

Bar Code Label Design and Printing from mySAP™ Business Suit via SAP[®] Smart Forms[™]

Zebra[®] Printers and SAP Smart Forms

June 30, 2005

Rev 3

©2004 ZIH Corp. ZTools is a Zebra trademark, and Zebra, ZPL II, BAR-ONE and ZebraNet are registered trademarks of ZIH Corp. All rights reserved. SAP, mySAP, Smart Forms and SAP NetWeaver are the trademarks or registered trademarks of SAP AG in Germany and in several other countries. PCL is a registered trademark of Hewlett-Packard Company. PostScript is a registered trademark of Adobe Systems Incorporated in the United States and/or other countries. IBM is a registered trademark of International Business Machines Corporation. Unicode is a trademark of Unicode Inc. TrueType is a trademark of Apple Computer. Windows and Windows NT are registered trademarks of Microsoft Corporation. CompactFlash is a registered trademark of SanDisk Corporation. All other trademarks are the property of their respective owners.

Table of Contents

UPGRADING SMART FORMS FOR BAR CODING	2
SUPPORT PACKS	2
Smart Forms Bar Code Rendering Library (BRL)	2
Smart Forms Industrial Bar Code Printer Support (ZPL II)	
SAPscript Users	
SAP GUI Print Preview	
SMART FORMS AND ZEBRA DEVICE TYPES	
IBM [®] CodePage 850 - CG Triumvirate Bold Condensed Font (Scaleable)	
$Unicode^{TM} UTF-8 - Swiss Scaleable Fonts$	
Unicode UTF-8 - Andale Monospaced Scaleable Fonts	
USING THE SMART FORMS ZEBRA DEVICE TYPES WITH OUTPUT DEVICES / PRIN QUEUES	
© SAP AG 2004. ALL RIGHTS RESERVED	
TEST PRINTING FROM SMART FORMS TO AN OUTPUT DEVICE / PRINT QUEUE	14
DESIGNING A SIMPLE SMART FORM	
DISABLE PC EDITOR	
DISABLE PC EDITOR	
Create the Bar Codes You Need	
Creating Smart Styles to Select Text and Barcodes	
Laying out the Smart Form	
Map to Smart Style	
Add Text and Bar Code Fields	
Add Lines and Boxes	
Add Logos/Graphics	
Saving and Activating the Smart Form	
TIPS AND TRICKS FOR SMART FORMS AND ZEBRA PRINTERS	
LABEL SIZE / PAGE SIZE	
FIELD POSITIONING—X, Y COORDINATES	41
LINES AND BOXES	41
TEXT OBJECTS	
Western European—IBM CodePage 850	
International Printing (EMEA Only)—Unicode TM	
Global International Printing including APAC—Unicode	
Text Reversing	
TrueType Fonts	
Font Licensing (TTF) / Disclaimer	
LOGOS/GRAPHICS	
Uploading Graphics into Smart Forms	
Permanently Printer Resident Bar Codes (Flash)	
PRINTER SETTINGS	
BAR CODES	
Printer Bar Codes	
System Bar Codes	
Unsupported Bar Codes / New Symbologies	50
RESOURCES	

Upgrading Smart Forms for Bar Coding

Support Packs

SAP's Smart Forms design tool now supports native bar code design and industrial bar code printing. These features can be enjoyed by users of mySAPTM Business Suite 4.6c onwards. Support Packs are available direct from SAP AG for enabling this technology. For more information on this upgrade, please refer to **SAPnet notes 750002** and **750772**.

Smart Forms Bar Code Rendering Library (BRL)

The Bar Code Rendering Library allows SAP to render (draw) bar codes for print preview and output purposes. SAP AG has licensed this BRL from Zebra, which allows Smart Forms to generate bar code output, as bitmap graphics, on PDF documents and PCL[®]-, PostScript[®]-, and Prescribe-compatible printers. SAPWin is also supported via SAPlpd although not recommended for mission-critical printing.

Note: Bar codes are downloaded as bitmap graphics to all of the above "page" printers. The only true bar code "label" printer language supported in Smart Forms is the Zebra Programming Language (ZPL II). Bar codes are NOT downloaded to ZPL II printers as graphics, they are sent as ZPL II commands—providing greater performance and bar code validation!

<u>Smart Forms Industrial Bar Code Printer Support (ZPL II)</u>

SAP AG has, for the first time, added "true" support for native bar code printers in mySAP Business Suite. This printer support, along with the BRL, now allows SAP users to easily implement industrial mission-critical bar code label printing without the additional cost of middleware. Bar coding support is added in the form of the Zebra Programming language (ZPL II). Refer to <u>www.zebra.com</u> for more information on bar code label printers.

SAPscript Users

SAPscript users may also continue to use Zebra's **BAR-ONE**[®] for mySAPTM Business Suite. Refer to www.zebra.com/sap for more information.

SAP GUI Print Preview

SAP NetWeaverTM 04 is required for SAP GUI WYSIWYG Print Preview. All other versions will simply represent bar codes with a series of thin vertical lines.

Smart Forms and Zebra Device Types

One of the following device types **must** be uploaded to mySAP Business Suite before you can drive Zebra printers from Smart Forms. These device types will also ship with SAP NetWeaver 05. Smart Forms only supports the Zebra Programming Language (ZPL II).

IBM[®] CodePage 850 - CG Triumvirate Bold Condensed Font (Scaleable)

Zlzeb6.pri	All 600 dpi ZPL-II printers
Zlzeb3.pri	All 300 dpi ZPL-II printers
Zlzeb2.pri	All 203 dpi ZPL-II printers

The above device types are primarily designed to work with Zebra's preloaded Scaleable Font - CG Triumvirate Bold Condensed. This font contains most characters needed for the **Americas and Western Europe**. Additional TrueType[™] fonts are supported with this device type but they will also be driven via IBM Codepage 850.

UnicodeTM UTF-8 – Swiss Scaleable Fonts

Zlzebs6.pri	All 600 dpi ZPL-II printers
Zlzebs3.pri	All 300 dpi ZPL-II printers
Zlzebs2.pri	All 203 dpi ZPL-II printers

The above device types are primarily designed to work with Zebra's preloaded Swiss Scaleable Font (EMEA Only). Containing 936 characters, this font includes support for **Baltic, Central European, Cyrillic, Greek, Turkish, Arabic, Hebrew** and **Western.**

Unicode UTF-8 - Andale Monospaced Scaleable Fonts

Zlzebu6.pri	All 600 dpi ZPL-II printers
Zlzebu3.pri	All 300 dpi ZPL-II printers
Zlzebu2.pri	All 203 dpi ZPL-II printers

The above device types are primarily designed to work with Zebra's optional Andale Scaleable Font. This font contains most of characters needed for the **Asia Pacific**, Americas, Western/Central/Eastern Europe and the Middle-Eastern regions. This font is delivered on a 32mb Linear PMCMCIA card. Four flavors of this font are available; each contain the same number of characters but are tailored to the Japanese, Koran, Simplified Chinese or Traditional Chinese markets.

All of the above files (device types) are available to download directly from SAP AG or from the Zebra Web site <u>www.zebra.com/sap</u>.

Zebra Part Numbers for the four flavors of the Optional Andale Font:

48303 Andale Japanese on a 32 MB PCMCIA Linear Card

48304 Andale Korean on a 32 MB PCMCIA Linear Card

48305 Andale Simplified Chinese on a 32 MB PCMCIA Linear Card 48306 Andale Traditional Chinese on a 32 MB PCMCIA Linear Card

Installation of mySAP Business Suite Zebra Device Types

The next series of steps outline the import procedure of the device type definition file, i.e., *ZLBZEB2.PRI* to the mySAP Business Suite printing system. First, execute the Program Execution transaction SA38 by keying in */nSA38* at the command line:

❷	/nsa38	•

Press the *<Enter>* key or click once on the *box* adjacent to the command line text box.

[⊡ P <u>r</u> ogram <u>E</u> o	dit <u>G</u> oto <u>U</u> tilities System <u>H</u> elp
0	∎ ∢ 🖳 । 😋 🙆 😣 । 🖴 🥯
ABAP: Ex	recute Program
🕒 🕀 With v	variant 💁 Variant overv. Background
Drogram	RSTXSCRP
Program	RSTXSCRP
	CE6 (1) (850) 🖻 pwdf0174 OVR

© SAP AG 2004. All rights reserved.

