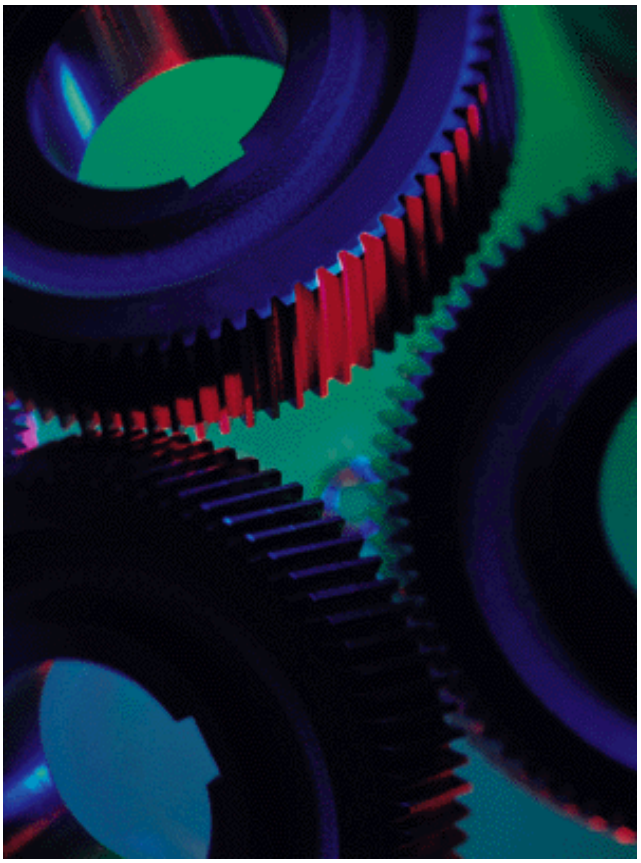
Generic Output Format
SAPGOF

SAP NetWeaver 2004 and higher



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Symbols

Symbol	Meaning
	Caution
	Note
	Example

Contents

Copyright **2**

Symbols **3**

1 The Generic Output Format SAPGOF **7**

1.1 File Structure 7

1.1.1 End of Line 7

1.1.2 Header and Data Identifier 7

1.2 Information in the File Header 8

1.2.1 Further notes: Parameter FORMAT: 9

1.2.2 Parameters PJSTRTPAGE and PJENDPAGE: 9

1.3 Displaying the Data 9

1.3.1 Structure of LIST Type Data Lines 9

1.3.2 Note: Command ID LD: 9

1.3.3 Print Controls in LIST Type Data Lines 9

1.3.4 Print Controls for Color Control in Lists 10

1.4 SAPGOF Character Set 11

1.4.1 Syntactical Characters 11

1.4.2 Special Characters 12

1.4.3 Special Characters: Frame Characters 14

1.4.4 Special Characters: Symbols 15

1.4.5 Special Characters: Icons 15

1.5 Setting Up an Output Device 18

2 **OTF Format** **20**

2.1 Syntactical Structure 20

2.1.1 Finding the Next OTF Command in the Data Stream: 20

2.1.2 Parameter Types 21

2.1.3 Units of Measurement 21

2.2 Command Overview 21

2.2.1 // Beginning or End of the OTF Data Stream 22

2.2.2 /P Setting the Current Position as the Display Position**Error! Bookmark not defined.**
2.2.3 OP Open Page (First Command on a Page) 24
2.2.4 EP End Page 26
2.2.5 MT Set Cursor 26
2.2.6 ST Character String 26
2.2.7 FC Font Call 27
2.2.8 BC, BP, BS Barcode-Ausgabe 32
2.2.9 UL Underline 44
2.2.10 SW Space Width 44
2.2.11 SU Superscript and Subscript 44
2.2.12 CP Change Code Page 45
2.2.13 CH SAP Character 46
2.2.14 MK Mark 46
2.2.15 RD Raw Data 47
2.2.16 MC Microfiche Cold Identification 52
2.2.17 PC Print Control 52
2.2.18 BX Draw Box 52
2.2.19 IN Form Information 53
2.2.20 BM - Bitmap Information 55
2.2.21 CB - Color Box 56
2.2.22 CT - Color Text 56
2.2.23 LI - Line 57
2.2.24 LB - Link Begin 57
2.2.25 LE - Link End 58
2.2.26 LK - Link 58
2.2.27 RT - Raw Text 58
2.3 Example 59

1 The Generic Output Format SAPGOF

SAPGOF is a data format intended to enable external output management systems to process so-called ABAP-list and OTF documents generated in SAP systems such as the SAP Business Suite and SAP ERP. The primary intention of transmitting SAPGOF data to external processing software is the transformation of the documents described via SAPGOF data into printer output generated by the external software. Besides hardcopy, the generation and distribution of viewable document formats (such as PDF or XPS files) outside of the SAP system is also a target.

This documentation is based on SAP NetWeaver 04 running on the various UNIX, Linux, Windows 2003 Server, IBM ISeries operating system platforms. Because of SAP NetWeaver release compatibility, this documentation also applies to products SAP WebAS 620, SAP NetWeaver 7, SAP NetWeaver 7.1 plus any applicable SAP NetWeaver enhancement packages.

1.1 File Structure

In this document, "file" always refers to the complete data in a spool request.. This term is used for the sake of simplicity, although the transfer of SAPGOF data in SAP need not take place using a file.

Essentially, every "file" consists of the following elements:

- A header section containing information about the spool request and the output request ("**info lines**").
- A data section containing user data "**data lines**").

  This data has a format based on the OTF format in SAP systems (OTF is a page description format used by SAPscript and Smart Forms).

1.1.1 End of Line

The construction of a SAPGOF file is essentially line-oriented. Each line concludes with a special identifier. This can vary according to the variant of the SAPGOF data flow (ASCII, EBCDIC, Unicode). In the ASCII version of the SAPGOF format, it is the ASCII-NEWLINE (Hex $0A), in the EBCDIC version, it is the EBCDIC-NEWLINE (Hex $15), in the Unicode variant it is a UTF-16 (Big-Endian) NEWLINE character (0x000A)

1.1.2 Header and Data Identifier

A line contains either an "info line" or a "data line". The first character in the line indicates the line type:

First character in line	Type of line
*	"Info line" in file header
Any other printable character	"Data line"

The first line of the file is always an info line. This contains the "*" character in column one, followed by the string MAJOR=2 in the following columns. Other info lines follow, forming the file header. The actual data is contained in the data lines following the last info line.

1.2 Information in the File Header

The info lines in the file header contain information about the spool request and the output request. These lines have the format “parameter=value”. The following parameters are currently defined:

Parameter name	Meaning and values of the parameter
MAJOR	Main version number, currently 2(1)
MINOR	Sub-version, currently 1(1)
FORMAT	Data format: LIST or OTF
RQID	Spool request number
RQOWNER	User who created the spool request (12)
RQCLIENT	Client in which the spool request was created (3)
RQCREATIME	Creation time of the spool request in the format YYYYMMDDHHMMSS00 (16)
RQNAME	First part of the three-part spool request name (6)
RQSUFFIX1	Second part of the three-part spool request name (4)
RQSUFFIX2	Third part of the three-part spool request name (12)
RQORIGDEST	Original output device for spool request (4)
DVCODEPAGE	Character set number of the device type for the output request (4)
DVDEVTYPE	Device type of the output device PJPRINTER (8)
DVORIGDEVTYPE	Device type of the original output device RQORIGDEST (4)
PJAMOUNT	Number of copies (3)
PJCLIENT	Client in which the output request was created (3)
PJDEPARTMENT	Department of recipient of output request (12)
PJFORM	Formatting type for the output request (16)
PJJOBNNO	Output request number
PJLAUNCHED	Creation time of the output request in the format YYYYMMDDHHMMSS00 (16)
PJENDPAGE	Number of the last page of the spool request to be printed
PJSTRTPAGE	Number of the first page of the spool request to be printed
PJTELENUM	Fax number for fax requests (30)
PJPRINTER	Output device for the output request (4)
PJPRIO	Output request priority (1) (1=high, 9=low)
PJRECEIVER	Output request recipient (12)
PJTITLE	Title of the output request (86)
PJUSER	User who created the output request (12)

Figures in parentheses represent the length of parameters with fixed length.

1.2.1 Further notes: Parameter FORMAT:

When FORMAT=OTF, the data is output in OTF format. The commands contained in this format are described in the "OTF Format" section. The OTF format (that is, OTF commands and command parameters) is output in the **SAPGOF character set**.

When FORMAT=LIST, the data is output in ABAP list format. A description of this format follows.

