
SAP Printing

Customer documentation

Volume 2B :

Barcode & OCR Printing

Version: 1.10

Abstract:

This document contains generic, solution/product-independent information about the support of Barcode and OCR text printing from SAP systems (R/3, mySAP ERP).

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Important notice

Parts of this manual are subject to change without prior notice.

1. Introduction

This document contains information about **Barcode and OCR text printing** support on our printer devices **under SAP**.

OCR printing requires the presence of an OCR font.

Barcode printing requires a mechanism to process the specifications of the required barcode and eventually to image the barcode.

Under **SAP**, defining an additional font and implementing a barcode solution have to be done in conjunction with the SAP system printing architecture and barcode mechanism.

There are several conceivable **mechanisms**, which are implemented by different **solutions**.

1.1 Documentation

Besides general background information about the **mechanism of fonts and barcodes under SAP**, this document briefly describes the **solutions/approaches** supported by us, and the necessary **procedures** to effectively print barcodes and OCR text.

For information about barcode symbologies in general, please refer to the separate document named "Technical Reference Manual - Barcode & OCR Printing".

The following SAP-specific documents do not contain any information related to fonts or barcodes.

- **Volume 1** contains only introductory information about the SAP Device type approach.
- **Volume 2 [ZA0x]** contains information about the SAP Device type ZA00, which is also part of the "Barcode & OCR Package for SAP".
- The **Volume 3 [DCxx]** contain device-specific information.

This document is generic for all our devices and the solutions recommended or offered by us, and specific for the SAP system platform. It is structured as outlined below.

First, **fonts** are dealt with, independent of barcodes.

Next, **barcodes** are discussed, independent of a particular solution / approach taken.

While general background information about barcodes is contained in the "Technical Reference Manual - Barcode & OCR Printing", here the **SAP mechanism for barcodes** (System barcode, Printer barcode, etc.) is described, in particular the procedure how to implement support for a specific barcode.

Last, the supported **solutions** / products are presented.

1.2 Terminology and Notation

Acronyms

- **DT** = SAP Device type
- **TRM** = "Technical Reference Manual - Barcode & OCR Printing"

SAP character numbers are notated as 4-digit numbers "<ssss>", possibly with leading zeroes.

Refer also to the section "Terminology and Notation" and the Glossary in Appendix G of the "Technical Reference Manual - Barcode & OCR Printing".

1.3 Technical support

For any technical support, please **contact your local representative**.

You may **obtain technical support** if you have questions or problems related to barcode printing on our devices under SAP.

If you have problems with any of the barcode solutions presented in this document, please refer to the "Technical support" section of its "User's Manual".

For general questions about or problems with barcode printing on our devices, and for those related to non-SAP environments, please refer to the "Technical support" section in the "Technical Reference Manual - Barcode & OCR Printing".

2. Fonts

For necessary background information about printer device fonts in general, and the support of fonts on our printer devices (PCL font list, downloading and managing HDD download fonts (HDD Directory list), installing the DIMM, ...), please refer to the chapter "Fonts (General information)" in the "Technical Reference Manual - Barcode & OCR Printing". It is independent of any particular solution and of SAP.

Please find below information about the **SAP mechanism for fonts** (System fonts, Printer fonts, etc.).

2.1 Fonts: The SAP mechanism

Understanding the SAP mechanism of fonts is not necessary for barcode printing.

For OCR text printing, the default size of 10 cpi / 12 pt is pre-defined by the SAP system. If you need to implement a different size, see the following section.

2.2 Procedure: How to add support for a particular font

This is only required if you need to print OCR text in a size other than 10 cpi / 12 pt.

The following objects need to be defined or modified:

1. System font
2. Device type: Printer font
3. Device type: Print control 'SFxxx'
4. Style: Character format <xx>
5. SAPscript document/Form: tag text with <xx>

For the detailed procedure, please refer to standard SAP literature, or contact technical support.

3. Barcodes

This chapter contains the necessary information about the SAP mechanism for barcodes. It is independent of any particular solution.

For general / background information about barcodes, please refer to the chapter "Barcodes (General information)" in the "Technical Reference Manual - Barcode & OCR Printing".

3.1 Barcodes: The SAP mechanism

This chapter explains the **SAP mechanism of barcode printing**.

For more and detailed information about the SAP mechanism of barcodes, please refer to standard SAP literature.

Note: ([SmartForms vs SAPscript](#))

This section describes the original barcoding architecture and mechanisms of **SAPscript**.