At the window "*ABAP/4: Execute Program*", like the screen above, type in *RSTXSCRP* in the *Program* text box then click the execute button device type definition import program. or press $\langle F8 \rangle$ to execute the

At the next window titled "SAPscript Export to Dataset / SAPscript Import from Dataset", similar to the screen below, do the following:

- 1) Select the **Device type** option
- 2) Enter the device type name that you plan to use, e.g. "ZLZEB2" for Object name
- 3) Type in "IMPORT" for **Mode** (**EXPORT/IMPORT**)
- 4) Select From/on frontend (or File system: GUI on older releases)

 Program _Edit _Goto System <u>H</u> elp		
	A S I P H H I A D D D D I M H I A D D D A	
SAPscript Export to Dataset / SAPscrip	ot Import from Dataset	
⊕ ■		
Object selection and session ctrl		4
⊖ Form		Ť
⊖ Style		
 Standard text 		
Text ID ST		
Language EN		
Device Type		
Object name	ZLZEB2	
Mode (EXPORT/IMPORT)	IMPORT	
L		
Ctrl parameters for file operation		
From/on frontend		
○ From/on application server		
Dataset name	C:\temp******&&&&	
Binary file format		
Display dataset contents		v
	4	

© SAP AG 2004. All rights reserved.

When all the required fields above are entered correctly, click on execute button or press $\langle F8 \rangle$ to start the import process. <u>Ignore all other options</u>.

_			l
1	2	٤	l
è	2	2	l
1	1		l

Q

button.

Local object

Allocate a Development Class

The user must either allocate a development class to the device type or make it a local object. The development class is only required if the customer wishes to transport this device type to other mySAP Business Suite systems. Local object device types can't be transported to other mySAP Business Suite systems. This is done from the screen below:

Ē	≥reate Obje	ct Direc	tory E	Entry						X	
Ob	ject F	3TR FO	ORM 2	ZEBRA_	DEMO						
Att	tributes										
D	evelopmer	nt class								•	
P	erson resp	onsible			ZEBRA						
0	riginal syst	tem			CE6						
0	riginal lang	juage									
		in at 1	0								
	Local ob	iject ⊿	X Lo	оск оче	rview	2 🗙					
			© SA	AP AG	2004. A	ll rights	reserved				
You may ente	er a Deve l	lopme	nt cl	l ass ar	nd pres	s the sa	ve] t	outton.	Alteri	natively

Note: You will not see the above step if the device has already been uploaded.

can skip the **Development class** and press the local object

Select the local driver.

The pop-up dialog text box labeled "*Import from a Local File*" prompts for the device type definition file and its location. Use the browse is button to locate the file, e.g., ZLB_ZEB.PRI and then click the OK button to start the upload process.

🔄 Import from a Local F	ile	\square
File name	C:\BARONER3\BIN\ZLZEB2.PRI	Ø
Data f o rmat	ASC	
Transfer 📳 🗙		

© SAP AG 2004. All rights reserved.

When the process is complete, update messages will be displayed in the window below.

List Edit Goto System Help		2
③ □ □ □ □ ○ ○ ○ ○ □ □ □ □	💥 📲	
SAPscript Export to Dataset / SAPscript Import from Dataset		
SAPscript Export to Dataset / SAPscript Import from Dataset		1
**************************************	(R3TR ***** *	
Transport object PRIN ZLZEB2 is being processed		
Object successfully imported		
Object successfully imported		
Object successfully imported		

© SAP AG 2004. All rights reserved.

<u>The above drivers are only for use with Smart Forms. The above drivers do not</u> <u>support SAPscript or SAPscript generated and uploaded by Zebra's BAR-ONE[®] for</u> <u>mySAPTM Business Suite.</u>

.

Using the Smart Forms Zebra Device Types with Output devices / Print Queues

Before we can use a printer (device type) in SAP mySAP Business Suite we must create and configure a print queue (output device).

Initiate the Spool Administration program, SPAD, by entering */nSPAD in* the transaction command line. Press the *<Enter>* key or click on the check box adjacent to the command line text box entry.

/nSPAD	•
1	

At the "*Spool Administration Initial Screen*" windows, press / select the *Output Device* option.

C Configuration <u>A</u> dministration <u>G</u> oto <u>U</u> tilities <u>S</u> ettings
Spool Administration: Initial Screen
Extended admin. Full administration
Devices / servers Admin. Output devices
Spool servers
Access methods
Destination host
Check installation
D CE6 (1) (850) 🖻 pwdf0174 OVR

© SAP AG 2004. All rights reserved.

At the "*Spool Administration: List of Output Devices* "screen, shown below, press the Change icon.

년 <u>O</u> utput device <u>E</u> dit <u>G</u> oto E <u>x</u> tra	s <u>U</u> tilities S <u>y</u> stem <u>H</u> elp	
	◁ 📙 ۞ ⓒ ଊ 🖨 ℍ ℍ ୲ 🤅	300
Spool Administration: L	ist of Output Devices (5 entri
/ 🕀 🛐 🗛 🔻 🔳 🖉		
Dev. ARCH	Dev. type Spool servers I ARCHLINK pwdf0174_CE6_13	Location or message
LP01 RDI1	L HPLJIIID F PLAIN	
STRS_FILE ZEBRA 140X1III	F PLAIN F ZLB_ZEB	Frontend
	CE6 (1) ((850) 🖻 pwdf0174 OVR 🥢

© SAP AG 2004. All rights reserved.

You should now see the screen below, exactly the same as the previous screen but with a new line of icons. Press the Create icon.

 Output deviceditoto Extra:	s <u>U</u> tilities S <u>v</u> st	tem <u>H</u> elp	- • × SAP	
🖉 🔹 🗧	1 🛛 😋 🙆 (8 🖴 🛱 🛱	ቆዋወ 🥿	
Spool Administration: L	ist of Outpu	ut Devices (C	Change) (🛛	
🚱 🕒 🕤 🗅 🗣	L 2			
Dev. ARCH	Dev. type I ARCHLINK	Spool servers pwdf0174_CE6_13	Location or	message
LP01 RDI1	L HPLJIIID F PLAIN			
STRS_FILE ZEBRA 140XiIII	F PLAIN F ZLB_ZEB		Frontend	
				•
		DE6 (1) (850) 📧 🛛 pwdf0174	OVR

© SAP AG 2004. All rights reserved.

At the "Spool Administration: Create Output Device", similar to the screen below, do the following:

- 1) Allocate the **Output Device** name. You may also allocate a shortname
- 2) Select the **Device Type**, i.e. Zlzeb3
- 3) Enter Location and Message if required

U Output device Edit Goto Extras L	tilities System <u>H</u> elp		
🕑 🔳 🔇	📙 I 😋 🕢 😒 I 🖴 🛗 🛗 😂 🏵 i	0 20 I 🛒 🕫 🥄	
Spool Administration: Create C	lutput Device		
R			
Output device ZEBRA Generic device on frontend	110 SHIP LABEL	Short name	
DeviceAttributes HostSpoolAcc	Method Output attributes Tray info		.
Desire			
Device type	ZLZEB2 : Zebra label printer 203dp	iū	
Device class	Standard printer	Ð	
Authorization group			
Model			
Location			
Message			
Lock printer in SAP System			
	© SAP AG 2004. All rights reserved		
Press the HostSpoolAccMe	ethod TAB.		
	tilities System <u>H</u> elp	SAP	
	- C C (2 D (1) C (2 C)	0 21 I 💥 📲 💦 😂	
Spool Administration: Create C	hutput Device		
R			
Output device ZEBRA	110 SHIP LABEL	Short name 2110	
Generic device on frontend			H
DeviceAttributes HostSpoolAccM	1ethod Output attributes Tray info		.
Host spool access method	F: Printing on frontend computer	ē	
nost spoor access method	· · · · · · · · · · · · · · · · · · ·		
Host printer	DEFAULT		
ble status confirmation	ible		
No status confirmation poss			

© SAP AG 2004. All rights reserved.

For testing and demonstration purposes only, we recommend that you use "Front End Printing." We do not recommend this access method for volume or mission-critical industrial printing. This means that you should complete the configuration of the output device by doing the following:

1) Ensure Host spool access method is set as option ${f F}$

icon

- 2) Type in ____DEFAULT for Host printer
- 3) Press the save

Below is a detailed explanation of mySAP Business Suite printing terminology:

Output Device

This is the name of the print queue. You must also type in a short name; this is four characters.

