

Using Barcode Wizard

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Bar coding is a method of automatic identification that lets you collect data quickly and accurately. Barcode Wizard helps you create your own bar codes for a wide range of industry-standard formats. You can adjust many of the bar code properties, such as bar height, check digits, and magnification to create a symbol that suits your needs. Also, the overall appearance of the symbol is affected as you change the bar code text options.

`{button ,AL(^OVR Using Barcode Wizard;','0,"Defaultoverview",)}` [More Detailed Information](#)

Selecting industry-standard formats



Selecting industry-standard formats

Barcode Wizard supports the following 18 industry-standard formats:

Codabar

Codabar format is commonly used in libraries, blood banks, and the air parcel business. The variable-length format allows encoding of the following 20 characters: 0123456789-\$./+ABCD. The start and stop characters of a Codabar message must be A, B, C, or D.

Code 25

Code 25, also known as "Code 2 of 5," is a discrete, variable-length code format. Code 25 format consists of two thick bars in a total of five bars for each encoded character. It is used primarily for inventory handling, identification of photo-finishing envelopes, airline ticketing, and baggage and cargo handling.

Code 39

Code 39, also known as "Code 3 of 9," is the most popular format used in the nonretail market for inventory and tracking. The format consists of three thick elements — bars or spaces — in a total of nine elements for each encoded character. This bar code is used extensively in manufacturing, military, and health applications. The discrete, variable-length format will accept the following 44 characters:

- 0123456789ABCDEFGHIJKLMNPOQRSTUVWXYZ-.*\$/+%

The asterisk (*) is used as the start/stop character and cannot be used in the body of the message.

You can also add a check digit that helps to ensure the security of the bar code. Code 39 supports Modulo 43 and xxx-nnnnnn-c check digit formats used by US Customs for import/export shipping.

Code 128

Code 128 is a variable-length, high-density, alphanumeric format that is used in the shipping and labeling industry. This code has 106 bar and space patterns. Each pattern can have one of three meanings, depending on which of the three character sets is employed. One character set encodes all uppercase and ASCII control characters; another encodes all uppercase and lowercase characters; and the third set encodes the numeric digit pairs 00 through 99. The character set used is determined by the start character.

Code 128 also allows you to encode four function codes: FNC1, FNC2, FNC3, and FNC4.

- FNC1 — is reserved for use in European Article Numbering (EAN).
- FNC2 — is used to instruct a bar code reader to link together the message in a bar code symbol with the message in the text symbol.
- FNC3 — is used to instruct a bar code reader to perform a reset.
- FNC4 — is used in closed system applications.

A variation of Code 128 format is EAN 128. This symbol uses the same code set as Code 128; however the function codes FNC2 to FNC4 cannot be used, and FNC1 is used as part of the start code. An advanced option of Code 128 in Barcode Wizard lets you enable or disable the EAN 128 format.

EAN-8

The European Article Numbering (EAN) system is the European version of the Universal Product Code (UPC). This code is now called the International Article Number; however the EAN abbreviation remains. EAN codes are found on European retail items.

EAN-8 encodes eight digits, consisting of two country-code digits, five data digits, and one check digit. In Barcode Wizard, you must enter seven digits, and the eighth digit — or the check digit — is automatically generated.

An optional two or five-digit number may be added to the main bar code. This number is designed for use on publications and periodicals, and appears as an additional bar code to the right of the main bar code.

EAN-13

EAN-13 is the European version of the Universal Product Code (UPC (A)). The difference between EAN-13 and UPC (A) is that EAN-13 encodes a 13th digit into the left six digits of a UPC (A) symbol. The 13th digit, combined with the 12th digit, represents a country code.

An optional two or five-digit number may be added to the main bar code. This number is designed for use on publications and periodicals and appears as an additional bar code to the right of the main bar code.

FIM

Facing Identification Mark (FIM) patterns are used by the US Postal Service in automated mail processing. FIM patterns are

used for automatic facing and canceling of mail that does not have a stamp or meter imprint, such as business reply mail, penalty mail, etc.