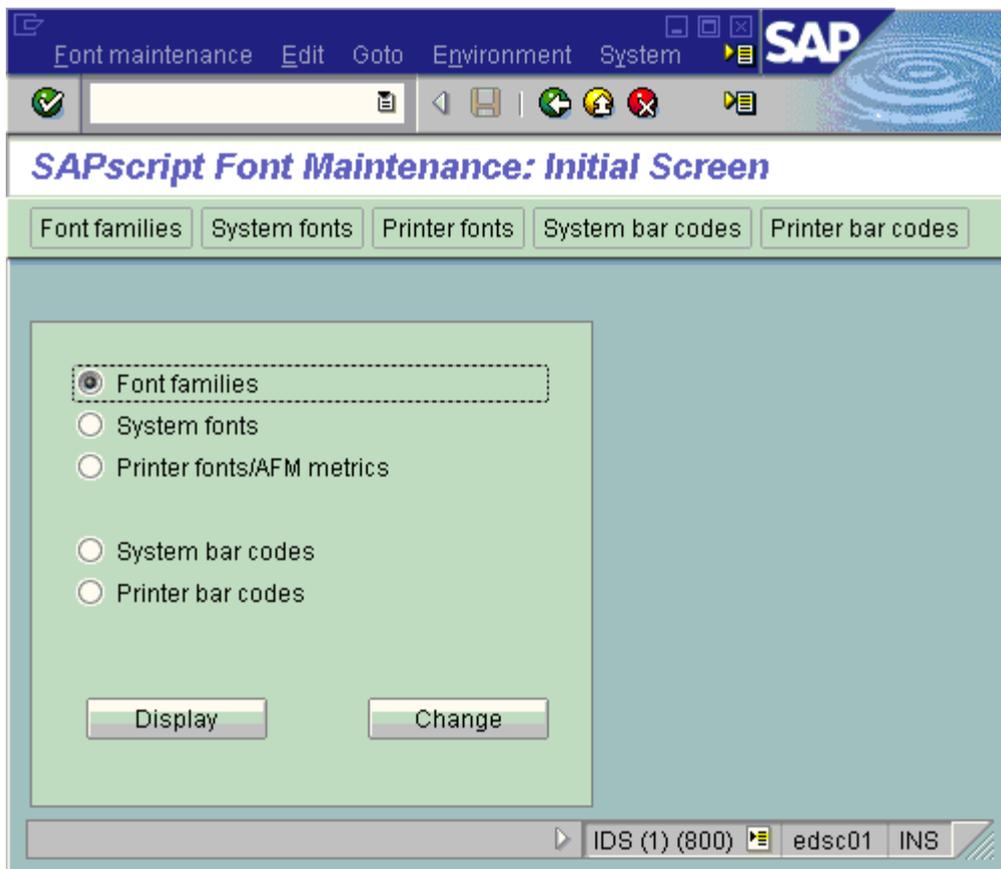
Deviations under **SmartForms** (SSF) versus under SAPscript are commented on, where necessary.

A summary of SmartForms deviations is given in a separate section below.

Even though SmartForms has its own new mechanism for barcoding, it also supports the legacy barcoding mechanism of SAPscript.

Barcodes are maintained with transaction **SE73** (SAPscript Font Maintenance).

Figure: Managing barcodes (the main screen of transaction SE73)



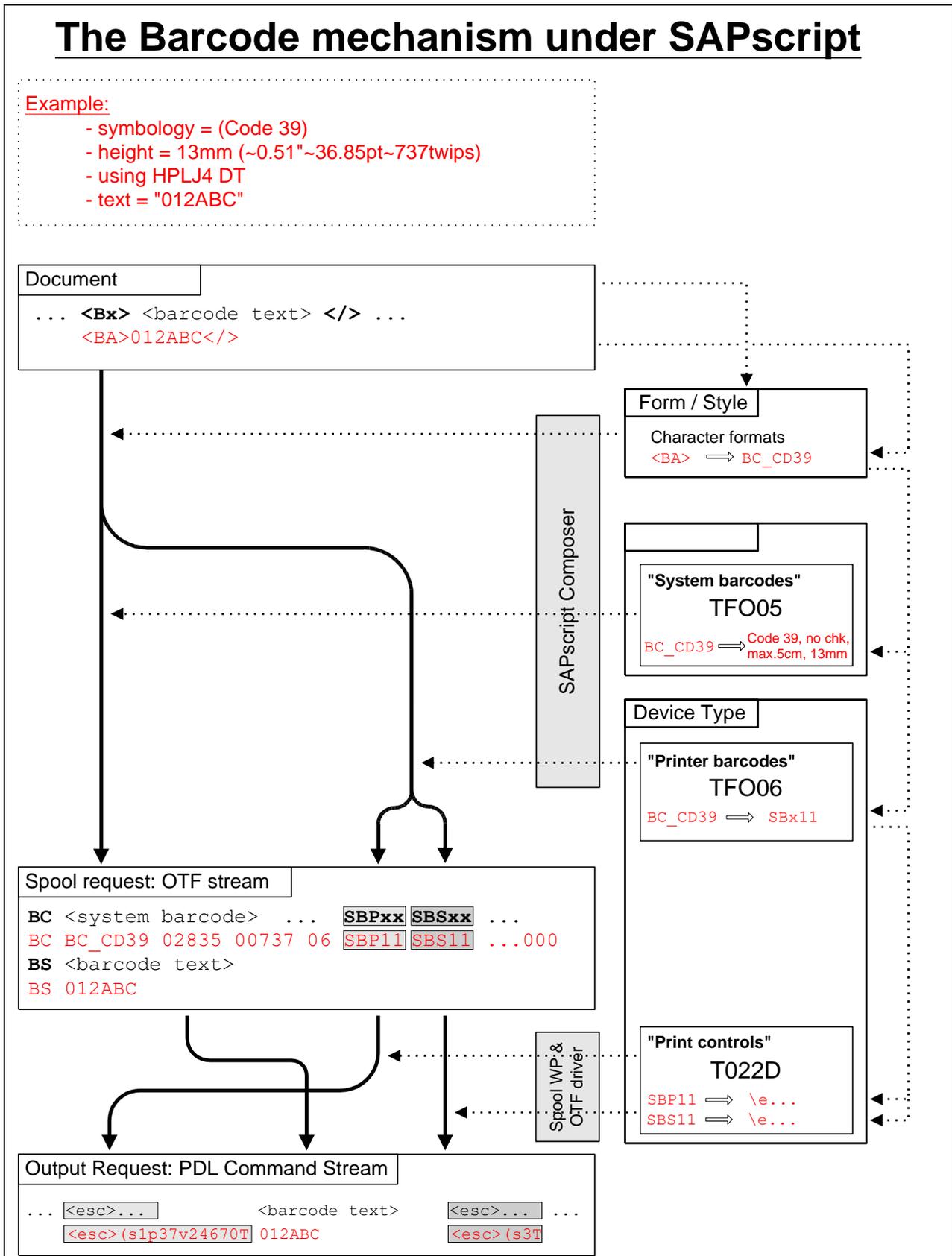
SAP implements a 3-tiered hierarchical barcode architecture:
 "Barcode type/family" -> "System barcode" -> "Printer barcode"
 These are described in detail in the following subsections.