Device Type

This is the name of the printer (device type) and could be **ZLZEB2**. This selection will be based on printer resolution and Codepage/language.

Spool Server

This is the name of the server that will do the spooling. Use the browse button to pick a server that has a spool process associated with it (if it doesn't have a spool server associated with it then it will be highlighted in red).

Access Method

This field must be filled before host printer, although it is listed after it! This is the most important, and complicated, field for setup of print queues (output devices). Summaries of the options are below:

F	PC Front End Printing (requires SAPlpd running)
	Required if no HOSTNAME available, such as remote WAN printing to a
	standalone PC. We recommend that this only be used for testing purposes.

- L Local Unix lpd spooler (Print Queue)
- C Local NT or AS/400 print manager
- U Print Server (dedicated server such as UNIX or even a Zebra ZebraNet[®] 10/100)

You can print direct to a print server such as a ZebraNet 10/100 but we do not advise this if you will be printing from multiple clients simultaneously. When printing from multiple clients simultaneously you must have a print queue setup. See the example below:

Access method	U
Host Printer	PORTLF1
Destination Host	Your Printers IP Address

We have also seen graphics printing incorrectly when printing direct to the print server. This seems to be down to flow control. Please use a print queue.

U or S PC with Windows[®] 95/98/NT4/2000 (requires SAPlpd running)

<u>Destination Host (Like the name of the target PC / print server)</u> This is not required for **F**-Front End Printing as the destination host is the client PC that the print request was made from (requires SAPlpd running).

For **U** or **S**, This must be the Host Name of the PC that will have SAPlpd running on it or the Host Name of a dedicated Print Server with print queues setup. The easiest way to determine the host name of a PC is to run SAPlpd and you will find it near the top of the start up window. SAPlpd can be started by selecting Start-> Programs-> SAP Frontend-> SAPlpd.

This parameter is not required for **L** or **C** as the local server is the destination host.

Host Printer (Like the name of the target print queue on a PC or print server) When using **F**, **U** or **S** with SAPlpd, this could be "__DEFAULT" (underscore underscore DEFAULT) for the Default Windows printer or it could be the exact name of the printer (not the share name), i.e., "Generic / Text Only". This is the name listed in Windows->Start->Settings->Printers.

When using **L** or **C** this is the "long name" of the printer. This is not the share name.

<u>LPQ Format</u> This can be ignored.

Location

This is just an optional simple description/comment of where the printer is located.

Message

This is just an optional simple comment/message that you may wish to associate with the specific print queue.

SAP LPD

If you have chosen to use access methods F then you will have to run SAPlpd on the local PC.

SAPlpd is a proprietary print server that runs on a PC taking input from the mySAP Business Suite server and sending it to printers on the local PC. The printers on the local PC MUST use a generic text driver.

SAPlpd can be started by selecting Start-> Programs-> SAP Frontend-> SAPlpd. You should see a screen similar to the following:

💾 Saplpd.log - SAPLPD	_ 🗆 🗡
File Protocol Options Debug Language Help	
(14:20:56) Network Communication via SAP-NiLib	▲
(14:20:56) Hostname: kens-home	
(14:20:56) IP Address: 195.112.185.240	
(14:20:56) TRACE: SncInit(): Reading configuration from 'SAPLPD.INI'.	
(14:20:56) TRACE: SncInit(): Reading configuration from 'WIN.INI'.	
(14:20:56)	
(14:20:56) SAPLPD Version 4.26 for Windows 98 (OPT) is listening	
(14:20:56) OS-Info: version = 4.10, build = 40A/1998, text =	
(14:20:56) Copyright © 1992-1999 SAP AG	

© SAP AG 2004. All rights reserved.

SAPlpd needs to be run on any PC that requires a Windows printer driver to be used with mySAP Business Suite. This is the case if you are using Generic Text drivers or full-blown Windows drivers.

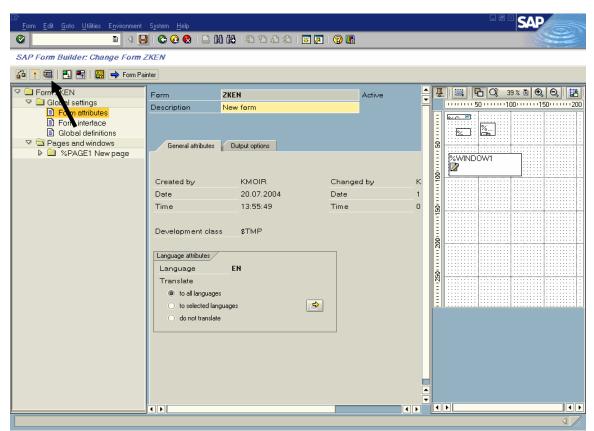
Note: We do not recommend using SAPlpd for volume or mission-critical industrial printing.

Test Printing from Smart Forms to an Output Device / Print Queue

Please ensure that the form you test print with has been designed for your device. Do not try and print a form that has been designed with "HELVE" on an ANDALE Unicode Device type (zlzebuX).

Please follow the following procedure to do a test print directly from Smart Forms:

Open the form you wish to print (/nSmart Forms), Type in the Form Name and press "Change." You will now see a screen similar to that below:



© SAP AG 2004. All rights reserved.

Press the Test Icon (or press F8). You will now see a screen similar to that below:

⊑ <u>F</u> unction module <u>E</u> dit <u>G</u> oto <u>U</u> tilities E <u>n</u> vironment System <u>H</u> elp SAP
Function Builder: Initial Screen
🚰 🏋 🕮 🔂 📋 🗊 🗊 🎲 Reassign
Function module /1BCDWB/SF00000004
🚱 Display 🥖 Change 🗋 Create

© SAP AG 2004. All rights reserved.

Press the Test Icon again (or press F8). You will now see a screen similar to that below:

⊡ Function modules Edit Goto Utilities System	
) 🛛 🕲 🗋 🛍 🛍 🐘 😒 😒
Test Function Module: Initial Screen	
🕒 🕀 Debugging 🔍 Test data directory	
	DWB/SF868666664
Import parameters	Value
ARCHIVE_INDEX ARCHIVE_INDEX_TAB ARCHIVE_PARAMETERS CONTROL_PARAMETERS MAIL_APPL_OBJ MAIL_RECIPIENT MAIL_SENDER OUTPUT_OPTIONS USER_SETTINGS	80.00.000 0 Entries 2 2 2 2 2 2 2 2 2 2 2 2 2

© SAP AG 2004. All rights reserved.

Press the execute Icon (or press F8). You will now see a screen similar to that below:

🔄 Print:						\boxtimes
OutputDe∨ice	ZSM				ZEBRA203	
Copies	1					
Page selection						
Spool request						
Name	SMART	ZACO	KMOIR			
Title						
Authorization						
Output Controller					Cover sheet	
 Print immediately 					No cover page	Ē
 Delete after print 						
New spool request					Recipient	
Close spool request					Department	
Spool retention per.	. 1	B Day(s)				
Archiving mode		Print only	,	Ē		
Print 👘 Print previ	iew 🗶					

© SAP AG 2004. All rights reserved.

You must enter/edit the following fields:

Output device	Enter the name of the print queue.
Print immediately	Ensure this is checked/ticked.
Delete after print	Ensure this is checked/ticked.
New Spool request	Ensure this is checked/ticked.

Press the Print button. If the print was successful then the Zebra printer should print out your form.

The easiest means of debugging what is being sent to the printer is as follows:

- 1) Plug in a laser printer to the port that the Zebra should be attached to.
- 2) If using a Windows driver on the local PC then change the port to File (create a file on Disk).
- 3) Use SAP debugging tools (the instructions below depend on the version of mySAP Business Suite you are using).
 - a) Edit Output device definition temporarily to include log information (use next screen).
 - b) Use the spooler (/nSP01). Select output device and press enter to view spooled jobs.
 - c) Select job and select Go To->Output Requests from the main menu.
 - d) Select Edit->Display log from the main menu.
 - e) Hit the *More Info* button 3 times (You can also use Hex dump and list to screen or printer)

Designing a Simple Smart Form

Disable PC Editor

Before starting to design your form, we advise that you use the old editor for full screen editor operations within Smart Forms. This can be achieved as follows:

Start the "Standard Text: Request" transaction by entering /*nSO10 in* the command line text box located just below the menu bar of the current active window of mySAP Business Suite system. Press the *<Enter>* key or click on the check box adjacent to the command line text box entry.

