



User Manual

SAP Device Driver for SATO Printers

- Version 1.2-r1

Read this User Manual before using this product.
Keep this document available for future reference.

Software License Agreement

PLEASE READ THE FOLLOWING TERMS AND CONDITIONS BEFORE USING THIS PRODUCT. BY INSTALLING THE PRODUCT YOU THEREBY INDICATE YOUR ACCEPTANCE OF THESE TERMS AND CONDITIONS. SHOULD YOU DISAGREE WITH ANY OF THE TERMS OR CONDITIONS LISTED BELOW, PROMPTLY REMOVE ALL FILES RELATED TO THIS PRODUCT FROM YOUR HOST PLATFORM AND RETURN THE PRODUCT TO SATO CORPORATION.

1. You explicitly agree to accept a non-exclusive license to use the Software identified on the distribution media solely for your own customary business or personal purposes. Your local and national laws govern this Agreement.
2. Henceforth, "Software" shall refer to the digitally encoded, machine-readable data and program. The term "Software Product" includes the Software identified on the distribution media, including any accompanying documentation. The term "Distribution Media" refers to any method by which the Software Product is delivered to the end user, including but not limited to Floppy Disks, CD-ROM, Magnetic Tape and On-Line distribution via the Internet. The Software Product is licensed (not sold) to you, and SATO® either owns or licenses from other vendors who own all copyright, trade secret, patent and other proprietary rights in the Software Product.
3. To protect the proprietary rights of SATO Corporation, you agree to maintain the Software Product and other proprietary information concerning the Software Product in strict confidence and to establish reasonable procedures regulating access to and use of the software.
4. You agree not to duplicate or copy the Software except that you may make one backup copy. You agree that any such copy shall contain the same proprietary notices as those appearing on the original.
5. You shall not sub-license, sell, lease, or otherwise transfer all or any portion of the Software Product separate from the printer(s), without the prior written consent of SATO Corporation.
6. You may not modify or prepare derivative works of the Software Product. You may not transmit the Software Product over a network, by telephone, or electronically using any means; or reverse engineer, decompile or disassemble the Software.
7. You may transfer the Software Product with the printer(s), but only if the recipient agrees to accept the terms and conditions of this Agreement. Your license is automatically terminated if you transfer the Software Product and printer(s).
8. This License remains in force until terminated, and may be terminated by agreement between you and SATO Corporation, or by SATO Corporation, if you fail to comply with the terms of this License if such failure is not corrected within thirty (30) days after notice. When this License is terminated, you shall either return to the place you obtained them from, or destroy, the printer and all copies of the Software and documentation.

9. SATO Corporation warrants that for ninety (90) days after delivery, the Software will perform in accordance with specifications published by SATO Corporation, and that the distribution media will be free from defects in material and workmanship. SATO Corporation does not warrant that the Software is free from all bugs, errors and omissions.
10. Your exclusive remedy and the sole liability of SATO Corporation in connection with the Software is replacement of defective distribution media upon their return to SATO Corporation. SATO Corporation will not be liable for any loss or damage caused by delays in furnishing a Software Product or any other performance under this Agreement.

SATO Corporation does not warrant that the functions contained in the Software will meet your requirements or that the operation of the Software will be uninterrupted or error free.

11. Use, duplication or disclosure by the Government is subject to restrictions as set forth in the relevant guidelines of your country, such as the Rights in Technical Data and Computer Software clause at FAR 242.227- 7013, subdivision (b) (3) (ii) or subparagraph (c) (1) (ii), as appropriate. Further use, duplication or disclosure is subject to restrictions applicable to restricted rights software as set forth in FAR 52.227-19 (c) (2) or equivalent rules.

THE PARTIES AGREE THAT ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE AND MERCHANTABILITY ARE EXCLUDED.

SATO Corporation reserves the right to make changes and/or improvements in the Software without notice at any time.

IN NO EVENT WILL SATO CORPORATION BE LIABLE FOR LOST PROFITS, LOST DATA, BUSINESS INTERRUPTIONS OR ANY OTHER DIRECT, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OF OR INABILITY TO USE THIS PRODUCT, EVEN IF SATO CORPORATION HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, OR ANY DAMAGES CAUSED BY ABUSE OR MANIPULATION OF THE SOFTWARE. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF LIABILITY FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

YOU ACKNOWLEDGE THAT YOU HAVE READ THIS AGREEMENT, UNDERSTAND IT, AND AGREE TO BE BOUND BY ITS TERMS AND CONDITIONS. NEITHER PARTY SHALL BE BOUND BY ANY STATEMENT OR REPRESENTATION NOT CONTAINED IN THIS AGREEMENT. NO CHANGE IN THIS AGREEMENT IS EFFECTIVE UNLESS WRITTEN AND SIGNED BY PROPERLY AUTHORIZED REPRESENTATIVES OF EACH PARTY. BY INSTALLING THIS SOFTWARE PRODUCT, YOU AGREE TO ACCEPT THE TERMS AND-CONDITIONS OF THIS AGREEMENT.

Copyrights

The contents of this document are proprietary information of SATO Corporation and/or its subsidiaries in Japan, the U.S and other countries. No part of this document may be reproduced, copied, translated or incorporated in any other material in any form or by any means, whether manual, graphic, electronic, mechanical or otherwise, without the prior written consent of SATO Corporation.

SATO Corporation and/or its subsidiaries in Japan, the U.S and other countries make no representations or warranties of any kind regarding this material, including, but not limited to, implied warranties of merchantability and fitness for a particular purpose. SATO Corporation shall not be held responsible for errors contained herein or any omissions from this material or for any damages, whether direct, indirect, incidental or consequential, in connection with the furnishing, distribution, performance or use of this material. SATO Corporation reserves the right to make changes and/or improvements in this product and document without notice at any time.

Trademarks

SATO is a registered trademark of SATO Corporation and/or its subsidiaries in Japan, the U.S and other countries.

SAP® is the registered trademark of SAP AG in Germany and in several other countries.

Microsoft and Windows are registered trademarks of Microsoft Corporation.

Other brands and their products are trademarks or registered trademark of their respective holders and should be noted as such.

Software updating disclaimer

While all efforts have been taken to ensure accuracy and currency of the information contained herein, there are instances where the contents of this document may be outdated. In that case, proceed to SATO worldwide websites (www.satoworldwide.com) to check whether an updated document has been made available for your reference.

Table of Contents

Table of Contents	4
1 Introduction	5
2 SAP Environment	6
3 Overview of Solution	7
4 Using SATO Device Type	8
5 Creating Output Device	19
6 Functionalities of SATO-SAP Printer Driver	21
6.1 Barcode.....	21
6.1.1 Defining Barcode	22
6.1.2 New Barcode Technology	23
6.1.3 New Technology Barcode	26
6.1.4 Old Barcode Technology (Conventional System Barcode)	28
6.1.5 Old Technology Barcode	28
6.1.6 Defining Printer Barcodes	29
6.1.7 Customized Barcode with UNDEF	32
6.1.7.1 GS1-128 Barcode with UNDEF	32
6.1.7.2 GS1 Datamatrix Barcode with UNDEF	34
6.1.7.3 QR Barcode with UNDEF	38
6.2 Fonts.....	40
6.2.1 Unicode Printing for NX Series	42
6.3 SmartStyles.....	51
6.4 Smart Forms	53
6.4.1 Adding Text	54
6.4.2 Adding Barcode	56
6.4.3 Adding Images	57
6.4.4 Positioning Printing Components	58
6.4.5 Printing the Smart Forms	58
6.5 System Commands.....	60
6.5.1 Text and Image Rotation	64
6.5.2 Setup Label Size Using Command	65
7 Limitations	66
8 Appendix	67
8.1 Print Controls List for Barcode.....	67
8.2 Font Print Controls	73

Introduction

1

“SAP Device Driver for SATO printers” is a SAP Smart Forms printing solution to SATO printer. It allows users to use a driver for a Page Description Language (PDL) that is implemented in ABAP and resided in the SAP environment to print SATO printer without 3rd party solutions. With this device driver, SATO BARCODE PRINTER LANGUAGE (SBPL) is sent to the SATO printer directly from SAP -- providing greater performance and efficiency.

This document explains the necessary environment and configuration to use such a solution.

SAP Environment **2**

The following SAP environment supports the ABAP based PDL drivers:

- SAP_BASIS Release 6.20:
Support Package SAPKB62064 + attached correction instructions or
Support Package SAPKB62065 + attached correction instructions
or Support Package SAPKB62066
Kernel 6.40 patch level 222
- SAP_BASIS Release 6.40:
Support Package SAPKB64022 + attached correction instruction
or Support Package SAPKB64023
Kernel 6.40 patch level 222
- SAP_BASIS Release 7.00:
Support Package SAPKB70014 + attached correction instruction
or Support Package SAPKB70016
Kernel 7.00 patch level 148
- SAP_BASIS Release 7.01:
supported from the beginning
- SAP_BASIS Release 7.10:
not supported in 7.10
- SAP_BASIS Release 7.11 and higher:
supported from the beginning

Please refer to the [SAP Notes: 1097563](#) for the updated information about the overview of SAP PDL driver.

Overview of Solution

3

This solution is primarily for Smart Forms printing. It requires 2 components from the printer providers, such as SATO.

- ABAP Based PDL device driver
- Device Type files

After uploading the components into the SAP system, users will

- Use Smart Styles to define the available printing items in the device type,
- Use Smart Forms to design the label
- Define Output Device that points to the given Device Type
- Print the Smart Forms through the output device.

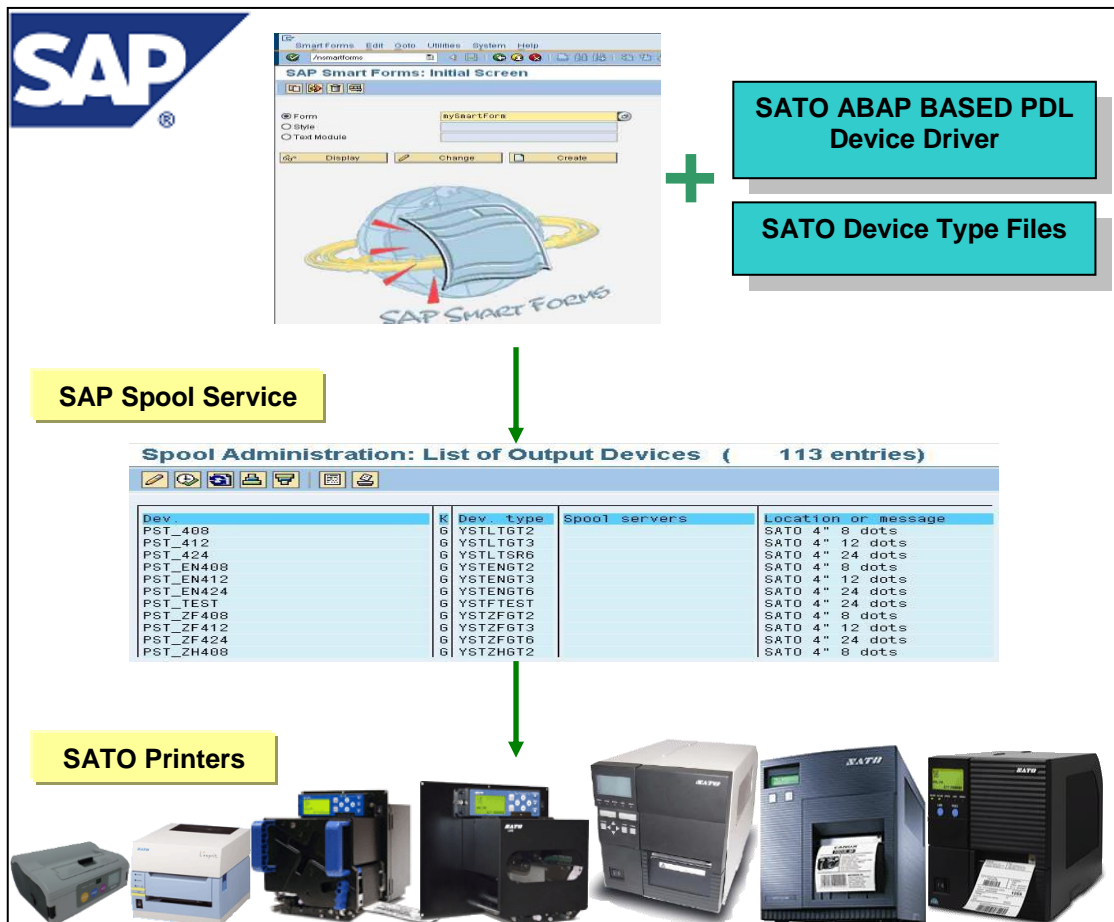


Figure 1 Overview of solution

Please refer to the [SAP Notes: 1135106](https://www.sap.com/support/notes/1135106) for the updated information about the SATO PDL Driver.

Using SATO Device Type

4

The following device types for SATO PDL Driver are available:

Codepage	Name of Device Type	Resolution	Supported Models
Latin1 (ISO8859-1)	YSTLTGT2	203dpi	GT408e S8408 LT408 MB400i **S84-ex 203dpi **S86-ex 203dpi
	YSTLTGT3	305dpi	GT412e S8412 MB410i **S84-ex 305dpi **S86-ex 305dpi
	YSTLTGT6	609dpi	GT424e S8424 **S84-ex 609dpi
	YSTLTGL2	203dpi	GL408e
	YSTLTGL3	305dpi	GL412e
	YSTLTSR2	203dpi	*SR408 *PT408e *MR400e *SG408R *SG408R-ex *SG608R *CL4NX-J 203dpi *CL6NX-J 203dpi
	YSTLTSR3	305dpi	*SR412 *PT412e *MR410e *SG412R *SG412R-ex *SG612R *SG112T/R *CL4NX-J 305dpi *CL6NX-J 305dpi
	YSTLTSR6	609dpi	*SR424 *SG424R *SG424R-ex *CL4NX-J 609dpi
	YSTLTHR6	609dpi	HR224
	YSTLTCN2	203dpi	**CL4NX 203dpi **PW208NX/PW208mNX
	YSTLTCN3	305dpi	**CL4NX 305dpi **FX3-LX
	YSTLTCN6	609dpi	**CL4NX 609dpi

Codepage	Name of Device Type	Resolution	Supported Models
English Only (7-Bit USA ASCII)	YSTENGT2	203dpi	GT408e S8408 **S84-ex 203dpi **S86-ex 203dpi LT408
	YSTENGT3	305dpi	GT412e S8412 **S84-ex 305dpi **S86-ex 305dpi
	YSTENGT6	609dpi	GT424e S8424 **S84-ex 609dpi
	YSTENGL2	203dpi	GL408e
	YSTENGL3	305dpi	GL412e
	YSTENSR2	203dpi	*SR408 *MR400e *SG408R *SG408R-ex *SG608R *CL4NX-J 203dpi *CL6NX-J 203dpi
	YSTENSR3	305dpi	*SR412 *MR410e *SG412R *SG412R-ex *SG612R *SG112T/R *CL4NX-J 305dpi *CL6NX-J 305dpi
	YSTENSR6	609dpi	*SR424 *SG424R *SG424R-ex *CL4NX-J 609dpi
	YSTENHR6	609dpi	HR224
	YSTENCN2	203dpi	**CL4NX 203dpi **PW208NX/PW208mNX
	YSTENCN3	305dpi	**CL4NX 305dpi **FX3-LX
	YSTENCN6	609dpi	**CL4NX 609dpi

Codepage	Name of Device Type	Resolution	Supported Models
Europe Characters (Codepage 850)	YSTCPCL2	203dpi	CL408e, CL608e CT408i M-8459Se M-8485Se M-8460Se M84-Pro2 CG208, CG408 GZ408e WS408 **CL6NX 203dpi
	YSTCPCL3	305dpi	CL412e, CL612e CT412i M-8465Se M-8490Se M10e M84-Pro3 CG212, CG412 GZ412e WS412 **CL6NX 305dpi
	YSTCPCL6	609dpi	M84-Pro6
	YSTCPLM2	208dpi	LM408e
	YSTCPLM3	305dpi	LM412e

Codepage	Name of Device Type	Resolution	Supported Models
Korean (Wansung Encoding, HYR Gothic-Medium)	YSTKOGT2	203dpi	GT408e
	YSTKOGT3	305dpi	GT412e
	YSTKOGT6	609dpi	GT424e
	YSTKOGL2	203dpi	GL408e
	YSTKOGL3	305dpi	GL412e
Korean Unicode (UTF-8)	YSTKUGL2	203dpi	GL408e
	YSTKUGL3	305dpi	GL412e
Traditional Chinese (Big5)	YSTZFGT2	203dpi	GT408e
	YSTZFGT3	305dpi	GT412e
	YSTZFGT6	609dpi	GT424e
	YSTZFGL2	203dpi	GL408e
	YSTZFGL3	305dpi	GL412e
Traditional Chinese Unicode (UTF-8)	YSTFUGL2	203dpi	GL408e
	YSTFUGL3	305dpi	GL412e
Simplified Chinese (GB2312)	YSTZHGT2	203dpi	GT408e
	YSTZHGT3	305dpi	GT412e
	YSTZHGT6	609dpi	GT424e
Simplified Chinese Unicode (UTF-8)	YSTHUGL2	203dpi	GL408e
	YSTHUGL3	305dpi	GL412e
Japanese (Shift-JIS) + English (7-Bit USA ASCII)	YSTJAPT2	203dpi	*PT408e
	YSTJAPT3	305dpi	*PT412e
	YSTJASR2	203dpi	*SR408 *SG408R *SG408R-ex *SG608R *CL4NX-J 203dpi *CL6NX-J 203dpi
	YSTJASR3	305dpi	*SR412 *SG412R *SG412R-ex *SG612R *SG112T/R *CL4NX-J 305dpi *CL6NX-J 305dpi
	YSTJASR6	609dpi	*SR424 *SG424R *SG424R-ex *CL4NX-J 609dpi
	YSTJALP2	203dpi	*L'espritT/R408v *L'espritT/R408v-ex
YSTJALP3	305dpi	*L'espritT/R412v *L'espritT/R412v-ex	

Table 1 Device Types

Note: * denotes Japanese models

Note: ** denotes printer models which should have the LABEL_SIZE value described in a SmartForm when printing. For finding out more regarding filling out label's width and height please refer to the point 6.5.2 and the Figure 62 of this document. The label width value using YSTCPCL2 device type should be 1216 and the value needs to be 1824 when using YSTCPCL3 device type when printing using 6 inch label.

Printer Model	Supported Languages	Device Type
CL4NX xxxdpi PW208NX/PW208mNX FX3-LX	Latin1 (ISO8859-1)	YSTLTCNx
	English (ASCII characters)	YSTENCNx
CL6NX xxxdpi	European Characters (codepage 850)	YSTCPCLx
CL4xxe/CL6xxe	European Characters (codepage 850)	YSTCPCLx
GL4xxe	Latin1 (ISO8859-1)	YSTLTGLx
	English (ASCII characters)	YSTENGLx
	Korean (Wansung Encoding / Unicode)	YSTKOGTx / YSTKUGLx
	Simplified Chinese (Unicode)	YSTHUGLx
	Traditional Chinese (Big5 / Unicode)	YSTZFGLx / YSTFUGLx
GT4xxe	Latin1 (ISO8859-1)	YSTLTGTx
	English (ASCII characters)	YSTENGTx
	Korean (Wansung Encoding)	YSTKOGTx
	Simplified Chinese (GB2312)	YSTZHGTx
	Traditional Chinese (Big5)	YSTZFGTx
S84xx	Latin1 (ISO8859-1)	YSTLTGTx
	English (ASCII characters)	YSTENGTx
S84-ex	Latin1 (ISO8859-1)	YSTLTGTx
	English (ASCII characters)	YSTENGTx
S86-ex	Latin1 (ISO8859-1)	YSTLTGTx
	English (ASCII characters)	YSTENGTx
LT408	Latin1 (ISO8859-1)	YSTLTGTx
	English (ASCII characters)	YSTENGTx
MB4xxi	Latin1 (ISO8859-1)	YSTLTGTx
	English (ASCII characters)	YSTENGTx
M84xxSE	European Characters (codepage 850)	YSTCPCLx
M84-Pro	European Characters (codepage 850)	YSTCPCLx
M10e	European Characters (codepage 850)	YSTCPCLx
CT4xxi	European Characters (codepage 850)	YSTCPCLx
CG2xx/CG4xx	European Characters (codepage 850)	YSTCPCLx
LM4xxe	European Characters (codepage 850)	YSTCPLMx
GZ4xxe	European Characters (codepage 850)	YSTCPCLx
HR224	Latin1 (ISO8859-1)	YSTLTHR6
	English (ASCII characters)	YSTENHR6
WS408	European Characters (Codepage 850)	YSTCPCL2
WS412	European Characters (Codepage 850)	YSTCPCL3
* SR4xx	Latin1 (ISO8859-1)	YSTLTSRx
	English (ASCII characters)	YSTENSRx
	Japanese (Shift-JIS) + English (ASCII)	YSTJASRx
* SG4xxR	Latin1 (ISO8859-1)	YSTLTSRx
	English (ASCII characters)	YSTENSRx
	Japanese (Shift-JIS) + English (ASCII)	YSTJASRx
* SG4xxR-ex	Latin1 (ISO8859-1)	YSTLTSRx
	English (ASCII characters)	YSTENSRx
	Japanese (Shift-JIS) + English (ASCII)	YSTJASRx
* SG6xxR	Latin1 (ISO8859-1)	YSTLTSRx

	English (ASCII characters)	YSTENSRx
	Japanese (Shift-JIS) + English (ASCII)	YSTJASRx

Printer Model	Supported Languages	Device Type
* SG112T/R	Latin1 (ISO8859-1)	YSTLTSRx
	English (ASCII characters)	YSTENSRx
	Japanese (Shift-JIS) + English (ASCII)	YSTJASRx
* MR4xx	Latin1 (ISO8859-1)	YSTLTSRx
	English (ASCII characters)	YSTENSRx
* PT4xxe	Latin1 (ISO8859-1)	YSTLTSRx
	Japanese (Shift-JIS) + English (ASCII)	YSTJASRx
* L'esprit/R4xxv	Japanese (Shift-JIS) + English (ASCII)	YSTJALPx
* L'esprit/R4xxv-ex	Japanese (Shift-JIS) + English (ASCII)	YSTJALPx
* CL4NX-J xxxdpi	Latin1 (ISO8859-1)	YSTLTSRx
	English (ASCII characters)	YSTENSRx
	Japanese (Shift-JIS) + English (ASCII)	YSTJASRx
* CL6NX-J xxxdpi	Latin1 (ISO8859-1)	YSTLTSRx
	English (ASCII characters)	YSTENSRx
	Japanese (Shift-JIS) + English (ASCII)	YSTJASRx

Table 2 Supported Languages of Device Types

Note: * denotes Japanese models (YSTJAxxx version also support English ASCII font)

The following printer models support RFID Gen2 Barcode printing with SATO PDL Driver:

- CL4xxe
- CL6xxe
- GL4xxe
- GT4xxe / SR4xx
- M84xxSE
- S-84xx

* Ultra-High-Frequency (UHF) is used for the RFID encoding for the above printer models.

