

# APPENDIX H SIGNATURE CAPTURE CODE

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## Introduction

CapCode, a signature capture code, is a special pattern that encloses a signature area on a document and allows a scanner to capture a signature.

There are several accepted patterns that allow automatic identification of different signatures on the same form. For example, on the 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 still be identified correctly.

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## Code Structure

### Signature Capture Area

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

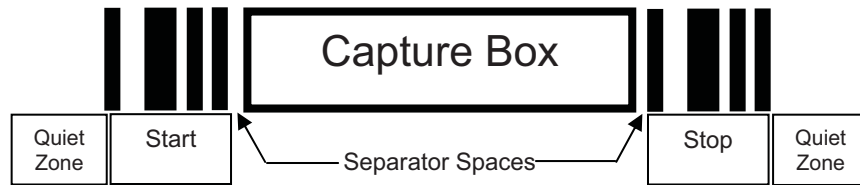
The box is optional, so you can omit it, replace it with a single baseline, or print a baseline with an "X" on top of it towards the left, as is customarily done in the US to indicate a request for signature. However, if an "X" or other markings are added in the signature box area, these are captured with the signature.



**Figure H-1** CapCode

## 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. A  $7X$  quiet zone is required to the left and to the right of the CapCode pattern.



**Figure H-2** CapCode Structure

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

## Start / Stop Patterns

Table H-1 lists the accepted start / stop patterns. The bar and space widths are expressed as multiples of  $X$ . You must use the same pattern on either side of a signature capture box. The type value is reported with the captured signature to indicate the purpose of the signature captured.

**Table H-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 H-2](#) lists selectable parameters used to generate the image of the captured signature.

**Table H-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, JPEG and TIFF formats do.

## Dimensions

The size of the signature capture box is determined by the height and separation of the start and stop patterns. The line width of the signature capture box is insignificant.

The thinnest element width, referred to here as X, is nominally 10 mils (1 mil = 0.0254 mm). Select this 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 is 9.85 mils.

## Data Format

The scanner output is formatted according to [Table H-3](#). Zebra scanners allow different user options to output or inhibit bar code type. Selecting "Symbol ID" as the bar code type for output identifies the CapCode with letter "i".

**Table H-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 <a href="#">Table H-1</a> , last column		(Same bytes as in a data file)

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## Additional Capabilities

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

A scanner that captures signatures automatically determines whether it is scanning a signature or a bar code. You can disable the signature capturing capability in a scanner.

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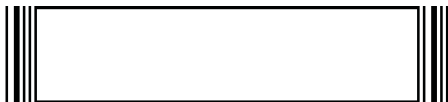
## Signature Boxes

*Figure H-3* illustrates the five acceptable signature boxes:

Type 2:



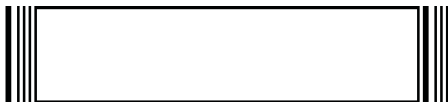
Type 5:



Type 7:



Type 8:



Type 9:



**Figure H-3** *Acceptable Signature Boxes*