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# TBarCode Filter in SAP

Adjusting Barcode Printcontrols for  
TBarCode/X and TBarCode/Embedded

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## User Manual

7 January 2008

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## 4 Introduction

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### 4.1 About

This documentation is an add-on to the *TBarCode/X (Spoolfilter)* and *TBarCode/Embedded* manual. It describes how to integrate *TBarCode/X (Spoolfilter)* and *TBarCode/Embedded* into the SAP® printing process.

After finishing the required configuration you are enabled to print bar codes (from SAP) on PostScript®<sup>1</sup> or PCL®<sup>2</sup> printers.

The steps are the same for both products except:

- *TBarCode/X (Spoolfilter)* is a bar code software for Linux® and UNIX® systems.
- *TBarCode/Embedded* uses the same principle but is implemented as add-on for the stand-alone spooling device SEH ISD300.

### 4.2 Filter Principle

Basically the generation of the bar codes is done during spooling (printing) of the document. TBarCode can process special control character sequences (so-called "Printcontrols") in a PostScript or PCL spool file and can insert bar code graphics at the actual (or specified) position.

In order to get bar codes into your print-out you need to embed the TBarCode specific control characters (filter sequences) into your document.

The available filter sequences with a description can be found in the

- TBarCode/X User Manual
- TBarCode/Embedded User Manual

### 4.3 Data Flow

For better understanding how you can integrate the needed control sequences into your SAP documents, let's take a look at the data flow in SAPscript.

The data flow in SAPscript during printing is as follows:

- In the document there are character formats like this one *<b1>data characters</b1>*.
- SAP searches now, which system bar code has been assigned to this format (e.g. to *b1*) – in our sample it is *BC\_CD39* (see screenshot below).
- Next SAP searches for the respective *printer bar code* in the *device type*<sup>3</sup>. The printer barcode contains the Printcontrols (Prefix SBP/ Suffix SBS) required for bar code generation of the system bar code.
- Now SAP inserts the Printcontrol Prefix before the data characters and the Printcontrol Suffix after the data characters. The document is sent the spooler.
- The spooler or print server has installed TBarCode/X (Spoolfilter) or TBarCod/Embedded.
- TBarCode Filter processes the spool file and knows from the Printcontrol Prefix what to do with the data characters and which bar code to create.

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<sup>1</sup> Printer with PostScript Level 2 or higher emulation

<sup>2</sup> Printer with PCL-Level 5 or higher emulation

<sup>3</sup> Device Types are printer driver configuration files assigned to a printer in SPAD.

### 4.3.1 Barcode Character Formats

Character formats can be assigned to system bar codes in the SAPscript form editor (transaction SE71). Beside that you can also use styles maintained with the style editor or directly in SmartForms.

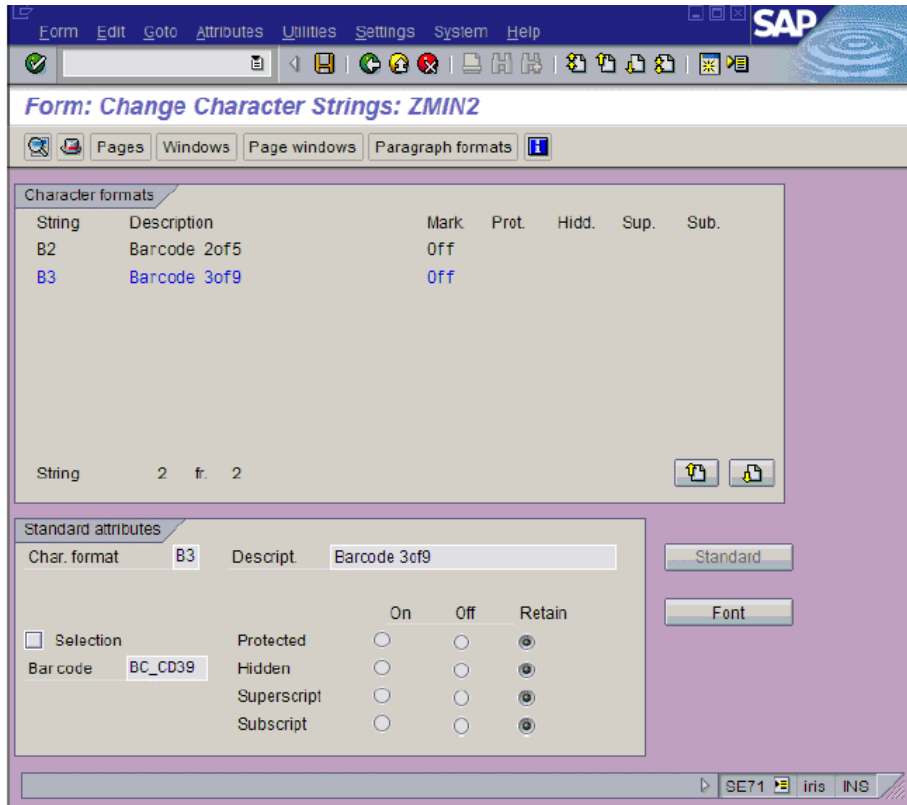


Figure 1: SAPscript forms bar code character formats

- ▶ System bar codes are added with transaction SE73 – System Barcodes.
- ▶ Printcontrols can be changed with transaction SE73 - printer bar codes or with SPAD (device type printer bar codes).