To print Asian languages from GT/SR or GL printer, language memory cartridge is needed:

Language Pack	Part Number
GT Korean Memory Cartridge	WWGT0590C
GT Simplified and Traditional Cartridge	WWGT0590K
GL Simplified Chinese Memory Cartridge	WWGL159BC
GL Traditional Chinese Memory Cartridge	WWGL159DC
GL Korean Memory Cartridge	WWGL159FK
SR Japanese Cartridge	WSR401910

Table 3 Memory Cartridge and Part No.

The instruction of importing the PDL Device Driver can be found in the SAP Wizard Note: [Note 1103422 - SAP Printer Vendor program: Installing device types, etc.](#)

Copy the transport files to the proper locations in SAP system:

- a. Copy the K*.PVD to the Cofile folder located at \usr\sap\trans\cofile
- b. Copy the R*.PVD to the Data folder located at \usr\sap\trans\data

Logon to the SAP ECC Dev System and open transaction STMS (Browse or type “STMS” in the transaction code area)

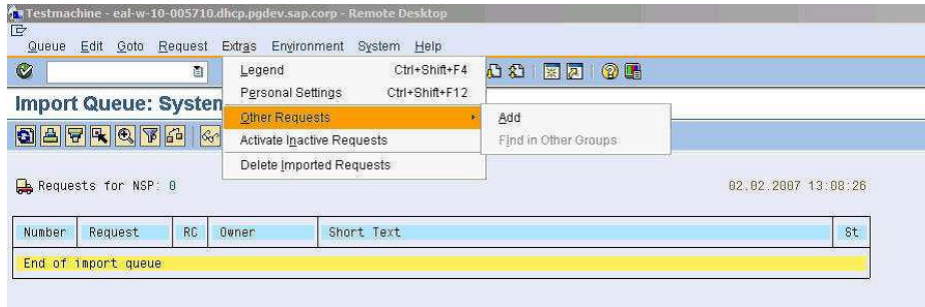


Figure 2 Adding transport request for PDL Device Driver

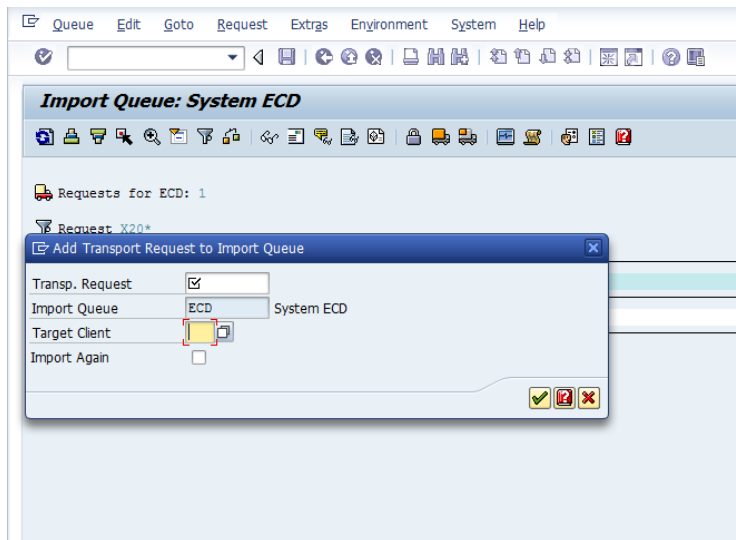


Figure 3 Enter target client and search for transport request

Search for the desired transport using the *wildcard selection and the transport file name (do not include the .PVD extension)

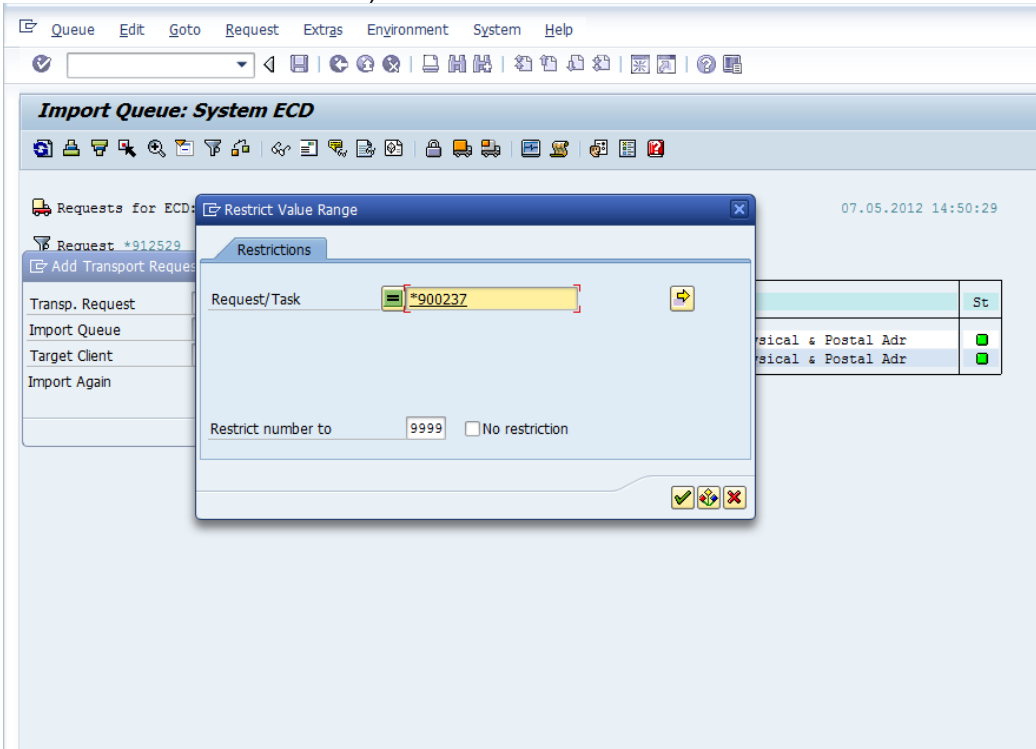


Figure 4 Search for transport file name

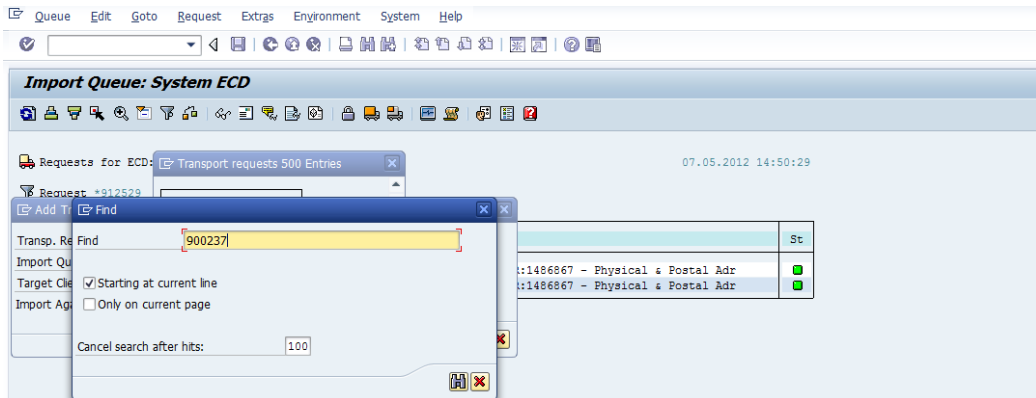


Figure 5 Identify desire transport number

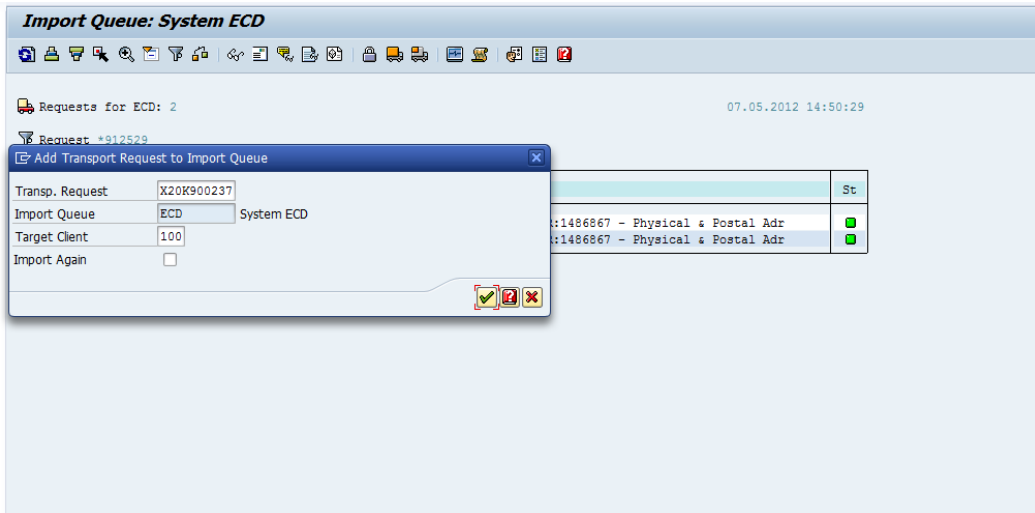


Figure 6 Verify transport request

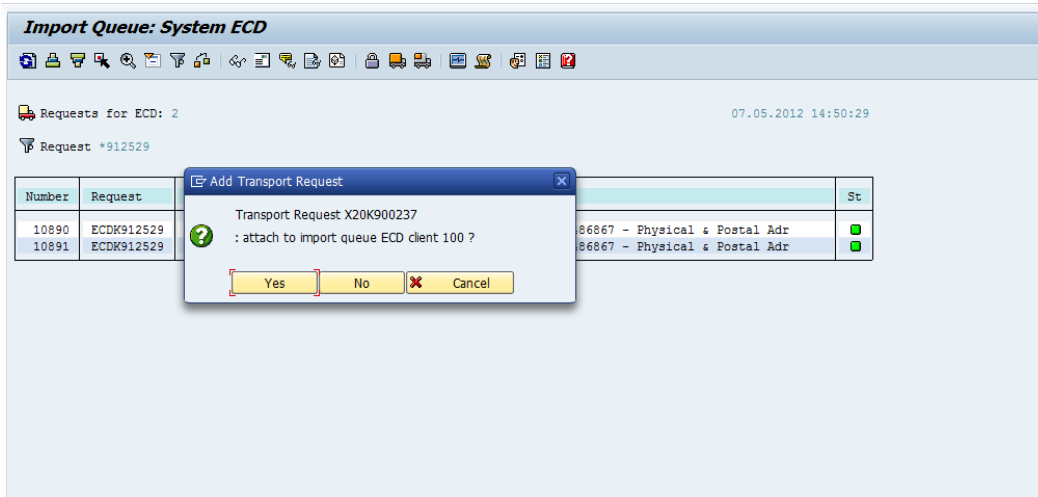


Figure 7 Confirm the transport request by click on Yes button

The SATO Device Type has to be uploaded into the SAP system by using the program 'RSTXSCR' in the transaction code 'se38'.

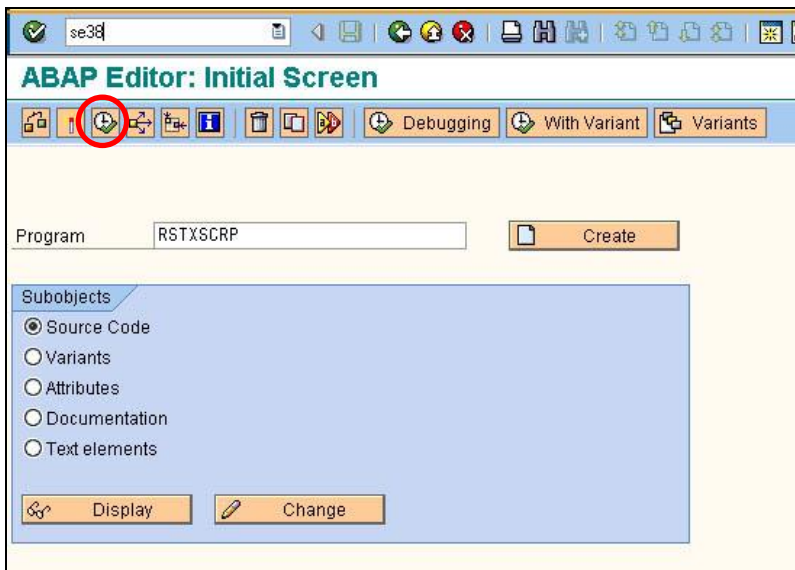


Figure 8 Uploading SATO Device Type

Click 'F8' to execute the command. The following screen will be displayed:

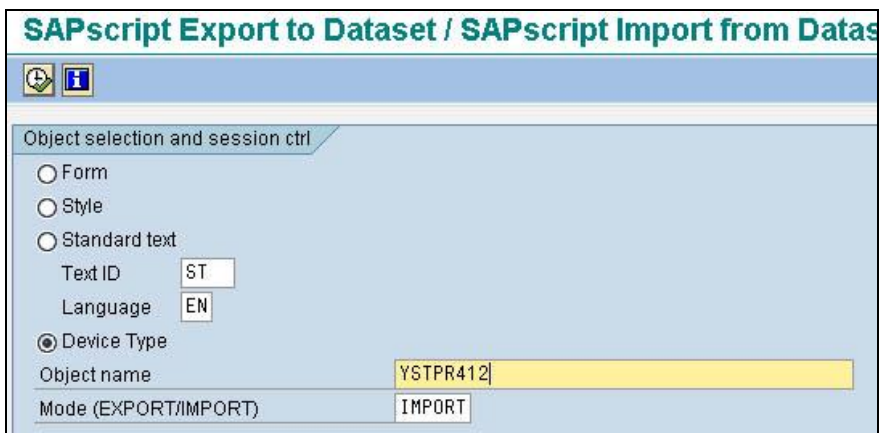


Figure 9 Importing Device Type file

Click on the radio button on 'Device Type'. Change the Mode (EXPORT/IMPORT) to 'IMPORT'. Then key in a name to represent the Device Type.

Note: The name must start with 'YST'. It should contain 8 characters. The object name must match with the file name of the device type (without the extension).

Click the Execute button (F8) to continue.

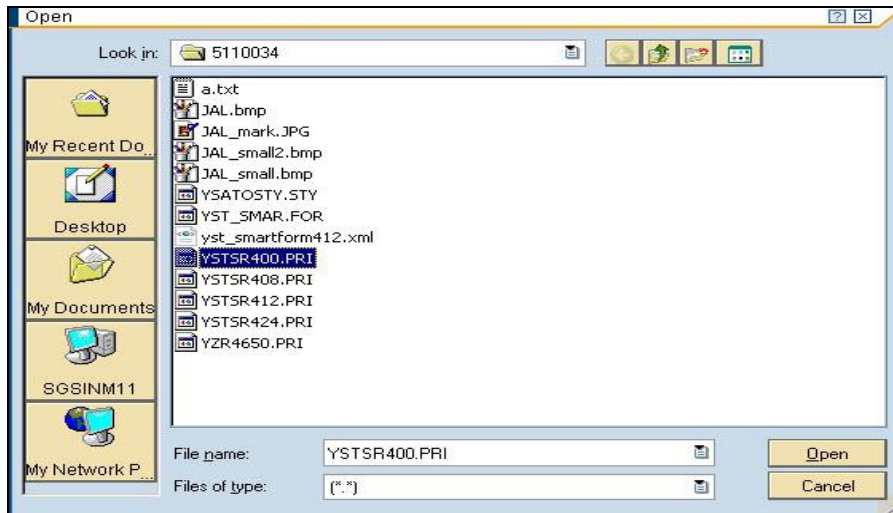


Figure 10 Selecting device type file

Creating Output Device

5

Enter '/nspad' transaction code to go to the Spool Administration application.

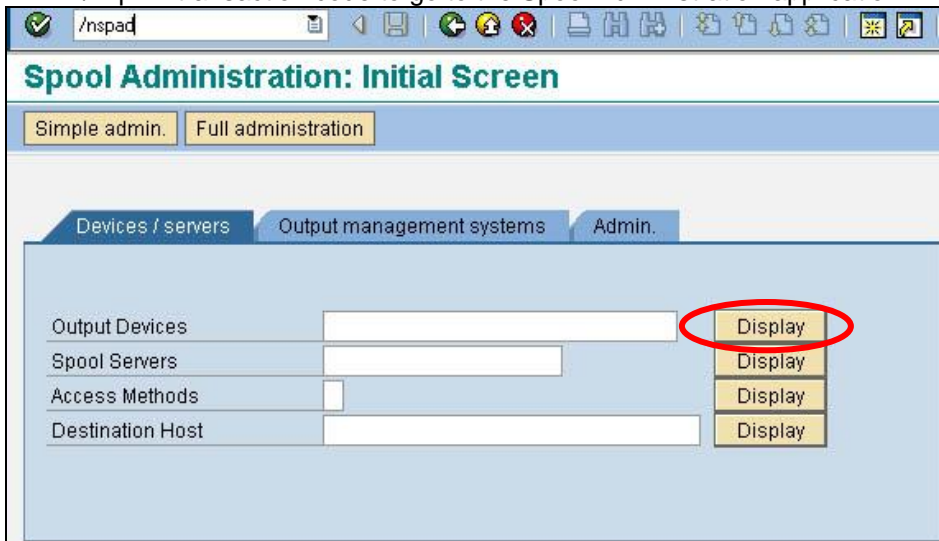


Figure 11 Creating Output Device

Under the Devices/Servers tab, click on “Display” button for ‘Output Devices’.

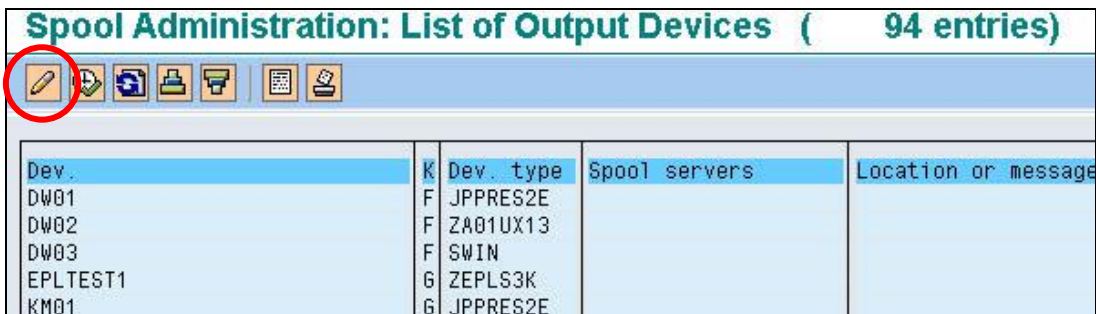


Figure 12 Click on the 'Edit' button to change the Edit mode



Figure 13 Edit Mode buttons

Click on the ‘Create’ button to create a new Output Device.

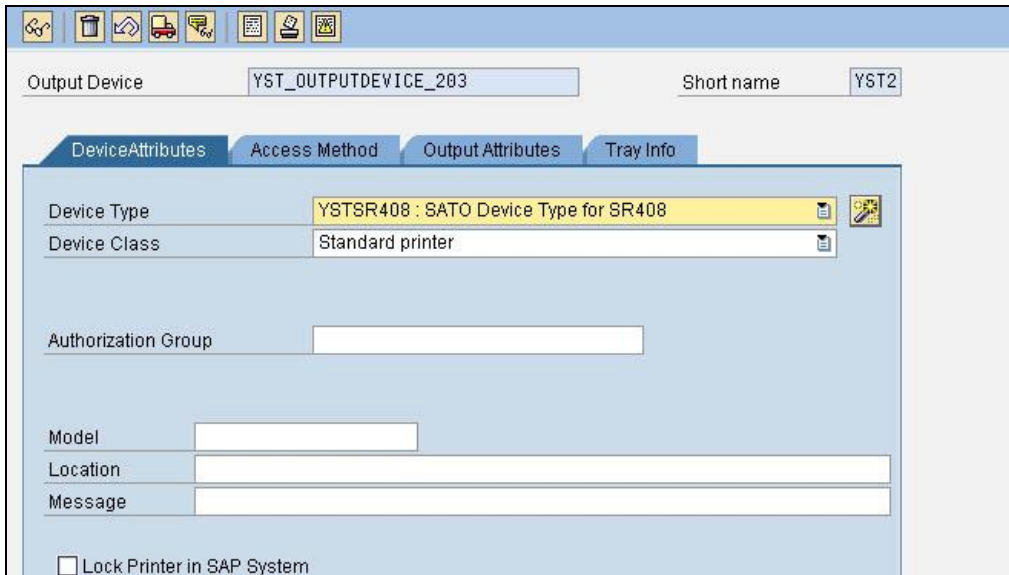


Figure 14 Defining Output Device

Enter a meaningful name in the textbox for Output Device. In the drop-down list of Device Type, select the Device Type you have previously uploaded into the SAP system.

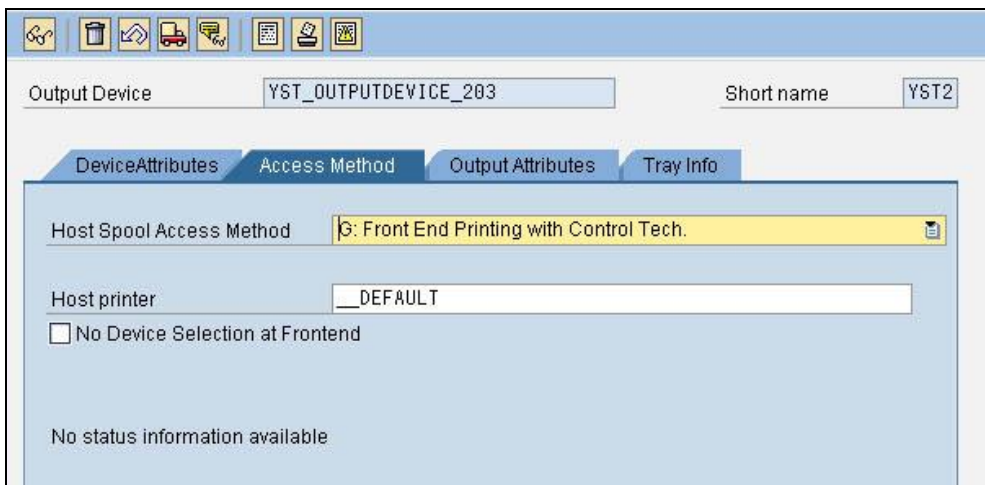


Figure 15 Defining Printing Method

Under the 'Access Method', define your Host Spool Access Method. In the above example, method "G: Front End Printing with Control Tech" will prompt user to select a list of installed printer driver under the 'Printer and Faxes' in your Windows platform.

Note: Method G is used here just for the simplicity during testing.

Save the setting once the necessary information has been entered.

Functionalities of SATO-SAP Printer Driver

6

'SAP ABAP-Based Printer Driver for SATO printers' provides the following printing features:

6.1 Barcode

Both SAP traditional and new barcode symbology are supported. (Please refer to SAP notes: 430887 and 645158 for more information about the barcode symbology).