Four FIM patterns are currently in use: FIM-A, FIM-B, FIM-C, and FIM-D.

- FIM-A — used on courtesy reply mail already preprinted with POSTNET bar codes
- FIM-B — used on business reply, penalty, and government (franked) mail that is not preprinted with POSTNET bar codes
- FIM-C — used on business reply, penalty, and government mail already preprinted with POSTNET bar codes
- FIM-D — indicates that postage is required

FIM patterns are placed in the upper right corner along the top edge, indented two inches from the right edge.

ISBN

ISBN (International Standard Book Number) codes are printed on books. This format is not a separate bar code type. ISBN numbers have a specific structure and are encoded using EAN-13 bar codes. The message is formed by a fixed three-digit country code of 978, followed by the 10-digit ISBN number. The 10th digit — or the check digit — is discarded. Enter the digits using the x-xxxx-xxxx format.

ISSN

ISSN (International Standard Serial Number) codes are printed on magazines, newspapers, and other serial publications. This format is not a separate bar code type. ISSN is an EAN-13 bar code with a 977 country code and a two-digit supplemental code. The two-digit supplemental code contains the issue number. For example, January=01, and February=02. Enter the digits using the xxxx-xxxx format.

ITF

ITF (Interleaved 2 of 5) was designed on the basis of Code 25. Each format uses the same encoding techniques except that both bars and spaces carry data in the ITF format: the odd-position digits are encoded in the bars, and the even-position digits are encoded in the spaces. ITF is a high-density, variable-length, number-only format. This bar code is one of the most popular formats used by the shipping and warehouse industries. Barcode Wizard allows you to enter up to 40 digits.

ITF-14

ITF-14 is similar to the ITF format, except that exactly 13 digits must be entered in Barcode Wizard. An optional five digits may be entered for the add-on bar code.

JAN-8

JAN-8 is the Japanese equivalent to EAN-8.

JAN-13

JAN-13 is the Japanese equivalent to EAN-13.

MSI Plessey

The MSI Plessey bar code is used primarily in libraries and store shelf labeling. MSI Plessey is a variable-length format that allows you to encode the following 10 characters: 0123456789. Each character consists of eight elements: four bars and four spaces.

Pharmacode

Pharmacode is used for Online Security Control of the pharmaceutical packaging process. Only the bars carry data, not the spaces. The high printing tolerance and the option of printing the bar code in multiple colors makes Pharmacode a practical format.

POSTNET

POSTNET (Postal Numeric Encoding Technique) bar codes are used to encode ZIP codes on US mail. The Postal Service mail-handling process is designed to be fully automated, and POSTNET bar codes feed the automated equipment.

POSTNET differs from other formats in that the bar heights alternate, as opposed to the bar widths. Each number is represented by a pattern of five bars. A single tall bar is used for the start and stop bars. POSTNET can be used for five-digit, nine-digit, and 11-digit delivery point barcode. These codes are often used in conjunction with FIM bars which are found in the upper right corner of a mail piece such as Business Reply Mail.

UPC(A)

UPC (Universal Product Code) symbols are used for retail applications in the United States and Canada. UPC(A) is a 12-digit format. The symbol consists of 11 digits of data and one check digit. The first digit usually represents the type of product being identified. The following five digits are a manufacturer's code, and the next five digits are used to identify a specific product.

UPC(E)

Like UPC(A), UPC(E) is used for retail applications; however, since the bar code is smaller, it is better suited to smaller items.

This format is also called "zero-suppressed," because UPC(E) compresses a 12-digit UPC(A) code into a six-digit code. UPC(E) suppresses the number-system digit, trailing digits in the manufacturer's code, and leading zeros in the product identification part of the code.

An optional two or five-digit number may be added to the main UPC(A) or UPC(E) bar code. This number is designed for use on publications, and periodicals and appears as an additional bar code to the right of the main bar code.