/nS010

You then select *Setting | PC Editor* from the main menu.

🗁 User-Specific Settings	
Data Browser ITS Transport Organizer SAPscript	
Form Painter Graphical Form Painter	
PC Editor Graphical PC editor	

© SAP AG 2004. All rights reserved.

Ensure that both of the above checkboxes are unchecked.

Smart Styles—Planning for Smart Forms

Before starting to lay out your form, you must determine what text and bar code objects you will require. You actually need to build a collection of all of the derivatives of text and bar codes you will use within the Smart Form. All of these objects need to be created and collected within a Smart Style.

Bar codes are actually a little more complex as you need to create the specific bar code derivatives that you will need; this is done with transaction /nSE73. See the section "Tips and Tricks for Smart Forms and Zebra Printers—Bar Codes"(page 51) for a detailed explanation.

Text is relatively simple and does not normally require any additional management other than within Smart Styles.

<u>Before proceeding, we strongly recommend that you read the section "Tips and</u> <u>Tricks for Smart Forms and Zebra Printers" starting on page 41.</u>

The following procedure is going to create a Smart Style that uses the Font "HELVE" 12 point and 24 point. We will also use a Code 39 bar code with a height of 20 mm and a narrow bar width 0.25 mm (2 dots on a 203-dpi/8-dpm printer).

Create the Bar Codes You Need

Please follow the following procedure:

- Execute Transaction /nSE73
- Check / Select "System bar codes" and press "Change"
- Press the "New" Icon, you will now see:

🔄 Barcode-Technologie wählen	
	Neu
Neue Barcode-Technologie oder	
herkömmlicher Systembarcode	Alt
	X Cancel

© SAP AG 2004. All rights reserved.

• Press the "New" button (may be "Neu"). This is "New Technology".

🗁 Neuen Systembarcode anlegen			
Bar Code Name	C39_20		
Short text	C39 20mm	039 20mm high 0.25 narrow bar	
×			

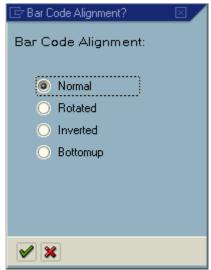
© SAP AG 2004. All rights reserved.

• Enter in the bar code name "C39_20" and the Short text of "C39 20mm high 0.25 narrow bar" and press OK

🔄 Bar Code Symbology 🛛 🛛
Supported Bar Code Symbologies:
Code 39
Code 128
Interleaved 2of5
O PDF 417
🔘 Code 93
 ✓ ×

© SAP AG 2004. All rights reserved.

• Select C39 as the Symbology and press OK



© SAP AG 2004. All rights reserved.

• Select Normal as the Rotation and press OK

🔄 Code39 Bar Code Parameters	×
Narrow Module Width	<mark>06</mark>
Linear Height	00480
Mod-43 Check Digit	x
Bar Ratio	<mark>30</mark>
✓ X	

© SAP AG 2004. All rights reserved.

- Enter 6 (entered at 600 dpi/24 dpm but we will print at 200 dpi(¼ of 24=6))
- Enter 480 (entered at 600 dpi/24 dpm but we will print at 200 24*20=480)
- Leave the check digit enabled
- Leave the ration at 3:1
- Press OK

🔄 Barco	ode-Definition sichern				\boxtimes
3	Save Bar Code C39_20	definition			
	Yes	No	×	Cancel	

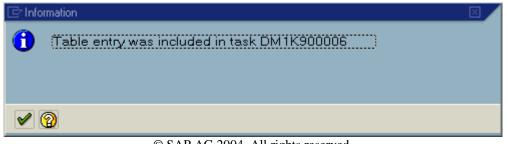
© SAP AG 2004. All rights reserved.

• Press "Yes" to Save

🗁 Prompt for Workbench request			\square
Table contents	TF005		
Request	DM1K900004	🕑 Workbench request	
	ZPL2 driver for SmartForms - A.Bolloni/SAP		
🖌 🍪 📴 🗋 Own requests 💥			

© SAP AG 2004. All rights reserved.

• If requested for a "Workbench request" then Press OK



© SAP AG 2004. All rights reserved.

• Press OK

You have now successfully created the "New Technology" based bar code. Repeat this for all bar codes that you will need. (No need to do any more for this exercise.)

Creating Smart Styles to Select Text and Barcodes

Please follow the following procedure:

- Execute Transaction /nSmartStyles
- Enter a the Style Name "ZZEBRA_SHIPPING" and press the "Create" button

We are now going to add a bar code to our Smart Style:

• Select "Character Formats" from the tree, and press the right mouse button and then select "Create Node"

Create node 🛛 🖂
aracter format
2 🗙
SAD AC 2004 All rights recorded

© SAP AG 2004. All rights reserved.

• Enter C3 as the Character Format and press OK

⊡⊂ Style <u>E</u> dit <u>G</u> oto System <u>H</u> elp	
<u>ت</u>	◁ 🖬 । ᢗ 🎗 🞗 🗅 🛗 陆 (2) ひ む む 🗑 🗖 🛛 🖓 🖪 👘 🔛 😂
Change mode : Style ZZEBR.	A_SHIPPING Language EN
🎾 🖓 🔭 🗋 🛅 🎦	1 🖪
D Style ZZEBRA_SHIPPI St Header data Paragraph formats Character formats Ctaracter formats Ctaracter formats Ctaracter formats	Character format C3 Description Code 39 20mm High 0.25 Narrow Standard settings Font Effects Superscript Subscript Bar Code Name C39_20 C39 20mm high 0.25 narrow bar Width 50,00 MM Height 20,00 MM

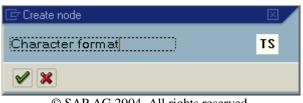
© SAP AG 2004. All rights reserved.

- Enter the Description "Code 39 20mm High 0.25 Narrow"
- Select "C39_20" as the "Bar Code", this is what we created in /nSE73

Repeat the above process for all bar codes that you wish to add to the Smart Style. (No need to do any more for this exercise.)

We now need to add our Text Styles to the Smart Style:

• Select "Character Formats", from the tree, and press the right mouse button and then select "Create Node".



© SAP AG 2004. All rights reserved.

• Enter "TS" (Text Small) as the Character format and press OK

⊡ Style <u>E</u> dit <u>G</u> oto System	<u>H</u> elp		
©	🛯 🔍 📙 I 😋 🚱 I 🗄	<u>ងដាដេ</u> រសារាជន	
Change mode : Style 2	ZEBRA_SHIPPING Langu	age EN	
🎾 🖧 🔭 🗋 🐚 😥	1 E. F.		
 ✓ Style ZZEBRA_SH ☐ Header data ▷ ☐ Paragraph form ☑ Character form: ☑ C3 ☑ TS 	Character format TS Description HELX Standard settings Font Font family Font size Font style	/E 12pt HELVE I Helvet 12 I pt	
	Color	\$	
			47//

© SAP AG 2004. All rights reserved.

- Enter "HELVE 12 pt" as the Description
- Press the "Font" TAB

ট Style <u>E</u> dit <u>G</u> oto System	n <u>H</u> elp		
Ø	🗎 🔍 📙 I 😋 🚱 I 🛛	🛯 🛗 😫 🕈 🏝 🖓 🛱 🖉	
Change mode : Style	ZZEBRA_SHIPPING Langua	age EN	
19 🗗 🔭 🗋 🐚 😥	1		
Style ZZEBRA_SH		/E 12pt Left Justification	
⊠ C3 <mark>⊠ TS</mark>	Font family Font size Font style	HELVE E Helvetica 12 pt	
	Underlined	⊳	
		All rights reserved	

© SAP AG 2004. All rights reserved.

- Select "HELVE" as the Font family (CG triumvirate bold condensed for ZLZEBx)
- Select 12 point as the point size
- Repeat the above for 24 Point and call it "TB" (Text Big)

We now need to make a default Paragraph for our Header Data:

⊡ Style <u>E</u> dit <u>G</u> oto Syster	_		
©	🔲 (1) 🔛 (1) 🚱 🚱 (1)	- H) Ha 12 12 A 21 1 🕱 🖪 🕜 🖪 🛛 🛸	
Change mode : Style	ZZEBRA_SHIPPING Langu	age EN	
🎾 🖓 🔭 🗋 🖻 🕅			
	Character format TB		
Style ZZEBRA_SH	Description HEL	√E 24pt	Ħ
🛛 🕞 🗎 Paragaph form		_	
Cter form:	Standard settings Font		
	Font family	HELVE 📱 Helvetica	
	Font size	24 🖹 pt	
	Font style	Ē	
		4	<i>71.</i>
	© SAP AG 2004.	. All rights reserved.	