For New Barcode Technology (NBT), user only needs to define the barcode in SE73 transaction as System Barcode. The NBT supports the following barcodes:

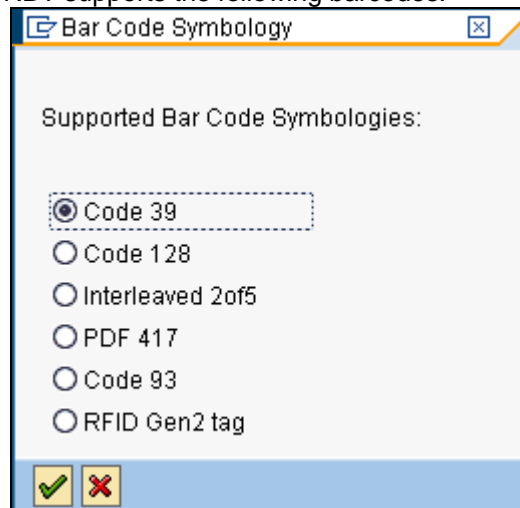


Figure 16 Barcodes in New Barcode Technology

For Traditional (old) Barcode, user needs to create the required barcode definition as System Barcode in SE73. Then link the barcode definition to the print control as Printer Barcode. The following shows the provided Print Control in SATO Device Types:

Barcode Type	SAP Print Control	SBPL command
Postnet	SBP07	ESC+BP
UUC/EAN128	XB012	ESC+BI
NW-7 (Codabar, Ratio 1:3)	XB101-XB112	ESC+B0<module width>
Interleaved 2 of 5 (Ratio 1:3)	XB121-XB132	ESC+B2<module width>
JAN/EAN13 (Ratio 1:3)	XB141-XB152	ESC+B3<module width>
JAN/EAN8 (Ratio 1:3)	XB161-XB172	ESC+B4<module width>
UPC-A (Ratio 1:3)	XB181-XB192	ESC+BH<module width>
NW-7 (Codabar, Ratio 1:2)	XB201-XB212	ESC+D0<module width>
Interleaved 2 of 5 (Ratio 1:2)	XB221-XB232	ESC+D2<module width>
JAN/EAN13 (Ratio 1:2)	XB241-XB252	ESC+D3<module width>
JAN/EAN8 (Ratio 1:2)	XB261-XB272	ESC+D4<module width>
UPC-A (Ratio 1:2)	XB281-XB292	ESC+DH<module width>
NW-7 (Codabar, Ratio 2:5)	XB301-XB312	ESC+BD0<module width>

Interleave 2 of 5 (Ratio 2:5)	XB321-XB332	ESC+BD2<module width>
JAN/EAN13 (Ratio 2:5)	XB341-XB352	ESC+BD3<module width>
JAN/EAN8 (Ratio 2:5)	XB361-XB372	ESC+BD4<module width>
UPC-A (Ratio 2:5)	XB381-XB392	ESC+BDH<module width>
Code 39 (Ratio 1:3)	XB501-XB512	ESC+B1<module width>
Code 39 (Ratio 1:2)	XB521-XB532	ESC+D1<module width>
Code 39 (Ratio 2:5)	XB541-XB552	ESC+BD1<module width>
Code 93	XB561-XB572	ESC+BC<module width>

Table 4 Barcode Print Controls

- Note: **The SATO PDL Driver supports Barcode Code 128 Type-A, Type-B, Type-C and Auto-Switch.** Please refer to [SAP Note: 645158](#) for the approach to use this barcode.

6.1.1 Defining Barcode

Before a Barcode can be used in the Smart Forms, the definition of the Barcode must be made.

SE73 – SAPScript Font Maintenance

Enter Transaction code **SE73** to enter to the following screen.

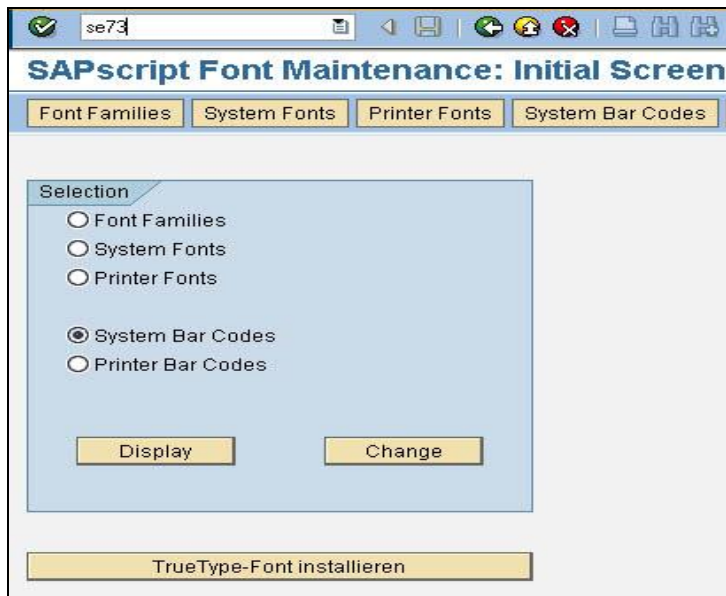


Figure 17 Transaction Code 73 – SAPScript Font Maintenance

Choose the 'System Bar Codes' and then click the 'Change' button to go the following screen.

System Bar Codes Edit Goto Environment System Help

SAPscript Font Maintenance: Change System Bar Codes

Bar Code	Description	Min.	Max.	Width	Unit	Height	Unit	Barcode Type	Rotatn.
C128B_01	Code 128B, r=090, n.txt,h= 5mm	01	15	4.00	CM	0.50	CM	C128_B	090
CD39C_00	Code39 w.chk, n.txt,h= 5mm	01	15	4.00	CM	0.50	CM	C39	000
CD39C_01	Code39 w.chk,r=090,n.txt,h=5mm	01	15	4.00	CM	0.50	CM	C39	090
CD39_00	Code39 n.chk, n.txt,h= 5mm	01	15	4.00	CM	0.50	CM	C39	000
CD39_01	Code39 n.chk,r=090,n.txt,h=5mm	01	15	4.00	CM	0.50	CM	C39	090
KUNAUNR	Kundenauftragsnummer	10	10	4.00	CM	1.20	CM		000
KUNAUPS	Kundenauftragsposition	06	06	4.00	CM	1.20	CM		000
MBBARC	Test Barcode Bestandsführung	10	10	5.00	CM	2.00	CM		000
MBBARC1	Test Barcode 1 Bestandsführung	10	14	5.00	CM	1.20	CM		000
RSNUM	Reservierungsnummer	10	10	4.00	CM	1.20	CM		000
RSP05	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
YST20F5	SATO Barcode Int. 2of5 1:3	02	24	2.00	CM	2.00	CM	20F5	000
YSTC128A	SATO Code 128 code A	Code 128					ModW06 H00150Mode A Chk Y		Normal
YSTC39_1	SATO Code 39 Ratio 1:3	Code 39					ModW06 H00150Chk Y Ratio 30		Normal
YSTC39_2	SATO Code 39 Ratio 1:2	Code 39					ModW06 H00150Chk Y Ratio 20		Normal
YSTC39_3	SATO Code 39 Ratio 2:5	Code 39					ModW06 H00150Chk Y Ratio 25		Normal
YSTCODAB	SATO CODABAR barcode Ratio 1:3	12	12	5.00	CM	1.30	CM	CODABAR	000
YSTEAN13	SATO EAN 13 Barcode Ratio 1:3	12	13	5.00	CM	1.30	CM	EAN13	000
YSTEAN8	SATO EAN 8 Barcode Ratio 1:3	07	08	5.00	CM	1.30	CM	EAN8	000
YSTPDF	SATO PDF417 Barcode	PDF 417					ModW03 H00150SeclV 3RowH 00010		Normal
YSTPOST5	SATO POSTNET 5 Barcode	05	05	5.00	CM	1.30	CM	POSTNET	000
YSTR128A	SATO Code 128 code A Rotate 90	Code 128					ModW06 H00150Mode A Chk Y		Rotated
YSTUPCA	SATO UPC_A Barcode Ratio 1:3	12	12	5.00	CM	1.30	CM	UPC_A	000
ZCD128A	Code 128	Code 128					ModW05 H00250Mode A Chk Y		Normal
ZCD39	Code 39	Code 39					ModW07 H00250Chk Y Ratio 30		Normal
ZCD93	Code93	Code 93					ModW06 H00200Chk Y		Rotated
ZCD93N	Code 93 normal orientation	Code 93					ModW06 H00200Chk Y		Normal
ZINT25	Interleaved 2of5	Interleaved 2of5					ModW08 H00250Chk Y Ratio 25		Normal
ZP417	PDF 417	PDF 417					ModW07 H00250SeclV 0RowH 00010		Normal

Figure 18 System Barcode screen

Click the 'Create' button or press 'F5' key to create a new System Barcode definition.



Figure 19 Create Button

6.1.2 New Barcode Technology

The following describes how to create a barcode with new Barcode Technology.

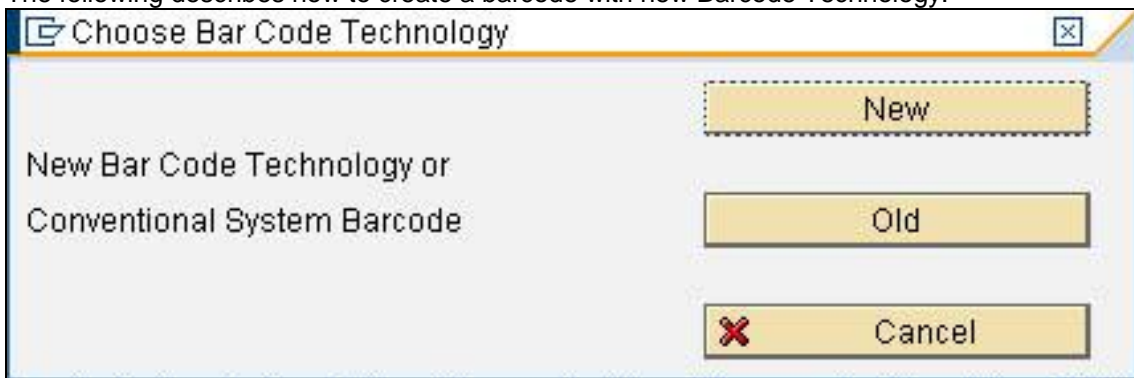


Figure 20 Choosing Barcode Technology

The 'New Barcode Technology' supports the following barcodes:

- Code39
- PDF417
- Code93
- 2 of 5 Interleaved
- Code128

Click on the 'New' button to enter the following screen.

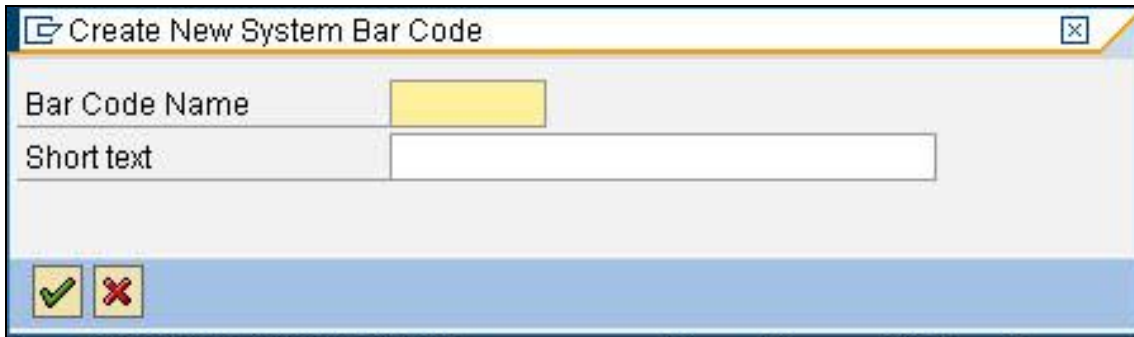


Figure 21 Entering Barcode information

For SATO barcode, it is recommended to define a Barcode name with prefix 'YST'. For example, to define a new Code39 barcode, the following Barcode name can be used:

YSTCd39

Enter some description on the textbox for 'Short text'. Press the tick button to continue.

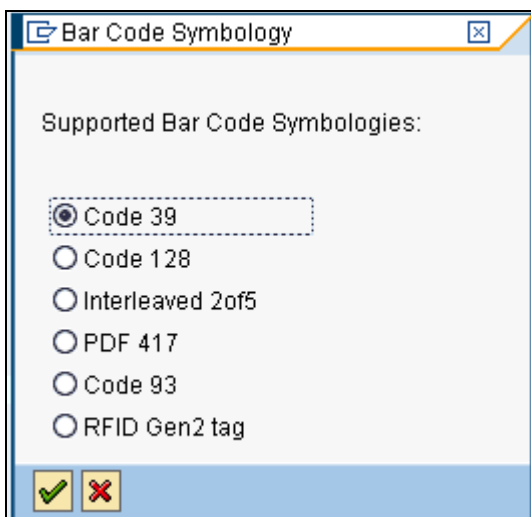


Figure 22 Selecting the Barcode Type

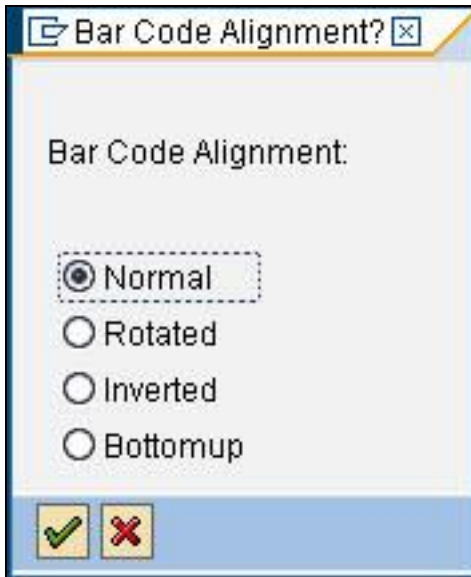


Figure 23 Choosing the Barcode alignment

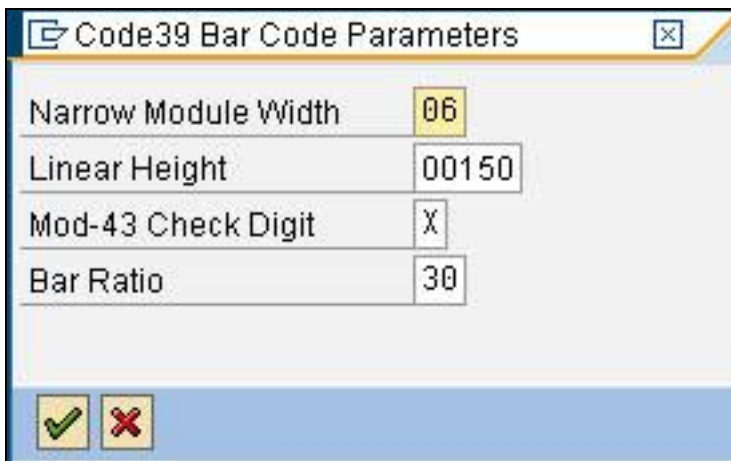


Figure 24 Entering Barcode Information

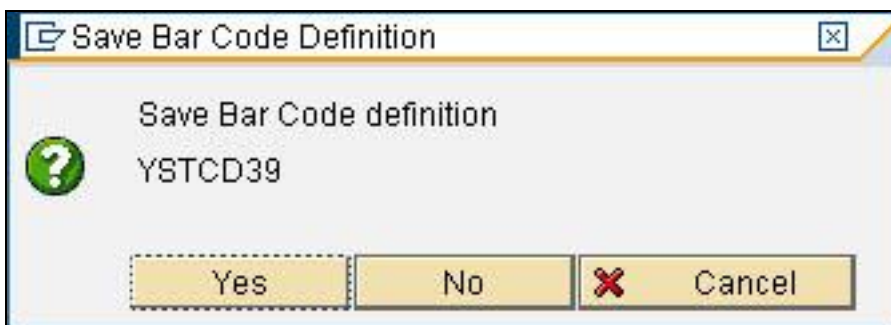


Figure 25 Saving the Barcode definition



Figure 26 Saving the definition to workspace

That is all for the System Barcode definition. The next step will be defining the Printer Barcode in order to link the System Barcode to the Printer Control in the device type.

6.1.3 New Technology Barcode

For more information about the SATO Barcode printing command, please refer to the printer command specifications.

Code 39

This barcode is to start and end with '*' characters. If the given data is not started and ended with the '*' character, then the SATO-SAP printer driver will add the characters to the data automatically.

The printer will generate a 'beep' sound if invalid data is given.

Code 93

The maximum number of data for this barcode is 99. The printer, not the printer driver, will generate a check digit when the data is printed on the printer.

Code 128

For example, if the data '123456' was given, the following SBPL command will be generated by the printer driver: ... **BG03158>H123456**.

Please refer to [SAP Note: 645158](#) for input approach for the Barcode Code 128. If unexpected values were received by the SATO PDL Driver, the barcode might not be printed.

Interleaved 2 of 5

The given data of this barcode must be even number. If odd number data is given, SATO-SAP printer driver will generate a '0' in front of the given data.

For example,

If '12345' was given, the barcode with value '012345' will be printed.

PDF 417

Minimum module width can be set to 01 and 02; however, this may not be read properly.

Note: For rotated PDF417 Barcode, the printed location on the label might differ from what shown on the print preview. User might want to adjust the position in the Smart Forms to get the required positioning.

RFID Gen2 Tag

User is to enter the necessary data based on the following descriptions:

RFID Attribute:	Representation in barcode field data:
EPC value	EPC:xxxxxxxxxxxxxxxxxxxxxxxxxxxx; (xxxxxxxxxxxxxxxxxxxxxxxxxxxx is 24 digit hex value representing 12 bytes)
PC value	PC:xxxxxxxxxxxxxxxxxxxxxxxxxxxx; (xxxxxxxxxxxxxxxxxxxxxxxxxxxx is 24 digit hex value representing 12 bytes) (SATO Device Driver does not support this feature)
USR value	USR:xxxxxxxxxxxxxxxxxxxxxxxxxxxx; (xxxxxxxxxxxxxxxxxxxxxxxxxxxx is 24 digit hex value representing 12 bytes)
ACS passcode	ACS:yyyyyyyy; (yyyyyyyy is 8 digit hex value representing 4 bytes)
LOCKMASK	LM:yy; yy is 2 digit hex value representing 1 byte: 0x01 – Lock EPC+PC 0x02 – Perma-lock EPC+PC 0x04 – Lock USR 0x08 – Perma-lock USR (only Lock EPC and Lock USR are supported by SATO Device Driver)
KILL passcode	KILL:yyyyyyyy; (yyyyyyyy is 8 digit hex value representing 4 bytes)

Table 5 RFID Attributes

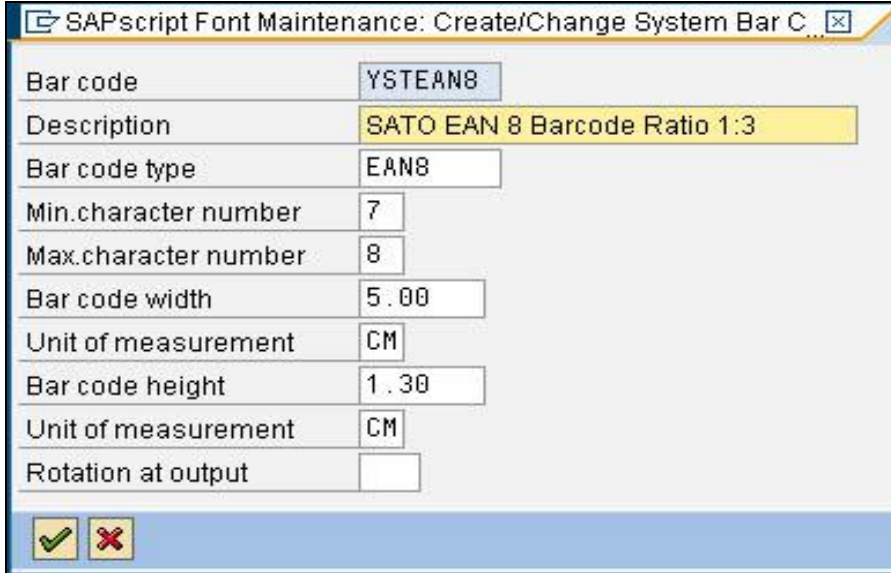
Examples:

Barcode data field contents:	Meaning:
EPC:F2A07895C1710708090A0B0C;	Numerical (hexadecimal) data for EPC
USR:F2A07895C171010203040506;EPC:019975F3ABB0010203040506;	Numerical data for USR and EPC banks
EPC:112233445566010203040506;ACS:1224489F;LM:01;	Numerical data for EPC bank, ACS passcode for LOCK operation is 1224489F, Memory banks EPC+PC are locked
EPC:1122334455660708090A0B0C;USR:0112248D8F060708090A0B0C;ACS:1234567A;LM:0A;	Numerical data for EPC and USR banks, ACS passcode for PERMALOCK operation is 1234567A, Memory banks EPC+PC and USR are perma-locked
EPC:123456789ABC0708090A0B0C;KILL:1234567F;	Numerical data for EPC, KILL passcode is 1234567F

Table 6 RFID input examples

6.1.4 Old Barcode Technology (Conventional System Barcode)

Click the 'Old' button (as in [Figure 20 Choosing Barcode Technology](#)) to define a Barcode with Old Barcode Technology.



The screenshot shows a dialog box titled "SAPscript Font Maintenance: Create/Change System Bar C...". It contains the following fields:

Bar code	YSTEAN8
Description	SATO EAN 8 Barcode Ratio 1:3
Bar code type	EAN8
Min.character number	7
Max.character number	8
Bar code width	5.00
Unit of measurement	CM
Bar code height	1.30
Unit of measurement	CM
Rotation at output	<input type="checkbox"/>

At the bottom left, there are two buttons: a green checkmark and a red 'X'.

Figure 27 Defining Barcode with Old Barcode Technology

* In Old Barcode Technology, there is no way to define the Barcode Module Width. Thus, print controls with such information have been defined. User is to select the print control which carries required Barcode Module Width.

6.1.5 Old Technology Barcode

Interleaved 2 of 5

The given data of this barcode must be even number. If odd number data is given, SATO-SAP printer driver will generate a '0' in front of the given data.

For example,

If '12345' was given, the barcode with value '012345' will be printed.

CODABAR

The barcode includes start and stop characters: A,B,C,D,E,N,T,a,b,c,d,e,n,t. If the given data is not started and ended with the start/stop characters, then the SATO-SAP printer driver will embedded the data with Start/Stop character 'A'.

POSTNET

The SATO-SAP printer driver supports the US Postal Service POSTNET barcode with the following formats:

- 5 digits (Postnet-32 format)
- 6 digits (Postnet-37 format)
- 9 digits (Postnet-52 format)
- 11 digits (Postnet-62 Delivery Point format)

If data with other formats than above was given, the SATO printer will generate a 'beep' sound to indicate invalid data.

UPC Barcode Type A

The data of this barcode should be 11 digits + 1 check digit. If user supplies 12 digits data, then SATO-SAP printer driver will assume the last digit is the given check digit. Else, the driver will generate the check digit.

EAN 8 Barcode

The data of this barcode should be 7 digits + 1 check digit. If user supplies 8 digits data, then SATO-SAP printer driver will assume the last digit is the given check digit. Else, the driver will generate the check digit based on Modulo 10 formula.

EAN 13 Barcode

The data of this barcode should be 12 digits + 1 check digit. If user supplies 13 digits data, then SATO-SAP printer driver will assume the last digit is the given check digit. Else, the driver will generate the check digit based on Modulo 10 formula.

Code 39

Code39 is an alphanumeric code that can represent the following characters in the bar code data:

Numbers: 1234567890

Capital letters: ABCDEFGHIJKLMNOPQRSTUVWXYZ

Special characters: - . \$ / + %

Blank characters (space characters)

The start and stop character for the Code39 bar code is represented by an asterisk (*) in the text view of the bar code data (also called "human-readable text" or "interpretation line").

