies the start position from the left of search within the **text**

Notes and Error Messages

SEARCH returns 0 if the search is unsuccessful.

If **st** is greater than the length of the **text2**, SEARCH returns the #BAD DATA! error value.

SEARCH is neither case-sensitive nor sensitive to diacritical marks used in non-English languages.

Any argument can be a reference to a cell which contains corresponding values.

Examples

SEARCH("DRAW 5.0!", "You can do it all with CorelDRAW 5.0!",1) = 29

SEARCH("n","animations",3) = 9

SEARCH("member", "remember",1) = 3

SEARCH("em", "remember",3) = 4

Associated Functions

FIND, MID and REPLACE

SUBST

Description

Searches for the given substring in the text string and replaces it with a new one

Syntax

SUBST(text, old , new)

Arguments	Definitions
text	any text string; must be enclosed in quotation marks--specifies the text to be searched through
old	any text string; must be enclosed in quotation marks--specifies the text to replace
new	any text string; must be enclosed in quotation marks--specifies the text to replace **old**

Notes and Error Messages

Any argument can be a reference to a cell which contains corresponding values.

If any argument does not conform to its type, SUBST returns the #BAD DATA! error value.

Examples

SUBST("You can do it all with CorelCHART 4.0!","chart 4.0!","CHART 5.0!") = You can do it all with CorelCHART 5.0!

SUBST("Revollution", "voll", "vol") = Revolution

Associated Functions

REPLACE

UPPER

Description

Converts lower-case letters in a text string to upper case

Syntax

UPPER(text)

Argument

text	any text string; must be enclosed in quotation marks

Notes and Error Messages

If the argument is not a text string, UPPER returns the #BAD DATA! error value.

The argument can be a reference to a cell which contains corresponding value.

Example

UPPER("We All Live In ...") = "WE ALL LIVE IN ..."

Associated Functions

LOWER and PROPER

Trim

Definition

Deletes spaces in text strings, leaving only single spaces between words

Syntax

Trim(text)

Notes and Error Messages

If the argument is not a text string, TRIM returns the #BAD DATA! error value.

The argument can be a reference to a cell containing a corresponding value.

Examples

TRIM = ("Profit Per Unit X Units X = Total Profit" = Profit Per Unit X Units X=Total Profit

TRIM = ("... attention is consistently paid to ..." = ... attention is consistently paid to

Associated Functions

CLEAN, SEARCH and SUBST

VALUE

Description

Converts a text argument to a number

Syntax

VALUE(text)

Argument

text	any text string; must be enclosed in quotation marks

Notes and Error Messages

If the argument is non-numeric, VALUE returns the #BAD DATA! error value.

The argument can be a reference to a cell which contains a corresponding value.

Examples

VALUE($588.00) = 588

VALUE("12,136.00") = 12,1360.0

Associated Functions

DOLLAR and FIXED