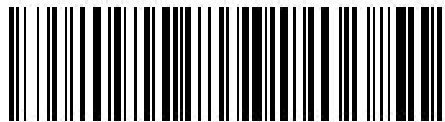# Barcode For Beginners

Tutorial and FAQ

- **Why use barcodes?**

- **Barcode types and use**

- **Choosing the best barcode type to use**

- **Products available for printing barcodes**

- **Reading barcodes**

Why use barcodes?

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As far back as the 1960s, barcodes were used in industrial work environments. Some of the early implementations of barcodes included the ability identify rail road cars.

In the early 1970s, common barcodes started appearing on grocery shelves. To automate the process of identifying grocery items, UPC barcodes were placed on products.

Today, barcodes are just about everywhere and are used for identification in almost all types of business.

Why use barcodes?

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When barcodes are used in the business process, procedures are automated to increase productivity and reduce human error.

Whenever there is a need to accurately identify or track something, bar-coding should be used. For example, in a data entry work environment, workers may be required to enter an enormous amount of data into a customer database system. Instead of manually typing a customer identification number into a database, if the information is contained in a barcode, a data entry operator may scan it in. This would increase automation and reduce human error.

Barcode types and use

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The type of barcode to use for a particular situation depends upon: (1) the use; (2) the data encoded in the barcode and (3) how the barcode will be printed.

There are several different types of barcode standards for different purposes - these are called symbologies. Each type of symbology (or barcode type) is a standard that defines the printed symbol and how a device, such as a barcode scanner, reads and decodes the printed symbol.

Barcode types and use

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When multiple parties or companies are involved in the ID process, industry standards are usually established. Note that the standard is not necessarily the same as the barcode symbology. If an industry standard has been established for the customer's use of bar-coding, then most likely there will not be a choice in selecting the barcode symbology.
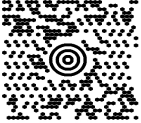
Barcode standards define how to use the barcode symbology in a particular situation. For example, ISBN is a standard for labeling books and periodicals that uses the EAN-13 symbology.

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Barcode types and use

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There are two types of barcodes: Linear barcodes and 2D barcodes. Some examples include:

Linear barcodes	2D barcodes
Code 128 123456789012	Data Matrix
UPC 1 23456 78901 2	PDF417
Interleaved 2 of 5 01234567890128	Maxicode

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Barcode types and use

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Some established barcode standards include:

Established Standard	Common Use	Symbology
AIAG	Automotive item identification	Data Matrix
EAN8 EAN13	Items for sale worldwide	UPC/EAN
MIL-STD-130L	US Department of defense	Data Matrix
SSCC-18	Shipping cartons	Code 128

Choosing the best barcode type to use

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Determining the best type of barcode to use depends on the environment, requirements, application, and printer. When dealing strictly with barcode fonts, there are two types:

Fonts that require encoding with use of a font tool (Code 128, UPC, Data Matrix, Code 93)

Fonts that do not require encoding. Self-checking fonts (Code 39, Codabar)

Choosing the best barcode type to use

BARCODE12345678

For fonts that require encoding such as Code 128, Data Matrix, UPC, and Code 93, a font tool must be used.

A font tool is a product that is used to format data for a barcode font. This may include calculating start/stop characters, a check character, and in some cases prepare data so that it can be altered for the specified barcode symbology. For example, encoding **TEST123** using a font tool for Code 128 produces **ÌTEST123}Î**. Only after encoding, should the font be applied. The **IDAutomation.com Online Font Encoder** is an example of a font tool .

Choosing the best barcode type to use

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It should be noted that if not a technical user or programmer, try to use self-checking barcode fonts such as Code 39 or Codabar. Self-checking fonts have checking code built-in so there is no need to calculate check characters. Check characters are used in more dense symbologies so the barcode scanner can verify it read the barcode correctly.

To create a Code 39 barcode using a font simply surround the data string with start/stop characters such as "*" or "!". For example, enter *MyData* or !MyData!, then convert the font to the IDAutomation Code 39 Font.

Products Available for Printing Barcodes

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Determining the best product to use for printing depends on the environment, requirements, application and printer. Several methods for printing barcodes are provided below.

Barcode Fonts

Applications

Components

Hosted Services (Dynamic Barcode Generator Service or XML Barcode Webservice)

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Reading Barcodes

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One of the most common tools for reading barcodes is the hand held barcode scanner. All of the barcode scanners recommended and sold by IDAutomation have built-in decoders that can read several different bar code types.

There are some low priced scanners available on the market, but they require complicated decoders. In the long run, after ordering and programming a decoder, more time will be spent using the decoder than if ordering a scanner with a built-in decoder.

Reading Barcodes

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Most of the scanners sold by IDAutomation receive their power from the PC keyboard or USB port so no external power supply is required. When a barcode is scanned, the data is sent to the PC as if it was typed using a keyboard.

There are low priced scanners available on the market, but they require complicated decoders. In the long run, after ordering and programming a decoder, more time will be spent using the decoder than ordering a scanner with a built-in decoder.

Reading Barcodes

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Not all scanners can scan barcodes that are printed at very small x dimensions (the x dimension is the width of the narrow bar in the code), so it is advisable to check the barcode scanner manual to make sure the scanner can read the small x dimension barcodes. Also, make sure the printer can accurately reproduce small x dimension barcodes.

The IDAutomation Plug 'n Play Barcode Scanner will scan linear bar codes consistently at 4 to 32 mils in size and up to 4.2" in width from a distance of 4" to 8" at 200 scans per second and can be programmed to scan function keys from barcodes.

End of

Barcode for Beginners

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