1.2.2 Parameters PJSTRTPAGE and PJENDPAGE:

In the SAP system, you can print parts of documents from the Spool Overview (transaction SP01), such as printing pages 5-7 of a 10 page document. If the user uses partial printing for a SAPGOF document, these two parameters contain the selected lower and upper limits for the partial print. The value 0 for PJSTARTPAGE means print from the first page, the value 0 for PJENDPAGE means print to the last page.
If the SAPGOF format describes an ABAP list (parameter FORMAT=LIST), the SAPGOF data stream generated during the partial print contains only the section of the original document described with the lower and upper limits. That is, the SAP spooler has already suppressed the pages that were not selected.
In the case of OTF documents (parameter FORMAT=OTF), only the IN command is output for each page that is skipped at the start of the document (this is an INFO command that marks the start of a page). The actual page contents are suppressed by the SAP spooler. This also happens for the pages skipped at the end of the document for the partial print. Again, only the IN command is output for each page, and the page content is suppressed by the SAP spooler.

1.3 Displaying the Data

1.3.1 Structure of LIST Type Data Lines

Each LIST type data line contains a two-character command ID, identifying the content and function of the data. There then follows an optional parameter block of variable length. The basic structure of LIST and OTF format data lines is essentially the same.

The following command IDs are available:

Command ID	Parameter block	Description
SP	None	Start a new page
LD	Characters to be output (variable length)	Output data
PC	Name of print control (length=5)	Print control
EL	None	End of line
EP	None	End of page

1.3.2 Note: Command ID LD:

The length of the parameter block for command ID LD can also be zero (that is, no character is output).

1.3.3 Print Controls in LIST Type Data Lines

LIST type data can include print controls. These are control statements, identified using a five-character name, that trigger printer-specific control sequences (for example, start bold type) when you print "normally" from an SAP system.

Embedded print controls in LIST type data are introduced by the command ID PC, followed by the five-character print control name.

Example of print controls in LIST type data:

```
PCCOL0H

LD This list line begins with the print control COL0H

EL
```

Note: The display of print controls in LIST type data corresponds to the display of print controls in OTF data.

1.3.4 Print Controls for Color Control in Lists

The ABAP list processor uses a range of standard print controls COLxx in all lists. These control the foreground color (font color) and the background color and are named according to the following convention:

`COL` - Fixed prefix

Color number **`0`**,**`1`**,...**`7`**

`N`=Normal, **`H`**=High (highlighted), **`V`**=inVerse (inverted)

The following table lists the **`COLxx`** print controls along with an explanation of each print control:

Print control name	Foreground color (font color)	Background color
COL0N	Black	Gray
COL0H	Blue	Gray
COL0V	Gray	Blue
COL1N	Black	Pale blue
COL1H	Black	Blue
COL1V	Blue	Gray
COL2N	Black	White
COL2H	Black	Pale gray
COL2V	Dark gray	Gray
COL3N	Black	Pale yellow
COL3H	Black	Yellow
COL3V	Yellow	Gray
COL4N	Black	Pale turquoise
COL4H	Black	Turquoise
COL4V	Turquoise	Gray
COL5N	Black	Pale green
COL5H	Black	Green
COL5V	Green	Gray
COL6N	Black	Pale red

Print control name	Foreground color (font color)	Background color
COL6H	Black	Red
COL6V	Red	Gray
COL7N	Black	Pale purple
COL7H	Black	Purple
COL7V	Purple	Gray

1.4 SAPGOF Character Set

All information in a file - info lines and data lines – is displayed in a special character set. The SAPGOF character set comprises all characters used in SAP systems, including Asian multibyte characters (such as Japanese, traditional Chinese, simplified Chinese, and Korean). There are ASCII, EBCDIC and Unicode variants of the SAPGOF data format. The SAPGOF variant to be used is determined via the choice of the SAP device type used for an output device, e.g. SAPGOF (ASCII), SAPGOF_E (EBCDIC) or SAPGOFU (Unicode UTF-16 big-endian).

The ASCII and EBCDIC variants use a non-standard, SAP-defined character set to represent SAPGOF commands and data. The Unicode variant of SAPGOF uses UTF-16 character set in big-endian representation to encode commands and data alike.Since the development of the Unicode variant of SAPGOF (device type SAPGOFU), the ASCII and EBCDIC variants are considered obsolete and are provided only for the sake of compatibility. Developers of new SAPGOF converters should base their implementation on the Unicode variant of SAPGOF.

1.4.1 Syntactical Characters (ASCII/EBCDIC variants only)

All of the characters used to code info lines and data lines in the SAPGOF data stream (except the end-of-line character) belong to the "*syntactical character set*", that is a basic syntactical set of characters. This is a part of what is usually known as the "ASCII 7 bit" character set. Coding these syntactical characters and the end-of-line character in ASCII or EBCDIC- results in the ASCII or EBCDIC version of the SAPGOF data stream.

The following table contains an extract of the syntactical character set and the hexadecimal codes of the characters in the EBCDIC and ASCII variants of the SAPGOF character set. The table also contains all characters that are part of the ASCII 7 bit character set but are coded differently in the SAPGOF character set (because they are required to display special characters - see below).

Character	SAP number	SAP name	ASCII SAPGOF	EBCDIC SAPGOF	Substitute
(Space)	32	space	20	40	
!	33	exclam	21	4F	
"	34	quotedbl	22	7F	
#	35	numbersign	Substitute	Substitute	#035
...	...	...	...	...	
@	64	at	Substitute	Substitute	#064
...	...	...	...		
[	91	bracketleft		4A	
\	92	backslash	Substitute	Substitute	#092

Character	SAP number	SAP name	ASCII SAPGOF	EBCDIC SAPGOF	Substitute
]	93	bracketright		5A	
^	94	asciicircum	Substitute	Substitute	#094
_	95	underscore	5F	6D	
...	...	...	...	...	
}	125	braceright	7D	D0	
~	126	asciitilde	Substitute	Substitute	#126

1.4.2 Syntactical Characters (Unicode variant only)

In the Unicode variant of SAPGOF (device type SAPGOFU), there exist no non-standard encodings for BASIC LATIN characters. All characters are represented using their standard Unicode UTF-16 big-endian encoding:

Character	Codepoint	Character name	SAPGOFU character encoding
(Space)	U+0020	SPACE	0x0020
!	U+0021	EXCLAMATION MARK	0x0021
"	U+0022	QUOTATION MARK	0x0022
#	U+0023	NUMBER SIGN	0x0023
...	...		...
@	U+0040	COMMERCIAL AT	0x0040
...	...		...
[	U+005B	LEFT SQUARE BRACKET	0x005B
\	U+005C	REVERSE SOLIDUS	0x005C
]	U+005D	RIGHT SQUARE BRACKET	0x005D
^	U+005E	CIRCUMFLEX ACCENT	0x005E
_	U+005F	LOW LINE	0x005F
…	…		…
{	U+007B	LEFT CURLY BRACKET	0x007B
|	U+007C	VERTICAL LINE	0x007C
}	U+007D	RIGHT CURLY BRACKET	0x007D
~	U+007E	TILDE	0x007E

1.4.3 Special Characters (ASCII and EBCDIC variants only)

In the SAPGOF character set, all characters that do not belong to the syntactical character set are identified using a special notation corresponding to the SAP number for the character. Almost every printable character in SAP systems has a unique decimal code assigned to it. This is the SAP number of the character.

However, not all printable characters in SAP systems have an SAP number. Multibyte characters used in Asian character sets **do not** have SAP numbers and are represented in the SAPGOF character set by special notation (see below).

1.4.3.1 Coding of Characters Defined by SAP Numbers (ASCII/EBCDIC variants only)

Characters with an SAP number in the SAP system are coded using a substitute representation in the SAPGOF character set. This consists of the '#' or '@' character as an introductory identifier, followed by a decimal representation of the SAP number.

Characters with a three-digit (decimal) SAP number are coded as follows:

#xxx

where xxx stands for the decimal representation of the SAP number.

Character	SAP Name	SAPGOF Coding
Æ	AE	#225
Ä	Adieresis	#258
Ô	Ocircumflex	#278
®	registered	#347

Characters with a four-digit (decimal) SAP number are coded as follows:

@yyyy

where yyyy stands for the decimal representation of the SAP number.

1.4.3.2 Coding of Multibyte Character(ASCII/EBCDIC variants only)

Special codes are used in the SAPGOF character set for the representation of multibyte special characters in Asian versions of SAP systems. The code of a multibyte character in the SAPGOF character set is defined as follows:

^cxxxx

C is a single-character identifier (contained in the syntactic character set) that identifies the Asian multibyte character set (for example, Shift + JIS for Japan).

XXXX stands for the coded bytes of the multibyte character in hexadecimal. For example:

^A848F

Codes for double-byte characters

Language version	SAP code page	SAPGOF code for double-byte characters
Japanese (Shift-JIS)	8000	^Jxxxx
Chinese (traditional)	8300	^Mxxxx
Chinese (simplified)	8400	^Cxxxx
Korean	8500	^Kxxxx

Note: The number of bytes in a multibyte character depends on the character set identifier C.