{button ,AL('OVR Using Barcode Wizard';0,"Defaultoverview",)} Related Topics



Choosing a bar code

The format you choose depends on how you intend to use the symbol and the features offered by each bar code. The characters you want to encode, available space, and design may also affect your choice.

To choose a bar code

1. Click the arrow to the right of the Industry-Standard Formats list box.
2. Choose a bar code format from the list.
3. Type the characters you want to encode in the Numeric Digits box.

Notes

- The Sample Preview box displays a current image of the bar code.
- Facing Identification Mark (FIM) patterns require you to choose a code (A, B, C, or D) instead of entering numerical data.

Adjusting industry-standard properties

Adjusting industry-standard properties

You can adjust many of the industry-standard properties to create the bar code that you want. Changing these properties affects how easily a scanner can read a symbol. You want to ensure that the bar code is readable the first time it is passed under a scanner.

`{button ,AL("OVR Using Barcode Wizard";0,"Defaultoverview",)}` [Related Topics](#)



Generating bar codes

Printing a bar code is affected by three settings: printer resolution, units of measurement, and bar width reduction. A printer's resolution is given in dpi (dots per inch). A printer dot or pixel is the smallest unit a printer can output. Barcode Wizard uses whole printer pixels to create symbols. Printing bar codes requires accuracy. To ensure that your symbol is accurate, Barcode Wizard allows you to choose from three units of measurement: inches, centimeters, and millimeters. Printing distortions that effect the bar code measurements may occur. You can set the bar width reduction — the number of pixels subtracted from the original bar width

— to prevent any distortions.

The size of a bar code is affected by three settings: magnification, bar height, and the wide-to-narrow ratio. Magnification increases the size of the entire image while bar height adjusts only the height of the bars. Wide-to-narrow ratio refers to the distance between wide bars and spaces and the narrow bars. A high ratio makes the bar code wider and more readable to the scanner.

To adjust printer resolution

1. Click the arrow to the right of the Industry-Standard Formats list box.
2. Choose a bar code format from the list.
3. Type the characters you want to encode in the Numeric Digits box.
4. Click the Next button.
5. Click the arrow to the right of the Printer Resolution list box, and choose a dpi setting.

To adjust units of measurement

1. Follow steps 1 to 4 from the "To adjust printer resolution" procedure.
2. Click the arrow to the right of the Units list box, and choose inches, millimeters, or centimeters.

To adjust bar width reduction

1. Follow steps 1 to 4 from the "To adjust printer resolution" procedure.
2. Click the arrows to the right of the Bar Width Reduction box to set a pixel value.

To adjust magnification

1. Follow steps 1 to 4 from the "To adjust printer resolution" procedure.
2. Click the arrows to the right of the Magnification box to set a percentage value.

To adjust bar height

1. Follow steps 1 to 4 from the "To adjust printer resolution" procedure.
2. Click the arrows to the right of the Bar Height box to set a height.

To adjust wide to narrow ratio

1. Follow steps 1 to 4 from the "To adjust printer resolution" procedure.
2. Click the arrows to the right of the Wide to Narrow Ratio box to set the ratio.



Notes

- You should not use UPC, EAN, and JAN bar codes below 85 percent magnification.
- You can reduce the bar height, but if the symbol is too short the scanner may miss the bar code. UPC symbols should not be shortened.
- Wide bar codes are read more accurately than narrow bar codes.

Setting advanced bar code options

Setting advanced bar code options

Most of the advanced options in Barcode Wizard involve setting check digits or changing the look of the bar code. A check digit determines if the data is read correctly. A formula is applied to the encoded numbers to yield one digit. That check digit is usually placed at the end of the bar code. The computer checks that the numbers were read correctly by comparing the check digit it calculates with the check digit it read.

Other advanced options effect the appearance of the symbol. For example, the advanced options allow you to attach a numeric prefix to the bar code, ignore spaces in the symbol, ignore brackets in the symbol, and so on.