If the given data is enclosed in asterisk (*), no check digit will be generated by the driver.

Code 93

Code93 is an alphanumeric code that can represent the following characters directly in the bar code data:

Numbers: 1234567890

Capital letters: ABCDEFGHIJKLMNOPQRSTUVWXYZ

Special characters: - . \$ / + %

Blank characters (space characters)

6.1.6 Defining Printer Barcodes

Once the System Barcode (Old Technology) has been defined, then proceed to define the printer barcode. **Note: This step is not required for barcode defined with New Barcode Technology.**

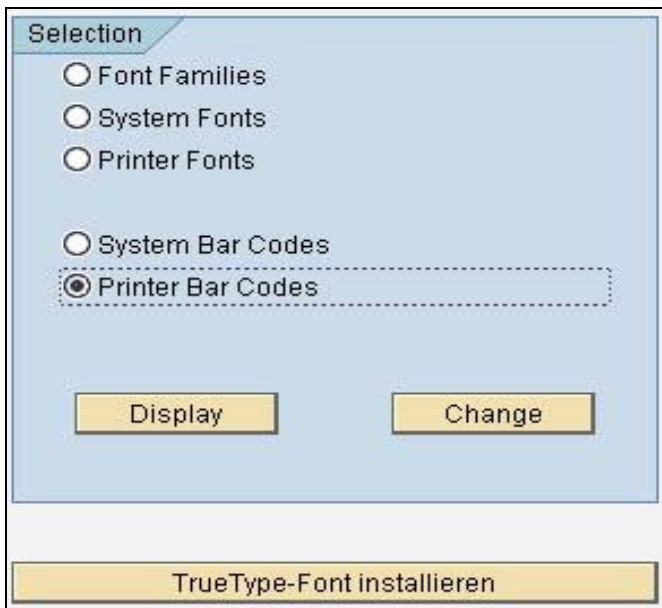


Figure 28 Printer Barcode Definition

Choose the 'Printer Barcodes' and then click the 'Change' button to create a Printer Barcode definition.

SAPscript Font Maintenance: Change Printer Bar Codes	
Device Type	Description
THSPOST	Thai PostScript printing
TOPCALL	TOPCALL Telefax
TOPCALLT	TOPCALL: Teletex
TOPCALLX	TOPCALL: Telex
TROYMICR	TROY MICR printer
TW5577	IBM5577
TWHPLJ4	HP LaserJet PCL-5 Trad.Chinese
TWLX522	Lexmark T522 Tradit. Chinese
TWPDF	PDF Converter Tradit. Chinese
TWSAPWIN	MS Windows driver via SAPLPD
TWSPPOST	Taiwanese PostScript printing
UCPLAIN	SAPscript RDI (Unicode)
XDF	SAP Smart Forms: XDF Ausgabe
XFP	XFP Ausgabe
XSF	SAP Smart Forms: XSF Ausgabe
YPRP7000	PTX P7000 P-Series Emul.
YPTP7000	PTX P7000 P-Series Emul.
YSTJP400	SATO Device Type-203dpi (JP)
YSTSR400	SATO Device Type for SR400
YSTSR412	SATO Device Type for SR412
YSTSR424	SATO Device Type for SR424
YZR43-L1	HP LJ 4300/LJ 4200 R4.5+
YZR4650	IP65C R4.5+
ZA00U015	ZA00 family generic (4210)
ZBS_TEST	Zebra label printer 203dpi
ZCFPCL5	Casc.Fonts PCL5 SAP Demo !
ZEPLS3K	EPSON LP-S3000 ESC/Page BW
ZEPLS3KP	EPSON LP-S3000 Postscript B/W
ZEPLS4K	EPSON LP-S4000 ESC/Page BW
ZEPLS4KP	EPSON LP-S40000 Postscript B/W
ZEPLTST	EPSON LP-xxxx ESC/Page series

Figure 29 Device List for Printer Barcodes

Double click the SATO device type which starts with prefix 'YST'.

SAPscript Font Maintenance: Change Printer Bar Codes

Maint. Print Control

Device Type	Bar Code	Prefix	Suffix	Baseline Alignment
YSTSR408	BC_CD39	SB102	SB102	<input type="checkbox"/>
YSTSR408	YST20F5	SB124	SB124	<input type="checkbox"/>
YSTSR408	YSTC128A	SB005	SB005	<input type="checkbox"/>
YSTSR408	YSTC39_1	SB002	SB002	<input type="checkbox"/>
YSTSR408	YSTC39_2	SB003	SB003	<input type="checkbox"/>
YSTSR408	YSTC39_3	SB004	SB004	<input type="checkbox"/>
YSTSR408	YSTCODAB	SB104	SB104	<input type="checkbox"/>
YSTSR408	YSTEAN13	SB144	SB144	<input type="checkbox"/>
YSTSR408	YSTEAN8	SB165	SB165	<input type="checkbox"/>
YSTSR408	YSTPDF	SB006	SB006	<input type="checkbox"/>
YSTSR408	YSTPOST5	SB007	SB007	<input type="checkbox"/>
YSTSR408	YSTR128A	SB005	SB005	<input type="checkbox"/>
YSTSR408	YSTUPCA	SB184	SB184	<input type="checkbox"/>

Figure 30 Printer Barcode List in the device type

Click on the 'Create' button or 'F5' key to create a new definition of Printer Barcode.

Name of an SAP bar code (1) 57 Entries found

Restrictions

Bar code Description

CD39__00	Code39 n.chk, n.bt,h= 5mm
CD39__01	Code39 n.chk,r=090,n.bt,h=5mm
CD39C_00	Code39 w.chk, n.bt,h= 5mm
CD39C_01	Code39 w.chk,r=090,n.bt,h=5mm
KUNAUNR	Kundenauftragsnummer
KUNAUPS	Kundenauftragsposition
MBBARC	Test Barcode Bestandsführung
MBBARC1	Test Barcode 1 Bestandsführung
RSNUM	Reservierungsnummer
RSPOS	Reservierungsposition
RUECKNR	Rueckmeldenummer
TYPNR	Typennummer
YST20F5	SATO Barcode Int. 2of5 1:3
YSTC128A	SATO Code 128 code A
YSTC39_1	SATO Code 39 Ratio 1:3
YSTC39_2	SATO Code 39 Ratio 1:2
YSTC39_3	SATO Code 39 Ratio 2:5
YSTCD39	SATO Barcode Code 39
YSTCODAB	SATO CODABAR barcode Ratio 1:3

57 Entries found

SAPscript Font Maintenance: ...

Device type YSTSR408

Bar code

Bar code prefix

Bar code suffix

Baseline Alignment

Figure 31 Defining Printer Barcode

Select the System Barcode which has been defined previously from the entry list. Then key in the required Print Control. Note: Key in the same print control for both 'Bar code prefix' and 'Bar code suffix'.

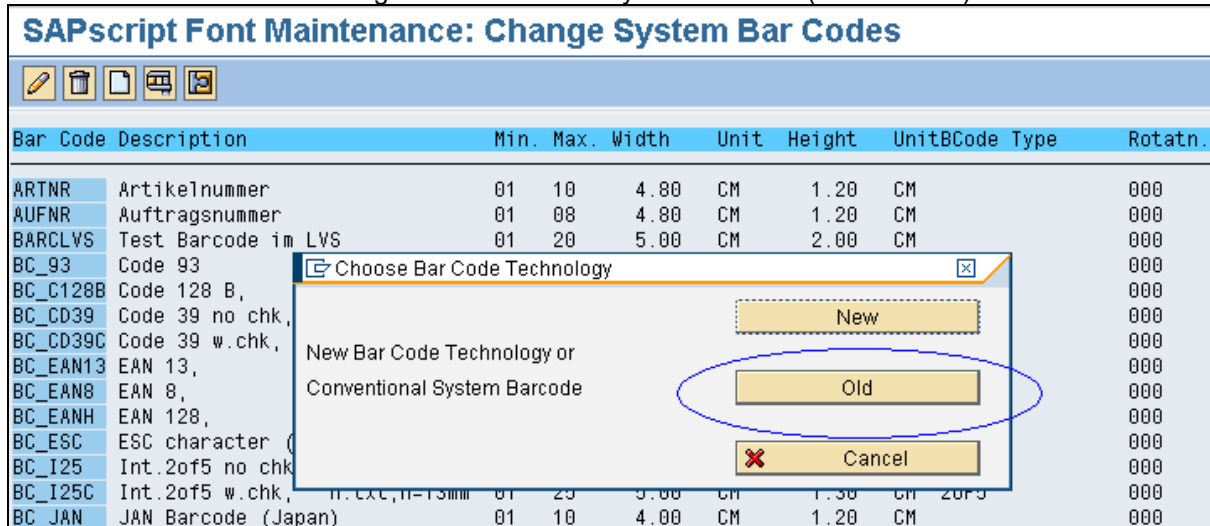
Refer to [Table 4 Barcode Print Controls](#) for the available print control definition in the device type.

6.1.7 Customized Barcode with UNDEF

Note that this task should only be performed by advanced users. Please contact Sato technical team at global.sysdev-gbs@sato-global.com should you have any queries.

If the printer-resident (such as GS1-128) is not supported in SAP, customized print control can be added into the device type and “UNDEF” barcode type can be used to map to the print control.

UNDEF is only in Old Barcode Technology. To start with UNDEF, go to SE73->System Bar codes to define a Barcode using the Conventional System Barcode (choose 'Old')



6.1.7.1 GS1-128 Barcode with UNDEF

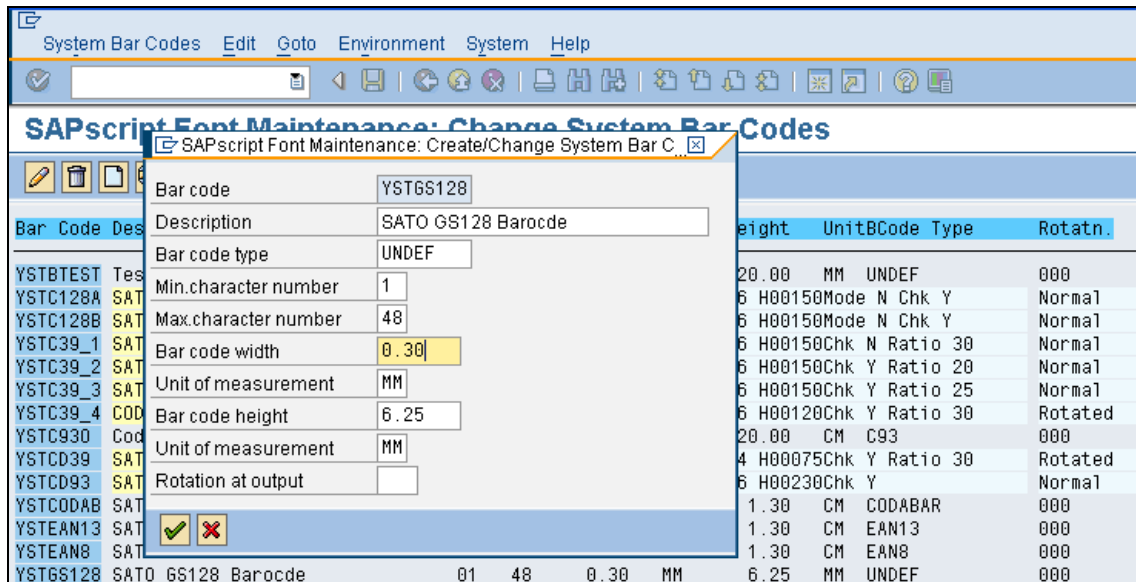


Figure 32 Customized Barcode Definition

- i. Create Customized Barcode Definition
Go to SE73->System Bar Codes to create a GS1-128 Barcode definition (Figure 32 Customized Barcode Definition). Use “UNDEF” as the Bar code type. Note that the “Bar code width” of the above definition will not be used.

ii. Create Print Control in device type

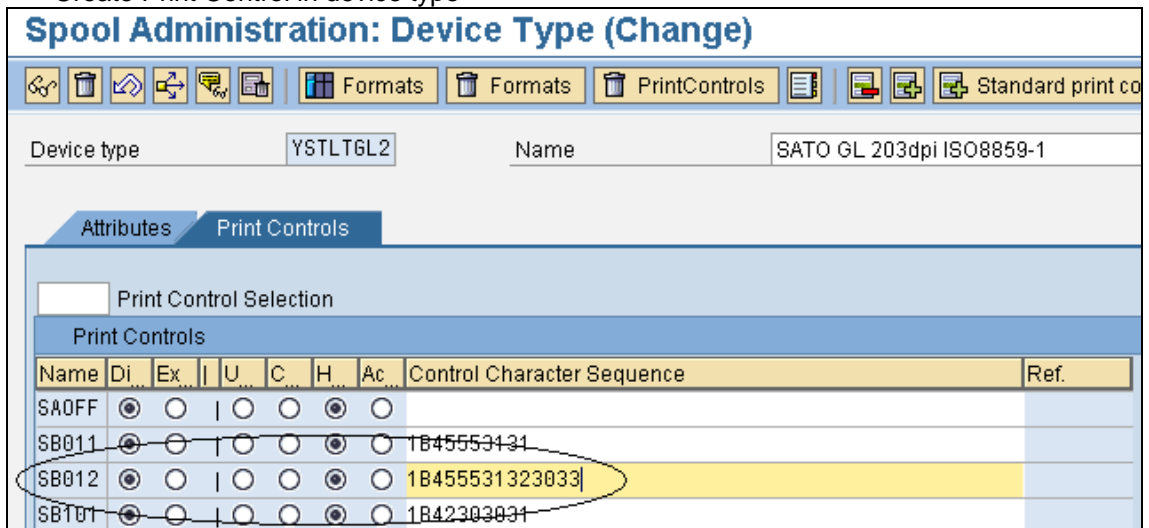


Figure 33 Defining Print Control in Device type

Use [SPAD->Full Administration->Device Types](#) to open the Print Controls tab of the device type. Add a new barcode print control (Prefix SB) and input the hex value of Control Character Sequence. In this example, the hex value of "<Esc>EU1203" is entered for Print Control SB012.

This print control defines Sato Barcode commands for GS1-128 (UCC/EAN128) with CC-C with Narrow Barcode with = 3 dots. The Barcode Height will be extracted from the Barcode Definition ([Figure 32 Customized Barcode Definition](#)). The Barcode Data will be supplied from SmartForms or SAP Database.

iii. Mapping of Barcode Definition to Print Control

Go to [SE73->Printer Bar Codes](#)

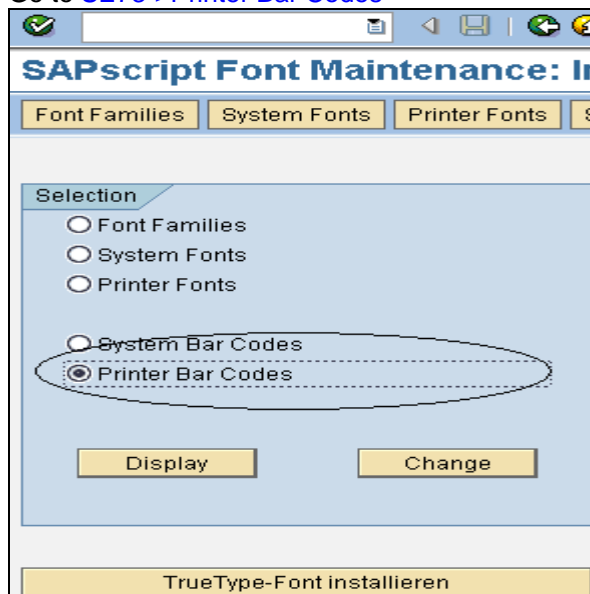


Figure 34 Mapping of Print Control

Click on the Device Type to add the barcode mapping to Print Control.

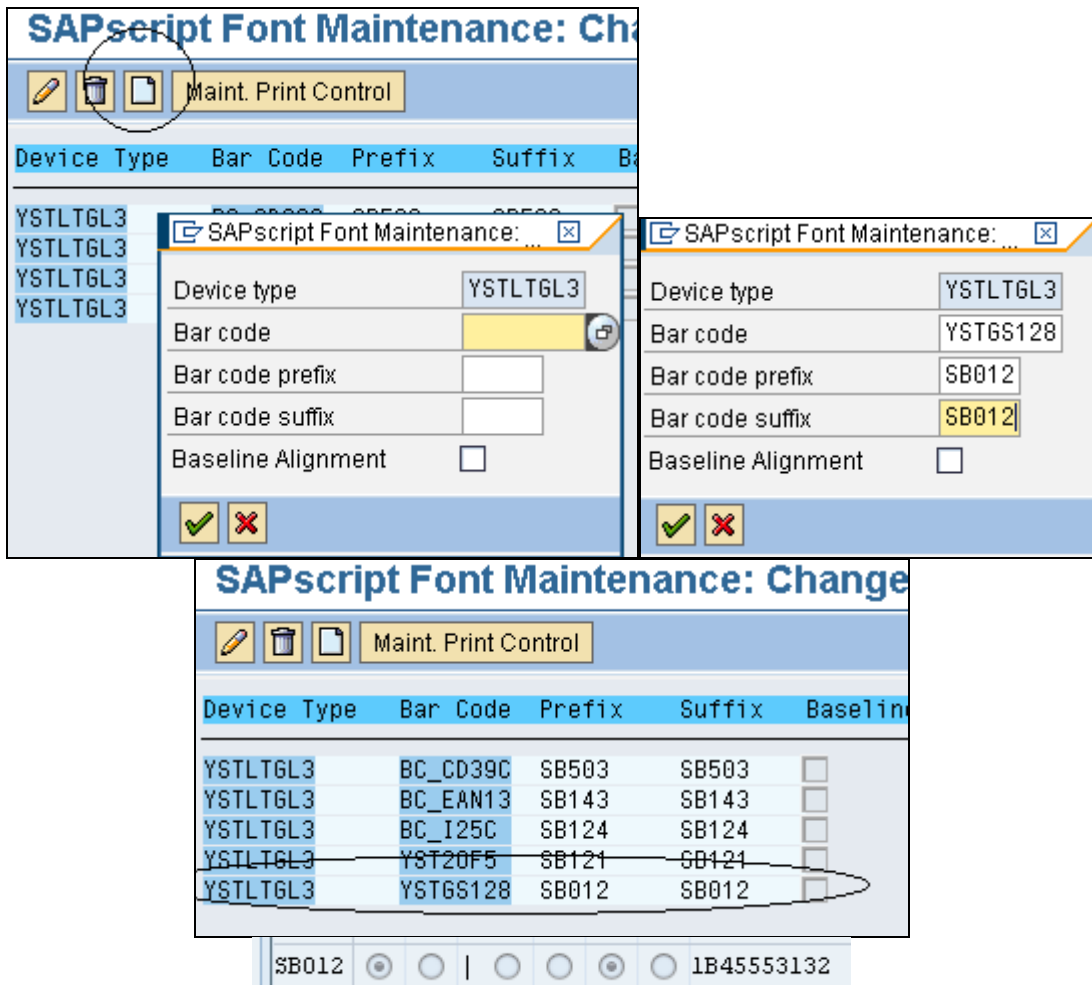


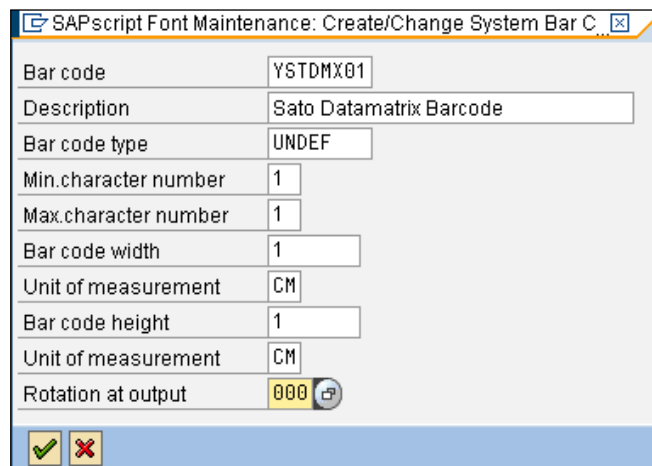
Figure 35 Mapping of Print Control

6.1.7.2 GS1 Datamatrix Barcode with UNDEF

6.1.7.2.1 Create a new Barcode Definition.

Note:

1. The name of the Barcode must start with “**YSTDMX**”. This is how the Sato Device Driver identifies this as the Barcode Definition for Datamatrix.
2. The Barcode Type must be **UNDEF**.
3. The rest of the parameters (except Rotation) will not be used by Sato Device Driver for the Datamatrix barcode. Those parameters has to be defined inside the Print Control as below.



6.1.7.2.2 Define the Print Control information in the device type

Spool Administration: Device Type (Change)

Device type: YSTLT6L2 Name: SATO GL 203dpi ISO8859-1

Attributes **Print Controls**

Print Control Selection

Name	Di	Ex		U	C	H	Ac	Control Character Sequence	Ref.
SABLD	<input checked="" type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>		
SAOFF	<input checked="" type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>		
SB011	<input checked="" type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	1B45553131	
SB012	<input checked="" type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	1B45553132	
SB013	<input checked="" type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	1B4258303131303032303230303030303030311B4443	
SB014	<input checked="" type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>		
SB101	<input checked="" type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	1B42303031	

SB013 defines the prefix which carries the following Sato Print Commands:

Font ID: 01
 Error correction level: 20 (ECC200)
 Cell width: 02
 Cell pitch: 02
 No. of cells per line: 000
 No. of cell lines: 000
 Mirror image: Normal (Standard print)
 <ESC> B X 0 1 **20** 0 2 0 2 0 0 0 0 0 0 0 1
 <ESC> D C

The height and the width of the barcode are controlled by the cell width and pitch:

Example 1)

Cell width: 05, Cell pitch 05

<Esc> B X 0 1 **20** 0 5 0 5 0 0 0 0 0 0 0 1

Output:



Example 2)

Cell width: 09, Cell pitch 09

<Esc> B X 0 1 **20** 0 9 0 9 0 0 0 0 0 0 0 1

Output:

SAPscript Font Maintenance: Change Printer Bar Codes

Maint. Print Control

Device Type	Bar Code	Prefix	Suffix	Baseline Alignment
YSTLT6L2	BC_CD39	SB503	SB503	<input type="checkbox"/>
YSTLT6L2	BC_CD39C	SB502	SB502	<input type="checkbox"/>
YSTLT6L2	BC_EAN13	SB142	SB142	<input type="checkbox"/>
YSTLT6L2	YST20F5	SB124	SB124	<input type="checkbox"/>
YSTLT6L2	YSTCODAB	SB104	SB104	<input type="checkbox"/>
YSTLT6L2	YSTEAN13	SB144	SB144	<input type="checkbox"/>
YSTLT6L2	YSTEAN8	SB165	SB165	<input type="checkbox"/>
YSTLT6L2	YSTUPCA	SB184	SB184	<input type="checkbox"/>

SAPscript Font Maintenance: ...

Device type: YSTLT6L2

Bar code: YSTDMX01

Bar code prefix: SB013

Bar code suffix: SB014

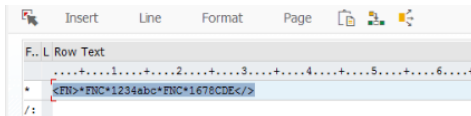
Baseline Alignment:

Select the Barcode Definition created previously, and map it to the print controls.