© SAP AG 2004. All rights reserved.

Select "Paragraph Formats", from the tree, and press the right mouse ٠ button and then select "Create Node"

🕞 Create node	
Paragraph format	LJ
 ✓ X 	
© SAD AC 2004 All rights reserved	

© SAP AG 2004. All rights reserved.

• Enter "LJ" (Left Justification) as the Paragraph format and press OK

⊂ Style <u>E</u> dit <u>G</u> oto System		
©	■ <	2
Change mode : Style 2	ZZEBRA_SHIPPING Language EN	
🎾 🛺 🔭 🗋 🐚 😥		
Style ZZEBRA_SF Header data Paragraph for Character form: C3 TS TB	Paragraph format L Description Indents and spacing Indents and spacing Font Tabs Numbering and outline Alignment Left-aligned Indent Left margin CM Indent first line Right margin	
	© SAP AG 2004. All rights reserved.	<u>v</u> ////.

• We can use all of the defaults—no need to change any other settings for the Paragraph Format. You now need to double click on "Header data"

C Style Edit Goto System	elp ■ 【 C O Q Q () [] () [] () ()		SAP
Change mode : Style 2	ZEBRA_SHIPING Language EN		
Style ZZEBRA_SH Header data Paragraph forms U Character forms C3 TS TB	Style ZZEBRA_SHIPPING Description Style ZZEBRA_SHIP		t saved 10,00 6,00
	Standard formats allowed Font Font CC URIER	Courier	

© SAP AG 2004. All rights reserved.

• Select "LJ" for the Standard Paragraph

We now need to save our Smart Style:

• Press the "Save" Icon

🔄 Create Objec	t Directory	Entry				\boxtimes	
Object	R3TR	SSST	ZZEBRA_S	HIPPING			
Attributes					 		
Developme	ent clas	s				æ	
Person res	ponsibl	е	KI	10 I R		_	
Original sy	stem		<u>10</u>	<u>11</u>			
Original la	nguage		Et	English			
Local ob	ect 📈	Lock	overview [×			

© SAP AG 2004. All rights reserved.

- Press "Local object"
- You now need to Select "Style | Activate" from the main menu.

You have now successfully created and activated your Smart Styles.

Laying out the Smart Form

Start the "Smart Forms" transaction by entering /nSMART FORMS in the command line text box located just below the menu bar of the current active window of mySAP Business Suite system. Press the *<Enter>* key or click on the check box adjacent to the command line text box entry.

	/nSMARTFORMS	
DP Snael Forms (Edit Data		AP
SAP Smart Forms: Into		Street.
0.000		
• Fam Style Test module	22C000_F00H	•
Sy Theory	Dunge Dank	
		4

© SAP AG 2004. All rights reserved.

• Enter the name "ZZEBRA_FORM" as the Form and press Create button.

Map to Smart Style

You should now see a screen similar to that below:

⊡ Form Edit Goto ∐tilities Environment	System <u>H</u> elp						
	🕒 🚱 🚷 🗎 🛛	C C C C C I 👪 🖥	1 🔀	2	🕜 🖪		
SAP Form Builder: Change Form 2	ZZEBRA_FORM						
🖧 🔭 🕮 🛃 🛛 🖶 Form Pai	nter						
Form ZZEBRA_FORM	Form	ZZEBRA_FORM	•	7		🔁 🖓 39% 🖥 🔍 🔍	
Global settings	Description	New form		il_		50	200
 E For terface B Glob J definitions ✓ ⇐ Pages a d windows 				20	M	4in ?	-
 Pages a d windows PA BE1 New page 	General attributes	Output options		1005			
	Created by	KMOIR		12			
	Date	24.09.2004		Ē			
	Time	09:41:55		150			
	Development clas	s		20011111			
	Language attributes /	. <u> </u>		1120			
	Language	EN		Ē			
	Translate			1250			
	to all language	s		Ξ			
	 to selected lan 			E			
	🔿 do not translate						
			▲				
	• •		₹ ₹}		•		••
				_			4 //
	SAD AC 20	04 All right			wad		

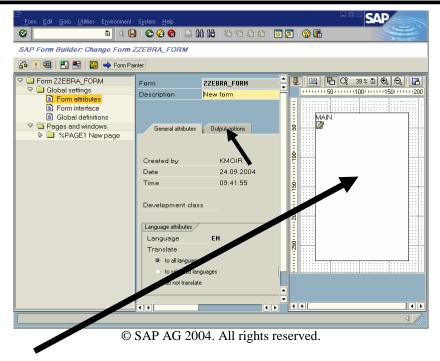
© SAP AG 2004. All rights reserved.

• We now need to map our Smart Style to this Form. Double click on Form attributes.

<u>Form</u> Edit <u>G</u> oto <u>U</u> tilities	Environment System <u>H</u>	<u>l</u> elp			SAP
Ø	🛯 🖣 📙 I 😋 🚱	😣 i 🖴 🖨 🖓	120021	😠 🗾 🛛 😰 📑	
SAP Form Builder: Cha	nge Form ZZEBRA_	FORM			
🖓 🔭 🖼 🛯 🛃 🛛 🗱	Rorm Painter				
Form ZZEBRA_FOR	Description	ZZEBRA_FORM		Inactive	
Form attribute Form interface	i	14600 101111			
Pages and windo	General attributes	Output options	—		
▷ 🔁 MAIN Mai ♥ 🔂 ‰WINDO	Page format	DIN	A4		
🖉 %TEX	Characters per inc				
	Lines per inch Style	6,0 ZZE	0 BRA_SHIPPING	3	
	XSF output				
	SF output active				
	Output mode Output device				
					▲ ▼ ■
					4 ///

© SAP AG 2004. All rights reserved.

- Press the "Output Options" TAB •
- Enter "ZZEBRA_SHIPPING" as the Style name



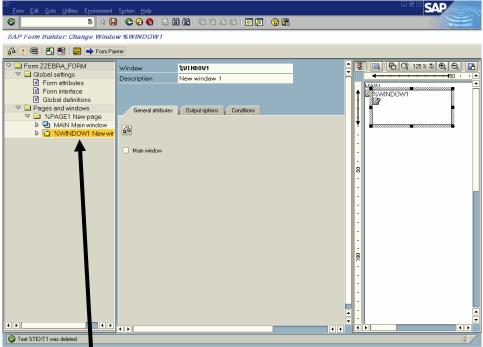
- Click on the Main Window
- Press the Output Options TAB (if not already active)
- Change the Left margin and Upper margin to 0 (Zero)
- Change the Width and Height to that of the Label Size (It is actually safer, to avoid SAP automatically moving fields, to ensure that this is bigger than the actual label)

Eorm Edit Goto Utilities Environment	System Help	1344	*			. 2 (SAP	
SAP Form Builder: Change Windo								
🔏 🔭 🕮 🛯 🛤 🔛 🔿 Form Pai								
Global settings Global settings Global settings Form attributes Global settings Global settings Global settings Global settings AGEI New page MAIN Main window	Window HAIN Description Main with Description Main with Destion and size Dulput of Position and size Dulput of Position and size Dulput of Description Dulput of Position and size Dulput of Description Dulput of Position and size Dulput of Description Dulput of	8, 66 6, 89 8, 99	Wid Heiç PT CM CM		, 00 , 00	501		
	a ()				•		1	• •
	O SAD AC	2004	\ 11 .ri	abte recorve	d			111
	SAP AC	J 2004. A	A II 11	ghts reserve	u.			

Add Text and Bar Code Fields

© SAP AG 2004. All rights reserved.

- Press the right mouse button on "MAIN Main Window" tree •
- Select "Create | Window". We are basically going to create a separate Window • for each field, in the Main Window (think of the Main Window as the Label)



© SAP AG 2004. All rights reserved.