{button ,AL('OVR Using Barcode Wizard';,0,"Defaultoverview",)} [Related Topics](#)



Enabling advanced options

You can add or remove check digits, brackets, spaces and prefixes from the following bar codes: Codabar, Code 128, Code 39, UPC(A), ISBN, ISSN, ITF 14, and MSI Plessey.

To enable advanced options

1. Click the Advanced button on the Industry-Standard Properties screen.
2. Enable the radio button beside the option you want activated.
3. Click OK.

Adjusting text properties

Adjusting text properties

The number of text properties that you can adjust for a bar code depends on the format you chose. Text properties affect the final appearance of the symbol. The following terms require some clarification:

- Quiet zone — the clear area (free from marks) before and after the bars and spaces. Reading the color and reflectance of the quiet zone establishes how the spaces will be read and determines the difference between the spaces and the bars.
- Human-readable — data represented by the bars and spaces that is printed as readable text
- Start code — a character that indicates the start of a symbol; and the stop code is a character that indicates the end of a symbol
- FACT Data Identifier — clarifies what is referred to by the encoded characters
- The asterisk (*) — used as the start/stop character for Code 39. You can choose whether or not to print out the asterisk as part of the human-readable.

{button ,AL('OVR Using Barcode Wizard';,0,"Defaultoverview",)} [Related Topics](#)



Changing text options

The appearance of your text is determined by the options you set on the Text Properties screen. The font, placement, size, and weight of the text can be adjusted.

To change text font

1. Click the arrow to the right of the Industry-Standard Formats list box
2. Choose a bar code format from the list.
3. Type the characters you want to encode in the Numeric Digits box.
4. Click the Next button.
5. Adjust the industry-standard properties.
6. Click the Next button.
7. Click the arrow to the right of the Font list box, then click a font style.

To change text weight

1. Follow steps 1 to 6 from the "To change text font" procedure.
2. Click the arrow to the right of the Weight list box, then click Normal, Normal-Italic, Bold, or Bold-Italic.

To change text alignment

1. Follow steps 1 to 6 from the "To change text font" procedure.
2. Click the arrow to the right of the Alignment box, then click Center, Left, or Right.

To change text size

1. Follow steps 1 to 6 from the "To change text font" procedure.
2. Click the arrows to the right of the Size box to choose a point size.

{button ,AL('PRC Adjusting text properties;',0,"Defaultoverview",)} [Related Topics](#)



Changing bar code options

The appearance of your bar code is determined by the human-readables you set on the Text Properties screen. Placing add-on text at the bottom or at the top of your bar code, centering check digits, and showing start and stop characters are some of the options you can change.

To change bar code options

1. Click the arrow to the right of the Industry-Standard Formats list box
2. Choose a bar code format from the list.
3. Type the characters you want to encode in the Numeric Digits box.
4. Click the Next button.
5. Adjust the industry-standard properties.
6. Click the Next button.
7. Enable the check box beside the options you want to activate.

— Notes

- Some of the check boxes cannot be enabled or disabled. These settings are industry-standards for that particular bar code.
- You can open your symbol in a graphics or business application to print the bar code.

{button ,AL('PRC Adjusting text properties;',0,"Defaultoverview",,)} [Related Topics](#)

Advanced Options dialog box

Displays the check digit options.

Enable to disable the check digit. The check digit is used to ensure that the data is read correctly.

Lets you choose a start character.

Lets you choose a stop character.

Enable to use this variation of the check digit, which is one of three check digit formats commonly used by libraries.

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Lets you choose a start character. The start character indicates the beginning of the symbol.

Lets you choose a stop character. The stop character indicates the end of the symbol.

Enable to choose the EAN-128 option, which is a powerful variation of Code 128.

Enable to ignore the brackets in the bar code.

Enable to ignore the spaces in the bar code.

Enable to use this format option required by U.S. Customs. XXX is alphanumeric, NNNNNNN is numeric, and C is the check digit.