## 5 Barcode Printcontrols

### 5.1 Control Sequence Structure

*TBarcodeX (Spoolfilter)* and *TBarcode/Embedded* require the following control sequences to include a bar code into a document.

Prefix	Data	Suffix
<code>\$_tbcs [filter parameters] d</code>	<code>Barcode Data</code>	<code>\$_tbce</code>

TBarcode Filter will decode these control sequences and insert a bar code into the printer data stream (spool file).

To insert such a control sequence into your document you use *standard SAP Printcontrols*.

- SAP R/3 has so-called *System Bar Codes*, these bar codes are defined globally and introduce a specific bar code to the whole SAP system.
- The implementation of a System Bar code for a specific printer is called *Printer Bar Code*.
- A printer bar code consists of a *Printcontrol Prefix* and a *Printcontrol Suffix* – these Printcontrols contains the printer specific bar code control sequences.
- Since the print job is processed (filtered) by TBarcode before it is sent to the printer we can define the Control Sequences of TBarcode/X and TBarcode/Embedded here in the Printcontrols (Prefix/Suffix).

### 5.2 Adjusting Printcontrols

#### 5.2.1 Where to adjust

You can adjust Printer Bar codes and Printcontrols in

- Transaction SE73 (Font Maintenance) - Printer Barcodes.
- Transaction SPAD (Extended Administration) – Device Types – Printcontrols.

Define the Printcontrols like follows:

#### 5.2.2 TBarcode Filter Version 1.x and TBarcode/Embedded V2.x

Example: We define BC\_CD39 (Code 39, no check digit)

Printcontrol (printer bar code) with

- **Prefix SBP11** (Variant 1) = `$_tbcs b8 m254 h13 w200 n d`
- **Suffix SBS11** (Variant 1) = `$_tbce`

Filter Parameter	Description
b8	Barcode Type = Code-39
m254	Module Width = 0.254 mm
h13	Barcode Height 13 mm
w200	Maximum Barcode Width = 200 mm
n	No Human Readable Text
d	Data to be encoded are following the d character

Table 1: TBarcode Filter V1 Parameters

### 5.2.3 TBarCode Filter Version 2.x and later:

Example: We define BC\_CD39 (Code 39, no check digit)

Printcontrol (printer bar code) with

- **Prefix SBP11**<sup>4</sup> (Variant 1) = \$ \_tbcs -b8 -m0.254 -h13 -thide -d
- **Suffix SBS11** (Variant 1) = \$ \_tbce

Filter Parameter	Description
-b8	Barcode Type = Code-39
-m0.254	Module Width = 0.254 mm
-h13	Barcode Height 13 mm
-thide	No Human Readable Text
-d	Data to be encoded are following the -d character

Table 2: TBarCode Filter V2 (and later) Parameters

- ▶ Please view the TBarCode/X or the TBarCode/Embedded Manual for available filter parameters.
- ▶ We suggest to make a copy of your Postscript or PCL device type – then use that copy for editing the Printcontrols. Assign the new changed device type to your output device (transaction SPAD). You can edit the Printcontrols with the transaction SE73.

### 5.2.4 Prefix and Suffix

The prefix starts always with \$ \_tbcs followed with the bar code parameters and at last the character “d” (as shown above). The suffix is always \$ \_tbce

In the prefix you add the parameters you need for your bar code (module width, height, bar code type, human readable text, orientation...).

- ▶ See TBarCode/X or TBarCode/Embedded manuals for an overview of possible parameters.
- ▶ If you add a new printer bar code in SE73 always adjust “Variant 1” for the prefix and suffix. You can change the Variant of existing Printcontrols with transaction SPAD – device type – print controls. In SPAD the Variant 1 is identical with radio button “directly”.