- Press the right mouse button on "% Windows1 New Window" tree
- Select "Create | Text".
- Press the "General Attributes" TAB (if needed)

Form Edit Goto Utilities Environment) (1월 1 월 43 월 1 1월 1월 1 1월 1월		- 2	SAP
SAP Form Builder: Change Text %					
▼ Form ZZEBRA_FORM ▼ Global settings ■ Form attributes ■ Form interface ■ Global definitions ▼ Pages and windows ▼ %PAGE1 New page ▶ MAIN Main window ▼ %WINDOW1 New wir ✓ %WINDOW1 New wir ✓ %WINDOW1 New wir	Text Description	Text element	Image: 100 million Image:	20000000000000000000000000000000000000	
Enter "Date: 'Press the "inst		on"			
🖙 Insert Fields					

🗁 Insert Fields	X	
Fields	&SYST-DATUM&	
🖌 🖪 🗙		
		_

© SAP AG 2004. All rights reserved.

Enter "&SYST-DATUM&" in the Text Editor box above (System Date) Press OK

E∽ Form Edit <u>G</u> oto <u>U</u> tilities Eryvironment System <u>H</u> elp	
🖉 🔹 📲 🕲 😧 😫 🛗 🛗 🛗 🎦 🏠 島 🎘 📲 🖉 🖷	
SAP Form Builder: Change Text %TEXT1	
🖆 🔭 🕮 📱 🛅 🍑 Form Painter	
Image: Second settings Text % TEXT1 Image: Second settings Image: Second settings Description Image: Second settings Image: Second settings Image: Second settings Image: Second settings Image: Second settings Image: Second settings Image: Second settings Image: Second settings Image: Second settings Image: Second settings Image: Second settings Image: Second settings Image: Second settings Image: Second settings Image: Second settings Image: Second settings Image: Second settings Image: Second settings Image: Second settings Image: Second settings Image: Second settings Image: Second settings Image: Second settings Image: Second settings	Image: Constraint of the second sec
	۸ 🗸

© SAP AG 2004. All rights reserved.

- Select highlight "Date: &SYST-DATUM& by dragging over it. You could make this a multi-line field (paragraph).
- Pick Character Format "TS HELVE 12 PT". You can pick any text or bar code style that you have created. Bar codes will just show as text on this screen.

You now can repeat the above process for each field you need to add. Remember to create a separate Window with a separate Node for Each Field (otherwise they will all align under each other)

Add Lines and Boxes

You should now see a screen similar to that below:

Form Edit Goto Utilities Environment	System Help	SAP
) ② ④ ② 二 前 時 2 四 日 2 三 第 声 1 ② ■	
SAP Form Builder: Change Text %	STEXT1	
🚰 🏋 🕮 📲 🛯 🛃 🔿 Form Pai	nter	
Form ZZEBRA_FORM Global settings Form attributes Global definitions Global definitions Pages and windows %PAGE1 New page MAIN Main window %MAIN MAIN MAIN MAIN MAIN MAIN MAIN MAIN	Text %TEXT1 Description New text 1 General attributes Dutput options Conditions Text type Text element Text node New paragraph New line Append directly Paragraph formats Paragraph formats C3 Code 33 20mm High 0.25 Nar SYST-DATUMS =	

© SAP AG 2004. All rights reserved.

- Press the right mouse button on "MAIN Main Window" tree
- Select "Create | Window
- Press the "Output options" TAB

Er Form Edit Goto Utilities Environment System Help									SAP
I 4 B 6 6 8 B B B B B B B B B B B B B B B B									
SAP Form Builder: Change Window %WINDOW2									
🖆 者 🖳 🛃 🔚 🔛 🔿 Form Pai	nter								
 Form ZZEBRA_FORM Global settings Form attributes Form interface Global definitions Pages and windows SwiNDOW2 New wir SwiNDOW1 New wir WTEXT1 New text 	Window Description General attributes Position and size Left margin	ing	Condition CM CM	s Width Heigh DH		2,00 2,69	2 CM CM 8		
									۹ <i> </i>

© SAP AG 2004. All rights reserved.

- Enable/check the "Line width" checkbox
- Enter Point size of line width (or change units of measurement)
- Enable "Always draw box and shading"
- Enter 100 for "Gray Value" if you want a solid box (leave as blank or 0 for lines or boxes)

You need to create a separate Window for each box you wish to draw. You can also draw boxes around any existing Window used for text, bar codes or graphics.

For Text Reversing we advise that you select the "Output options" TAB of the "Text Node", not the Window. You will also have to enable field reversing via "Tips and Tricks: Printer Setting" (page 48): **S_LZPL_SETUP** and enter **'^LRY'**

See "Tips and Tricks: Lines and Boxes" on page 43 for more information

Add Logos/Graphics

You should now see a screen similar to that below:

Er Form Edit Goto Utilities Environment System Help	SAP
🐨 🔤 4 🔛 6 🚱 😫 🗎 🛗 🖓 😂 🗄 🦓 🖳 🖓 🖷	
SAP Form Builder: Change Text %TEXT1	
🔏 🕅 🚍 🛃 📾 📥 Form Painter	
Form ZZEBRA_FORM Text Form thibutes Form thibutes Form thibutes Global definitions Conditions Calebal definitions General attributes Output options Conditions Calebal definitions General attributes Output options Conditions Calebal definitions General attributes Output options Conditions Conditions Conditions Conditions Calebal definitions General attributes Output options Conditions Conditi	

© SAP AG 2004. All rights reserved.

- Press the right mouse button on "MAIN Main Window" tree
- Select "Create | Window
- You may want to move / position the Window
- Press the right mouse button on the Window you just created
- Select "Create | Graphic

Er Form Edit Goto Utilities Environment	System Help	
🖉 🗈 d 📙		
SAP Form Builder: Change Graph	ic %GRAPHIC2	
🖆 🏋 🕮 🔁 🛃 题 🔿 Form Pai	nter	
Form ZZEBRA_FORM Global settings Form interface Global definitions Pages and windows WINDOW3 New wir WINDOW3 New wir WINDOW2 New wir WINDOW1 New wir WINDOW1 New wir WINDOW1 New wir WINDOW2 New wir GRAPHIC2 New GRAPHIC2 New GIOSALTINEW PROVINEW WIR WINDOW2 New wir	Object ID	
	© SAP AG 2004. All rights reserved.	/ ///.
	-	

• Press the "browse graphic" icon

🔄 Find graphic		
Name	to	\$
Black and white grid screen		
Color grid screen		
Graphic object	to	\$
Graphic ID	to	\$
🕒 🚰 Check 📙 🗶		

© SAP AG 2004. All rights reserved.

• Press the "execute" icon (or press F8)

			∇	
🖌 🖂 🖫 🔛 🖉				
Name	Object	ID	GraphicT.	Descript.
ENJOY	GRAPHICS	BMAP	Black and white grid screer	ENJOY-LOGO SCHWARZ/WEIB
HBR_GPS_LOGO2	GRAPHICS	BMAP	Black and white grid screer	
HRBR_DARF_LOGO	GRAPHICS	BMAP	Black and white grid screen	HRMS BRAZIL: LEGAL DARF LOGO
HRBR_GPS_LOGO2	GRAPHICS	BMAP	Black and white grid screen	HRMS BRAZIL: LEGAL REPORT LOGO GPS IN BLACK/WHIT
HRBR_GRPS_LOGO	GRAPHICS	BMAP	Black and white grid screer	HRMS BRAZIL: LEGAL GRPS LOGO
DES_LOGO	GRAPHICS	BMAP	Black and white grid screen	MUSTERLOGO IDES AG 300 DPI
LOGO ARBEITSAMT	GRAPHICS	BMAP	Black and white grid screen	ARBEITSAMT-LOGO
SAPSCRIPT_SMALL_DOG	GRAPHICS	BMAP	Black and white grid screen	SAPSCRIPT TESTBILD HUND
< >				

© SAP AG 2004. All rights reserved.

• Double click on the logo you require (we will use ENJOY)

Form Edit Goto Utilities Environment S	ystem Help 〇 〇 〇 〇 二 前 船 3 泊 石 石 石 三 三 〇 四 四	SAP
SAP Form Builder: Change Graphic		
🖆 🏋 🕮 🖏 📾 🔯 🔿 Form Painte	R	
Image: Clobal settings Image: Form attributes Image: Form attributes Image: Form attributes Image: Clobal definitions Image: Clobal definitions <	Graphic % GRAPHIC2 Description New graphic 2 General attributes Output options Conditions Name ENJOY Object GRAPHICS ID BMAP ID BMAP Black and white grid screen (BMON) Color grid screen (BCOL) Determine dynamically (BMON, BCOL) Technical attributes Resolution DPI DPI 	

For detailed information on logos, refer to "Tips and Tricks: Logos / Graphics" on page 47.