When using SAPscript, the SAP system itself does not provide any barcode fonts or barcode imaging solutions. They have to be provided externally. The mechanism is explained at the corresponding solution.

When using SmartForms, the successor of SAPscript, it also has a limited built-in support for barcodes.

The following diagram summarizes the barcode mechanism under SAPscript. The individual components are then explained in the remainder of this section.

Figure: The Barcode mechanism under SAPscript



For SAPscript, a Device type has to provide, for each barcode supported, a pair of Print controls SBPxx, SBSxx. The **SBPxx** (SAPscript **B**arcode **P**refix) is mapped to a barcode select command essentially specifying the parameters of the barcode to use. The **SBSxx** (SAPscript **B**arcode **S**uffix) is mapped to a barcode deselect command indicating the end of the barcode mode, e.g. switching back to some normal text font. The commands can be PDL font select commands (if the printer has a barcode font installed) or some other language, which could be interpreted by some intermediate component. For the exact definition of each SBPxx, refer to the specification of the Device type.

For SmartForms, the above is not necessary.

To specify data as to be barcoded in a SAPscript document or SmartForms Form, it has to be surrounded by a pair of Character format tags:

```
... <Bx> <data> </> ...
```

The **<Bx>** is a Character format defined in the Form or Style used by the document. It maps to a SAP System barcode.

The **</>** indicates the end of the formatting range.

The **<data>** is typically coming from some table entries, e.g. "&T0815-ARTNR&".

Note: (Rotation)

Rotation of barcodes (by 90°, 180°, 270 °) is supported from release R/3 4.5A+.

It is specified as an attribute of the System barcode.

For a particular rotation (e.g. by 90°), the OTF drivers apply the following mechanisms:

- The HPL2 driver automatically adds PCL codes "<esc>&a90P" before SBPxx and "<esc>&a0P" after SBSxx.
- The SWIN driver does not do anything. Therefore, the rotation also needs to be specified in the command passed to the BARCODE.DLL (e.g. R=90).

For further information, see also the "R/3 Printing Manual" .

The next three sections detail the hierarchical barcode architecture of SAP systems:

"Barcode type/family" -> "System barcode" -> "Printer barcode".

3.1.1 Barcode types/families

A **Barcode type/family** defines essentially the barcode symbology.

The following Barcode types exist predefined in a SAP system:

Barcode type	Description
2OF5	Barcode INTERLEAVED 2 OF 5
C39	Code 39 Barcode
C39X	Enhanced code 39 (full ASCII character set)
C93	Code 93 Barcode
C128	Code 128, automatic change between character sets A,B,C
C128_A	Code 128, character set A
C128_B	Code 128, character set B
C128_C	Code 128, character set C
CODABAR	Codabar barcode family
EAN8	EAN/IAN/JAN Barcode: 7 characters + 1 check digit
EAN13	EAN/IAN/JAN Barcode: 12 characters + 1 check digit
UPC_A	UPC Barcode Type A: 12 characters + 1 check digit
POSTNET	US Postal Service POSTNET barcode
UNDEF	Barcode not defined in SAP standard

3.1.2 System barcodes

A **System barcode** is an abstract definition of a barcode.