6.1.7.2.4 FNC Special Characters in GS1 Datamatrix Command

The logic applied in order to produce the command containing the FNC special character(s) is as the same as this paragraph states doing that originally for the command not having the special character within but:

- The name of the Barcode must start with "YSTQDM".
- The SmartForm's tag generating the final FNC special character must be the "**FNC**"



- The example Hex string generating the <ESC>2D51,10,10,000,000<ESC>DN command might look like: "1B324435312C31302C31302C3030302C3030301B444E".

Command Format

<2D51>.aa,bb,ccc,ddd

Parameters:

- a [Horizontal cell size] = Valid Range : 01 to 99 dots
- b [Vertical cell size] = Valid Range : 01 to 99 dots
- c [Number of cell in one line] = Valid Range : 010 to 144000 : (Auto-setting)
- d [Number of cell lines] = Valid Range : 008 to 144 000 : (Auto-setting)

Data part

<DN>mmmm,n~n

Parameters:

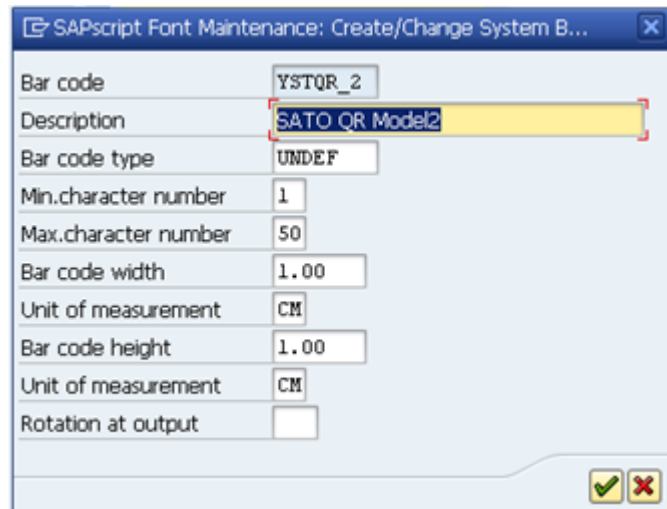
- m [Number of data] = Valid Range : 1 to 3116
- n [Print data] = Data

6.1.7.3 QR Barcode with UNDEF

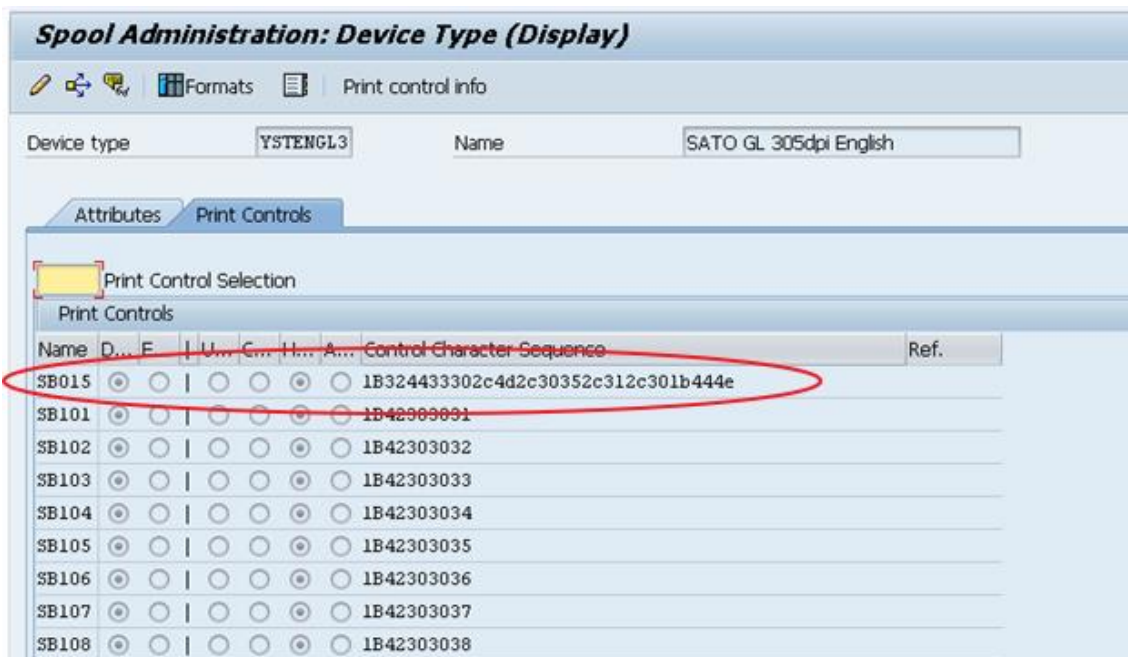
6.1.7.3.1 Create a new Barcode Definition.

Note:

4. The name of the Barcode must start with “**YSTQR_**”. This is how the Sato Device Driver identifies this as the Barcode Definition for QR Code.
5. The Barcode Type must be **UNDEF**.
6. The rest of the parameters (except Rotation) will not be used by Sato Device Driver for the QR barcode. Those parameters has to be defined inside the Print Control as below.



6.1.7.3.2 Define the Print Control information in the device type



SB015 defines the prefix which carries the following Sato Print Commands:

Entered command in

Hex: 1B324433302c4d2c30352c312c301b444e

ASCII: 2D30,M,05,1,0 DN

Command Format: <2D30>,a,bb,c,d

SBPL Command: <ESC>2D30

Parameters:

- a Error Correction = L: 7%, M: 15%, Q: 25%, H: 30%
- b Cell Size= 01 to 32 dots
- c Data Setting Mode = 0: Manual, 1: Auto
- d Concentration Mode = 0: Normal, 1 Concentration Mode (using 1 required more parameters)

For Data Part

Command Format : <DN>mmm,n-n

SBPL Command : <ESC>DN

Parameters:

m No of data = 1 to 2953

n data = Print Data

6.1.7.3.3 Mapping the Barcode Definition to Print Control

Go to SE73->Printer Bar codes. Create the mapping in the device type.

SAPscript Font Maintenance: Change Printer Bar Codes

Device Type	Bar Code	Prefix	Suffix	Baseline Alignment
YSTENGL3	BC_CD39C	SB503	SB503	<input type="checkbox"/>
YSTENGL3	BC_EAN13	SB143	SB143	<input type="checkbox"/>
YSTENGL3	BC_I25C	SB124	SB124	<input type="checkbox"/>
YSTENGL3	YST20F5	SB121	SB121	<input type="checkbox"/>
YSTENGL3	YSTDMX01	SB013	SB014	<input type="checkbox"/>
YSTENGL3	YSTGS128	SB012	SB012	<input type="checkbox"/>
YSTENGL3	YSTQR_2	SB015		<input type="checkbox"/>

Configuration Panel (SAPscript Font Maintenance...):

- Device type: YSTENGL3
- Bar code: YSTQR_2
- Bar code prefix: SB015
- Bar code suffix:
- Baseline Alignment:

Maintain Print Control Dialog:

- Device type: YSTENGL3
- Print control: SB015
- Variant: 1
- Hexadecimal switch:
- Standard setting:
- Control Char. Seq.: 1B324433302c4d2c30352c312c301b444e

Select the Barcode Definition created previously, and map it to the print controls.

6.2 Fonts

SATO-SAP Printer Driver supports the following fonts:

Latin 1 (ISO8859-1 codepage) device types:

SAP Font	SATO Font	Type	SBPL Command
HELVETICA	CG Triumvirate	Scalable	ESC+RDB
TIMES	CG Times	Scalable	ESC+RDA

English only device types:

SAP Font	SATO Font	Type	SBPL Command
HELVETICA	CG Triumvirate	Scalable	ESC+RDB
TIMES	CG Times	Scalable	ESC+RDA
COURIER BOLD (optional Italic)	Helvetica Outline Font, fixed character pitch	Scalable	ESC+\$B, ESC+\$=
LETGOTH	SATO Fixed Size M Font	Bitmap, fixed size	ESC+M
LNPRINT	SATO Fixed Size S Font	Bitmap, fixed size	ESC+S

Codepage 850 device types :

SAP Font	SATO Font	Type	SBPL Command
HELVETICA	CG Triumvirate	Scalable	ESC+RDB
TIMES	CG Times	Scalable	ESC+RDA
COURIER BOLD (optional Italic)	Helvetica Outline Font, fixed character pitch	Scalable	ESC+\$B, ESC+\$=

Codepage 850 for LM4xxe device types :

SAP Font	SATO Font	Type	SBPL Command
HELVETICA (optional Italic)	Helvetica Outline Font, proportional character pitch	Scalable	ESC+\$A, ESC+\$-
COURIER BOLD (optional Italic)	Helvetica Outline Font, fixed character pitch	Scalable	ESC+\$B, ESC+\$=
LETGOTH	SATO Fixed Size XM Font	Bitmap, fixed size	ESC+XM
LNPRINT	SATO Fixed Size XS Font	Bitmap, fixed size	ESC+XS
COUR_I7	SATO Fixed Size XU Font	Bitmap, fixed size	ESC+XU

Korean (Wangsung Encoding/Unicode) device types:

SAP Font	SATO Font	Type	SBPL Command
KPBATANG Proportional	HYR Gothic-Medium	Scalable	ESC+RDK

Simplified Chinese (GB2312/Unicode) device types:

SAP Font	SATO Font	Type	SBPL Command
CNSONG Proportional	MKaiSO-Medium-U	Scalable	ESC+RDC

Traditional Chinese (Big 5/Unicode) device types:

SAP Font	SATO Font	Type	SBPL Command
TWSONG Proportional	MHeiS-Bold -U	Scalable	ESC+RDc

Japanese (Shift-JIS) + English ASCII device types:

SAP Font	SATO Font	Type	SBPL Command
DBGothic, DBMincho, JPMincho	SATO Japanese resident bitmap font	Bitmap, fixed size	ESC+K
HELVETICA ^	CG Triumvirate	Scalable	ESC+RDB
TIMES ^	CG Times	Scalable	ESC+RDA
COURIER BOLD * (optional Italic)	Helvetica Outline Font, fixed character pitch	Scalable	ESC+\$B, ESC+\$=

Note: * YSTJAPT_x not supported, ^ YSTJALP_x not supported

Table 7 Supported font in SATO-SAP Printer Driver

For Fixed size SATO Resident Font, please refer to the Font Appendix for a list of supported size of the font.

Note:

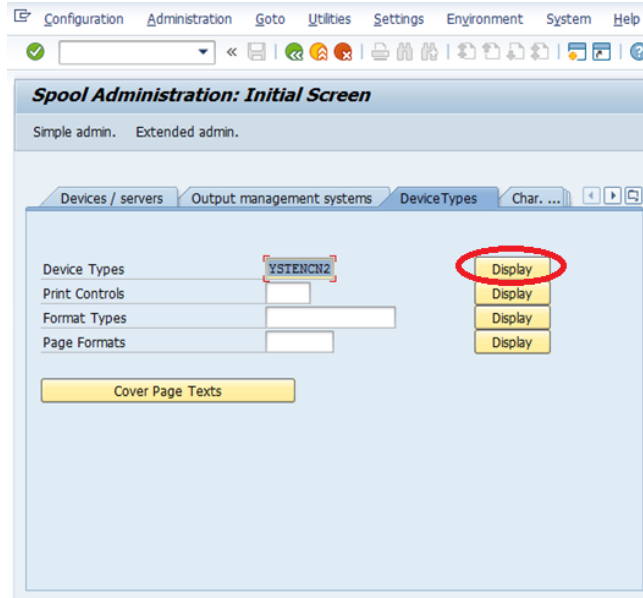
1. SATO 203dpi printer does not support printing of 8 point or lower Courier Font (ESC+\$A, ESC+\$B, ESC+\$=). It will be printed in a slightly larger size instead.
2. There could be some discrepancies of the string length shown on SmartForms and what printed from printer. This is because when converting the SAP font point size into SATO font dot size for specific resolution, there is a rounding up of fractions in the calculation.
3. For Japanese device types which offer SATO Resident Bitmap fonts, the Japanese text will appear shorter than what shown on the print preview of SmartForms. This is because the width of the 1-byte characters in the SAP Japanese fonts is 0.5 time of the 2-byte characters. But in SATO Japanese fonts, the width of the 1-byte characters is slightly larger, about 0.6 times, of the 2-byte characters.

6.2.1 Unicode Printing for NX Series

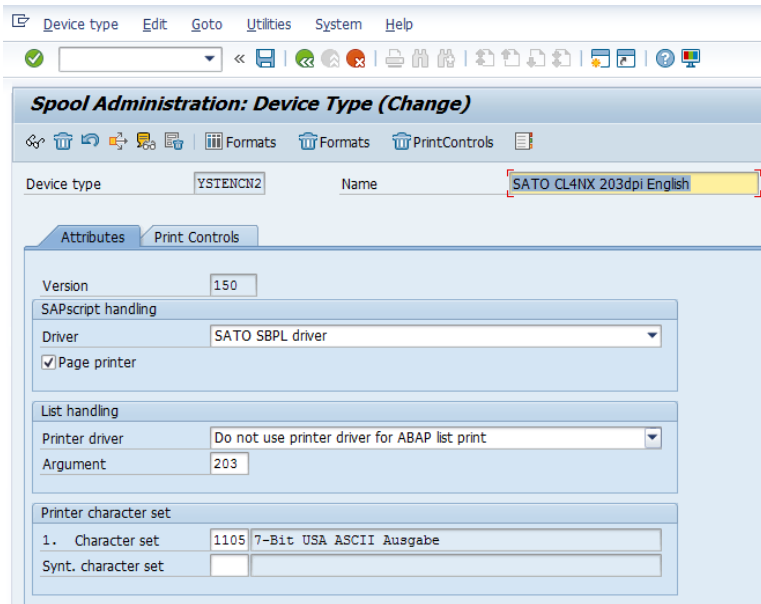
This section is about making of the device type Unicode printing for NX Series printers.

Creating Printer Font

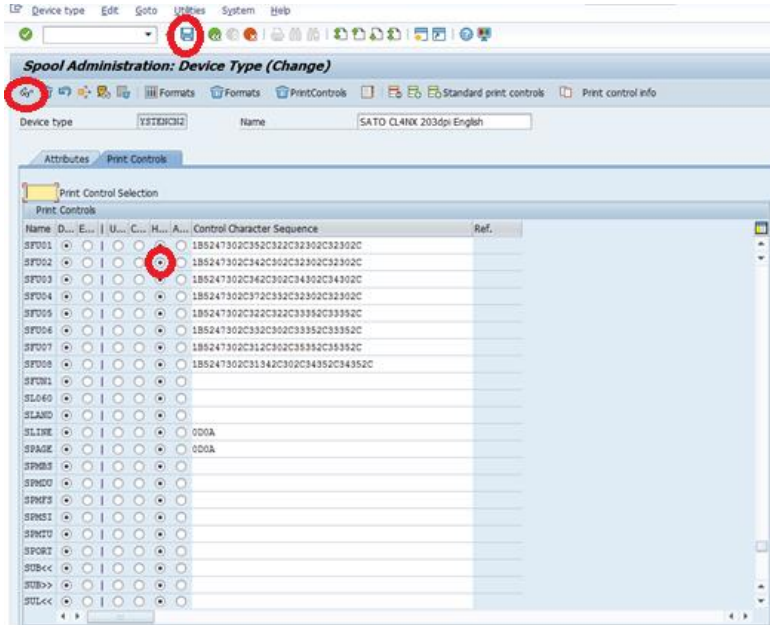
Please go to Spool Administration and choose a correct device type which you would like to use



Select a "Print Controls" tab

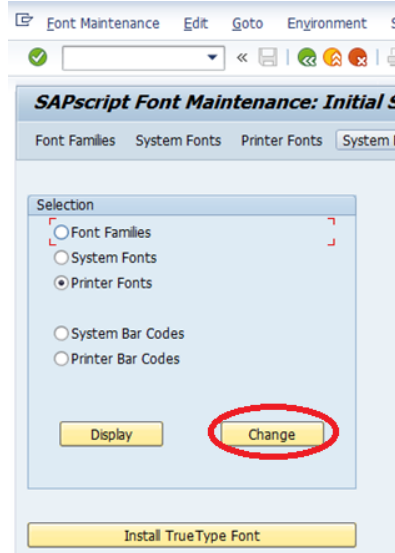


Click on the „Change” button to edit the values, key-in the new e.g SFU01 into the “Name” row section, check “Hexadecimal” radio button, type the correct value into the “Control Character Sequence” and press “Save” button. The meaning of HEX values has been elaborated further in this chapter.

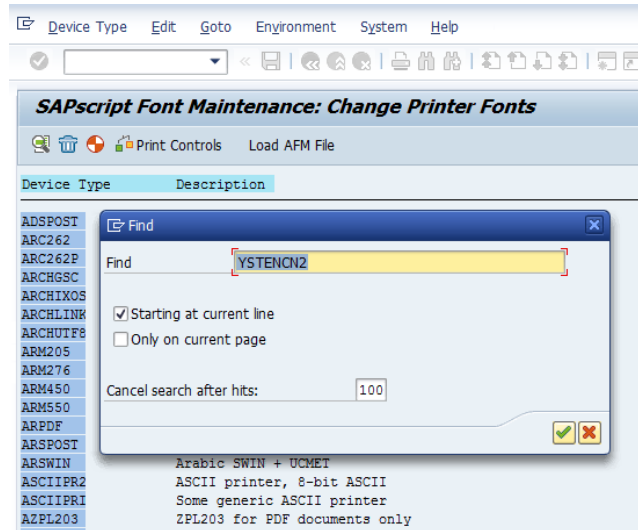


The control character sequence name must start “SFU” prefix containing two digit numbers only at its end, for example: “SFU01”, “SFU02”, “SFU15” etc.

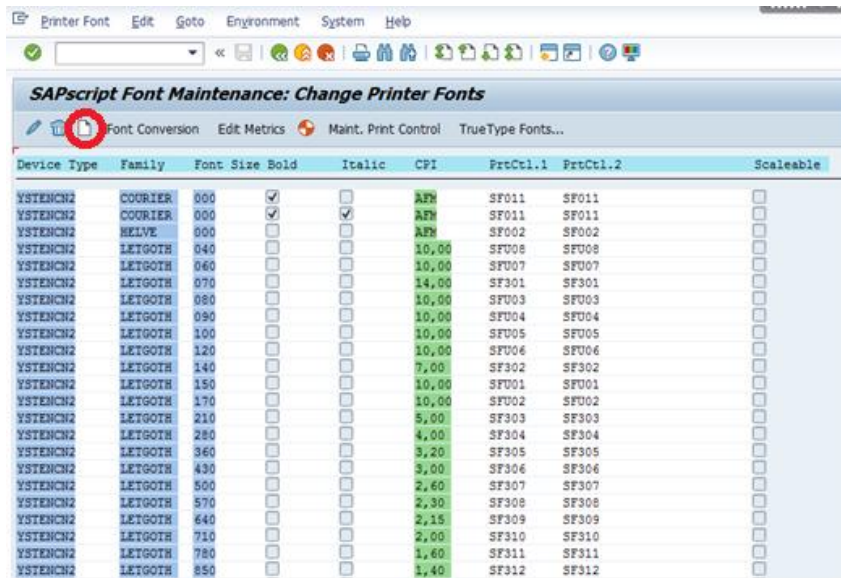
Please use SE73 transaction, select “Printer Fonts” and click on the “Change” button.



Use CTRL+F keys combinations to find your device type and click on the device type later.



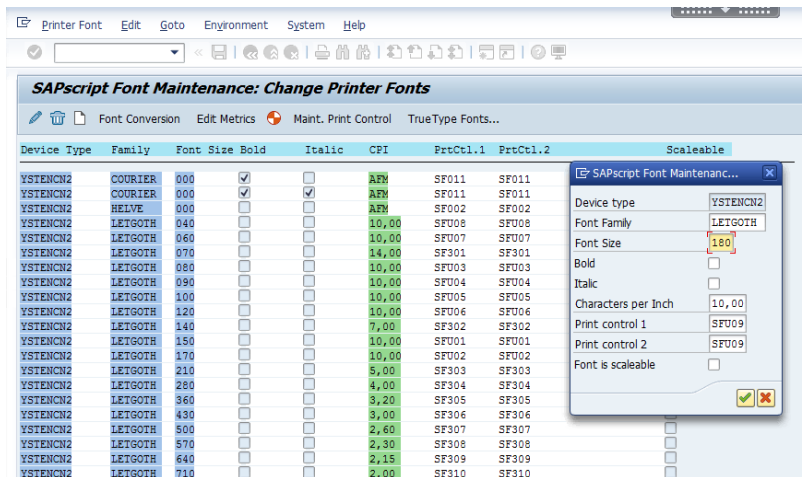
Create a new font.



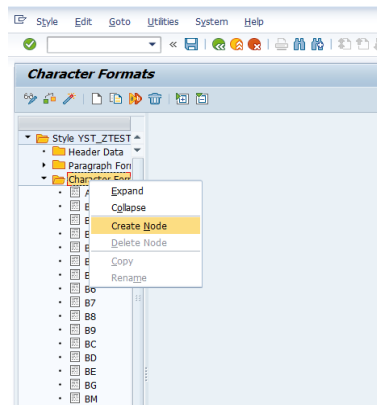
Fill out all necessary details and confirm your choice. Important – deselect “Font is Scalable”, provide a “Font Size” (180=18, this is the size we will be referring to in SmartStyles later), key-in the correct Print Controls name representing Unicode command (e.g. “SFU01” etc.) have used before and select the Font Family. The Font Family we use is LETGOTH but it can also be a different built-in font such as COURIER etc.

The entire idea to make Unicode (2-Byte) characters work is about calling a correct and previously created SmartStyle’s tag in the SmartForm, configuring that SmartStyle’s calling font tag by selecting a correct font and its size in the SmartStyle (calling a font - making a reference to the just created on the below screen font, font passing the command parameters in SFU tag to the driver). There must be font’s identification (among many fonts having the same parameters) in the SmartStyle’s tag, the SmartStyle must know to call the correct/original font referring to the SFU print control user wants – there can’t be two the same fonts having the same parameters as the situation for the new tag on the SmartForm will be ambiguous if let’s say we want use LETGOTH 150. That is why we must use the “original” font for the new SmartStyle’s tag as below.

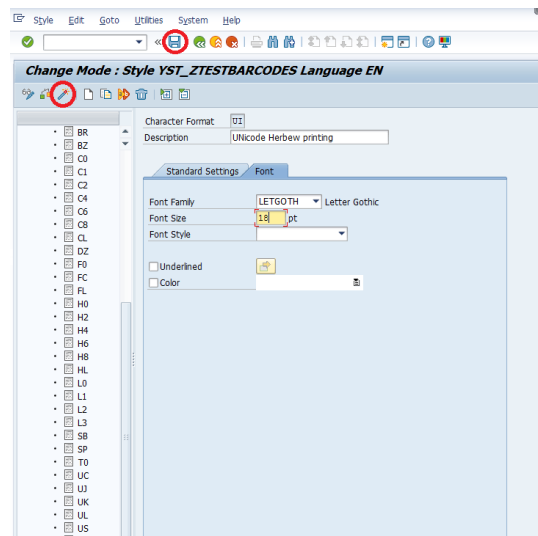
In brief, the SmartForm calls your newly created SmartStyle’s tag, that tag calls the original/unique device type’s font which kind of refers to the printer control (HEX command passing the command to the driver) being under that particular device type. When printing the SmartForm, the SmartForm calls the correct tag and the output device refers to that mentioned device type finally getting our final label having Unicode characters printed.