Saving and Activating the Smart Form

• Press the Save Icon

🔄 Create Object Directo	ry Entry			\boxtimes	
Object R3TR	SSFO	ZZEBRA	A_FORM		
Attributes					
Development cla	.88		<u>\$tmp</u>	<u></u>	
Person responsil	ole		KMOIR		
Original system			<u>DM1</u>		
Original languag	e		EN English		
Local object	2 Lock	overview			

© SAP AG 2004. All rights reserved.

- Press "local object" (if prompted)
- Select "Form |Activate" from the Main Menu

Tips and Tricks for Smart Forms and Zebra Printers

Smart Forms was originally developed for "Form" and "Report" design, not labels. Smart Forms can now be successfully used to design labels on high performance bar code label printers, but you need to be aware of the tips and tricks not documented within the original Smart Forms manuals. Please read the following:

Label Size / Page Size

In Smart Forms, a page format must be set for every form or label, for example, DINA4 or LETTER. For the Zebra printer driver it does not matter which format is set here, since it cannot affect the label size in the printer. It is therefore of no benefit to define separate new page formats/format types for labels for label printing with the above zebra device types (just use DINA4 or LETTER). However, in Smart Forms, when you define the window on the page, ensure that you only use the label area that is actually available.

Important Note: in Smart Forms, only use the PORTRAIT page orientation. It is not possible to rotate the orientation of the label by 90 degrees by selecting the LANDSCAPE page orientation. Technical background: In the ZPL II printer language, there is no command for rotating the output of the entire label by 90 degrees. The printer driver therefore cannot use orientation=LANDSCAPE to rotate the label by 90 degrees.

If you need to shift the entire label output slightly on the Zebra printer, you can use the form output shift in the SPAD transaction (when you define the output device), as described in note 39259. This shift is analyzed by the Zebra driver.

Smart Forms has no concept of Label Size. Please ensure that the Main Window is larger than the label.

Workaround for rotating the label output: There is a command in the ZPL-II printer control language that rotates each individual field by 90 degrees (clockwise). If you insert this command into the output data stream using the "command nodes" mechanism as described below under "Printer Settings", you will achieve the rotation of individual fields at printout. However, you must adjust the position of the fields (or windows) in the form to obtain a "landscape" printout, as Smart Forms and the printer driver are not aware of the rotation. Therefore, define the Smart Form with the "portrait" orientation. For the rotation, add a command node, for example in the MAIN window. In this command node, enter the following under "spool control", "free attributes":

Attribute name: Attribute value: S_LZPL_SETUP '^FWR'

The LZPL printer driver sends the ^FWR command to the printer at the beginning of the label and causes a rotation of the output fields.

Note: The command **^**FWR in the command node has no effect on printing barcodes, as these have their own parameters for rotation. Define the barcodes needed for the landscape label in SE73 with the necessary rotation.

Field Positioning—X, Y Coordinates

Labels normally use a "field" concept whereas Smart Forms use a "Page Window" style of design. Label fields normally have a fixed "origin" whereas text in forms is much more dynamically positioned.

We recommend that you make a separate "Window" for each field on the label. Each Window should then have an associated Node (Text, Bar Code or Logo). Multi-line Text fields may all be tied to a single Window. The reason for this is the location of each Window specifies the fields (Nodes) X and Y co-ordinates.

All of these fields must be inside the Main Windows. Please ensure that your Main Window is large enough! We also believe that it's good practice not to associate any Nodes with the Main Window.

Lines and Boxes

Lines and boxes are drawn, as with any Smart Form, via drawing a new Window, selecting the "Output Options" Tab and then entering a point size for the "box and shading" options.

Reverse boxes, for text reversing, can be enabled by using the ^LRY command in the printer settings node **S_LZPL_SETUP**. See printer setting for more information.

Note: Ensure that you have "Always draw box and shading" checked in the "output Options of your Windows" Grey Value must be 0 (hollow) or 100 (sold).

Text Objects

Smart Forms supports Zebra preloaded printer-resident scaleable fonts. It also supports TrueType font downloading and TrueType fonts stored in Zebra printer Flash memory. We strongly recommend that you use printer-resident fonts for simplicity and maximum printer throughput.

Western European—IBM CodePage 850

You will normally design your forms/labels for Zebra printers using the SAP "HELVE" font. This font maps to Zebra's printer-resident "CG Triumvirate bold condensed" (IBM Codepage 850) when using device type ZlbzebsX.pri (X=2,3 or 6).

International Printing (EMEA Only)—UnicodeTM

SAP "HELVE", "HELVECYR" (Cyrillic) and "HELVE_I7" (Greek) can also be used for international printing using Zebra's ZlbzebsX.pri (X=2,3 or 6) device type. This Unicode UTF-8 device type maps to Zebra's printer-resident Swiss 721 font. This is preloaded on all printers shipped in EMEA. This font is available for download FOC for other countries if required. This will allow you to print local languages using Unicode (UTF-8) even on non-Unicode SAP systems.

Global International Printing including APAC—Unicode

SAP end users wishing to print Asian characters on Zebra printers must use the SAP font ANDALE_J, ANDALE_K, ANDALE_S or ANDALE_T with the Zebra Device Type ZlbzebuX.pri (X=2,3 or 6) and the corresponding optional matching font card available from Zebra. Refer to the section on device types at the beginning of this document for more information. This will allow you to print local languages using Unicode (UTF-8) even on non-Unicode SAP systems.

Text Reversing

Text reversing is supported via Solid Boxes. Refer to "Tips and Tricks: Lines and Boxes" (page 43) and also "Tips and Tricks: Printer Settings" (page 48) for detailed information.

TrueType Fonts

Smart Forms allows users to upload TrueType fonts and then use these fonts for the form/label design (See OSS Note 201307). TrueType fonts are uploaded using transaction SE73; see below:

Font maintenance Edit Goto	
SAPscript Font Maintenance: Initial Screen	
Font families System fonts Printer fonts System bar codes Printer ba	
 Font families System fonts Printer fonts 	
 System bar codes Printer bar codes 	
Display Change	
TrueType-Font installieren	r

© SAP AG 2004. All rights reserved.

For detailed information on how to upload a TrueType font, refer to OSS Note 130658

In the case of ZPL II printers, this font is automatically downloaded to the printer at the beginning of the print run as an <u>IBM Codepage 850</u> scaleable font, and then deleted at the end of the print run. It is also possible to tell the printer device type that the TTF is permanently stored in printer Flash memory and therefore does not need downloading. If downloading performance or network traffic is an issue, <u>we strongly advise</u> that you use a printer-resident scaleable font or store the TTF on the printer's Flash memory.

Download a TTF Font to Zebra Flash Memory

- You should store the Font on **E**: or B: (Flash) not R: (RAM)
- Download Zebra ZToolsTM utility from <u>http://www.zebra.com/SD/utilities.htm#ZTools</u>
- Install, Run and select "Convert | Unbound TT"
- Please ensure that the name uses no more that 5 characters (ZTools support 8 but SAP has a 5-character limitation)
- This will create a file with the extension of "ZSU". In the case of "Arial," this would be "Arial.ZSU". You then must download this to the printer.

Convert Unbou	nd TrueType		X
	Arial (UNBOUND 1	П)	
Source	ARIAL	<u>B</u> rowse	
Destination	ARIAL] [Convert
ZPL Name] [Exit
		[Help

Modify the Zebra SAP Device Type

Select Transaction SE73 (Printer Fonts) and press "Change" Scroll down and Double click on the target device type (This must be one of the IBM Codepage 850 device types Zlzebx (x=2, 3 or 6) Double click on the TrueType font (for example ZArial) Enter the name of the font that you downloaded to the printer (for example "ARIAL"—don't specify the memory location)

Font Licensing (TTF) / Disclaimer

It is the responsibility of the end users to ensure that they comply with the font licensing requirements provided by the owners of such fonts. Any fonts stored in the Flash memory of Zebra printers may require licensing from the font vendor. This applies to fonts converted using ZTools, fonts downloaded via ^DY or fonts copied directly onto CompactFlash[®] memory cards.

Note: Windows Core Fonts require licensing from Agfa Monotype Corporation before they can be stored in the Flash memory of any Zebra printer as a "permanent printer resident font." Arial Unicode MS requires licensing from Microsoft Corporation before it can be stored in the Flash memory of any Zebra printer as a "permanent printer resident font."

