

Bar Code Best Practice

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Abstract

Data centers are constantly changing and new mainstream technologies such as blade servers and virtualization are causing the pace of change to accelerate. One of the tools that can help the data center operators establish processes to manage the rapidly changing environment is bar coding. The following application note offers advice on the various issues to consider prior to introducing bar coding in the data center as well as best practice for successful implementation.

Introduction

Barcodes are used for identification in almost all types of business for a large number of different applications. APC has recently deployed barcodes for use in change management of the physical infrastructure in order to improve speed and accuracy of data entry when moving equipment within the data center. The following application note offers guidance on how to set up an optimum bar coding environment within the data center.

Choosing a Bar Code Type

There are several different types of barcode standards for different purposes, called symbologies. Each type of symbology is a standard that defines the printed symbol and how a device, such as a barcode scanner, reads and decodes the printed symbol. Industry standards are usually established when multiple parties or companies are involved in the ID process. The standard is not necessarily the same as the barcode symbology. Barcode standards define how to use the barcode symbology in a particular situation. ISBN for example, is a standard for labeling books and periodicals which use the EAN-13 symbology. Please find below in table 1 a list of some of the established barcode standards and what they are used for.

Table 1 – Established Barcode Standards

Established Standard	Common Use	Barcode Symbology
DOD UI	Unique identifier for US Department of Defense	DataMatrix
EAN-8 or EAM-13	Items for sales worldwide	UPC/EAN
EAN-14	Shipping cartons	Interleaved 2 of 5 or Code 128
GTIN	Global trade identification	Code 128
ISBN, ISSN & Bookland	Books and periodicals	EAN-13 with UPC/EAN
LOGMARS	US Department of Defense	Code 39
SCC-14	Shipping cartons	Interleaved 2 of 5 or Code 128
SSCC-18	Shipping cartons	Code 128
UCC-12	Items for sale in the USA and Canada	UPC
UPC-A or UPC-E	Items for sale in the USA and Canada	UPC

APC has selected the MC70 Handheld Mobile Computer (Model Number: MC7090, Product Number: MC7090-PK0DJQFA7WR) as the handheld device to support APC's Change Manager application for use when a customer has access to a wireless network in the data center. For more information on the MC70 Handheld Mobile Computer please see: www.motorola.com/mc70

The MC70 Handheld Mobile Computer currently supports the following symbologies:

1D Symbology: UPC/EAN, Code 128, UCC.EAN128, RSS, Code 39, Code 93, I 2 of 5, Discrete 2 of 5, Codabar, MSI

2D Symbology: MaxiCode, PDF417, DataMatrix, QRCode



Printing a Barcode

In order to print a barcode the following three components are needed: a software application which can design labels, the labels themselves and a printer.

Labeling software is often separated into two categories: off-the-shelf and custom. Off-the-shelf programs are generic applications that produce labels on demand. There are many DOS and Windows applications that allow custom labels to be generated on demand. These labels are generally produced off-line and do not need to be created from the host program. This software is available for dot matrix, laser, and thermal printers. If it is necessary to integrate bar code printing with current applications, it may be worth considering custom printing. Local ID firms and print shops may be able to accommodate a service to generate custom labels generated from a template, with the print shop maintaining the sequence to insure unique ID's are generated.

A label can contain any combination of text, graphic or barcode information, which you then attach to your equipment for tracking. Many label packages such as Wasp Labeler or Zebra Bar One, have pre-made templates that can easily start you on your way to designing your label. In addition, they have compliance label templates for specific industry labels such as the automobile industry.

A variety of technologies and methods exist to print a barcode label. You can use laser printers and pre-set templates (often included in label design software such as Wasp Labeler, Zebra Bar One, or Print Studio from Jolly Software) to print your barcode labels. They are usually printed onto Avery stock. More commonly, labels are printed using barcode label printers, which tend to be faster and of higher quality than those printed using a conventional laser printer.

The following website offers information on printing solutions for the MC70 Handheld Mobile Computer:

<http://www.symbol.com/accessories.php?id=657>

Best Practice When Creating a Bar Coding Environment

In order to benefit fully from the technology it is imperative to ensure that all IT assets in the data center are bar coded for tracking purposes, both in terms of position, maintenance and changes. Barcode labels should be applied to the front of the rack, not too close to the edge, not on a curved surface nor covering up ventilation. Depending on the media type, barcode labels are either stickers that are adhered to the front of the equipment or cut-outs that you slide into an indentation on the front of the equipment. Verify that the label is oriented so the numbers appear right-side up. No black marks should be present in the intermediate spaces or rest zones and no white areas should be present on the bars.

Much more information can be stored on a computer than on the label itself, which is why unique bar codes can contain extensive information about a specific piece of equipment. It is recommended to include information on when for an example a server was installed, the vendor and specifications about the server, as well as where the equipment is installed.

Many vendors have applied bar codes to their products, which could potentially be used within the data center. However, many data centers are likely to contain for an example several identical servers and a unique identifier is then needed to be able to distinguish the servers within the data center environment. APC therefore suggest a standard framework for naming equipment when bar coding a data center.

Benefits of Bar Coding

Implementing a proper bar code system offers many advantages to a company. The most compelling advantages of bar coding and automatic data collection include increased accuracy by reducing human errors via manual entry as well as increased speed and ease of use as an inventory will take much less effort than having to account for all the inventory by hand. Further more, it enables uniform data collection which may meet legal requirements in the shape of compliance standards. Bar coding also promotes timely feedback in that data is captured in real-time as it occurs, enabling decisions to be made from current information. The increased efficiencies that bar coding promotes enables companies to save costs and substantially improve their bottom line.

Conclusions

The benefits of using bar codes in a data center are numerous, and they far outweigh the complications surrounding the implementation. APC offers an integrated approach to data center management, of which bar coding provides improved productivity with a distinct reduction in human error.

About the Author:

Rikke Jensen is a Product Marketing Manager for APC. She is responsible for marketing and developing product sales support for APC Management Software applications and Configurators. Rikke received a Masters degree in Business Administration from Oxford Brookes University in 2002, following a Bachelors degree in 1999 and has more than 8 years of experience in marketing and business mentoring.