1.4.4 Special Characters: Frame Characters (ASCII/EBCDIC variants only)

Lists in SAP systems usually contain frame characters. Frame characters are special characters used to output pseudo-graphics with which vertical and horizontal lines and frames can be output.

The frame characters in LIST type data lines are represented by the character combination #xxx, where xxx stands for the three-digit SAP number of the character.

The following table lists the frame characters used:

Character combination in data	SAP character name	Printed output
#460	box_drawings_light_horizontal	─
#461	box_drawings_light_vertical	│
#462	box_drawings_light_down_right	┌
#463	box_drawings_light_down_left	┐
#464	box_drawings_light_up_right	└
#465	box_drawings_light_up_left	┘
#466	box_drawings_light_verti_righ	├
#467	box_drawings_light_verti_left	┤
#468	box_drawings_light_down_horiz	┬
#469	box_drawings_light_up_horiz	┴
#470	box_drawings_light_verti_hori	┼
#471	box_drawings_light_left	╴
#472	box_drawings_light_up	╵

Character combination in data	SAP character name	Printed output
#473	box_drawings_light_right	_
#474	box_drawings_light_down	|
#475	box_drawings_checkbox_off	☐
#476	box_drawings_checkbox_on	☑

The *box_drawings_checkbox_off* and *box_drawings_checkbox_on* characters are used in list output to represent pushbuttons that can be switched on or off.

1.4.5 Special Characters: Symbols (ASCII/EBCDIC variants only)

You can use symbols in lists. Symbols are monochrome graphical special characters. The character name (*SAP name*) for these characters in SAP systems is **SAPdingXX**, where XX stands for a two-character identifier between 00 and 7F, counting as follows: 00,01,...0A,0B,..0F,10,11,.... (same as hexadecimal system).

The symbols are represented in LIST type data using the character combination #xxx, where xxx stands for the three for the three-digit SAP number of the character.

Please note that this updated document lists only those characters from SAP symbols actually in use in SAP systems. Older documents contained many unused character codes for SAPsymbols.

The symbols have the following names and numbers in the list of SAP characters:

Character combination in data	SAP character number	SAP character name
#673	673	SAPding21
...	...	...
#728	728	SAPding58

You can display the symbols in the SAP System. Report SHOWSYMB displays a list of the symbols that can be displayed. For a complete list of the symbols, call the spool administration transaction (SPAD) and then choose *Utilities → For character sets → Compare character sets*. Enter character sets 1100 and 1140 and select *Only output differences*.

1.4.6 Special Characters: Icons (ASCII/EBCDIC variants only)

You can use the colored SAPicons in lists. Their character name in SAP systems is always **SAPiconXX_nnnn** where XX is a two-character identifier from 00 to ZZ as follows:

00,01,...0A,0B,0C,....0Z,10,.... and so on

In the list of SAP characters, not all possible codes in this numbering system are assigned to SAPicons.

SAPicons are represented in LIST type data using the character combination #xxx, where xxx stands for the three-digit SAP number of the character.

SAPicons have the following names and numbers in the list of SAP characters:

Character combination in data	SAP character name	SAP character name
#768	768	SAPicon00_DUMMY
#769	769	SAPicon01_CHECKED
...	...	...
#778	778	SAPicon0A_RED_LIGHT
...	...	...
#803	803	SAPicon0Z_CHANGE
#804	804	SAPicon10_DISPLAY
...	...	...
#895	895	SAPicon3J_SET_STATE
#940	940	SAPicon3K_PREVIOUS_N
...	...	...
#999	999	SAPicon57_PLANNING_T
@1000	1000	SAPicon58_PERIOD
...	...	...
@1063	1063	SAPicon6Z

You can display the SAPicons in the SAP R/3 System. Report SHOWICON displays a list of the icons that can be displayed. For a complete list of the icons, call the spool administration transaction (SPAD) and then choose *Utilities* → *For character sets* → *Compare character sets.* Enter character sets 1100 and 1140 and select *Only output differences.*

1.4.7 Special Characters (Unicode variant only)

As seen in the previous sections, it is necessary to describe special, SAP-defined characters such as frame characters, symbols and icons which appear in the SAPGOF data (typically within ABAP list documents). In the Unicode variant of SAPGOF; these characters are encoded as described in the following sections.

1.4.8 Frame Characters (Unicode variant only)

SAPGOFU character encoding	Unicode codepoint	SAP character name	Printed output
0xF8FC2500	1100F0	box_drawings_light_horizontal	─
0xF8FC2502	1100F1	box_drawings_light_vertical	|

SAPGOFU character encoding	Unicode codepoint	SAP character name	Printed output
0xF8FC250C	1100F2	box_drawings_light_down_right	⌐
0xF8FC2510	1100F3	box_drawings_light_down_left	¬
0xF8FC2514	1100F4	box_drawings_light_up_right	└
0xF8FC2518	1100F5	box_drawings_light_up_left	┘
0xF8FC251C	1100F6	box_drawings_light_verti_righ	├
0xF8FC2524	1100F7	box_drawings_light_verti_left	┤
0xF8FC252C	1100F8	box_drawings_light_down_horiz	┬
0xF8FC2534	1100F9	box_drawings_light_up_horiz	┴
0xF8FC253C	1100FA	box_drawings_light_verti_hori	┼
0xF8FC2574	1100FB	box_drawings_light_left	╴
0xF8FC2575	1100FC	box_drawings_light_up	╵
0xF8FC2576	1100FD	box_drawings_light_right	╶
0xF8FC2577	1100FE	box_drawings_light_down	╷
0xF8FC2610	1100EE	box_drawings_checkbox_off	☐
0xF8FC2611	1100EF	box_drawings_checkbox_on	☑

1.4.9 Symbols (Unicode variant only)

Please note that this document lists only characters from SAP symbols which are actually in use in SAP systems.

SAPGOFU encoding	Unicode codepoint	SAP character name
0xDBF8DC00	110010	SAPding20
0x DBF8DC01	110011	SAPding21
...	...	...
0xDBF8DC35	110045	SAPding57
0xDBFDDC5E	110046	SAPding58

1.4.10 Icons (Unicode variant only)

Please note that this document lists only characters from SAP icons which are actually in use in SAP systems.

SAPGOFU encoding	Unicode codepoint	SAP character name
0xF8FD00300030	110100	SAPicon00_DUMMY
0xF8FD00300031	110101	SAPicon01_CHECKED
...	...	...
0xF8FD00300041	11010A	SAPicon0A_RED_LIGHT
...	...	...
0xF8FD0030005A	110123	SAPicon0Z_CHANGE
0xF8FD00310030	110124	SAPicon10_DISPLAY
...	...	...
0xF8FD0033004A	11017F	SAPicon3J_SET_STATE
0xF8FD0033004B	110180	SAPicon3K_PREVIOUS_N
...	...	...
0xF8FD00350037	1101BB	SAPicon57_PLANNING_T
0xF8FD00350038	1101BC	SAPicon58_PERIOD
...	...	...
0xF8FD00570078	110D0F	SAPiconWx

1.5 Setting Up an Output Device

You use the spool administration transaction (SPAD) to define an output device in the SAP System. Various attributes are assigned to each output device.

The following attributes are important when you set up an output device for SAPGOF format:

Attribute name	Value	Description
Device type	Name of a device type, defined in an SAP system, that you want to use to output in the SAPGOF format. Examples: SAPGOF, SAPGOF_E, SAPGOFU	You need special device types in an SAP system to use SAPGOF format. The device type delivers information about the output device to the SAP system, such as a list of available fonts. This is important for printing SAP*script* and Smart Forms documents (FORMAT=OTF)
Spool server	Name of an application server, in the SAP system, on which a spool work process is running.	The application server that you enter here processes all print requests to the output device.
Destination host	Name of the remote host that receives the output data from the spool server.	The host you enter here receives the data from the spool server in SAPGOF format.
Host printer	Operating system name of the printer on the spool server or destination host.	Enter the name of the printer.

Attribute name	Value	Description
Access method	L, C, U, S (E for external output management systems only)	Controls the type of data transfer between the SAP system and the spool server /destination host.

1.6 Information on character widths in SAPGOFU

In a Unicode system, the SAPscript and Smart Forms formatting tools require a character width value for this character in a device type. If no character width is available, SAPscript and Smart Forms will replace the character with a hash character (#). Thus, the font metrics stored in a device type control which characters can actually be output for OTF printing (in ABAP list printing there are no font metrics involved, thus, there is no such dependency on the device type).