Attributes

- Name (max. 8 characters)
- Description
- Barcode type/family (*)
- Min. & max. number of characters that will be encoded (*)
- Width (maximum, or exact)
- Height
- Placement (up/downward from current position) (*)
- Use of check characters (*)
- Rotation

For SmartForms, additional attributes exist. Please refer to the separate section below.

The Width attribute is used to determine the horizontal position of the cursor after drawing the barcode.

The Height attribute is not used by the HPL2 or SWIN OTF drivers.

The Rotation attribute is used by the HPL2 OTF driver to generate PCL rotate commands.

System barcodes are stored in table **TFO05**.

System barcodes are maintained with transaction **SE73**.

To maintain (create, modify, delete) System barcodes, follow the procedure given below.

Figure: The List of System barcodes

For SAPscript:

Bar code	Description	Min.	Max.	Width	Unit	Height	Unit	BCode type	Rotatn.
ARTNR	Artikelnummer	01	10	4,00	CM	1,20	CM		000
AUFNR	Auftragsnummer	01	08	4,00	CM	1,20	CM		000
BARCLVS	Test Barcode im LVS	01	20	5,00	CM	2,00	CM		000
BC_93	Code 93	01	40	7,00	CM	1,30	CM	C93	000
BC_C128B	Code 128 B, n.txt,h=13mm	01	40	9,00	CM	1,30	CM		000
BC_CD39	Code 39 no chk, n.txt,h=13mm	01	40	5,00	CM	1,30	CM		000
BC_CD39C	Code 39 w.chk, n.txt,h=13mm	01	40	9,00	CM	1,30	CM		000
BC_EAN13	EAN 13, n.txt,h=13mm	12	12	5,00	CM	1,30	CM		000
BC_EAN8	EAN 8, n.txt,h=13mm	07	07	3,00	CM	1,30	CM		000
BC_EANH	EAN 128, n.txt,h=13mm	01	40	9,00	CM	1,30	CM		000
BC_ESC	ESC character (hex 1B)	01	01	0,00	TW	0,00	TW		000
BC_I25	Int.2of5 no chk, n.txt,h=13mm	02	26	5,00	CM	1,30	CM		000
BC_I25C	Int.2of5 w.chk, n.txt,h=13mm	01	25	5,00	CM	1,30	CM		000
BC_JAN	JAN Barcode (Japan)	01	10	4,00	CM	1,20	CM		000
BC_MSI	MSI no chk, n.txt,h=13mm	01	14	9,00	CM	1,30	CM		000
BC_MSIC	MSI mod-10 chk, n.txt,h=13mm	01	14	9,00	CM	1,30	CM		000
BC_MSIC1	MSI mod10 mod10chk, n.txt,h=13mm	01	14	9,00	CM	1,30	CM		000
BC_MSIC2	MSI mod11 mod10chk, n.txt,h=13mm	01	14	9,00	CM	1,30	CM		000
BC_PSN5	USPS POSTNET 5 n.txt,h= 3mm	05	05	4,00	CM	0,30	CM		000
BC_PSN9	USPS POSTNET 9 n.txt,h= 3mm	09	09	6,50	CM	0,30	CM		000
C128A_00	Code 128A, n.txt,h= 5mm	01	15	4,00	CM	0,50	CM	C128_A	000
C128A_01	Code 128A, r=090, n.txt,h= 5mm	01	15	4,00	CM	0,50	CM	C128_A	090
C128B_00	Code 128B, n.txt,h= 5mm	01	15	4,00	CM	0,50	CM	C128_B	000

For SmartForms:

BarCode	Descript.	Min.	Max.	Width	Un.	Hght	Un.	BCode Type	Rotatn.
RSPOS	Reservierungsposition	04	04	4,00	CM	1,20	CM		000
RUECKNR	Rueckmeldenummer	08	14	4,00	CM	1,20	CM		000
TYPNR	Typennummer	10	10	8,00	CM	1,20	CM		000
ZDB01	new SSF barc test dk	Code 39			ModW06	H00150	Chk Y Ratio 30		Normal
ZDB02		Code 128			ModW06	H00150	Mode A Chk Y		Rotated
ZÜÜÜÜ		PDF 417			ModW04	H00150	SecLv 6RowH 00010		Inverted

The following system barcodes are predefined as standard on an SAP system, from the release indicated.

These predefined barcodes can be tested using the standard documents named SAPSCRIPT-BARCODETEST and SAPSCRIPT-BARCODETEST1, using transaction SO10.