Creating a tag in a SmartStyle
It is how the tag is created in the SmartStyle.

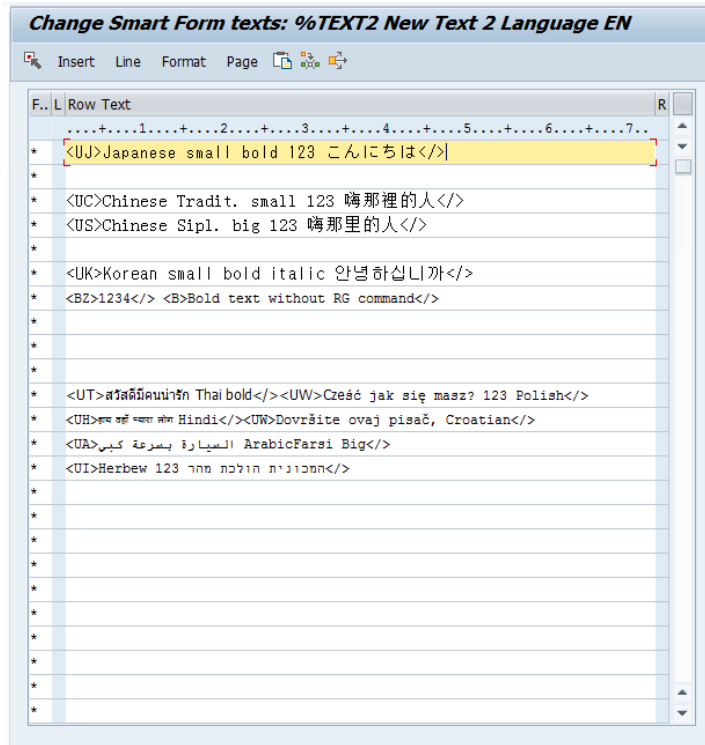


Choosing of the correct font in the tag on the SmartStyle. Please make sure to press “Save” and “Activate” buttons when finished.



Font type here must be equal to font type in the Font Maintenance Window. Font size 18 here must be equal to the size 180 in the previous Font Maintenance Window.

Now the SmartForm is ready to call the Unicode language tags residing in the SmartStyle.



SmartForm's Text Field Content

Japanese small bold 123 こんにちは

Chinese Tradit. small 123 嗨那裡的人

Chinese Sipl. big 123 嗨那里的人

Korean small bold italic 안녕하세요

Bold text without RG command



สวัสดีมีคุณนารัก Thai bold Cześć jak się masz? 123 Polish

हाय वही प्यारा लोग Hindi Dopržite ovaj pisač. Croatian

ArabicFarsi Big 123 بارة بسرعة كبي

המכוננית הולכת מהר 123 Hebrew

SmartForm's Final Printout On The Label

A few words about <RG> command construction and its processing:

- <RG> a,b,c,ddd,eee,ffff...fff
- Parameter
 - a: [Character code] Character code of print data to be specified to a parameter f. See the table below.
 - b: [Font set] Font type for printing See the table below
 - c: [Modification] 0: Standard
1: Italic
2: BOLD
3: BOLD+Italic
 - d: [Width] Valid range: 20 to 999 (dots)
Valid range: P09 to P99 (points)
 - e: [Height] Valid range: 20 to 999 (dots)
Valid range: P09 to P99 (points)
*One point is 0.35 mm.
 - f: [Print data] (character code)

<ESC>RG0,5,0,20,20,こんにちは

Example of Full RG Japanese Command in ASCII Containing The Printing Data

<esc> R G 0 , 5 , 2 , 2 0 , 2 0 ,
1B 52 47 30 2C 35 2C 32 2C 32 30 2C 32 30 2C

SFU01	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	1B5247302C352C322C32302C32302C
SFU02	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1B5247302C342C302C32302C32302C
SFU03	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1B5247302C362C302C34302C34302C
SFU04	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1B5247302C372C332C32302C32302C
SFU05	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1B5247302C322C322C33352C33352C
SFU06	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1B5247302C332C302C33352C33352C
SFU07	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1B5247302C312C302C35352C35352C
SFU08	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1B5247302C31342C302C34352C34352C
SFUN1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

Mapping an Another Example RG Japanese Command To The Hex String

<ESC>RG0,5,0,20,20,
1B5247302C352C302C32302C32302C

Example of RG Japanese Command in ASCII and HEX With No Printing Data

<ESC>RG0,14,0,45,45,
1B5247302C31342C302C34352C34352C

Example of RG Hebrew Command in ASCII and HEX With No Printing Data

<ESC>CE1250<ESC>RG0,0,1,20,20,
1B4345313235301B5247302C302C312C32302C32302C

Example of RG with <CE> commands (for Polish, Croatian printing etc.) With No Data

The print control contains the pure command only without the printing data inside. The parameter 'a' must be always fixed to '0' value, UTF-8.

[Font set list]

Parameter b	Font name	Font set	Font type	Character code range (UTF-16BE)
0	SATO Hebe Sans	WGL4	Hebe Serif	0020-FB02
1	SATO Hebe Sans Arabic	Arabic (Farsi) +ISO8859-1	Hebe Serif	0020-00FF, 0600-06FF FE70-FEFC
2	SATO Hebe Sans Thai	Thai +ISO8859-1	Hebe Serif	0020-00FF, 0E01-0E5B
3	SATO Hebe Sans Hindi	Hindi +ISO8859-1	Hebe Serif	0020-00FF, 0901-097F
4	SATO Gothic Traditional Chinese	WGL4	Hebe Serif	0020-FFE6
		Big5	MobileGothic	
		GB-18030	Crystalzhonghei	
		JISx0208(+NEC) JISx0201	MobileGothic	
		KSX 1001	MobileGothic	
5	SATO Gothic Japanese	WGL4	Hebe Serif	0020-FFE6
		JISx0208(+NEC) JISx0201	MobileGothic	
		KSX 1001	MobileGothic	
		GB-18030	Crystalzhonghei	
		Big5	MobileGothic	
6	SATO Gothic Simplified Chinese	WGL4	Hebe Serif	0020-FFE5
		GB-18030	Crystalzhonghei	
7	SATO Gothic Korean	WGL4	Hebe Serif	0020-FFE6
		KSX 1001	MobileGothic	
		JISx0208(+NEC) JISx0201	MobileGothic	
		GB-18030	Crystalzhonghei	
		Big5	MobileGothic	
8	SATO Silver Serif	WGL4	Silver Serif	0020-FB02
9	SATO Mincho Traditional Chinese	WGL4	Silver Serif	0020-FFE6
		Big5	Mincho	
		GB-18030	Shusong2M	
		JISx0208(+NEC) JISx0201	CrystalMincho	
		KSX 1001	Mincho	
10	SATO Mincho Japanese	WGL4	Silver Serif	0020-FFE6
		JISx0208(+NEC) JISx0201	CrystalMincho	
		KSX 1001	Mincho	
		GB-18030	Shusong2M	
11	SATO Mincho Simplified Chinese	WGL4	Silver Serif	0020-FFE5
		GB-18030	Shusong2M	
12	SATO Mincho Korean	WGL4	Silver Serif	0020-FFE6
		KSX 1001	Mincho	
		JISx0208(+NEC) JISx0201	CrystalMincho	
		GB-18030	Shusong2M	
		Big5	Mincho	
13	SATO Roman Arabic	Arabic +ISO8859-1	Roman	0020-00FF, 0600-06FF, FD2, FE70-FEFC
14	SATO Hebe Sans Hebrew	Hebrew +ISO8859-1	Hebe Serif	0020-00FF, 05B0-05F4, FB1D-FB4F

<RG> Command Font Set List

Parameter a	Official name	[Supplemental explanation]
858	DOS 858	Multilingual Latin 1 + Euro character Default Code page proprietary to SATO.
88591	ISO 8859/1	ISO 8859-1 Latin 1
88592	ISO 8859/2	ISO 8859-2 Latin 2
88599	ISO 8859/9	ISO 8859-9 Latin 5
850	DOS 850	Latin 1 Multilingual
852	DOS 852	Latin 2
855	DOS 855	Cyrillic
857	DOS 857	Turkish
737	DOS 737	Greek
866	DOS 866	Cyrillic II
1250	Win 1250	Central Europe
1251	Win 1251	Cyrillic
1252	Win 1252	Western Latin 1
1253	Win 1253	Greek
1254	Win 1254	Turkish
1257	Win 1257	Baltic
869	IBM 869	IBM 869 Greek
201	X0201	Japanese X0201 *1
UTF-8	UTF-8	Unicode encoding in UTF-8

<CE> Command Parameters against Code Pages

b	Fontname	Sample
0	SATO Hebe Sans	This is a fontsample.
8	SATO Silver Serif	This is a fontsample.
1	SATO Hebe Sans Arabic	هذا هو عينة من الخط.
13	SATO Roman Arabic	هذا هو عينة من الخط.
2	SATO Hebe Sans Thai	นี่คือตัวอย่างของฟอนต์
3	SATO Hebe Sans Hindi	इस फॉन्ट का एक नमूना है.
14	SATO Hebe Sans Hebrew	זוהי דוגמה של גופן.
4	SATO Gothic Tradional Chinese	這是字體的樣本。
9	SATO Mincho Tradional Chinese	這是字體的樣本。
6	SATO Gothic Simplified Chinese	这是字体的样本。
11	SATO Mincho Simplified Chinese	这是字体的样本。
5	SATO Gothic Japanese	これはフォントのサンプルです。
10	SATO Mincho Japanese	これはフォントのサンプルです。
7	SATO Gothic Korean	이것은 글꼴의 샘플입니다.
12	SATO Mincho Korean	이것은 글꼴의 샘플입니다.

Multiple Language Samples

6.3 SmartStyles

Enter Transaction code 'smartstyles' to use the Smart Styles application.

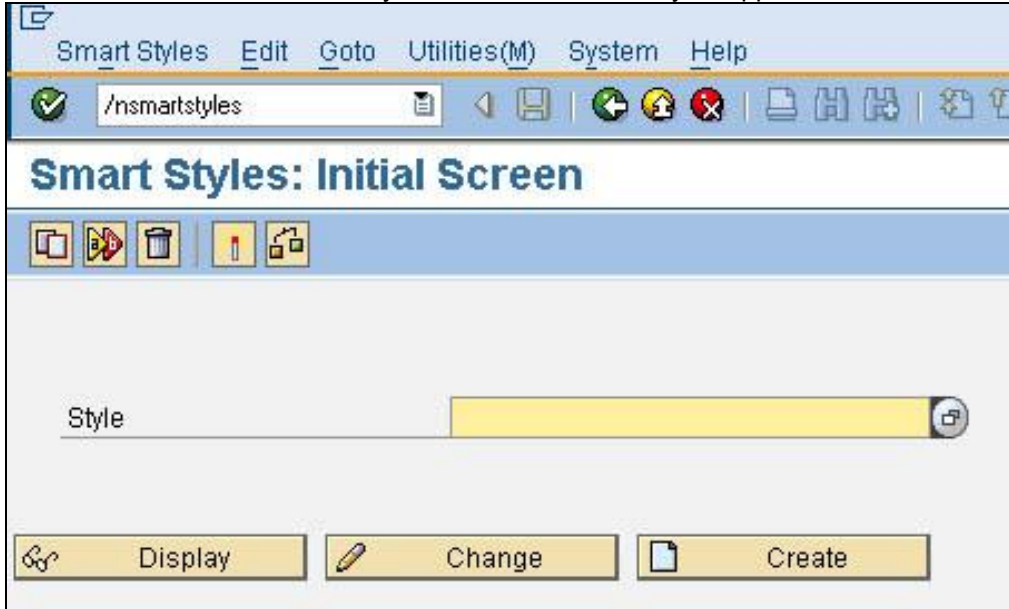


Figure 36 SmartStyles

Create or edit a SmartStyles to define the printing items which are to be used in the Smart Forms.

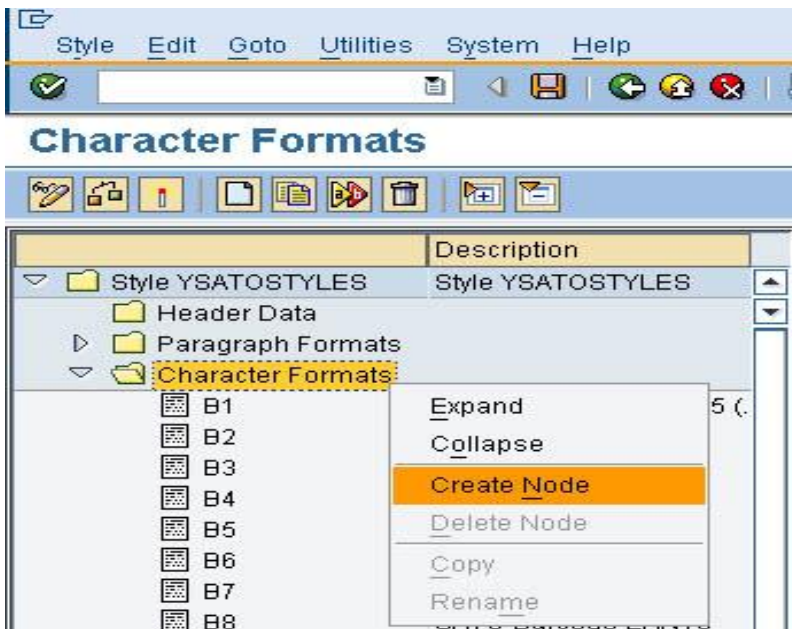


Figure 37 Create node of printing items

Right click on the 'Character Formats' and choose 'Create Node'.

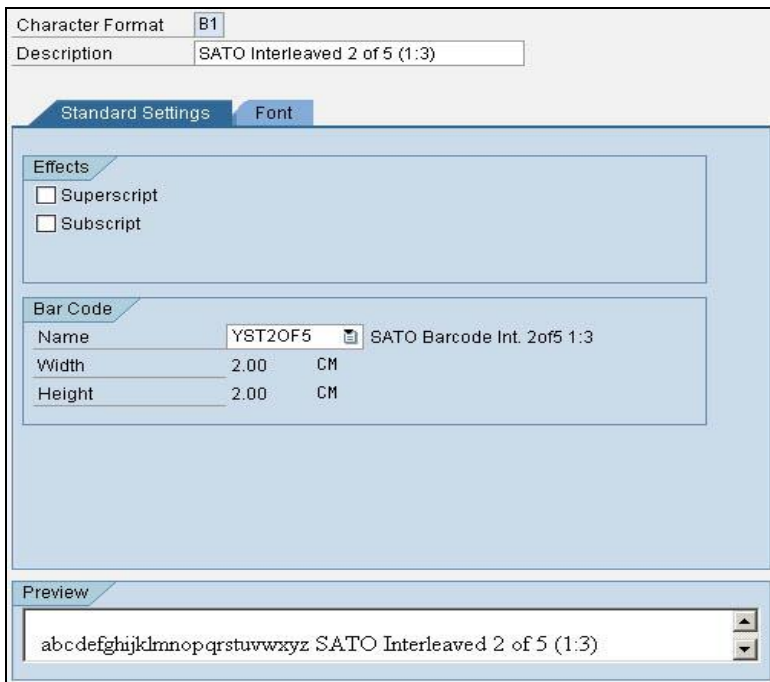


Figure 38 Defining Barcode printing item in SmartStyles

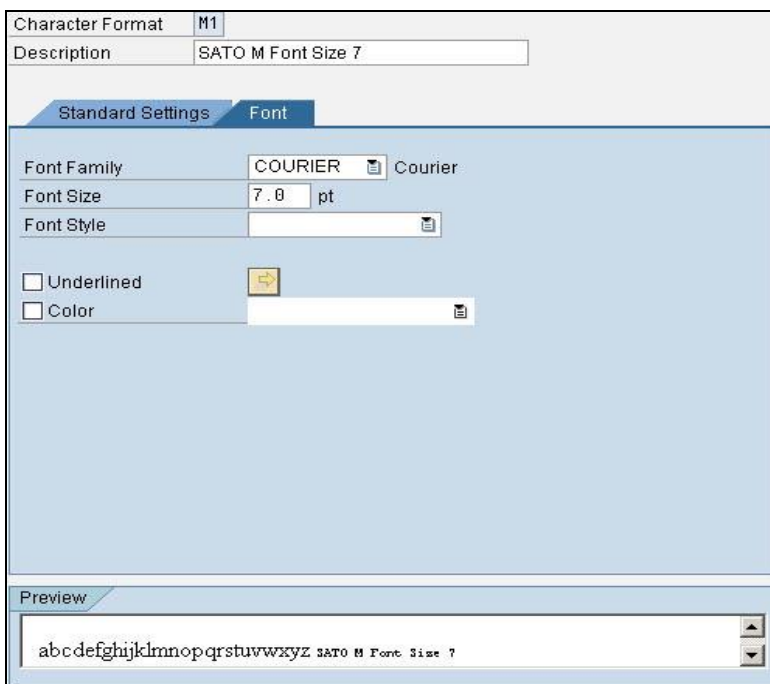


Figure 39 Defining Font Printing item in SmartStyles

After defining the necessary Barcode and Fonts as printing items, check and activate the SmartStyles.

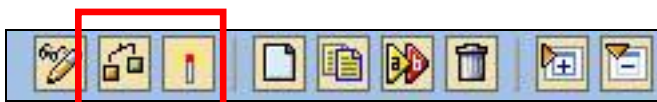


Figure 40 Check and Activate the SmartStyles

6.4 Smart Forms

Enter transaction code `'/nsmartforms'` to run the Smart Forms application.

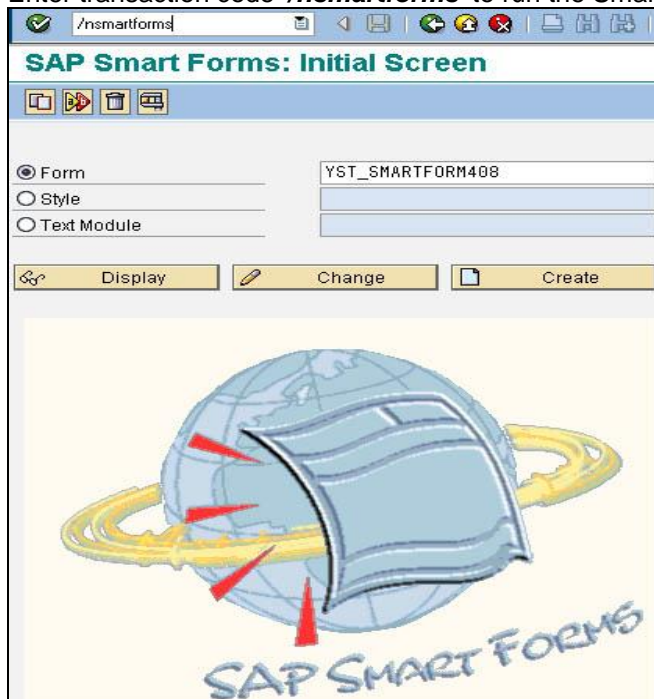


Figure 41 Smart Forms application

Create or edit a Smart Forms which the name is prefixed with 'YST'.

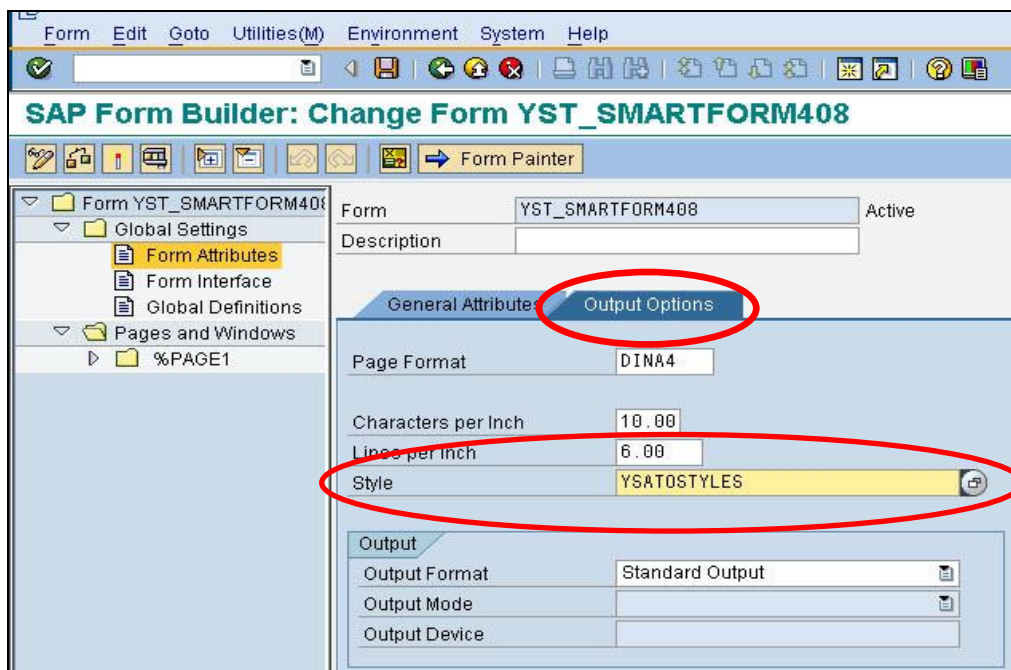


Figure 42 Applying the SmartStyles

Click on the 'Global settings'-'>'Form Attributes', in the 'Output Options', apply the SmartStyles defined previously.

6.4.1 Adding Text

Right click on the 'Page1', choose 'Create'-'>'Window'.

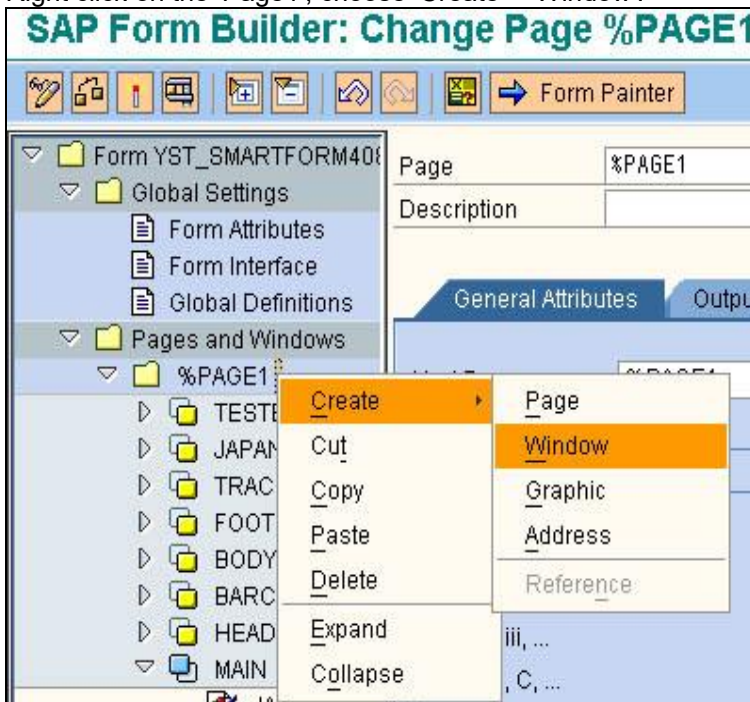


Figure 43 Creating Window

Give the Window component a meaningful name. Then right click on it and create a 'Text' component.