The SAPGOFU device type contains character widths for all those characters that the now obsolete SAPGOF device type supported, with the following additions resp. exceptions:

A) Font THANGSAN only contains character widths for BASIC LATIN and Thai characters. They are identical to THANGSAN font of device type THSWINU (Unicode Windows printing for Thai)

B) All fonts exept THANGSAN have character widths for all Chinese/Japanese Unicode characters

C) Font KPSAMMUL has widths for the above mentioned Chinese/Japanese Unicode characters plus widths for Korean HANGUL characters

2 OTF Format

Output Text Format (OTF) is a format consisting of a set of simple, device-independent commands. It is therefore suitable for a whole range of output devices such as line printers, laser printers, or monitors. It is also easy to read and understand.

In SAP applications, OTF serves as a basis for device drivers, that is, programs controlling output to a specific output device.

The SAP*script* or Smart Form Composer creates an OTFdata stream for an output request from a form.

The following description of OTF includes the following:

- Syntax description
- Command overview, followed by a detailed description of parameters
- Short description of the output drivers

2.1 Syntactical Structure

An OTF data stream consists of numerous command data records with the following structure

- Command ID (Length: 2 character units)
- Command parameters (Length: variable, maximum length is 70 character units)
- Control character *NEWLINE* (Length: 1 character unit)

The command ID consists of two characters. It is this identification that determines the expected parameters and their sequence. The ID is followed by a variable-length area containing parameters for that command. For some commands (for example, command MT) this area is of constant length, while for others (like command ST) it can be of variable length. If the parameter area is of variable length, the length is always defined by a parameter.

If the interpreter cannot recognize a command ID, it will ignore the line and move on to the next line.

Every OTF data record ends with a NEWLINE control character Depending on the SAPGOF variant chosen, this can be an ASCII newline (hex $0A), an EBCDIC Newline (0x25) or a Unicode UTF-16 BE Newline (0x000A)inding the Next OTF Command in the Data Stream:

The following algorithm noted in pseudocode demonstrates how an OTF interpreter finds the next command after the current command when it is reading the OTF data stream. CUR_OFFSET is the offset (in character units) of the current command identifier in the data flow. The identifier of the first OTF command in the data stream is located at offset 0.

```
IF current command ID = RD THEN
  /* jump RD command, length 72 */
  CUR_OFFSET = CUR_OFFSET + 72
  /* jump NEWLINE */
  CUR_OFFSET = CUR_OFFSET + 1
ELSE
  /* jump current command ID */
  CUR_OFFSET = CUR_OFFSET + 2
  /* read first parameter  character */
  CUR_CHAR = GETCHAR( CUR_OFFSET)
  /* find next NEWLINE */
  WHILE CUR_CHAR != EOF AND CUR_CHAR != NEWLINE
    CUR_OFFSET = CUR_OFFSET + 1
```

```
    CUR_CHAR = GETCHAR( CUR_OFFSET)
  ENDWHILE
  /* jump NEWLINE */
  CUR_OFFSET = CUR_OFFSET + 1
ENDIF
CUR_CHAR = GETCHAR( CUR_OFFSET)
/* CUR_OFFSET now shows identifier of following command, */
/* if CUR_CHAR is not EOF (End of File)                  */
```

Note: The above algorithm works on the assumption that the only OTF command to contain a NEWLINE character in the parameter area is RD.

2.1.1 Parameter Types

The value set of a parameter in an OTF data record is determined by its type. The following types are used:

NAME	Sequence of capital letters and numeric characters, beginning with a capital letter. Spaces are permitted at the end.
CHAR	Sequence of characters.
NUMC	Sequence of numeric characters.
TWIP	Sequence of numeric characters. Unit of measurement 1/1440 inch or 1/20 point
FNTH	Sequence of numeric characters. Unit of measurement 1/10 point.
SIGN	**+** (positive) **-** (negative)
BOOL	**X** (on) **Space**(off)

2.1.2 Units of Measurement

TWIP (twentieth Point) and FNTH (font height) are the units of measurement used in OTF. The following information is useful:

1 inch	= 2,54 centimeters
1 inch	= 72 points
1 point	= 20 TWIP
1 point	= 10 FNTH

2.2 Command Overview

ID	Description
//	(Start and End) = Start and end OTF data stream
OP	(OpenPage) = Open, first command on page
EP	(EndPage) = Close, last command on page

ID	Description
MT	(Move-To) = Set cursor
ST	(String) = Character string
FC	(FontCall) = Font call
BC,BP,BS	(Bar code) = Bar code output
UL	(UnderLine) = Underline
SW	(SpaceWidth) = Space character width
SU	(Superscript/SUbscript) = Superscript / subscript
CP	(Code page) = Switch code page
CH	SAP Character
MK	(MarKed) = Selected text for display
RD	(Raw Data) = Printer-specific data
MC	(Microfiche Cold) Microfiche cold identification
PC	(Print Control) = Print control from T022D
BX	(BoX) = Box character
IN	(Information) = Form information
BM	Bitmap information
CB	Color box
CT	Color text
LI	Line
LB	Link Begin
LE	Link End
LK	Link
RT	Raw Text

The parameters described in individual commands are position parameters. They must be given in the order in which they appear, be of the specified length, and not be separated by spaces.

2.2.1 // Beginning or End of the OTF Data Stream

An OTF data stream always begins and ends with the `//` command.

Parameter

Description	Length	Type
STARTFLAG Possible values: • **X** – Beginning of OTF data stream • **Space** - End of OTF data stream	1	BOOL

Description	Length	Type
DEVICETYPE This is the SAP device type from transaction SPAD, for which the spool request was created.	8	NAME
SAP_PRINT_CONTROL This is the SAP print control character. It was used in earlier OTF versions but is now obsolete.	4	CHAR
SAP_PRINT_CONTROL_LEN This is the length of the preceding SAP print control. Possible values: **1**, **2**, **3**, **4**.	1	NUMC
SAP_RELEASE Name of the SAP Release under which the OTF document was created.	4	CHAR
PAGE_OFS_X Horizontal distance (in TWIP) by which the print output should be moved at output. The parameter is only interpreted at the beginning of the OTF data stream (STARTFLAG=**X**).	5	TWIP
PAGE_OFS_X_SIGN Direction of the horizontal displacement. Possible values are **+** (plus sign, move right) or **-** (minus sign, move left). The parameter is only interpreted at the beginning of the OTF data stream (STARTFLAG=**X**).	1	SIGN
PAGE_OFS_Y Vertical distance in TWIP, by which the print output of the page should be moved at output. The parameter is only interpreted at the beginning of the OTF data stream (STARTFLAG=**X**).	5	TWIP
PAGE_OFS_Y_SIGN Direction of the vertical displacement. Possible values are **+** (plus sign, move down) or **-** (minus sign, move up). The parameter is only interpreted at the beginning of the OTF data stream (STARTFLAG=**X**).	1	SIGN
OTF_CREATOR_ID This indicator identifies the tool that generated the OTF data stream. Possible values: **Space** SAP*script* form processor **1** Smart Forms	1	CHAR

Other Remarks

The parameters DEVICETYPE, SAP_PRINT_CONTROL and SAP_PRINT_CONTROL_LEN, SAP_RELEASE, PAGE_OFS_X, PAGE_OFS_X_SIGN, PAGE_OFS_Y, PAGE_OFS_Y_SIGN, OTF_CREATOR_ID are only filled when STARTFLAG = **X**.

In an SAP system, you can append spool requests to other existing spool requests. This means that a single spool request can contain two or more OTF data streams (each beginning and ending with `//`).

You can displace the entire print output a certain distance both horizontally and vertically using the parameters PAGE_OFS_X, PAGE_OFS_X_SIGN, and so on.

PAGE_OFS_X = **144**
PAGE_OFS_X_SIGN = **-**
PAGE_OFS_Y = **144**
PAGE_OFS_Y_SIGN = **+**

This means that the entire print output is moved 1/10 inch (=144 TWIP) to the left and 1/10 inch (=144 TWIP) downwards.

2.2.2 OP Open Page (First Command on a Page)

An OTF data stream consists of a sequence of output pages. Each page is headed by an OP command. This contains the page format (for example, DINA4, INCH12), the page layout (P= Portrait, L= Landscape), the character width, the line height, the page length and width, the page number within the current document, the page number with respect to the entire OTF data stream, the page number of the last page of the current document, the print mode (SIMPLEX, DUPLEX and so on), and the type of paper feed.

When using non-proportional fonts, and particularly in conjunction with line printers, it is important that the character width and line height are constant. This is because these values are used to calculate the characters per inch and lines per inch, which most of these printers use.

The page length and width correspond to the page format and page orientation that appears at the beginning of the OP command.