Logos/Graphics

Colored bitmap graphics from Smart Forms are changed to black and white when you print from the Zebra printer driver. If the picture quality deteriorates following this conversion, you should convert the graphic to black and white using a graphics program (such as PaintShop Pro) and import it into Smart Forms as a black-and-white graphic. The driver does not convert monochrome graphics. However, all graphics may be justified to adjust the size of the graphic to the printer resolution (203, 300 or 600 dpi). During the import to Smart Forms, you have the option to flag a bitmap graphic as "resident." In this case, the printer driver saves the graphic when it first appears in the printer's RAM ("R:" device of the Zebra printer). At the end of the spool request, the driver deletes the graphic again from the printer's RAM, so that no more memory remains occupied. Resident graphics during label printing from Smart Forms are therefore only faster if more than one label is printed within a spool request, and the resident graphic repeats on every label.

Uploading Graphics into Smart Forms

Transaction SE78 can be used to upload logos. You can also run program RSTXLDMC from transaction /nSA38.

Permanently Printer Resident Bar Codes (Flash)

The only way to support graphics stored on printer Flash memory is to recall the object with a direct ZPL II command. This could be done very simply with the **S_LZPL_SETUP** command node (see printer settings) or alternatively by creating a custom "Printer Bar Code" or print control (see bar codes).

Printer Settings

Command Nodes allow you to set printer specific settings from within individual Smart Forms. Each Smart Form may have different settings associated with it. This means that you can have a Smart Form set the printer's darkness (burn temperature) and print speed (as well as many more settings).

Command Nodes are set by selecting a page Windows and pressing the Right Mouse Button over the tree structure and then select "Create | Command." See the diagram below:

<u>Form E</u> dit <u>G</u> oto <u>U</u> tilities E <u>n</u> vironment	System <u>H</u> elp		SAP
🖉 🛛 🖉) 😋 😧 🚷 🗅 🖁	1 CS CA C ⁹ CS 541 (× M
SAP Form Builder: Change Comm	and %COMMAND1		
🚰 🏋 🕮 🔁 🛃 🛃 🔿 Form Pai	nter		
Form ZKEN	Command	%COMMAND1	
Global settings	Description	New command 1	
 Form interface Global definitions 			
Pages and windows Image: Pages and windows Image: Page and Windows Image: Page and Windows	General attributes	Conditions	
▷ Ca %WINDOW3 New wir ♥ Ca %WINDOW2 New wir	🗌 Go to new page		
😴 %COMMAND1 Ne			
کا 🖓 🔓 %WINDOW1 New wir کا %GRAPHIC1 New qrt	Reset paragrap	oh numbering	
	Include printer	control	
	Spool attributes	oo a	
	Ranameter for :		
	Field name	Field value	
	S_LZPL_SETU	P_SPD <mark>'10' </mark>	
	S_LZPL_SETU	P_MD '20'	
			<u>v</u>

© SAP AG 2004. All rights reserved.

The ZPL II commands must be entered in the command node using quotation marks.

Description	Command Node	Supported Values
Human Readable	S_LZPL_HR	System Bar Code Style Name
	S_LZPL_HR1	
	S_LZPL_HR2	
	S_LZPL_HR2	
Print Speed (^PR)	S_LZPL_SETUP_SPD	Supports 2,3,4,5,6,8,9,10,11,12
Media Tracking (^MN)	S_LZPL_SETUP_MTR	NYWM
		(Continuous, Non-Continuous, Web Sensing, Black Mark Sensing)
Media Type (^MT)	S_LZPL_SETUP_MT	D T (Direct Thermal, Thermal Transfer)
Print Mode (^MM)	S_LZPL_SETUP_PM	T R P C (Tear off, Rewind, Peel Off, Cutter)
Top Position (^LT)	S_LZPL_SETUP_TP	Supports -120 to 120
Tear Off Position (~TA)	S_LZPL_SETUP_TO	Supports -120 to 120
Media Darkness (^MD)	S_LZPL_SETUP_MD	Range is -30 to 30
Generic commands	S_LZPL_SETUP	Any ZPL-II Command

Below is a list of supported command Nodes:

Note: If the System Bar Code name used in the Smart Style is entered against "S_LZPL_HRx" (x=1 to 3) then the Human Readable will be enabled for that specific object (only human readable below the bar code is supported).

Other ZPL II commands can be added via "Printer Bar Code Objects", i.e., a circle, box with rounded corners, RF-ID field or a ZTools bar code! This is also useful for enabling "box reversing" to support "reverse text" via using the command ^LRY.

Bar Codes

Bar Codes are managed via transaction /nSE73. See the screen below:

E <u>F</u> ont maintenance <u>E</u> dit <u>G</u> oto	
SAPscript Font Maintenance: Initial Scre	
Font families System fonts Printer fonts System bar codes	Printer
	•
Font families	
 System fonts 	
 Printer fonts 	
System bar codes	
 Printer bar codes 	
Display Change	
TrueTvoe-Font installieren	↓

© SAP AG 2004. All rights reserved.

Individual bar code "types" need to be created for each flavor of bar code. A Smart Style then needs to be created to include bar code "types" for each Node. Firstly you need to create/configure "printer bar codes" or "system bar codes."

Printer Bar Codes

"Printer bar codes" are bar codes that are specific to a specific printer. These bar codes actually have the commands and parameters hard coded for each separate bar code symbology and derivative. This is known as SAP's "old bar code technology." You will also need to create new "printer bar codes" if you wish to change any parameters such as ratio, narrow bar width, or height. You should try and avoid this "old technology" if possible. See the screen below:

Device type	ZEBRA203
Print control	SBP 01
Variant	1
Hexadecimal switch	
Standard setting	
Control char.seq.	^BY2,3.0,104^B3N,N,,N,NFD

© SAP AG 2004. All rights reserved.

System Bar Codes

"System bar codes" can either use the "old barcode technology "and use a specific "printer bar code" based on the device type selected, or alternatively use the "new bar code technology." We recommend that you use "new technology" if possible as this has many advantages:

- Does not require the creation of "printer bar codes" for every single possible device type being used
- Does not require knowledge of the printer's command language.
- You can preview the bar code (SAP NetWeaver 04 onwards)
- This can also be rendered on non-Zebra printers (although as a graphic)

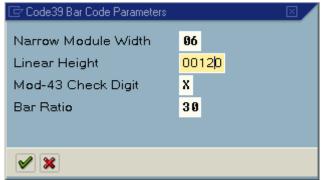
\square
Neu
Alt
🗙 Cancel

© SAP AG 2004. All rights reserved.

You will have to create a separate "system bar code" for separate styles. This means that a separate "system bar code," based on "new technology," would have to be created for all derivatives of rotation, height, narrow bar width, ratio and checkdigits, etc. You would then include all of the bar codes you need for your form within a Smart Style (/nSmartstyles).

New Technology—"System Bar Code"

This new rendering technology was actually developed by Zebra Technologies Corporation and licensed to SAP AG. These new bar codes are rendered as graphics using Zebra's Bar Code Rendering Library in the kernel of mySAP Business Suite. PCL, PostScript and Prescribe printers receive the graphic as a bitmap. Zebra printers receive the graphic as a ZPL II command, ensuring maximum performance and data validation.



© SAP AG 2004. All rights reserved.

Note: Bar code parameters "Height" and "Module Width" are entered at a resolution of 600 dpi independent of the resolution of the target printer. This means that a bar code height of 120 would print 10 mm on a 203-, 300- or 600-dpi printer.

For more information on this "New Technology" see OSS Note 430887.

Unsupported Bar Codes / New Symbologies

You can create new or custom bar codes by creating a "Printer Bar Code" and create a "System Bar Code" using "Old Technology" that refers to the "Printer Bar Code." This mechanism lets you create an object that has ZPL II associated with it. You could use this feature for any object or ZP II command. Examples of this could be:

- Creating a MaxiCode bar code
- Drawing a circle or ellipse and having it come out as ZPL II (not a graphic)
- Boxes with rounded corners (via ZPL II)
- Reversed text (White on a black background)
- Recalling a graphic that is stored in Flash memory

Resources

Visit <u>www.zebra.com/sap</u> to keep up-to-date on bar code printing and RFID solutions for SAP End Users.

Additional Smart Forms information can be found by visiting the SAP Developer Network website at <u>www.sdn.sap.com</u>. Refer to SAPnet notes 750002 and 750772.