## 5.3 Sample Device Types

On demand we can provide device types with Sample Printcontrols for the following products / printer languages:

- TBarCode Filter V1.x / TBarCode/Embedded
- TBarCode/X V2.x/ TBarCode/X V7.x (Spoolfilter)
- PCL (HP Laserjet Series)
- PostScript

Please contact [sap@tec-it.com](mailto:sap@tec-it.com)

<sup>4</sup> Depending on the SAP printer driver the prefix requires an <> sequence at the end - see chapter 7.1.2



## 6 Using Bar Codes

### 6.1 Using Bar Codes in SAPscript or SmartForms

#### 6.1.1 Through Character Format

In your SAPscript form or in the assigned SAPscript style define a character format as bar code (e.g. `b1` = BC\_CD39) and then use the format as shown below.

```
<b1>12345678</>
```

The data inside of the brackets will be encoded into the bar code 12345678. The bar code settings will be used, which are defined in the Printcontrol for BC\_CD39 (in the device type, where the printout is made). See also the screen shot on page 6 of this documentation.

The same principle works for SmartForms.

#### 6.1.2 Through Print Controls

You can include the Print Control Prefix and Suffix directly if you want (see below). If you do so you are bound to the specific device type settings. Using character formats would be more generic.

```
/* <32>
/: PRINT-CONTROL SBP11
= &BARCODEFIELD&
/: PRINT-CONTROL SBS11
regular text continues here
```

The space prefix `<32>` (or any other text) is required to separate the bar code commands from printer driver font commands.

- ▶ Please check out SAP Note #197177 and #497491 for more details about the data limit with 2D codes.

### 6.2 Using bar codes in ABAP

In ABAP you specify the prefix and suffix name of the Printcontrol:

```
FORMAT COLOR OFF INTENSIFIED OFF.

WRITE: /.
PRINT-CONTROL FUNCTION 'SBP11'.
WRITE: BCDATA NO-GAP.
PRINT-CONTROL FUNCTION 'SBS11'.
WRITE: /.
```

BCDATA is the variable, which holds the bar code data.

- ▶ The "NO-GAP" is very important! Finally add a new line - the WRITE statement prevents inserting of Carriage Return / Line Feed into barcode data.

At the beginning of your ABAP use this line if you want to encode more than 200 characters into one bar code:

```
NEW-PAGE NO-HEADING PRINT ON LINE-SIZE 250.
```

- ▶ Please check out SAP Note #197177 and #497491 for more details about the data limit with 2D codes.

## 7 Trouble Shooting TBarCode/X

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### 7.1 Postscript Output from SAP

#### 7.1.1 Brackets in the Barcode-Data?

For Postscript Output from SAP you need to call TBarCode/X with the **-S** parameter. Add the flag in the printing script or filter script. If you use TBarCode/X versions with a daemon process (ps- e shows "tbarcoded" process) you may have to restart the daemon to reload the new parameters.

#### 7.1.2 tbarcode: Error: Unrecognized option 240 mt

If the unrecognized option consists of "mt" the reason for the error is most likely that the SAP printer driver adds its cursor positioning (mt = move to) commands immediately after the Barcode Printcontrol Prefix. This behavior is version dependent.

The suggested workaround would be to add an empty string (works as separator) between the Barcode Printcontrol and the forthcoming data. This should be done in the Printcontrol Prefix

Define the Printcontrol Prefix as follows: *[your actual print control prefix]* + "<>"

- **Example:** `$_tbcx -b8 -m0.254 -h13 -thide -d<>`

### 7.2 Remote Printing with CUPS

#### 7.2.1 Instead of the bar code you see the filter sequences?

You have TBarCode/X installed on a Spool Server running CUPS. From within your SAP system you connect to the spool server with Host Spool Access method "U" (LPRng Remote Printing).

With this configuration the following reason for the problem can occur.

SAP marks all print jobs sent to the remote printer queue with the "RAW" flag. *CUPS recognizes this flag and does NOT call any installed filters.* All print jobs are sent to the printer directly (unmodified). Therefore TBarCodeX Filter for bar code generation will not be executed and no bar codes can be created for such print jobs.

The following solutions apply if you are bound to CUPS and can't switch to LPRng printing system on your spool server.

##### 7.2.1.1 Local Printing through CUPS

If the SAP spool server is installed on a system with CUPS Support (e.g. a Linux machine) and you print with Host Spool Access method "L" (print locally) you can avoid remote printing (no "raw" flag inside the LPR print job protocol).

CUPS will pass the print job to TBarCode filter for bar code generation. Please follow the steps in the *TBarCode for Unix* manual in order to integrate TBarCode Filter into the CUPS data flow.

##### 7.2.1.2 Customized Printing Script

If you run the SAP Spool Server on UNIX/Linux you can use Host Spool Access method "L" (Local Printing) in combination with a custom shell script for printing. Within this shell script you can execute TBarCode Filter and then pass the print job file to the regular spool system.

*How this works:*

By choosing host spool access method „L“ there is a possibility to execute a local script if you define a “command set” (menu “Edit → Command Set” + edit the “Command record ID”; enter a letter + double click it).