For the output sequence of text (CT, ST, RT), Barcodes (BC, BS), lines and boxes (CB, BX, LI), and graphics (BM, RD), you must differentiate between SAPGOF documents that were created with SAPscript and those that were created with Smart Forms. This is specified using the parameter OTF_CREATOR_ID of the // command. The output sequences for SAPscript and Smart Forms are as follows:

- Output sequence for SAPscript (OTF_CREATOR_ID = Space):
  1. BX, LI
  2. ST, RT, BC, BS, BM, RD

  Note: SAPScript does not use CT or CB color commands
- Output sequence for Smart Forms (OTF_CREATOR_ID = 1):
  1. BM (BACKGROUNDBITMAP = 1 or 2)
  2. CB, BX, CB, LI, CT, ST, RT, BC, BS, BM (BACKGROUNDBITMAP = 0)

  Note: Background bitmaps are only possible for Smart Forms

For a SAPGOF Interpreter and for the SAP printer drivers and converters, these output sequences mean that all OTF commands for a page are first collected and then processed in the two stages listed above. Within a stage, the OTF commands must be processed in the sequences in which they appear in the SAPGOF file.

Parameters

Description	Length	Type
Page format	8	NAME
Page orientation	1	NAME
Character width	5	TWIP
Line spacing	5	TWIP
Page length	5	TWIP
Page width	5	TWIP
Number of pages in document	5	NUMC
Total number of pages	5	NUMC
Page number for last page of document	5	NUMC
PRINTMODE Sets the print mode from the current page. Possible values: • **Space** – Print mode not changed (Default value) • **S** – Starts a new page and sets the print mode to SIMPLEX (single-sided). • **D** – Starts a new page and sets the print mode to DUPLEX (double-sided). • **T** – Starts a new page and sets the print mode to TUMBLE DUPLEX (double-sided reversed).	1	CHAR
PAPERRES Represents the input tray (i.e. paper source) requested for the current page. Possible values: • • TRY01 Input tray 01 • TRY02 Input tray 02 • TRY03 Input tray 03 • TRY04 Input tray 04 • TRY05 Input tray 05 • TRY06 Input tray 06 • TRY07 Input tray 07 • TRY08 Input tray 08 • TRY09 Input tray 09 • TRY10 Input tray 10	20	CHAR

Description	Length	Type
• … • TRY99 Input tray 99 • TRYMN Manual feed • TRYEN Envelope feed • TRYME Manual envelope feed		

Other Remarks

An OTF data stream may contain several logical documents. Page numbers are therefore separated into relative document page numbers and absolute page numbers relative to the entire OTF data stream. The page number of the final page of the current document is only contained in the last page. In all previous pages the value is set to **`00000`**.

2.2.3 EP End Page

Every page of the OTF data stream ends with the EP command.

Parameters: None

2.2.4 MT Set Cursor

The MT command sets the cursor (the current output position) to a particular position on the output page. The reference point for this is the top left hand corner of the page.

Parameter

Description	Length	Type
Horizontal position	5	TWIP
Vertical position	5	TWIP

If a string is output at the position specified by MT (see ST command), the horizontal position describes the *left margin of the character box* and the vertical position describes the *baseline of the character box* for the first character in the string. MT does not specify the upper-left corner of the character box, such as in Microsoft Windows.

2.2.5 ST Character String

The character string specified using the ST command is output at the current output position, which is normally determined immediately beforehand using the MT command.

The parameter **`Length in TWIP`**, which is important for pixel-oriented output devices and the parameter **`Number of bytes to be output`**, are specified in the command prior to the character string itself.

The number of bytes in the ST command describes the length of the character string in bytes. This value represents the bytecount of the string when the string is encoded in the SAP codepage specified via the last CP command. Depending

on the SAPGOF variant used, this value differs from the actual bytecount of the output string represented in the SAPGOF character set. For ASCII and EBCDIC variants (SAPGOF, SAPGOF_E), the bytecount in the ST command is typically less than the bytecount of the output string.

When the Unicode variant (SAPGOFU) is used in a SAP Unicode system (!), the bytecount from the ST command and the actual bytecount of the output string are typically identical, since the SAP-internal representation of strings in a Unicode system also uses UTF-16 encoding (the only possible exception being strings encoded in special codepages 4001/4004 which are used for OCR and MICR fonts). This is one major reason why SAP recommends using the SAPGOFU device type for SAPGOF output from Unicode systems. The other major reason is that UTF-16 is a worldwide standard, which makes it easier for external processors to "understand" text strings in SAPGOF.In the case of two successive OTF ST commands, the starting X-position of the second character string is determined by the length of the character string (in TWIP) in the first ST command.

Parameters

Description	Length	Type
Length in TWIP	5	TWIP
Number of bytes	2	NUMC
Character string	variable	CHAR

2.2.6 FC Font Call

In OTF, the FC command is used to change fonts. It contains a number of parameters that provide font characteristics.

Parameter

Description	Length	Type
FONTFAMILY This is the name of a font family defined in the SAP R/3 table TFO01. SAP currently uses the following font families: • COURIER A non-proportional font • HELVE A proportional sans-serif font • LETGOTH A non-proportional font • LNPRINT A non-proportional font • OCRA A non-proportional font using character set 4001 • OCRB A non-proportional font using character set 4004 • TIMES A proportional serif font • CNSONG Chinese double-byte standard font (People's Republic of China) • DBMINCHO Double-byte font (Japan) • DBGOTHIC Double-byte font (Japan) • JPMINCHO Double byte standard font (Japan) • KPSAMMUL Double byte standard font (South Korea) • THANSANG Multibyte standard font (Thailand)	8	NAME

Description	Length	Type
• TWSONG Traditional Chinese double-Byte standard font (Taiwan) • CNHEI Simplified Chinese double-byte font (People's Republic of China) • CNKAI Simplified Chinese double-byte font (People's Republic of China) • COURCYR Cyrillic font, non-proportional • HELVCYR Cyrillic font, proportional • TIMECYR Cyrillic font, proportional • THDRAFT Multibyte font (Thailand) • THVIJIT Multibyte font (Thailand) • MICR_C MICR font for Europe (CMC-7) using character set 4004 • MICR_E MICR font for America (E-13B) using character set 4004 • COUR_17 Courier font using Greek character set • HELV_17 Helvetica font using Greek character set • TIME_17 Times font using Greek character set • ANDALE_J Andale Mono WT J – UTF8, new non-proportional Unicode font • ANDALE_K Andale Mono WT K – UTF8, new proportional Unicode font • ANDALE_S Andale Mono WT S – UTF8, new proportional Unicode font • ANDALE_T Andale Mono WT T – UTF8, new proportional Unicode font • KPBATANG Korean DB font, new Korean non-proportional font • KPDODUM Korean DB font, new Korean non-proportional font • KPBGULIM Korean DB font, new Korean non-proportional font • KPGUNGSE Korean DB font, new Korean non-proportional font • TWDPHEI Traditional Chinese DB font, traditional Chinese non-proportional font • TWDMING Traditional Chinese DB font, traditional Chinese non-proportional font Note: Not all of these fonts are currently defined in the SAPGOF, SAPGOF_E or SAPGOFU device types. SAPGOF, SAPGOF_E and SAPGOFU device types contain the following font families as of 01-2009: CNSONG, COURIER, DBGOTHIC, DBMINCHO, HELVE, JPMINCHO, KPSAMMUL, OCRA, OCRB, THANGSAN, TIMES, TWSONG		

Description	Length	Type
Additional font families can only appear in SAPGOF data if the device types are copied to customer name space (Yxxx, Zxxx) and adapted, i.e. furnished with additional printer fonts.		
FONTSIZE The height of the font in 1/10 point. Possible values: **001** to **999**.	3	FNTH
BOLD-ATTRIBUTE Attribute for bold script. Possible values: **X**, **Space**.	1	BOOL
ITALIC-ATTRIBUTE Attribute for italic script. Possible values: **X**, **Space**.	1	BOOL
CHARACTERWIDTH The width of a character in the printer font in TWIP (5 digits). Possible values: **00000** to **99999**. Note: For proportional fonts, the value of this field is the average character width of all characters in the font.	5	TWIP
PROPFLAG Identifies whether the font is proportional or non-proportional. Possible values: **X** or **Space**.	1	BOOL
PC-1 Name of print control **1** assigned to the printer font. Possible values: **SF000** to **SF999** or **Space**.	5	NAME
PC-2 Name of print control **2** assigned to the printer font. Possible values: **SF000** to **SF999** or **Space**.	5	NAME
CODEPAGE Name of the SAP codepage assigned to the font family in the SAP system. This codepage is either the internal SAP system codepage (see CP command) or a special font codepage assigned to the font family. Currently only OCRA, OCRB, MICR_C and MICR_E fonts have a special codepage assigned (4001 resp. 4004).	4	NUMC
SPACEWIDTH An internal SAP*script* value.	5	TWIP
LANGUAGEKEY The language key specifies the language of the form and/or the text currently being processed. If there is uncertainty about the font being used, the language key can be used to ensure the correct device font is used.	1	CHAR
POSTENCODE This attribute is only relevant to the PostScript driver. Possible values: **X**, **Space**. If the attribute is set, the encoding vector of the PostScript fonts used is changed by the OTF driver. The encoding vector used is defined in the initialization of the formatting type (such as INCH12) for the device used. If the attribute is not set, the PostScript font will be used with its own "built-in" encoding.	1	BOOL