Table: SAP System Barcodes (standard/predefined)

System barcode name	Description (*2)	Min	Max	Width [cm]	Height [mm]	Technical / Barcode type / equivalent	Prefix # (*1)	Tag (*3)	Release (R/3 ...)
BC_ESC	ESC character (hex 1B)	1	1	0,00	0	(no barcode)	SBP00	--	--
ARTNR	Artikelnummer	1	10	4,80	12		SBP01	<B1>	2.2A+

AUFNR	Auftragsnummer		1	8	4,80	12		SBP02	<B2>	2.2A+
BARCLVS	Test Barcode im LVS		1	20	5,00	20		SBP03	<B3>	2.2A+
KUNAUNR	Kundenauftragsnummer		10	10	4,80	12		SBP04	<B4>	2.2A+
KUNAUPS	Kundenauftragsposition		6	6	4,80	12		SBP05	<B5>	2.2A+
MBBARC	Test Barcode Bestandsführung		10	10	5,00	20		SBP06	<B6>	2.2A+
MBBARC1	Test Barcode 1 Bestandsführung		10	14	5,00	12		SBP07	<B7>	2.2A+
RSNUM	Reservierungsnummer		10	10	4,80	12		SBP08	<B8>	2.2A+
RSPOS	Reservierungsposition		4	4	4,80	12		SBP09	<B9>	2.2A+
RUECKNR	Rueckmeldenummer		8	14	4,80	12		SBP10	<B0>	2.2A+
BC_CD39	Code 39 no chk,	n.txt, h=13mm	1	40	5,00	13		SBP11	<BA>	3.0A+
BC_EAN8	EAN 8,	n.txt, h=13mm	7	7	3,00	13		SBP12	<BB>	3.0A+
BC_EAN13	EAN 13,	w.txt, h=13mm	12	12	5,00	13		SBP13	<BC>	3.0A+
BC_I25C	Int.2of5 w.chk,	n.txt, h=13mm	1	25	5,00	13		SBP14	<BD>	3.0A+
BC_I25	Int.2of5 no chk,	n.txt, h=13mm	2	26	5,00	13		SBP15	<BE>	3.0A+
BC_CD39C	Code 39 w.chk,	n.txt, h=13mm	1	40	9,00	13		SBP16	<BF>	3.0A+
BC_MSI	MSI no chk,	n.txt, h=13mm	1	14	9,00	13		SBP17	<BG>	3.0A+
BC_MSIC	MSI mod-10 chk,	n.txt, h=13mm	1	14	9,00	13		SBP18	<BH>	3.0A+
BC_MSIC1	MSI mod10 mod10chk,	n.txt, h=13mm	1	14	9,00	13		SBP19	<BI>	3.0A+
BC_MSIC2	MSI mod11 mod10chk,	n.txt, h=13mm	1	14	9,00	13		SBP20	<BJ>	3.0A+
BC_C128B	Code 128 B,	n.txt, h=13mm	1	40	9,00	13		SBP21	<BK>	3.0A+
BC_EANH	EAN 128,	n.txt, h=13mm	1	40	9,00	13		SBP22	<BL>	3.0E+
BC_PSN5	USPS POSTNET 5	n.txt, h= 3mm	5	5	4,00	03		SBP23	<BM>	3.0E+
BC_PSN9	USPS POSTNET 9	n.txt, h= 3mm	9	9	6,50	03		SBP24	<BN>	3.0E+
C128A_00	Code 128A,	n.txt, h= 5mm	1	15	4,00	05	C128_A	SBP25	<BO>	4.6A+
C128A_01	Code 128A, r=90°,	n.txt, h= 5mm	1	15	4,00	05	C128_A	SBP25	<BP>	4.6A+
								(*4)		
C128B_00	Code 128B,	n.txt, h= 5mm	1	15	4,00	05	C128_B	SBP26	<BQ>	4.6A+
C128B_01	Code 128B, r=90°,	n.txt, h= 5mm	1	15	4,00	05	C128_B	SBP26	 	4.6A+
								(*4)		
CD39C_00	Code 39, w.chk,	n.txt, h= 5mm	1	15	4,00	05	C39	SBP27	<BS>	4.6A+
CD39C_01	Code 39, w.chk, r=90°,	n.txt, h= 5mm	1	15	4,00	05	C39	SBP27	<BT>	4.6A+
								(*4)		
CD39_00	Code 39, n.chk,	n.txt, h= 5mm	1	15	4,00	05	C39	SBP28	<BU>	4.6A+
CD39_01	Code 39, n.chk, r=90°,	n.txt, h= 5mm	1	15	4,00	05	C39	SBP28	<BV>	4.6A+
								(*4)		
BC_93	Code 93		1	40	7,00	13	C93	SBP29	(*9)	4.6A+
BC_PSN11	USPS POSTNET 11	n.txt, h= 3mm	11	11	7,00	03		(*9)	(*9)	6.x+

Note: (*1) (The SBPxx prefixes)

The given SBPxx prefixes are as defined/used in the device types HPLJ4 (and related) and SWIN, and as per the BARCODE.DLL specification in SAP note # 0025344.

The commands to which these print controls are mapped depend on the solution (e.g. BARCODE.DLL, HP JetCAPS, proprietary, etc.).