Enable to use Mod 43 check digits, a format used by U.S. Customs for all Import and Export shipping.

Enable when you do not want to use the 978 or 979 prefix with the bar code.

Enable to add the 978 prefix to the bar code. This generates an EAN-13 code from the ISBN number.

Enable to add the 979 prefix to your bar code. This generates an EAN-13 code from the ISBN number.

Enable when you do not want to use the 977 prefix with the bar code.

Enable to add the 977 prefix to your bar code. This generates an EAN-13 code from the ISSN number.

Enable when you do not want to display the bearer bars in the bar code. The bearer bars are thick lines that surround the bar code.

Enable to display bearer bars on the top and bottom of the bar code. The bearer bars are thick lines that surround the bar code.

Enable to frame the bar code with bearer bars. The bearer bars are thick lines that surround the bar code.

Enable to use this variation of automatically calculating the check digit.

Enable to display an "N" to the left of the bars when the system character "3" is used. The system character "3" is assigned to the NDC (National Drug Code) and HRI (National Health Related Items Code).

Generate custom bar codes page

Lets you choose industry-standard formats that are available for bar codes.

Lets you specify the number assigned to the bar code.

Lets you specify the number assigned to the bar code.

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Lets you specify the number assigned to the bar code.

Displays a sample of the industry-standard format you chose.

Lets you specify the Federation of Automated Coding Technologies (FACT) data identifier.

Displays the check digit that is automatically generated. The check digit is used to ensure that the data is read correctly.

Lets you specify an additional two or five digits to be used for the add-on bar code.

Lets you choose a Face Identification Marking (FIM) type.

Enable to choose Face Identification Marking (FIM) type A. FIM type A indicates that postage is required, prebarcoded.

Enable to choose Face Identification Marking (FIM) type B. FIM type B indicates that postage is prepaid, and no bar code exists.

Enable to choose Face Identification Marking (FIM) type C. FIM type C indicates that postage is prepaid, prebarcoded.

Enable to choose Face Identification Marking (FIM) type D. FIM type D indicates that postage is required, and no bar code exists.

Advanced button on the Adjust industry standard properties page

Opens the Advanced Options dialog box, which lets you choose advanced options associated with the industry standard format for the bar code that you chose.

Adjust industry standard properties page

Lets you choose the height of the bars. The height is measured from the bottom of the text to the top of the bars.

Lets you choose the bar width reduction in pixels. The bar width reduction is subtracted from the bar width. Reducing the bar width lets you compensate for print gain.

Lets you choose the magnification to be applied to the entire image. Choosing 200% prints the image at twice its size.

Lets you choose the printer resolution in dots per inch (dpi).

Displays the width of the symbol from the left edge of the left-most bar to the right edge of the right-most bar. It does not include quiet zones. The value cannot be edited.

Lets you choose the unit of measurement.

Lets you choose the unit of measurement.

Lets you choose the proportion between wide bars and spaces and narrow bars and spaces. The wider, or larger, the ratio, the wider the bar code symbol is.

Adjust text properties in your bar code page

Lets you choose the alignment of the text that is below the bar code.

Enable to vertically center the system and check digits on the bar code symbol. The system digit appears before the bar code symbol and the check digit appears after the bar code symbol.

Lets you choose a font.

Lets you choose the size of the font.

Lets you choose a font weight.

Enable to print text with the bar code symbol.

Enable to print the text associated with the add-on bar code. Add-on bar codes do not apply to all bar code formats.

Enable to print asterisks before and after the bar code text. Asterisks do not apply to all bar code formats.

Enable to print Federation of Automated Coding Technologies (FACT) data.

Enable to print the quiet zone marks. The quiet zone is the clear area (free from marks) before and after the bars and spaces.

Enable to print the start and stop characters. The start character indicates the beginning of the symbol. The stop character indicates the end of the symbol.

Enable to print the human-readable text above the bar code symbol.

Enable to print the add-on text at the bottom of the add-on bar code. The text is printed on top of the bar code by default.