Description		Length	Type
SCALEFONT This attribute is meaningful for the PCL-5 and the SAPWIN/SWIN driver. Possible values: **X**, **Space**. If this attribute is set, it means the printer font is scaleable and the printer driver must output commands for scaling the font to the required size. In this case, the contents of print controls 1 and 2 are different. If the parameter is not set, then print controls PC-1 and PC-2 already contain the complete command for font selection.		1	BOOL
PRINTERFONTPROP This attribute is meaningful for the PCL -5 driver. Possible values:		1	CHAR
Value:	Description:		
Y	PCL-5 handles the printer font as a *proportional font*		
N	PCL-5 handles the printer font as a *non-proportional font*		
(Space)	The PCL-5 font attribute *proportional font* is set according to the above-mentioned parameter PROPFLAG		
SOFTFONT This attribute is activated when the current font is contained in the OTF data stream as a software font definition (variant **T** of the RD command). In this case, the parameter PC1 contains the five-digit softfont ID (for example, **00001**), which enables the assignment of the FC command to the softfont definition in the RD command.		1	BOOL

Below is a list of the language keys used in SAP systems and the languages assigned to them:

Language key	Language
0	**Serbian (Cyrillic character set)**
1	Chinese (simplified)
2	Thai
3	Korean
4	Romanian
5	Slovenian
6	Croatian
8	Ukranian
9	Estonian
A	Arabic
B	Hebrew

Language key	Language
0	**Serbian (Cyrillic character set)**
C	Czech
D	German
E	English
F	French
G	Greek
H	Hungarian
I	Italian
J	Japanese
K	Danish
L	Polish
M	Chinese (traditional)
N	Dutch
O	Norwegian
P	Portuguese
Q	Slovakian
R	Russian
S	Spanish
T	Turkish
U	Finnish
V	Swedish
W	Bulgarian
X	Lithuanian
Y	Latvian
a	Afrikaans
b	Icelandic
c	Katalan
d	Serbian (Latin character set)
i	Indonesian

Other remarks

Print controls (SFxxx) are assigned to every font used by SAP*script* for a specific device type. The exact definitions of both print controls depend on the printer driver used.

2.2.7 BC, BP, BS Bar Code Output

The following two variants of bar codes can appear in the OTF:

- The “old” variant (generated from SAPscript and Smart Forms) uses the BC command and one or more succeeding BS commands. The BC command contains the name of the bar code defined in the SAP system and the total length of the bar code data in the BS commands. With this variant, the bar codes are generated outside the SAP system, for example, by a bar code function in the printer (Kyocera Prescribe printers), by additional firmware in the printer (the JetCAPS BarDIMM), or by additional software (bar code DLL for SAPlpd). In this variant, the name of the bar code transferred in the BC command is decisive for a SAPGOF converter. All other parameters of the BC command can usually be ignored.

- The “new” variant (exclusively generated by Smart Forms) uses a BC command, a BP command, and one or more succeeding BS commands. The BC command contains an indicator that it is a “new” variant, and the total length of the bar code data contained in the BS commands. The BP command follows the BC command and contains the bar code parameters required to create the bar code, depending on the bar code type used (the “bar code symbology”). One or more BS commands then follow with the bar code data. With this variant, the bar code is completely generated within the SAP printer driver, and no additional hardware or software is required. For information about the “new bar code technology for Smart Forms“, see SAP Notes 430887 and 645158.

The print position for a bar code in both variants is the output position, which is usually set immediately before by the MT command. The bottom edge of the generated bar code must be on the character baseline.

2.2.7.1 BC Command Parameters

Description	Length	Type
SAPBARCODE Logical name of a bar code in the SAP system taken from the table of system bar codes. The standard bar code names are listed in the table in section 2.2.8.1.1.	8	NAME
MAX-WIDTH Maximum width of the bar code in TWIPs	5	TWIP
MAX-HEIGHT Maximum height of the bar code in TWIPs	5	TWIP
STRINGLEN Number of bytes to be evaluated in the succeeding BS command to be printed as a bar code. Possible values are **01** to **70** and **99**. **Note**: To be able to support bar code data of more than 70 bytes as of SAP Web AS 6.10, such as 2-D bar codes, it is possible to use multiple BS commands. The length of the bar code data is specified, as of SAP Web AS 6.10, in the new DATALEN parameter. The parameter STRINGLEN should be ignored. For reasons of compatibility, parameter STRINGLEN contains the real value for the length for data lengths up to a maximum of 70 bytes, and otherwise the value **99**.	2	NUMC
PC-PREFIX Name of the print control to be used at the beginning of the bar code string. Possible values: **SBP00** to **SB99**	5	NAME

Description	Length	Type
PC-SUFFIX Name of the print control to be used at the end of the bar code string. Possible values: **SBS00** to **SBS99**	5	NAME
BARCTYPE Name of the technical bar code type to be used. **Important Note:** The new variant of the bar code output is identified by the three characters BRL in the BARCTYP field. The following possible values are specified by SAP and cannot be changed by users. The following values are currently defined in the SAP system: • 2OF5 Bar code INTERLEAVED 2 OF 5 • C39 Code 39 bar code • C39X Extended code 39 (full ASCII character set) • C93 Code 93 • C128 Code 128, automatic switch between A,B,C • C128_A Code 128, character set A • C128_B Code 128, character set B • C128_C Code 128, character set C • CODABAR Codabar bar code family • EAN8 EAN/IAN/JAN bar code: 7 digits + 1 check digit • EAN13 EAN/IAN/JAN bar code: 12 digits + 1 check digit • UPC_A UPC bar code type A: 11 digits + 1 check digit • POSTNET US Postal Service POSTNET bar code • UDEF Undefined bar code • BRLx Indicator for new bar code technology, that is, a BP command with bar code parameters follows	8	NAME
BARCROT Rotation of the bar code x degrees counter-clockwise for output. Possible values: **000**, **090**, **180**, **270.** **Important Note:** If you are using the new bar code technology, the content of the BARCROT field must be ignored. Instead, the ORIENTATION parameter in the BP command specifies the rotation of the bar code (see section 2.2.8.2).	3	NUMC
ALIGNBASELINE Indicator for the printer driver that the horizontal, non-rotated bar code should be aligned with the character baseline, as with text. This means that the bottom edge of the bar code is on this baseline. Horizontal bar codes should always be aligned with the baseline. This is, however,	1	BOOL

Description	Length	Type
not possible on all printers. SAP therefore provides this indicator, which leads to the correct alignment of the bar code.		
DATALEN Number of data bytes for the bar code that is to be transferred in the following BS commands. Possible values: **00000** to **99999**. **Note:** This parameter was introduced to offer support for bar codes more than 70 bytes in length, such as 2-D bar codes. This is achieved by following the BC command with multiple BS commands containing the bar code data. The parameter STRINGLEN should be ignored, and the DATALEN parameter should be used instead to specify the length of the data. Please note that DATALEN represents the bytecount of the barcode string when encoded in the SAP codepage from last CP command. This bytecount is generally less than the actual bytecount of the output string encoded in SAPGOF character set. Only when using SAPGOFU in a SAP Unicode system will the bytecount from DATALEN be identical to the actual bytecount of the output barcode string.	5	NUMC

2.2.7.1.1 Standard Bar Code Names

These names can be freely defined in the SAP system and are not linked to any particular technical bar code type. The technical bar code types are controlled by defining the printer commands for bar code control in both of the print controls mentioned below.