Their above assignments to the System barcodes is arbitrary and may be freely redefined.

Note: (*2) (Legend)

- n.txt = no clear text, w.txt = with clear text
- n.chk = no check character, w.chk = with check character
- h = ... (height)
- r = 90° (rotation)
- Min / Max = min./max. # characters

Note: (*3) (The <Bx> tags)

The given <Bx> tags are the Character formats as defined in the standard Style S_TEST. They have to be used in the SAPscript document to specify the barcode to be used.

Their above assignments to the System barcodes is arbitrary and may be freely redefined.

Note: (*4) (Rotated barcodes)

For PCL the same barcode prefix Print control can be used; this is not possible for HP-GL/2.

Note: (*9) (BC_93, BC_PSN11)

For these two system barcodes, the Character format tag and Print control used depend on the SAP release version as follows:

	<u>BC_93</u>	<u>BC_PSN11</u>
- SAP R/3 before v6.x :	= SBP29 <BW>	n/a
- SAP R/3 v6.x & higher:	= SBP29 <BX>	= SBP30 <BW>

Note: (SmartForms)

For SmartForms, a "new" type of System barcodes can be defined, with an extended set of parameters to be defined.

For details, refer to the separate section below.

3.1.3 Printer barcodes

A **Printer barcode** is the implementation of a System barcode for a particular Device type.

This concept is only relevant for SAPscript, not for the new SmartForms integrated barcoding architecture, which is device type independent.

Attributes

- Device type
- System barcode
- Print controls (SBPxx / SBSxx), which contain the command sequence to activate (Prefix) / deactivate (Suffix) the barcode
- Baseline alignment
 - This attribute is not used by the HPL2 OTF driver.

Printer barcodes are stored in table TFO06.

They thus belong to a specific Device type. Yet, they are maintained using transaction SE73.

To maintain (create, modify, delete) Printer barcodes, follow the procedure given below.

Figure: The List of Printer barcodes (of the HPLJ4 device type)

Device type	Bar code	Prefix	Suffix	Baseline alignment
HPLJ4	ARTNR	SBP01	SBS01	
HPLJ4	AUFNR	SBP02	SBS02	
HPLJ4	BARCLVS	SBP03	SBS03	
HPLJ4	BC_93	SBP29	SBS01	
HPLJ4	BC_C128B	SBP21	SBS21	
HPLJ4	BC_CD39	SBP11	SBS11	
HPLJ4	BC_CD39C	SBP16	SBS16	
HPLJ4	BC_EAN13	SBP13	SBS13	
HPLJ4	BC_EAN8	SBP12	SBS12	
HPLJ4	BC_EANH	SBP22	SBS22	
HPLJ4	BC_ESC	SBP00	SBS00	
HPLJ4	BC I25	SBP15	SBS15	

3.1.4 Deviations under SmartForms

This section summarizes the particularities of the new SmartForms integrated barcoding architecture, in comparison to the legacy barcoding architecture of SAPscript.

When creating a new System barcode under SE73, now two choices are offered:

- "New" => new mechanism of SmartForms ("New Barcode Technology")
- "Old" => legacy mechanism of SAPscript ("Standard System Barcode")

"New" System barcodes have different attributes and appear differently in the listing.

For these, Printer barcodes are not necessary to define, because the barcodes symbols are realized directly by the OTF driver not by the Device type.

For more information, please refer to the separate section below, or refer to SAP documentation, or contact technical support.

3.2 Procedure: How to support printing a particular barcode

As a consequence of the architecture outlined above, configuring printing of a particular barcode requires creating or modifying the following objects of the SAP system.

These are standard SAP procedures, using the transaction codes indicated, independent of any specific solution.

Note: ([SmartForms vs SAPscript](#))

The procedures given hereafter are only for the "old" SAPscript barcodes.
For the "new" SmartForms technology, refer to the separate section further below.

- | | | |
|---|-------|--------------|
| 1. System barcode : | SE73 | -- see below |
| - define attributes | | |
| 2. Device type: Print controls SBPxx / ZBxyz (select/prefix) and SBSxx / ZBS0x (deselect/suffix) : | SPAD | |
| - map to correct command sequence (solution-specific !) | | |
| 3. Device type: Printer barcode : | SE73 | -- see below |
| - map above System barcode to above pair of Print controls | | |
| 4. SAPscript Style : | SE72 | |
| - define Character format <Bx> mapped to above System barcode | | |
| 5. SAPscript document/Form : | SO10, | |
| - tag message data with <Bx> ... </> | SE71 | |

To create a new System barcode

1. Enter transaction SE73.
Select "(o) System barcodes".
Press "Change".
2. Press [Create].
On newer SAP systems, you may get prompted to select the barcoding technology.
Press "Old" to create a System barcode for use under SAPscript. Then follow from step 3 below.
Press "New" to create a System barcode for use under SmartForms with the new integrated barcode technology. In case of questions, please contact technical support.
3. Fill in the following fields:
 - "Bar code": the desired name of the barcode (max. 8 characters; start with "Z")
 - "Description": any descriptive text
 - "Bar code type": the name of the barcode family, if it is defined, or just "UNDEF" (*1)
 - "Min./Max. character number": the minimum and maximum number of characters in the text to be barcoded (*1)
 - "Bar code width": specify the maximum width of the barcode in [cm] (*2)
 - "Bar code height": specify the height of the barcode in [cm] (*3)
 - "Unit of measurement": specify "CM" (centimeters)
 - "Rotation at output": leave empty, or select one of 090 / 180 / 270 (*4)
 Press [Enter].

