Note 32	May 16, 2005
Interpretation of Macro PDF417	

Purpose: The ClearImage PDF417 engine supports the use of Macro PDF417. This document explains how to reassemble the original data

What is Macro PDF417

The PDF417 standards allow user data to be spread across several symbols. This might be done for reasons of appearance and geometry, or because the data is too large to fit into a single symbol. The technique is known as Macro PDF417.

The symbols are no different than regular PDF417, except that multiple symbols appear in the image. Each symbol carries additional information that relates its contents to the overall data.

Macro PDF417 Structure

ClearImage PDF417 returns the value of Macro PDF417 barcode as specified in "Transmit Data" section of AIM PDF417 standard. The data block consists of user data and a trailer of the form:

`Segment n Data…\928nnnnn\fff…\fff`

or

`Segment n Data…\928nnnnn\fff…\fff\922`

where:

Segment n Data – is the user data for segment n. The field starts at the beginning and is terminated by "\928"

\928 - indicates the start and presence of the Macro Trailer

nnnnn – is the segment index (from 00000 to 99999)

\fff...\fff - is the File ID, a variable length field, consisting of one or more "\fff" values established by the originator of the data. The field starts after the segment index and is terminated by either the end of the data block or the "\922" marker.

\922 – indicates that this is the last segment.

An Example

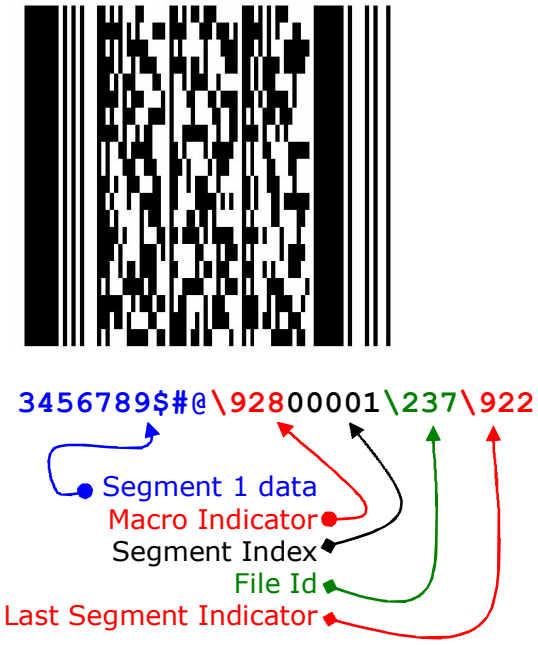
The following symbol contains a small amount of data, reported as a single block:

```
12345678901234567 89$#@
```

The same data was split among the following two symbols, as follows:

```
1234567890123456789$#@
```

The two symbols will be decoded and the data will be reported by ClearImage as shown below.



Data Reassembly

It is the users responsibility to reassemble the full data block from the segments reported by ClearImage PDF417. The procedure consists of the following steps:

1. Read all the barcode symbol values

2. For each barcode obtain:
    a. Segment Data: Portion of the data before "\928"
    b. Segment Index: The 5 digit integer number following "\928"
    c. File Index: The text field between the segment index and the end of data or "\922"
3. Concatenate the Segment Data blocks of all barcodes, having the same File Index, sorted in the order of increasing Segment Index.

Notes:

- The barcode symbols may be recognized in any arbitrary sequence, therefore it is necessary to examine the Segment Index to properly reassemble the data
- This example shows only two segments and ASCII data. In real applications many more segments are possible, covering multiple images, and containing binary data.
- Due to imaging issues it is possible that a symbol would not be recognized, in which case there will be a "hole" in the data. It is the user's responsibility to recognize this situation.