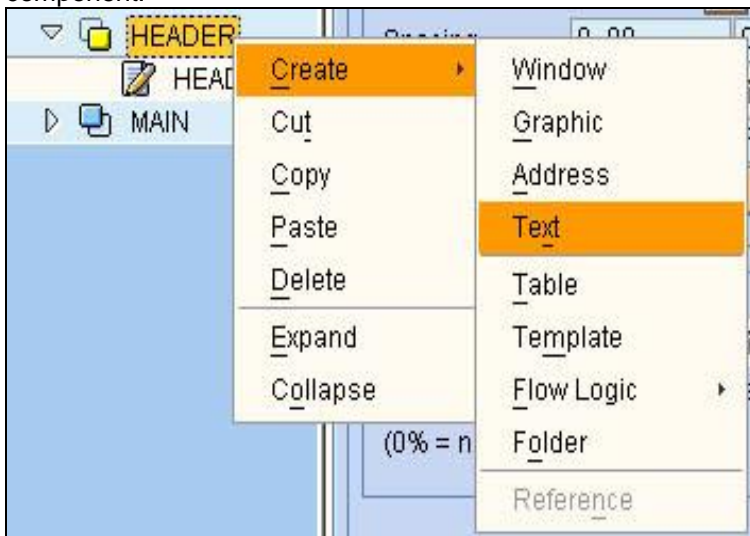


Figure 44 Creating Text Component

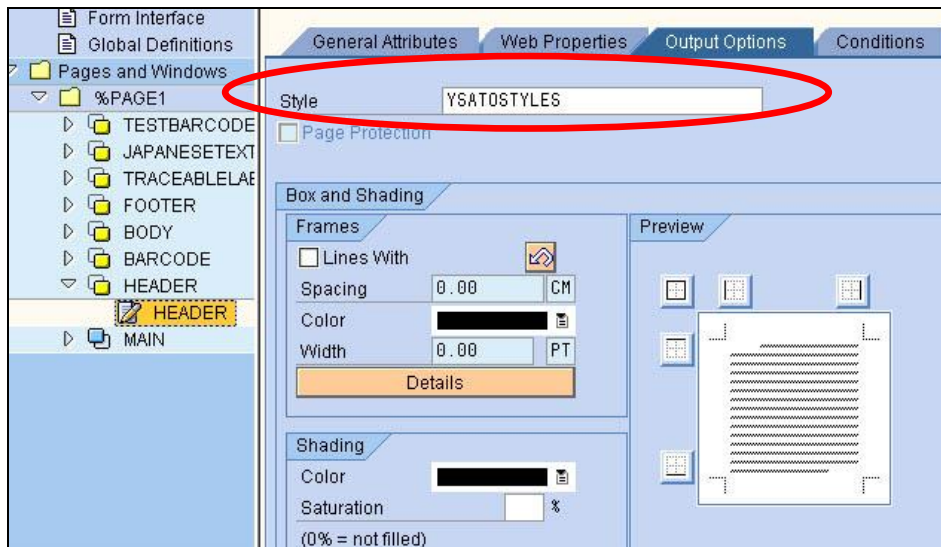


Figure 45 Defining Text Component

Under the 'Output Options' tab, select the SmartStyles which previously defined. So that the text printing item can be available to use.

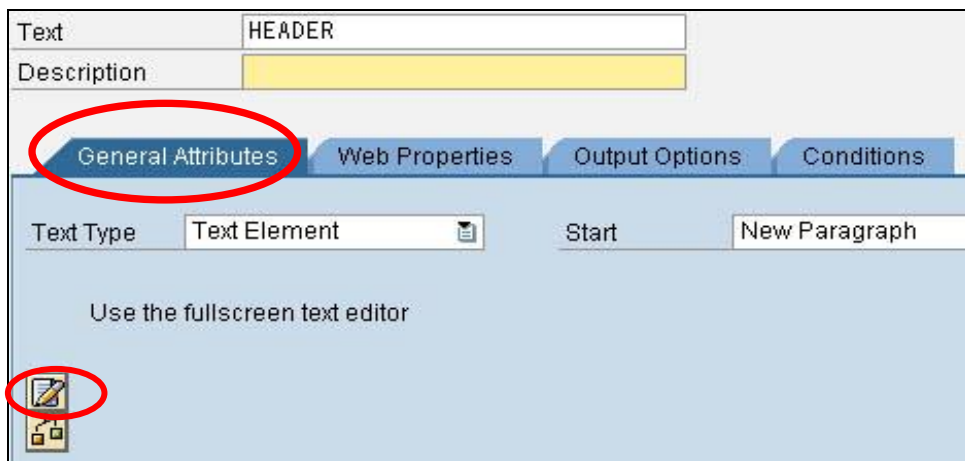


Figure 46 Adding Text

Click on the 'General Attributes' tab and click on the 'Editor' button to insert the text. Note: This procedure could be varied depending on the editor mode.

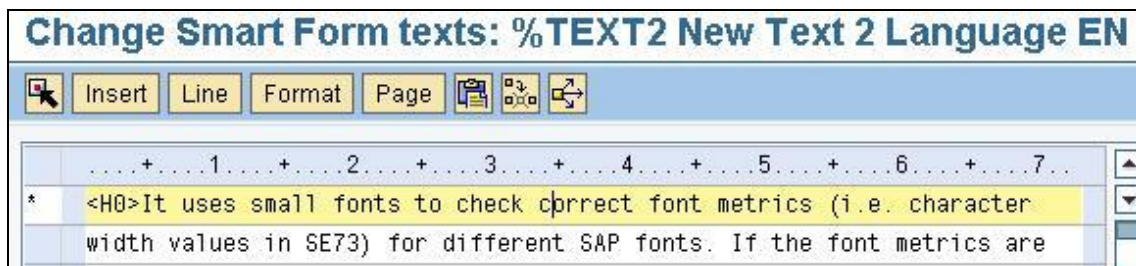


Figure 47 Entering the text with format

The message is embedded in format tags. In the above example, the message is included in `<H0>` and `</>` format tags which specify the SATO CG Triumvirate Font (ESC+RD) . Format **H0** is a text printing item defined in the SmartStyles.

6.4.2 Adding Barcode

Define a 'Window' component under 'Page1' and give it a meaningful name. From this new window create a 'Text' component.

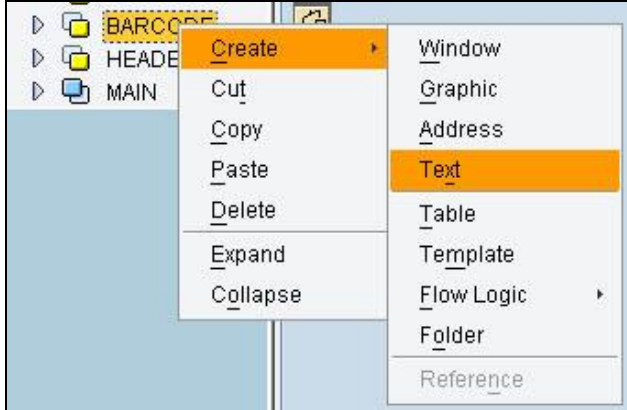


Figure 48 Creating Barcode component

Apply the SmartStyles in the 'Output Options'. Then in the Editor under 'General Attributes', type the Barcode value, and apply the Barcode printing format.

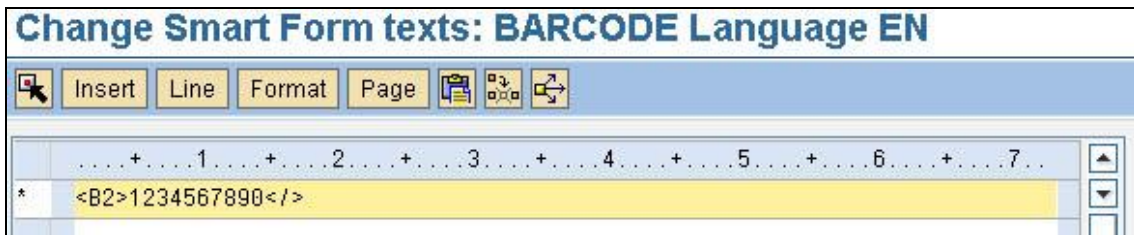


Figure 49 Entering Barcode value

The message is embedded in format tags. In the above example, the message is included in **<B2>** and **</>** format tags which specify the SATO Code 128A Barcode. Format **B2** is a Barcode printing item defined in the SmartStyles

6.4.3 Adding Images

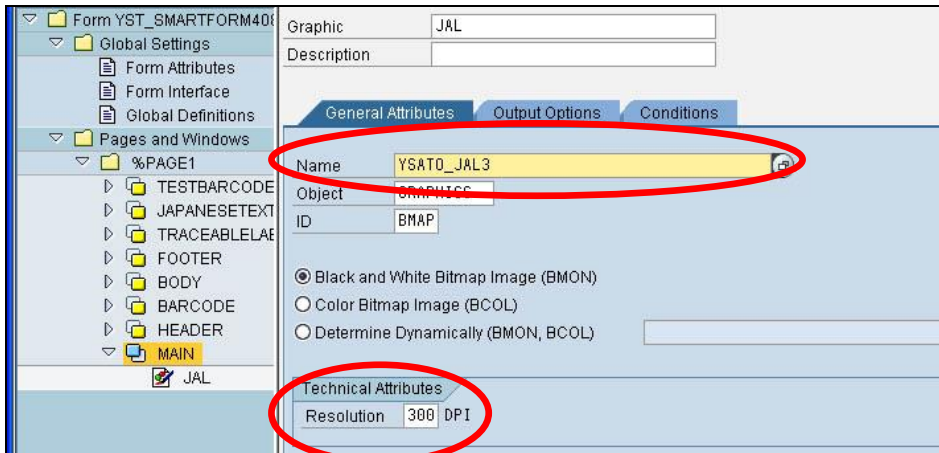


Figure 50 Creating Image component

All images must be imported to the SAP system through **SE78** command before attaching them to the smart form. Select the required image from the Name drop-down list under the General Attributes. Then key in the Resolution information for the image. For example, if the image is to be printed in 300 resolution printer, then select 300 from the Resolution field.

Currently, the images supported by SATO-SAP Printer Driver have the following constraints:

- Only 'Black and White Bitmap Images' are supported and they should be limited to 1bpp (bit per pixel) color deepness
- The images cannot be '*compressed*' when uploaded using Transaction code **SE78**.

6.4.4 Positioning Printing Components

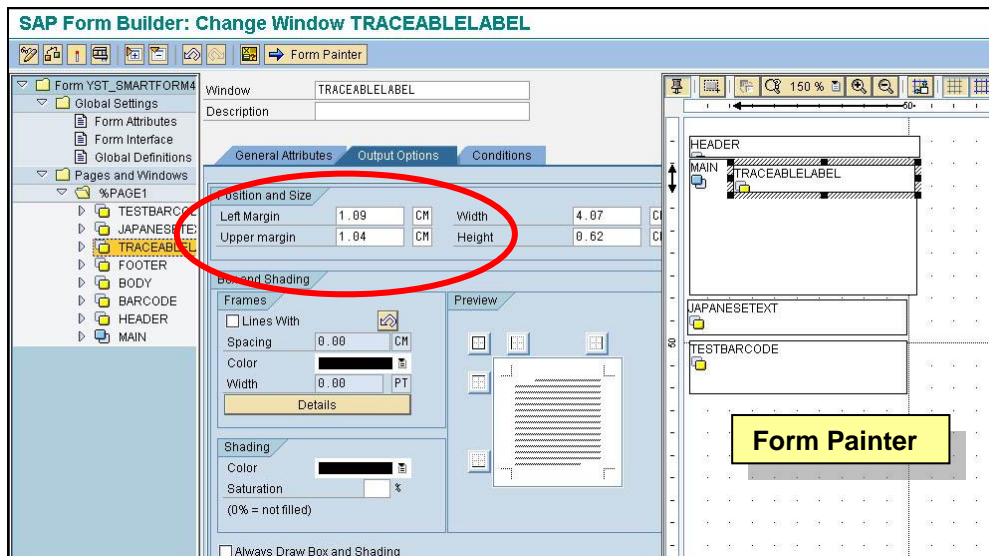


Figure 51 Positioning printing items

The positions of the printing items can be adjusted by drag & drop the components in the 'Form Painter'. Alternatively, it can be done by manipulating the values in the Left and Upper margin fields under the 'Output Options' tab of the window component.

6.4.5 Printing the Smart Forms

After the Smart Forms has been made, it has to be checked and activated before it can be printed.



Figure 52 Check and Activate the Smart Forms



Figure 53 Printing Smart Forms

Click the 'Print' button to continue.

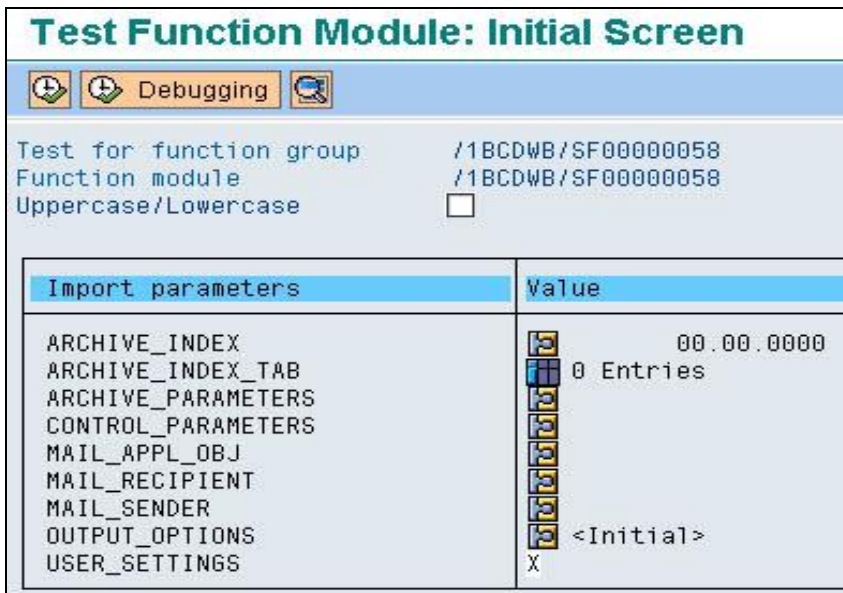


Figure 54 Printing Screen

Click the 'Execute' button to continue.

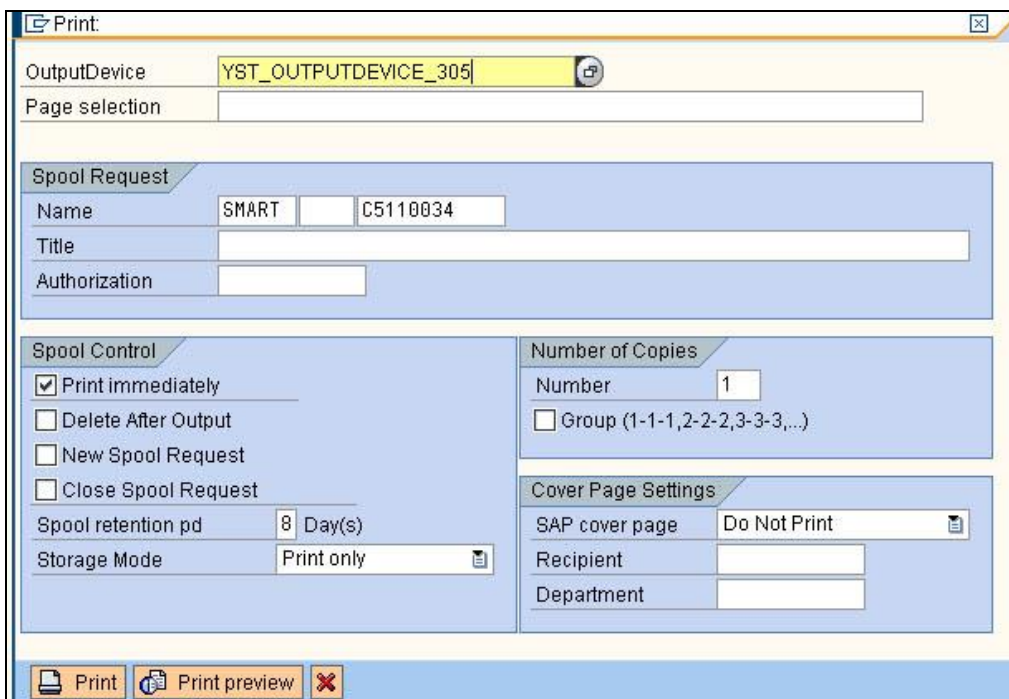


Figure 55 Printing Screen - Select the output device

Select the required Output Device and check on the 'Print Immediately' checkbox. Then click the 'Print' button to print.

6.5 System Commands

User can specify the System Commands of SBPL in the Smart Forms label by using the Command nodes.

Right click on the Window node->Create->Flow Logic->Command to display Command node feature.

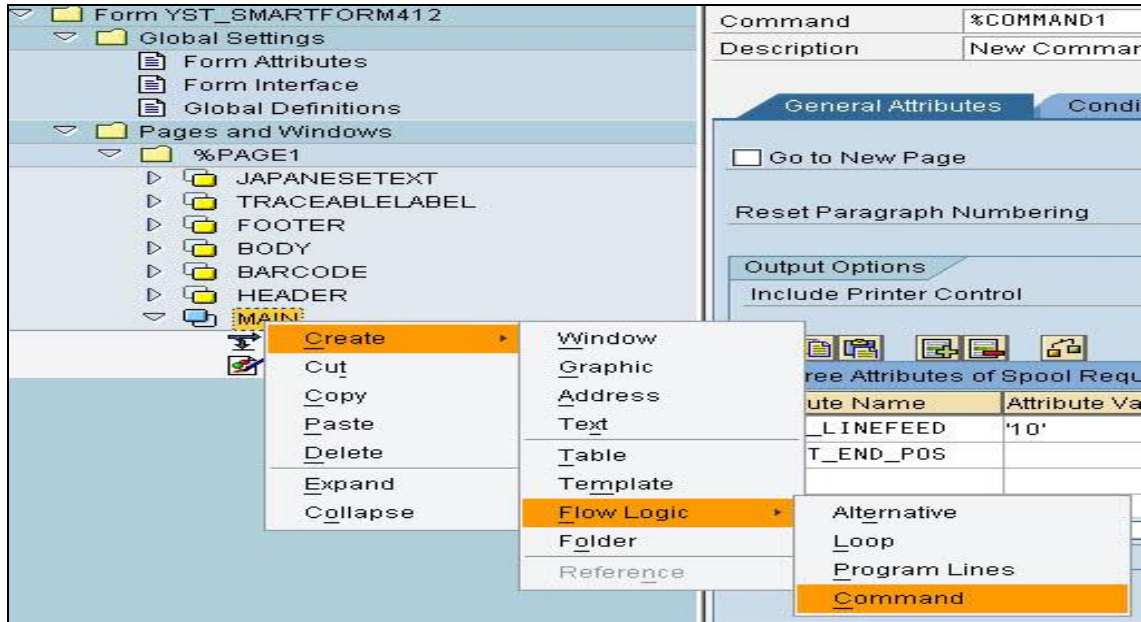


Figure 56 Defining System Command using Command node

Under the 'Output Options', user is to define the System Command in the Name-Value pairs format. **The value must be enclosed within the single quote character (') or empty, depending on the command.**

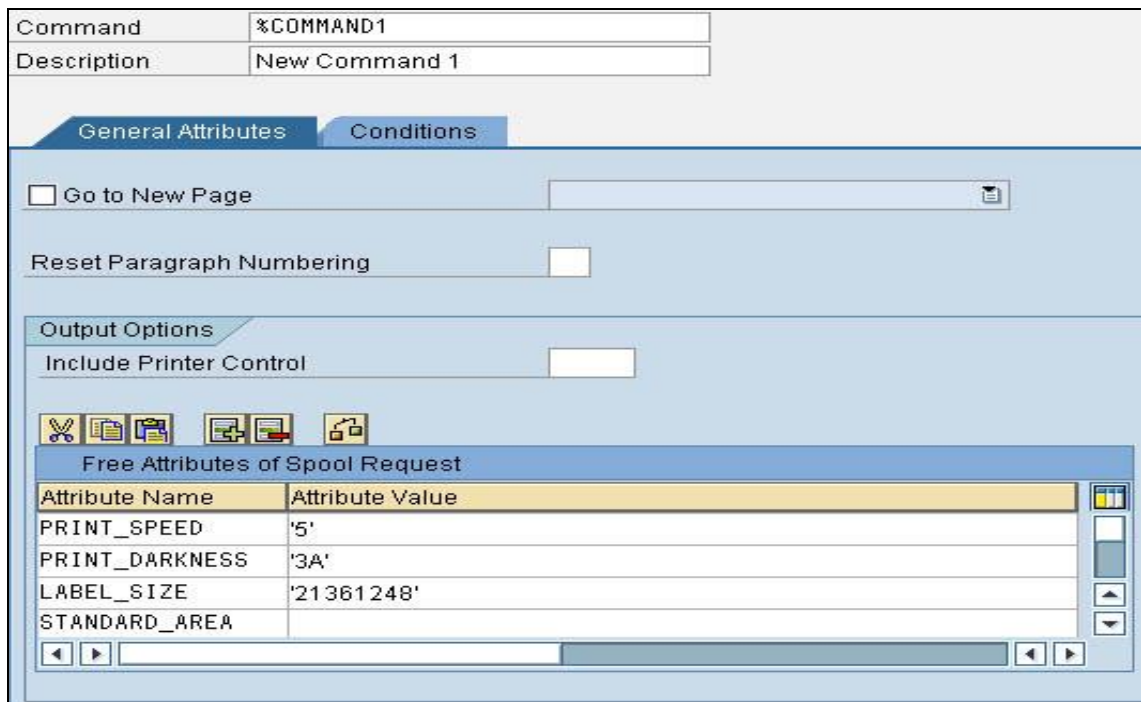


Figure 57 Name-Value pairs information

The following are the available system commands:

Function	Command Name	Command Value	SBPL Command	Remarks
Print Speed	PRINT_SPEED	1~11	ESC+CS	
Print Darkness	PRINT_DARKNESS	ab, a: 1~ 5 b: A~F	ESC+#E	
Label Size	LABEL_SIZE	Refer to the command specification	ESC+A1	The printer driver will generate a default ESC+A1 command, based on the label size of designed Smart Forms, if this System command is not specified.
Start Print Correction	START_POINT	Refer to the command specification	ESC+A3	The printer driver will generate a default ESC+A3 command, based on the position of the designed Smart Forms, if this System command is not specified.
Enlargement of Print Area	ENLARGEMENT_AREA	No value is needed	ESC+AX	
Standard Print Area	STANDAR_AREA	No value is needed	ESC+AR	
Print End Position	PRINT_END_POS	No value is needed	ESC+EP	
Multiple Cutting	MULTIPLE_CUT	0~9999	ESC+~(Null)	This command is valid only when the printer is equipped with cutter
No. of Labels per Cut Segment	CUT_SEGMENT	0~9999	ESC+~A	This command is valid only when the printer is equipped with cutter
Cutting Operation	CUT_OPERATION	No value is needed	ESC+~B	This command is valid only when the printer is equipped with cutter
Cut Number Unit	CUT_CTCOMMAND	0~9999	ESC+CT	This command is valid only when the printer is equipped with cutter

Eject and Cut	CUT_NCCOMMAND	No value is needed	ESC+NC	This command is valid only when the printer is equipped with cutter
Auto Linefeed	AUTO_LINEFEED	0~999	ESC+E	
90 degree Text Rotation	ROTATE_90_x	Name of Window to be rotated	ESC+%1	x is any number to make sure the command name is not repeated in the SmartForms
180 degree Text Rotation	ROTATE_180_x	Name of Window to be rotated	ESC+%2	x is any number to make sure the command name is not repeated in the SmartForms
270 degree Text Rotation	ROTATE_270_x	Name of Window to be rotated	ESC+%3	x is any number to make sure the command name is not repeated in the SmartForms
Page Number	PRINT_QUANTITY	Number of pages to print	ESC+Q	It is print command is not specified, the page is printed once. Example of the value: '%PAGE2:4' This means the page with name "%PAGE2" will be printed 4 times. Subsequent page number can be added with a comma separator. For example, '%PAGE2:4,%PAGE3:3' This means page '%PAGE2' is printed 4 times and page '%PAGE3' is printed 3 times
Print Darkness (#F command)	PRINT_DARKNESS_F	ab, a: 1~ 10 b: A~F	ESC+#F	This commands for supported models SG400R-ex, SG600R and SG112R.
Print Motion Mode	PRINTMOTION_MODE	0-8	ESC+PM	To specify motion mode temporarily.
Print Off-set	LABELSTOP_OFFSET	abcc, a: 0~3 b: +/- c:00~99(dot)	ESC+PO	To specify adjustment of label stop position during every motion temporarily.