Note: (*1):
This value has no effect. It is only there for documentation purposes.

Note: (*2):
This value is used to determine the horizontal position of the PCL cursor after drawing the barcode.

Note: (*3):
This value is not used by the HPL2 or SWIN OTF drivers.

Note: (*4):
This value will not be used in case of the SWIN OTF driver.
This value will not be effective if HP-GL/2 is used.
4. Enter a Change request ID.
Press [Enter].

To create a new Printer barcode

1. Enter transaction SE73.
Select "(o) Printer barcodes".
Press "Change".
2. Select the Device type in which you wish to implement the barcode.
Double-click it.
3. Press [Create].
4. Fill in the following fields:
 - "Bar code": the name of the system barcode to implement (select from the list)
 - "Bar code prefix": the name of the Print control containing the barcode select command sequence (normally SBPxx or ZBxyz) (*1)
 - "Bar code suffix": the name of the Print control containing the barcode deselect command sequence (normally SBSxx or ZBS0x) (*1)
 Press [Enter].

Note: (*1)
If a non-standard Print control (beginning with "Z") is specified here, a warning message "Print control must be empty or begin with SB" will pop up. It can be ignored; just press [Enter].
If a Print control is specified that does not exist in the Device type, a warning will be issued.
Any Print controls to be used here need to be defined before in the Device type.

Note:
The "Baseline alignment" attribute is not used by the HPL2 OTF driver and should therefore be left empty.

3.2.1 The complete procedure

This section presents the **complete procedure** necessary to add support for printing a new barcode.

(Step 1) Preparation: Determining the parameters

Determine (the name of) the **SAPscript document** or **Form** in which you want to integrate the barcode, say **MYDOC**.

Determine the **Message data** that you want to be barcoded from your database, say **&mystruct-myfield&**.

Determine the **Symbology** that is required by your barcode environment.

Determine the **Check character method (CHK method)** that is required by your barcode environment.

Determine the desired **Clear text (CTX) style** and **font**, that you want the barcode to be printed with.

- Do you need clear text or not ?

- If yes, determine the clear text style and font desired.

Determine the **N:W ratio** that is most suitable for your barcode environment.

Normally 1:2.0 should be fine.

In case of a small size or enough space or bad reading conditions, a higher ratio may improve readability.

Determine the desired **Size** (total **width** and **height**) of the barcode.

Determine the desired **Orientation** (rotation) of the barcode.

Determine the desired **Position** of the barcode.

(Step 2) Setting up a System barcode

Create a new System barcode, say **ZMYSB**.

Use transaction SE73. This is a standard SAP procedure.

The name may be a maximum of 8 characters long, and it has to start with a "Z".

Specify the following attributes.

Specify the maximum expected width of the barcode. (This setting is used to determine the horizontal cursor position after printing the barcode.)

If the barcode is to be rotated, specify the angle in the Rotation attribute.

The other attributes are not used by the HPL2 OTF driver and can therefore be filled arbitrarily or left empty. However, for documentation purposes you may want to fill in reasonable values.

(Step 3) Setting up a Device type

Make a copy of the Device type ZA0xcvvv to be used for your barcode print jobs, say **ZMYDT**.

Use transaction SPAD. This is a standard SAP procedure. See Appendix 1 in Volume 2 [ZA0x].

Create an Output Device, say **ZMYOD**, which uses this Device type.

(Step 4) Defining Print controls in the Device type

Use one of the predefined barcode select/deselect Print controls **ZBxyz** of the Device type as a template to create your own.

(Step 5) Defining a Printer barcode in the Device type

In the Device type ZMYDT, create a Printer barcode for the System barcode ZMYSB created above.

Use transaction SE73. This is a standard SAP procedure.

(Step 6) SAPscript Style

In the SAPscript Style used by your SAPscript document or Form, create a **<Bx> Barcode Character format**, say **<BZ>**.

Use transaction SE72.

Map it to the System barcode defined above, i.e. "ZMYSB".

Activate the Style.

(Step 7) Modifying the SAPscript document / Form

In the SAPscript document or Form, specify the message data tagged with the Barcode Character format:

```
...
... <BZ>&mystruct-myfield</> ...
...
```

(Step 8) Adjusting the print output

Print the document, using the Output Device ZMYOD.

If the barcode does not print OK (missing or garbled), refer to the "Troubleshooting" section below.