See the following info in the SAP documentation:

- English: [http://help.sap.com/saphelp\\_erp2004/helpdata/en/80/2980dce8b311d18e2e000e83dd9fc/content.htm](http://help.sap.com/saphelp_erp2004/helpdata/en/80/2980dce8b311d18e2e000e83dd9fc/content.htm)
- German: [http://help.sap.com/saphelp\\_erp2004/helpdata/de/80/2980dce8b311d18e2e000e83dd9fc/content.htm](http://help.sap.com/saphelp_erp2004/helpdata/de/80/2980dce8b311d18e2e000e83dd9fc/content.htm)

Here is a sample printing command used by SAP for local printing (Linux):

```
/usr/bin/lpr -P&P -J&F -h -#&C &F 2>&&1; /bin/rm &F
```

Now create a script, which executes the printing command. Extend the script with a call to TBarCode Filter before you send the print job to the printer.

*Sample Shell Script: ‘usr/local/share/tbarcode7/print.sh’*

```
# we need a temp file for the filter output
WORK="$(mktemp /tmp/tbarcodefilter.$$XXXXXX) "

# pass on the spool file of SAP to TBarCode Filter
/usr/local/share/tbarcode7/tbarcode --filter -S <$2 >$WORK

# copy the output file of TBarCode over the spool file
mv $WORK $2

# print the file through the regular spool system
/usr/bin/lpr -P$1 -J$2 -h -#$3 $2 2>&&1

# remove the file, SAP don't need it anymore

/bin/rm $2
```

Don't forget to make the script executable (chmod 755 print.sh).

In SAP you adjust as for the “Command Set” the new created printing script with the following parameters from SAP:

```
/usr/local/share/tbarcode7/print.sh &P &F &C
```

- &P will be replaced by SAP with the printer name
- &F will be replaced by SAP with the spool file name (incl. full path)
- &C will be replaced by SAP with the number of output copies

*Status Query command:*

```
/usr/bin/lpstat -o&P
```

- ▶ The quickest way to get a result would be to copy the existing SAP printing script (e.g. rspo/host\_spool/print --> rspo/host\_spool/print\_tbarcode) and to embed a call to tbarcode filter within the copy. Adjust the created copy as new Command Set.

See the following info in the SAP documentation:

- English: [http://help.sap.com/saphelp\\_erp2004/helpdata/en/d9/4a98ad51ea11d18957000e829fbbd/content.htm](http://help.sap.com/saphelp_erp2004/helpdata/en/d9/4a98ad51ea11d18957000e829fbbd/content.htm)
- German: [http://help.sap.com/saphelp\\_erp2004/helpdata/de/d9/4a98ad51ea11d18957000e829fbbd/content.htm](http://help.sap.com/saphelp_erp2004/helpdata/de/d9/4a98ad51ea11d18957000e829fbbd/content.htm)

### 7.3 Other Problems

First-time installation is always a hurdle to take. If you contact our support team it is recommended to send copies of the spool file BEFORE it is processed by the filter and AFTER it has been processed. Then the support team can check what SAP generates and if the filter can handle the input properly.

Support: [support@tec-it.com](mailto:support@tec-it.com)

## 8 FAQ

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### 8.1 How can I generate a Data Matrix Barcode?

For Data Matrix in SAP you have to add a new System Bar Code first ([SE73](#)) – e.g. "ZDATMAT".

Make a copy of your original PostScript or PCL based device type (e.g. ZPOST2 or ZHPLJ4) and then add a Printer Bar Code in SE73 to this device type.

Create a new Printcontrol Prefix und Suffix for ZDATMAT with the following content:

#### 8.1.1 TBarCode/X (V2 and later)

##### 8.1.1.1 PostScript

```
Prefix: $ tbcS -fPS -b71 -m0.508 -d
        (Hex 245F74626373202D6665053202D623731202D6D302E353038202D64)

Suffix: $ tbce
        (Hex 245F74626365)
```

Enter the data in hex format if you get no output.

##### 8.1.1.2 PCL

```
Prefix: $ tbcS -fPCL -b71 -m0.508 -d
        (Hex 245F74626373202D66650434C202D623731202D6D302E353038202D64)

Suffix: $ tbce
        (Hex 245F74626365)
```

#### 8.1.2 TBarCode/Embedded (V2)

```
Prefix: $ tbcS b71 m508 w200 d
        (Hex 245F7462637320623731206D35303820773230302064)

Suffix: $ tbce
        (Hex 245F74626365)
```

## 9 Contact and Support Information

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## Appendix A: Revision History

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Date	Author	Type	Changes
2007-11-26	HaraldS	NEW	Created this (wonderful) document.

*Table 3: Revision History*