

Signature Capture Code Programmer Guide



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Revisions

Revision A - June 2007	Author: Dr. Jackson Duanfeng He
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1. Introduction

CapCode, a signature capture code, is a type of special pattern that encloses a signature area on a document, and which allows the signature to be captured by a scanner.

There are several accepted patterns to allow for automatic identification of different signatures on the same form. For example, on federal tax return 1040 form there are three signature areas, one each for two joint filers, and one for a professional preparer. By using different patterns, a program can correctly identify all three, so they can be captured in any sequence, and yet still be identified correctly.

2. Code Structure

2.1. Signature Capture Area

A CapCode is printed as two identical patterns on either side of a signature capture box, as shown in Figure 1. Each pattern extends the full height of the signature capture box.

The box is optional. For example, one can omit the box completely, replace it with a single baseline, or print a baseline with an “X” on top of it towards the left, as is customarily done in the US to indicate a request for signature. However, if an “X” or other markings are added in the signature box area, these would be captured together with the signature.

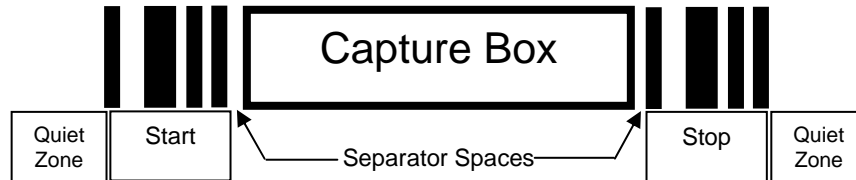
Figure 1 – CapCode



2.2. CapCode Pattern Structure

A CapCode pattern structure consists of a start pattern followed by a separator space, a signature capture box, a second separator space, and then a stop pattern. Assuming that X is the dimension of the thinnest element, the start and stop patterns each contains 9X total width in 4 bars and 3 spaces. In addition, a 7X quiet zone is required to the left and to the right of the CapCode pattern. This structure is shown in Figure 2.

Figure 2 – CapCode Structure



The separator spaces on either side of the signature capture box can be between 1X and 3X wide.

3. Start / Stop Patterns

The several accepted start / stop patterns are illustrated in Table 1. The bar and space widths are expressed as multiples of X. The pattern used on either side of a signature capture box must be the same. The type value is reported with the captured signature, which a computer program can access to determine the purpose of the signature captured.

Table 1 – Start / Stop Pattern Definitions

Bar/Space Patterns							Type
B	S	B	S	B	S	B	
1	1	2	2	1	1	1	2
1	2	2	1	1	1	1	5
2	1	1	2	1	1	1	7
2	2	1	1	1	1	1	8
3	1	1	1	1	1	1	9

Table 2 lists parameters users can select in their scanner. The parameters are used to generate the image of the captured signature.

Table 2 – User Defined CapCode Parameters

Parameter	Defined
Width	Number of pixels
Height	Number of pixels
Format	JPEG, BMP, TIFF
JPEG quality	1 (most compression) to 100 (best quality)
Bits Per Pixel (not applicable to JPEG format)	1 (2 levels)
	4 (16 levels)
	8 (256 levels)

BMP format does not use compression, while JPEG and TIFF formats do.

4. Dimensions

The size of the signature capture box is controlled by the height of the start and stop patterns and by their separation. The line width of the signature capture box is not important.

The thinnest element width, referred to as X in this document, is nominally 10 mils (1 mil = 0.0254 mm). In practice, it should be chosen as an exact multiple of the pixel pitch of the printer used. For example, when using a 203 DPI (dots-per-inch) printer and printing 2 dots per module, the resulting X dimension will be 9.85 mils.

5. Data Format

The scanner output is formatted according to Table 3. Symbol brand scanners allow different user options to output or inhibit barcode type. When “Symbol ID” is chosen as the barcode type for output, the CapCode is identified with letter “i”.

Table 3 – Data Format

File Format (1 byte)	Type (1 byte)	Image Size (4 bytes, BIG Endian)	Image Data
JPEG - 1 BMP - 3 TIFF - 4	See Table 1, last column		(Same bytes as in a data file)

6. Additional Capabilities

Regardless of the way the signature is captured, the output signature image is de-skewed and in right side up orientation.

A scanner that can capture signatures can automatically determine whether it is scanning a signature or a barcode.

The signature capturing capability can be disabled in a scanner.

A. Signature Boxes Illustrated

Here are the five acceptable signature boxes:

Type 2:



Type 5:



Type 7:



Type 8:



Type 9:

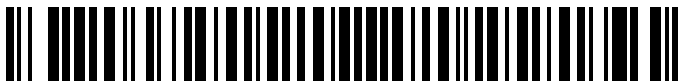




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