Table 8 System Commands

It is important to refer to the command specification of the printer models to understand the correct range of value can be used for the Command values. Note that the Command Names are case-sensitive.
System command should be used carefully. Invalid input may result in unexpected outcome of the printout.

The table below shows the supported System Commands on models

Model	PT4xxe/ MB4xxi/ HR224	CT4xxi/ L'esprit T/R4xxv /CGxxx	SR4xx	LT4xx/LM4xxe/CLxxe/M R4xxe/SGxxxRGT4xxe/ GL4xxe/M84Pro/M84xx SEM10e/CLxNX	S-84xx/S- 8x-ex
PRINT_SPEED	○	○	○	○	○
PRINT_DARKNESS	○	○	○	○	○
LABEL_SIZE	○	○	○	○	○
START_POINT	○	○	○	○	○
ENLARGEMENT_AREA				○	○
STANDARD_AREA				○	○
PRINT_END_POS		○	○	○	○
AUTO_LINEFEED	○	○	○	○	○
ROTATE_xx_X	○	○	○	○	○
PRINT_QUANTITY	○	○	○	○	○

Figure 58 System Commands on Models

The table below shows the supported Cutting Commands on models

Model	PT4xxe/ MB4xxi/ HR224	CT4xxi/ L'esprit T/R4xxv/C Gxxx	SR4xx	LT4xx/L M4xxe/ CLxxe/ GT4xxe /M84Pr o/M84x xSE/M1 0e/CLx NX	MR4xxe /SGxxx R	GL4xx e	S- 84xx/S -8x-ex
MULTIPLE_CUT		○*	○*	○*	○*		○*
CUT_SEGMENT		○*	○*	○*	○*		○*
CUT_OPERATION		○*	○*	○*	○*		○*
CUT_CTCOMMAND		○*	○*		○*		
CUT_NCCOMMAND		○*	○*		○*	○*	

Figure 59_1 Cutting Commands on Models

*: Only possible when the Cutter Unit is installed.

6.5.1 Text and Image Rotation

To rotate a text or an image on SmartForms, user is to create a command in the window to be rotated. The name of parameter (e.g., ROTATE_180_x) should not be repeated. Image below is an example of how the rotated text can be setup:

SAP Form Builder: Change Command %COMMAND1

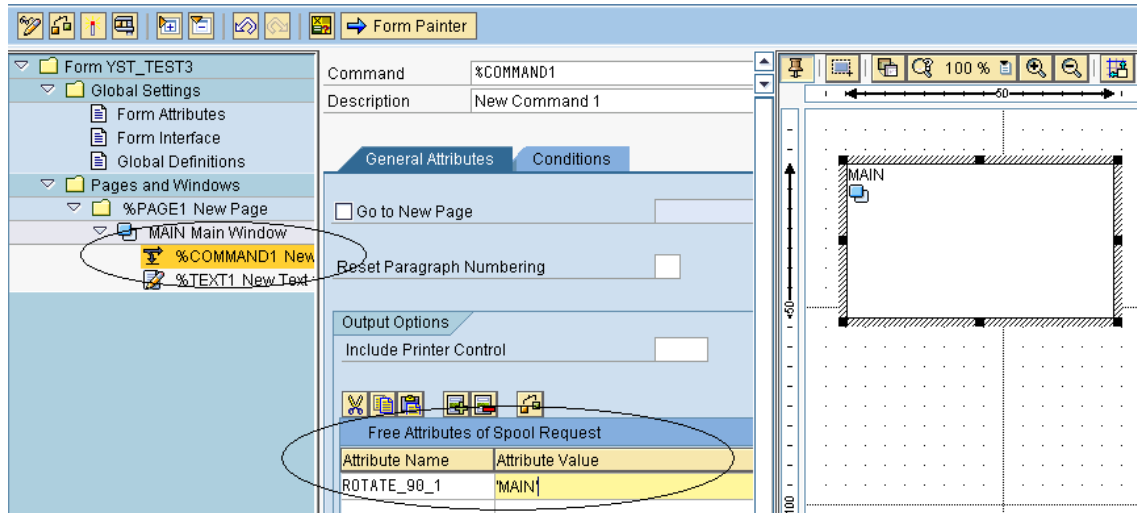


Figure 60 Text Rotation

Rotation Result:

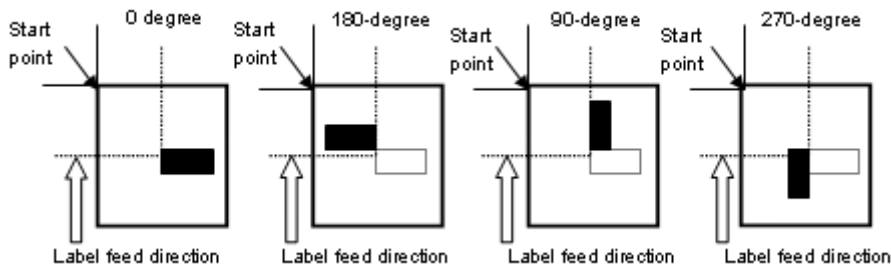


Figure 61 Rotation result

Please refer to the command specification for the behavior of the rotation.

There are a few restrictions on the Rotation functions:

- SmartForm will not display the rotated text on the print preview. User is to adjust the position of the window by checking the actual printout.
- The rotated text should not have more than 1 line.
- Each rotated window should have only 1 line of text or only 1 image.

6.5.2 Setup Label Size Using Command

This is the alternative method to setup custom label size using SATO Printer Language, A1 command. This will overwrite the standard Label size value by Page Format setting of Smart Forms. User should consult SBPL manual for A1 command before using it in Smart Forms. As described in [Table 8 System Commands](#), add **LABEL_SIZE** command with Parameter of label height follow by label width with correct number of digits as described in SBPL manual for specific printer.

Note: GL printer could not accept longer length than height of label for label width. Thus Landscape Orientation setup on printer (using LCD Menus and Buttons) should utilize (that mean shorter length of label is width and the longer length is height.)

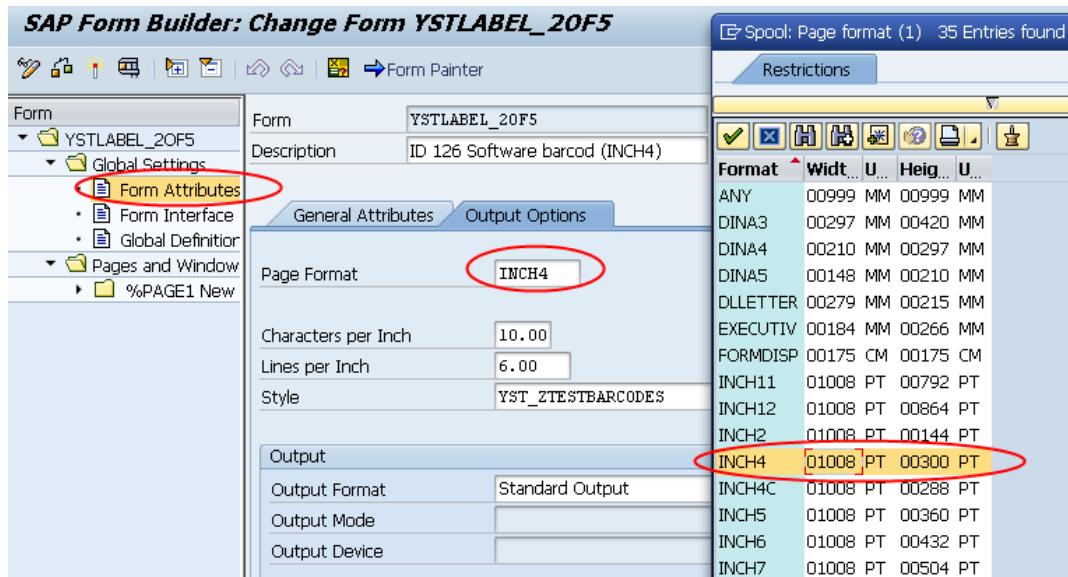


Figure 62 Standard Label Size Setup with appropriate Page Format setting

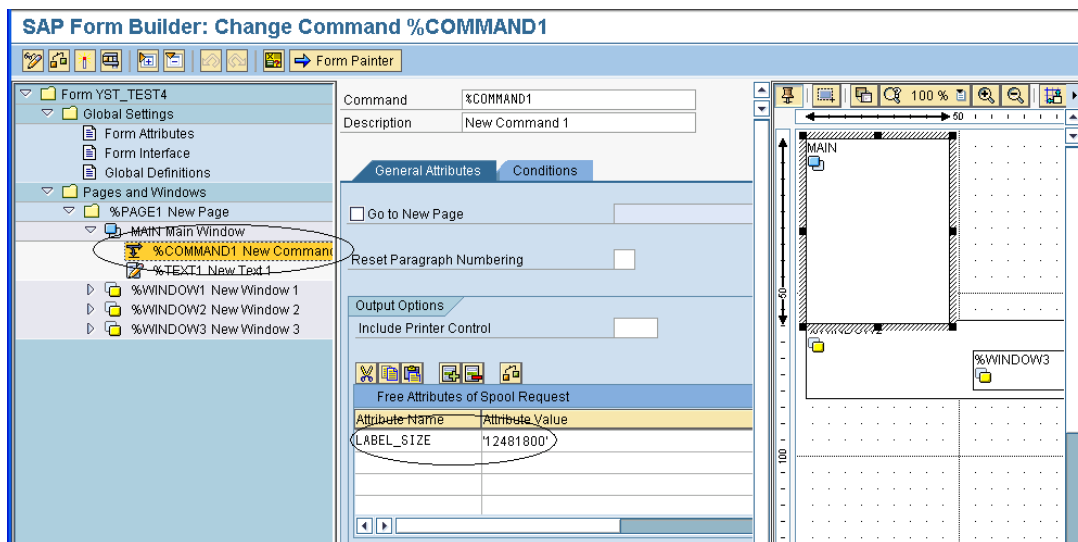


Figure 63 Custom Label Size Setup with Command

Limitations

Please note the following are not supported by the SATO PDL Driver:

- Compressed graphics and color bitmap
- Underlined, superscript and subscript text
- There could be some slight variations of font size in SmartForms and the actual font size printed from SATO printer. This is due to the size conversion and rounding up issues.
- Courier Font (which will be mapped to SATO Fixed Width Scalable font) does not support 8 points or lower font size printing in 203dpi printer. It will be printed in a slightly larger font size instead.
- Some European characters from ISO8859-1 and Codepage 850 device types are not available from printer. Please refer to the command specifications of printer for details.

For other functionalities of SATO printers which are not supported by the SATO PDL driver, please approach the technical team of SATO for customization requests at global.sysdev-gbs@sato-global.com

Appendix

8

8.1 Print Controls List for Barcode

For the control list of New Barcode Technology, please refer to [Table 4 Barcode Print Controls](#).

The following is the control list for the old barcodes:

Barcode (Ratio 1:3)

NW-7 (CODABAR)

SAP Print Control	Narrow Bar Width	Mapped to SBPL Command
SB101	1	ESC+B001
SB102	2	ESC+B002
SB103	3	ESC+B003
SB104	4	ESC+B004
SB105	5	ESC+B005
SB106	6	ESC+B006
SB107	7	ESC+B007
SB108	8	ESC+B008
SB109	9	ESC+B009
SB110	10	ESC+B010
SB111	11	ESC+B011
SB112	12	ESC+B012

Interleaved 2 of 5

SB121	1	ESC+B201
SB122	2	ESC+B202
SB123	3	ESC+B203
SB124	4	ESC+B204
SB125	5	ESC+B205
SB126	6	ESC+B206
SB127	7	ESC+B207
SB128	8	ESC+B208
SB129	9	ESC+B209
SB130	10	ESC+B210
SB131	11	ESC+B211
SB132	12	ESC+B212

JAN/EAN13

SB141	1	ESC+B301
SB142	2	ESC+B302
SB143	3	ESC+B303
SB144	4	ESC+B304
SB145	5	ESC+B305
SB146	6	ECS+B306
SB147	7	ESC+B307
SB148	8	ESC+B308



SB149	9	ESC+B309
SB150	10	ESC+B310
SB151	11	ESC+B311
SB152	12	ESC+B312
JAN/EAN8		
SB161	1	ESC+B401
SB162	2	ESC+B402
SB163	3	ESC+B403
SB164	4	ESC+B404
SB165	5	ESC+B405
SB166	6	ESC+B406
SB167	7	ESC+B407
SB168	8	ESC+B408
SB169	9	ESC+B409
SB170	10	ESC+B410
SB171	11	ESC+B411
SB172	12	ESC+B412
UPC-A		
SB181	1	ESC+BH01
SB182	2	ESC+BH02
SB183	3	ESC+BH03
SB184	4	ESC+BH04
SB185	5	ESC+BH05
SB186	6	ESC+BH06
SB187	7	ESC+BH07
SB188	8	ESC+BH08
SB189	9	ESC+BH09
SB190	10	ESC+BH10
SB191	11	ESC+BH11
SB192	12	ESC+BH12
PostNet		
SB007		ESC+BP

Barcode (Ratio 1:2)

NW-7 (CODABAR)

SAP Print Control	Narrow Bar Width	Mapped to SBPL Command
SB201	1	ESC+D001
SB202	2	ESC+D002
SB203	3	ESC+D003
SB204	4	ESC+D004
SB205	5	ESC+D005
SB206	6	ESC+D006
SB207	7	ESC+D007
SB208	8	ESC+D008
SB209	9	ESC+D009
SB210	10	ESC+D010
SB211	11	ESC+D011

SB212	12	ESC+D012
Interleaved 2 of 5		
SB221	1	ESC+D201
SB222	2	ESC+D202
SB223	3	ESC+D203
SB224	4	ESC+D204
SB225	5	ESC+D205
SB226	6	ESC+D206
SB227	7	ESC+D207
SB228	8	ESC+D208
SB229	9	ESC+D209
SB230	10	ESC+D210
SB231	11	ESC+D211
SB232	12	ESC+D212
JAN/EAN13		
SB241	1	ESC+D301
SB242	2	ESC+D302
SB243	3	ESC+D303
SB244	4	ESC+D304
SB245	5	ESC+D305
SB246	6	ESC+D306
SB247	7	ESC+D307
SB248	8	ESC+D308
SB249	9	ESC+D309
SB250	10	ESC+D310
SB251	11	ESC+D311
SB252	12	ESC+D312
JAN/EAN8		
SB261	1	ESC+D401
SB262	2	ESC+D402
SB263	3	ESC+D403
SB264	4	ESC+D404
SB265	5	ESC+D405
SB266	6	ESC+D406
SB267	7	ESC+D407
SB268	8	ESC+D408
SB269	9	ESC+D409
SB270	10	ESC+D410
SB271	11	ESC+D411
SB272	12	ESC+D412
UPC-A		
SB281	1	ESC+DH01
SB282	2	ESC+DH02
SB283	3	ESC+DH03
SB284	4	ESC+DH04
SB285	5	ESC+DH05
SB286	6	ESC+DH06
SB287	7	ESC+DH07



SB288	8	ESC+DH08
SB289	9	ESC+DH09
SB290	10	ESC+DH10
SB291	11	ESC+DH11
SB292	12	ESC+DH12

Barcode (Ratio 2:5)

NW-7 (CODABAR)

SAP Print Control	Narrow Bar Width	Mapped to SBPL Command
SB301	1	ESC+BD001
SB302	2	ESC+BD002
SB303	3	ESC+BD003
SB304	4	ESC+BD004
SB305	5	ESC+BD005
SB306	6	ESC+BD006
SB307	7	ESC+BD007
SB308	8	ESC+BD008
SB309	9	ESC+BD009
SB310	10	ESC+BD010
SB311	11	ESC+BD011
SB312	12	ESC+BD012

Interleaved 2 of 5

SB321	1	ESC+BD201
SB322	2	ESC+BD202
SB323	3	ESC+BD203
SB324	4	ESC+BD204
SB325	5	ESC+BD205
SB326	6	ESC+BD206
SB327	7	ESC+BD207
SB328	8	ESC+BD208
SB329	9	ESC+BD209
SB330	10	ESC+BD210
SB331	11	ESC+BD211
SB332	12	ESC+BD212

JAN/EAN13

SB341	1	ESC+BD301
SB342	2	ESC+BD302
SB343	3	ESC+BD303
SB344	4	ESC+BD304
SB345	5	ESC+BD305
SB346	6	ESC+BD306
SB347	7	ESC+BD307
SB348	8	ESC+BD308
SB349	9	ESC+BD309
SB350	10	ESC+BD310
SB351	11	ESC+BD311
SB352	12	ESC+BD312

JAN/EAN8

SB361	1	ESC+BD401
SB362	2	ESC+BD402
SB363	3	ESC+BD403
SB364	4	ESC+BD404
SB365	5	ESC+BD405
SB366	6	ESC+BD406
SB367	7	ESC+BD407
SB368	8	ESC+BD408
SB369	9	ESC+BD409
SB370	10	ESC+BD410
SB371	11	ESC+BD411
SB372	12	ESC+BD412

UPC-A

SB381	1	ESC+BDH01
SB382	2	ESC+BDH02
SB383	3	ESC+BDH03
SB384	4	ESC+BDH04
SB385	5	ESC+BDH05
SB386	6	ESC+BDH06
SB387	7	ESC+BDH07
SB388	8	ESC+BDH08
SB389	9	ESC+BDH09
SB390	10	ESC+BDH10
SB391	11	ESC+DBH11
SB392	12	ESC+BDH12

Code 39 (Ratio 1:3)

SB501	1	ESC+B101
SB502	2	ESC+B102
SB503	3	ESC+B103
SB504	4	ESC+B104
SB505	5	ESC+B105
SB506	6	ESC+B106
SB507	7	ESC+B107
SB508	8	ESC+B108
SB509	9	ESC+B109
SB510	10	ESC+B110
SB511	11	ESC+B111
SB512	12	ESC+B112

Code 39 (Ratio 1:2)

SB521	1	ESC+D101
SB522	2	ESC+D102
SB523	3	ESC+D103
SB524	4	ESC+D104
SB525	5	ESC+D105
SB526	6	ESC+D106
SB527	7	ESC+D107
SB528	8	ESC+D108
SB529	9	ESC+D109

SB530	10	ESC+D110
SB531	11	ESC+D111
SB532	12	ESC+D112

Code 39 (Ratio 2:5)

SB541	1	ESC+BD101
SB542	2	ESC+BD102
SB543	3	ESC+BD103
SB544	4	ESC+BD104
SB545	5	ESC+BD105
SB546	6	ESC+BD106
SB547	7	ESC+BD107
SB548	8	ESC+BD108
SB549	9	ESC+BD109
SB550	10	ESC+BD110
SB551	11	ESC+BD111
SB552	12	ESC+BD112

Code 93

SB561	1	ESC+BC01
SB562	2	ESC+BC02
SB563	3	ESC+BC03
SB564	4	ESC+BC04
SB565	5	ESC+BC05
SB566	6	ESC+BC06
SB567	7	ESC+BC07
SB568	8	ESC+BC08
SB569	9	ESC+BC09
SB570	10	ESC+BC10
SB571	11	ESC+BC11
SB572	12	ESC+BC12

8.2 Font Print Controls

		203dpi	305dpi	609dpi	Print Control
ESC+M (13x20) (Courcyr)	ESC+L	Point			
	1	7	5	2	SF301
	2	14	9	5	SF302
	3	21	14	7	SF303
	4	28	19	10	SF304
	5	36	24	12	SF305
	6	43	28	14	SF306
	7	50	33	17	SF307
	8	57	38	19	SF308
	9	64	43	21	SF309
	10	71	47	24	SF310
	11	78	52	26	SF311
12	85	57	28	SF312	
ESC+S (8x15) (Lnprint)	1	5	4	2	SF201
	2	11	7	4	SF202
	3	16	11	5	SF203
	4	21	14	7	SF204
	5	27	18	9	SF205
	6	32	21	11	SF206
	7	37	25	12	SF207
	8	43	28	14	SF208
	9	48	32	16	SF209
	10	53	35	18	SF210
	11	59	39	20	SF211
	12	64	43	21	SF212
ESC+XM (24x24) (Letgoth) LM4 Device Type	1	8.5	5.5		SF301
	2	17.0	11.5		SF302
	3	25.5	17.5		SF303
	4	34.0	22.5		SF304
	5	42.5	28.5		SF305
	6	51.0	34.0		SF306
	7	59.5	39.5		SF307
	8	68.0	45.5		SF308
	9	76.5	51.0		SF309
	10	85.0	56.5		SF310
	11	93.5	62.5		SF311
	12		68		SF312
ESC+XS (17x17) (Lnprint) LM4 Device Type	1	6.0	4.0		SF201
	2	12.0	8.0		SF202
	3	18.0	12.0		SF203
	4	24.0	16.0		SF204
	5	30.0	20.0		SF205
	6	36.0	24.0		SF206
	7	42.0	28.0		SF207

	8	48.0	32.0		SF208
	9	54.5	36.0		SF209
	10	60.5	40.0		SF210
	11	66.5	44.0		SF211
	12	72.5	48.0		SF212
ESC+XU (5x9) (Cour_i7) LM4 Device Type	1	3.0	2.0		SF101
	2	6.5	4.0		SF102
	3	9.5	6.5		SF103
	4	13.0	8.5		SF104
	5	16.0	10.5		SF105
	6	19.0	12.5		SF106
	7	22.5	15.0		SF107
	8	25.5	17.0		SF108
	9	28.5	19.0		SF109
	10	32.0	21.0		SF110
	11	35.0	23.5		SF111
	12	38.5	25.5		SF112

Note: The fixed size resident fonts are only supported in English-only and LM4 Device Types.

Other font information can be found at [6.2 Font](#).



Extensive contact information of worldwide SATO operations can be found on the Internet at **www.satoworldwide.com**