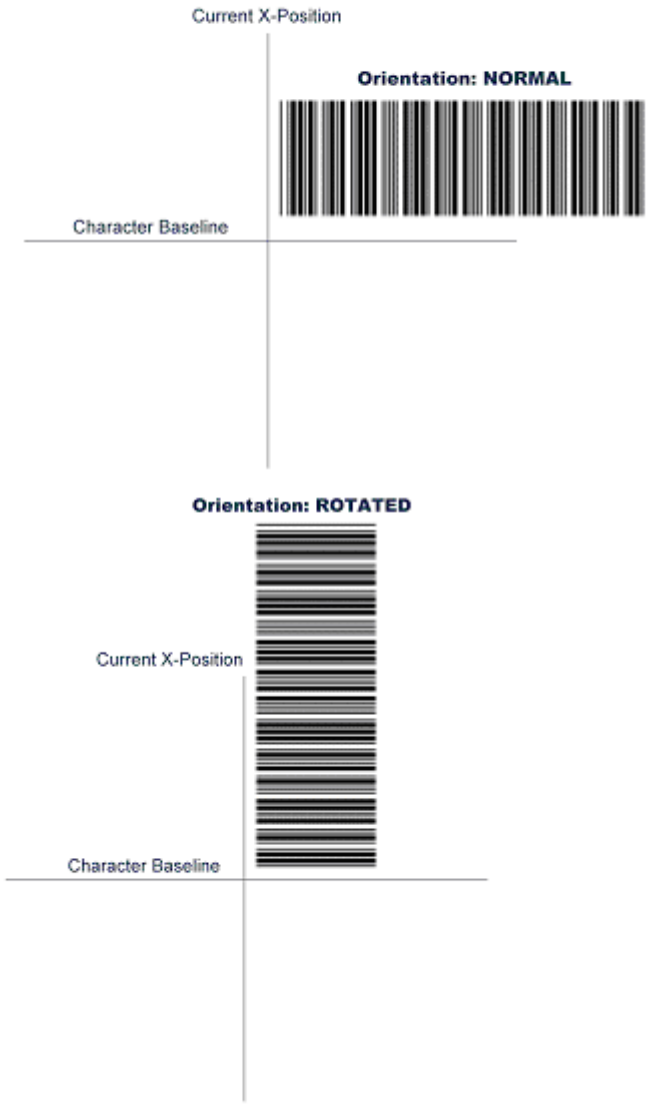
Name	Height	Technical Type
ARTNR	1.2 cm	code 128
AUFNR	1.2 cm	code 128
BARCLVS	2.0 cm	code 39 no check digit
BC_93	1.3 cm	code 93
BC_C128B	1.3 cm	code 128 B, no human-readable text
BC_CD39	1.3 cm	code 39, no check digit, no human-readable text
BC_CD39C	1.3 cm	code 39, with check digit, no human-readable text
BC_EAN13	1.3 cm	EAN-13, no human-readable text
BC_EAN8	1.3 cm	EAN-8, no human-readable text
BC_EANH	1.3 cm	EAN 128, no human-readable text
BC_I25	1.3 cm	interleaved 2of5, no checksum, no human-readable text
BC_I25C	1.3 cm	interleaved 2of5, with checksum, no human-readable text
BC_MSI	1.3 cm	MSI, no check digit, no human-readable text
BC_MSIC	1.3 cm	MSI, single mod-10 check digit, no human-readable text
BC_MSIC1	1.3 cm	MSI with 2 mod-10 check digits, no human-readable text
BC_MSIC2	1.3 cm	MSI with 1 mod-11 check digit and 1 mod-10 check digit,

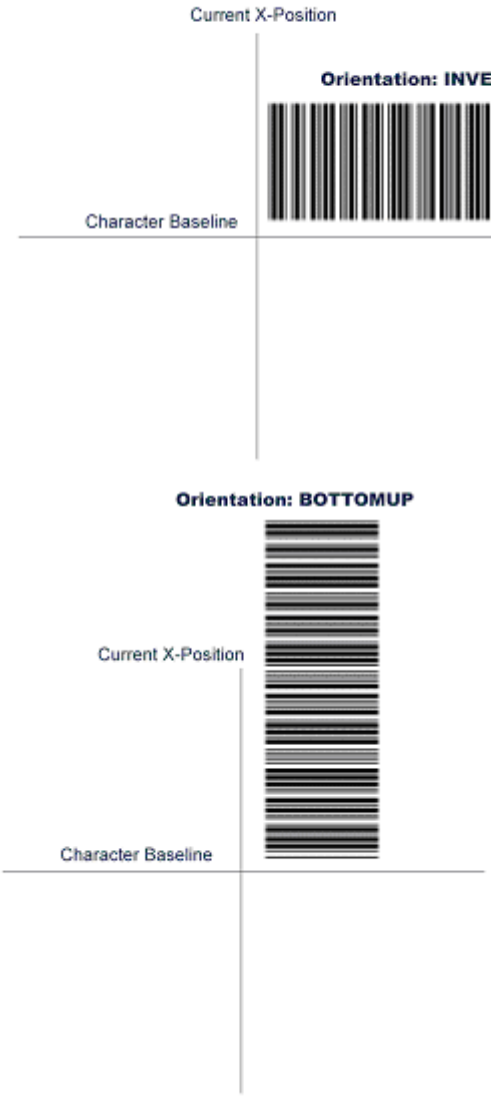
Name	Height	Technical Type
		no human-readable text
BC_PSN5	0.3 cm	USPS POSTNET 5, no human-readable text
BC_PSN9	0.3 cm	USPS POSTNET 9, no human-readable text
C128A_00	0.5 cm	code 128A, 00 degrees rotation
C128A_01	0.5 cm	code 128A, 90 degrees rotation
C128B_00	0.5 cm	code 128B, 00 degrees rotation
C128B_01	0.5 cm	code 128B, 90 degrees rotation
CD39C_00	0.5 cm	code39 with check digit, 00 degrees rotation
CD39C_01	0.5 cm	code39 with check digit, 90 degrees rotation
CD39_00	0.5 cm	code39 no check digit, 00 degrees rotation
CD39_01	0.5 cm	code39 no check digit, 90 degrees rotation
KUNAUNR	1.2 cm	code 128
KUNAUPS	1.2 cm	code 128
MBBARC	2.0 cm	code 128
MBBARC1	1.2 cm	EAN-8
RSNUM	1.2 cm	code 128
RSPOS	1.2 cm	code 128
RUECKNR	1.2 cm	code 128

2.2.7.2 BP Command Parameters

We recommend that you read SAP Note 645158 in the SAP Service Marketplace to help you to understand the individual parameters of the BP command.

<table>
<tr><th>Description</th><th>Length</th><th>Type</th></tr>
<tr><td>STARTFLAG
Indicator for the start of the bar code parameter; currently always filled with S.</td><td>1</td><td>CHAR</td></tr>
<tr><td>SYMBOLOGY
Indicator for the bar code symbology. Possible values:
<table>
<tr><td>3</td><td>Code39</td></tr>
<tr><td>7</td><td>PDF 417</td></tr>
<tr><td>A</td><td>Code93</td></tr>
<tr><td>2</td><td>2of5 Interleaved</td></tr>
<tr><td>C</td><td>Code128</td></tr>
<tr><td>r</td><td>Gen2 RFID tag</td></tr>
</table>
The meaning of the parameters in the BP command varies, depending on the bar code symbology used; that is, depending on the value of the “Symbology” parameter</td><td>1</td><td>CHAR</td></tr>
</table>

Description	Length	Type
ORIENTATION Indicator for the orientation (rotation) of the bar code. Possible values: N – Normal, 0 degrees R – Rotated, rotated 90 degrees clockwise I – Inverted, rotated 180 degrees clockwise B – Bottomup, rotated 270 degrees clockwise Illustration for the positioning of rotated bar codes: Even if the bar code is rotated, the lower edge of the (rotated) bar code is always on the current character baseline and the left edge of the (rotated) bar code is always at the current X-position: 	1	CHAR

Description	Length	Type
		

Description	Length	Type
NARROW_MODULE_WIDTH Width of the “narrow module” (narrowest unit of a bar code) in pixels (1 Pixel = 1/600 inch).	1	CHAR

Possible Values	Narrow Module Width
0	1 Pixel
1	2 Pixels
2	3 Pixels
3	4 Pixels
4	5 Pixels
5	6 Pixels
6	7 Pixels
7	8 Pixels
8	9 Pixels
9	10 Pixels
A	11 Pixels
B	12 Pixels
C	13 Pixels
…	…
R	28 Pixels
S	29 Pixels
T	30 Pixels

Note that narrow module width values exceeding 10 pixels only apply to barcode symbologies Code128 and 2of5 Interleaved. The other symbologies Code39, Code93 and PDF417 use a maximum module width of 10 pixels.

Important Note: The meaning of the following parameters in the BP command depends on the bar code symbology in use (that is, on the value, of the SYMBOLOGY parameter):

2.2.7.2.1 BP Parameters for SYMBOLOGY = 3 (Code 39)

Description	Length	Type
MOD43CHECKCHAR Possible values: X - A Mod-43 check character is to be generated space - No check character is to be generated	1	BOOL
LINEARHEIGHT Height of the bar code, measured in pixels (1/600 inch) Possible values: 00001 to 32000	5	NUMC

Description	Length	Type
RATIO Bar ratio; this is the ratio of wide to narrow bars in a Code39 bar code. The ratio is represented by the values 20-30 as follows:	2	NUMC

Possible Values	Width Ratio
20	2.0 : 1
21	2.1 : 1
22	2.2 : 1
23	2.3 : 1
24	2.4 : 1
25	2.5 : 1
26	2.6 : 1
27	2.7 : 1
28	2.8 : 1
29	2.9 : 1
30	3.0 : 1

2.2.7.2.2 BP Parameters for SYMBOLOGY = A (Code 93)

Description	Length	Type
CHECKCHAR Possible values: X - Two check characters are to be generated space - No check characters to be generated	1	BOOL
LINEARHEIGHT Height of the bar code, measured in pixels (1/600 inch) Possible values: 00001 to 32000	5	NUMC