Otherwise (e.g. for how to adjust the size or position or other parameters of the barcode), refer to the User's Manual of the barcode solution.

Note:

If the horizontal cursor position before drawing the barcode, incremented by the amount specified in the Width attribute of the System barcode, lies outside the logical page, the OTF driver will automatically place the barcode at the left margin in the next line.

3.3 Troubleshooting

This section gives some information about **troubleshooting barcode printing under SAP**.

It applies to both the "old" SAPscript and the "new" SmartForms barcoding technology.

The diagram at the beginning of this chapter shows all active and passive components in the data flow.

The **data stream** can be intercepted at these stages (in these data formats):

- as an Output request (PCL),
- as a Spool request (OTF),
- as the original SAPscript document/Form (ITF).

Analyze the data streams and try to determine where the command sequence becomes incorrect.

Conclude where the failure was possibly introduced, and check all related components.

On the SAP system, verify the correctness of these **components**:

- the **Device type** used, especially tables T022D (**Print controls**) (especially SBPxx) and TFO06 (**Printer barcodes**) => (export them)
- the definition of the **System barcode** used => (screenshot, or export table TFO05)
- the barcode specification in the **SAPscript document/Form** => (export it)
- the definition of the **<Bx> character format** done in the SAPscript **Style** used by the document/Form => (screenshot, or export the style)

First, try to capture the final PCL **data stream** into a file, and check the correctness of the barcode select sequence.

Then, if the Output request data looks wrong, but all components look OK, try checking the **Spool request** (OTF) data.

The barcode related OTF commands are "BC" and "BS".

For general and SAP independent information on troubleshooting barcode printing or regarding print quality, please refer to the "Troubleshooting" section in the "Technical Reference Manual - Barcode & OCR Printing".

To troubleshoot problems with a particular solution, refer to the "Troubleshooting" section in the corresponding "User's Manual" of the product.

3.4 Barcode solutions for SAP systems

This chapter contains information about the supported solution products for OCR text and barcode printing under SAP.

It only describes those SAP barcode solutions that are directly supported by us.

In case these are not applicable in your environment, please contact Technical support for a recommendation of alternative solutions.

Solutions

There are 2 major present approaches developed by Ricoh.

The first is called "**Barcode & OCR Package for SAP**", ("**BOP**", for short).

It uses a **barcode font** residing on the printer (on HDD or DIMM or SDcard), and an ABAP/4 program to parse the barcode specification and convert the data into those compatible with the font. It is designed to work with our ZA00 v005+ device type.

The second is called "**Barcode & OCR Package for SAP - Intelligent version -**", ("**IBS**", for short, formerly "BOCR").

It is an **HP JetCAPS** compatible barcode solution integrated in our printer controllers. It is designed to work with our ZA01 v007+ device type.

On newer SAP systems, **SmartForms (SSF)** has its own barcoding mechanism.

Documentation

For a particular solution, please refer to its "User's Manual" for the following types of information:

Product specification information

- specification of the solution product
- its components and the mechanism
- the OCR fonts supported

For the barcode symbologies supported, refer to "Appendix B".

For the printer devices supported, refer to "Appendix D".

For the Device type specification, refer to "Appendix S".

Installation information

For information on how to **install** the product, how to **test** the successful installation, and how to uninstall, refer to the section "Installing the product".

Product use information

For information on **how to use** and **configure** the product (i.e. in order to get barcodes printed), refer to the section "Using the product".

Troubleshooting information

Troubleshooting/Support information can be found in the "Troubleshooting" section of the "User's Manual".

Troubleshooting information specific to printing barcodes under **SAP** is given in the "Troubleshooting" section in this document.

Troubleshooting information specific to our **devices** are contained in the corresponding Operation Instructions manual of each device.

Generic troubleshooting information for **OCR fonts**, **barcodes**, and **barcode fonts**, are given in the "Technical Reference Manual - Barcode & OCR Printing".

Background information

For background information about printer fonts and barcodes, please refer to the "Technical Reference Manual - Barcode & OCR Printing".

3.4.1 The "Barcode & OCR Package for SAP" (BOP)

For information about this product, refer to its "User's Manual".

3.4.5 "Barcode & OCR Package for SAP - Intelligent version" (IBS)

For information about this product, refer to its "User's Manual" (parts I+II).

3.4.6 The integrated barcoding mechanism of SmartForms (SSF)

This barcode solution is built-in into "SmartForms" (the successor of SAPscript; transaction code "SMARTFORMS"). It cannot be used with SAPscript, only with SmartForms.

Currently, these 5 symbologies are supported:

- Code 128
- Code 39
- Code 93
- 2/5 Interleaved
- PDF417 (2D)

For more information refer to the following SAP notes related to this issue:

- # 0645158 -- contains the barcode parameter specification
- # 0639812 -- has links to the downloadable patches

For information about how to use this barcoding technology with our devices, please contact our Technical support.

For any further details, refer to SAP documentation.

(end)