2.2.7.2.3 BP Parameters for SYMBOLOGY = 2 (Interleaved 2of5)

Description	Length	Type
CHECKDIGIT Possible values: X - A MOD-10 check digit is to be generated space - No MOD-10 check digit is to be generated	1	BOOL
LINEARHEIGHT Height of the bar code, measured in pixels (1/600 inch) Possible values: 00001 to 32000	5	NUMC

Description	Length	Type
RATIO Bar ratio; this is the ratio of wide to narrow bars in an Interleaved 2of5 bar code. The ratio is represented using the values 20-30 as follows: Possible Values / Width Ratio: 20 — 2.0 : 1 21 — 2.1 : 1 22 — 2.2 : 1 23 — 2.3 : 1 24 — 2.4 : 1 25 — 2.5 : 1 26 — 2.6 : 1 27 — 2.7 : 1 28 — 2.8 : 1 29 — 2.9 : 1 30 — 3.0 : 1	2	NUMC

2.2.7.2.4 BP Parameters for SYMBOLOGY = C (Code 128)

Description	Length	Type
UCCHECKDIGIT Possible values: X - A UCC check digit is to be generated space - No UCC check digit is to be generated	1	BOOL
LINEARHEIGHT Height of the bar code, measured in pixels (1/600 inch) Possible values: 00001 to 32000	5	NUMC
CODE128MODE Mode in which the Code128 bar code is to operate (for documentation for the individual Code128 modes, see SAP Note 645158). Possible values: N — Normal A — Autoswitch U — UCC Mode	1	CHAR

2.2.7.2.5 BP Parameters for SYMBOLOGY = 7 (PDF417)

Description	Length	Type
SECURITYLEVEL Possible values: 0 - No auto-correction 1…8 - Error identification and auto-correction	1	NUMC
LINEARHEIGHT Currently has no effect on the PDF417 bar code	5	NUMC
ROWHEIGHT Height of an individual PDF417 data row, measured in pixels (1/600 inch) Possible values: 00001 to 32000 Important Note: 1 is not a recommended value!	5	NUMC
COLUMNS Number of columns from which the PDF417 bar code is to be created. Possible values: 00 - No preference, ratio of rows/columns = 1 : 2 01…30 - Fixed number of columns	2	NUMC
ROWS Number of rows from which the PDF417 bar code is to be created. Possible values: 00 - No preference, ratio of rows/columns = 1 : 2 03…90 - Fixed number of rows	2	NUMC
TRUNCATION Flag of whether the right row limiter and the right start/stop character of the PDF417 bar codes is to be truncated (that is, omitted). Possible values: X - Perform truncation space - Do not perform truncation	1	BOOL

2.2.7.2.6 BP Parameters for SYMBOLOGY = r (Gen2 RFID tag)

Description	Length	Type
SYMBOLOGY = 'r'	1	CHAR
ORIENTATION = 'N' (always set to NORMAL as RFID tags have no orientation)	1	CHAR

Description	Length	Type
NARROW_MODULE_WIDTH = '0' (always set to 0 because RFID tags have no module width)	1	NUMC
ACSCODE_HEX Hexadecimal representation of 4 bytesACS access code	8	CHAR
LOCKMASK_HEX Hexadecimal representation of 1 byte LOCKMASK	2	CHAR
KILLCODE_HEX Hexadecimal representation of 4 bytes KILL code	8	CHAR

2.2.7.2.7 Overview of the BP Parameters for the Individual Symbologies:

Parameters for Code39	Length	Type
STARTFLAG	1	CHAR
SYMBOLOGY	1	CHAR
ORIENTATION	1	CHAR
NARROW_MODULE_WIDTH	1	NUMC
MOD43CHECKCHAR	1	BOOL
LINEARHEIGHT	5	NUMC
RATIO	2	NUMC

Parameters for Code93	Length	Type
STARTFLAG	1	CHAR
SYMBOLOGY	1	CHAR
ORIENTATION	1	CHAR
NARROW_MODULE_WIDTH	1	NUMC
CHECKCHAR	1	BOOL
LINEARHEIGHT	5	NUMC

Parameters for Interleaved 2of5	Length	Type
STARTFLAG	1	CHAR
SYMBOLOGY	1	CHAR
RIENTATION	1	CHAR
NARROW_MODULE_WIDTH	1	NUMC
CHECKDIGIT	1	BOOL
LINEARHEIGHT	5	NUMC
RATIO	2	NUMC

Parameters for Code128	Length	Type
STARTFLAG	1	CHAR
SYMBOLOGY	1	CHAR
ORIENTATION	1	CHAR
NARROW_MODULE_WIDTH	1	NUMC
UCCCHECKDIGIT	1	BOOL
LINEARHEIGHT	5	NUMC
CODE128MODE	1	CHAR

Parameters for PDF417	Length	Type
STARTFLAG	1	CHAR
SYMBOLOGY	1	CHAR
ORIENTATION	1	CHAR
NARROW_MODULE_WIDTH	1	NUMC
SECURITYLEVEL	1	NUMC
LINEARHEIGHT	5	NUMC
ROWHEIGHT	5	NUMC
COLUMNS	2	NUMC
ROWS	2	NUMC
TRUNCATION	1	BOOL

Parameters for Gen2 RFID tag	Length	Type
STARTFLAG	1	CHAR
SYMBOLOGY	1	CHAR
ORIENTATION	1	CHAR
NARROW_MODULE_WIDTH	1	NUMC
ACSCODE_HEX	8	CHAR
LOCKMASK_HEX	1	CHAR
KILLCODE_HEX	8	CHAR

2.2.7.3 BS Command Parameter:

Description	Length	Type
BARCODESTRING String to be printed by the bar code specified in the preceding BC command.	1-70	CHAR

2.2.8 UL Underline

The UL command determines whether the following characters are to be output underlined (parameter value **X**) or not (parameter value **Space**).

The position and form of the underline is determined by the underline parameters. The space between the underline and the base line of the font can be defined ("-" sign: underline above the base line. "+" sign: underline below the base line). The thickness of the underline is established in the fourth parameter of the UL command. The underline is then placed so that its mid-point (one half of its thickness) is at the position specified. The shading (3-digit percentage) indicates how dark the line should appear. A value of 0 produces black, 100 no fill.

Parameters

Description	Length	Type
Underline on/off	1	BOOL
Sign for distance from baseline	1	SIGN
Distance from baseline	5	TWIP
Thickness	5	TWIP
Shading	3	NUMC

2.2.9 SW Space Width

The SW command sets the space width for all spaces in the succeeding ST command.

For proportional fonts, the space width is evaluated in relation to the basic font metrics; for non-proportional fonts, the SW command has no effect.

When using block alignment, the space width must be selected so that the characters begin the line at the left margin and end it at the right margin. The SW command sets this space width.

Parameters

Description	Length	Type
Space width	5	TWIP

2.2.10 SU Superscript and Subscript

The SU command specifies whether the following characters should be displayed as superscripts or subscripts (parameter value **X**) or not (parameter value **Space**).

The super-/sub type **+** specifies superscript (positive distance from the base line) while **-** specifies subscript (negative distance from the base line).

Parameters

Description	Length	Type
Super/sub on/off	1	BOOL

Super/sub type	1	SIGN
Distance from base line	5	TWIP

2.2.11 CP Change Code Page

The character set used for the OTF data stream commands is the one specified in START_SPOOL_JOB (used to start a spool request in the spool of an SAP system). SAP*script* passes the character set defined in the current application server as the system character set, such as code page 1100 for Western European or American SAP systems (ISO-8859/1 character set).

The character set used for the OTF text data (such as strings and bar codes) can change within an OTF data stream. This is due to the architecture of SAP systems, which allows several languages to be used in one system. This is the reason for the CP command, which identifies the valid character set for text data.

The printer drivers convert the characters to be printed into the character set specified via the output codepage of the device type assigned to the printer. The *inputcodepage* parameter specifies the character set in which, from then on, all data from ST and BS commands are defined. All other parameters and OTF commands still use the system character set.

The outputcodepage parameter always contains value **`0000.`** This value indicates that the standard device character set should be used. The outputcodepage parameter is actually obsolete and serves no purpose, because current SAP printer driver architechture does not allow to switch output codepages.

Parameters

Description	Length	Type
Input code page Possible values (Input code page / Character set): • 0120 EBCDIC ISO-1 (Latin 1) • 0410 EBCDIC ISO-2 (Eastern Europe, Latin 2) • 0500 EBCDIC ISO-5 (Russian) • 0610 EBCDIC ISO-9 (Turkish) • 0700 EBCDIC ISO-7 (Greek) • 0800 EBCDIC ISO-8 (Hebrew) • 1100 ASCII ISO 8859/1 (Latin 1) • 1400 ASCII ISO 8859/2 (Latin 2) • 1500 ASCII ISO 8859/5 (Russian) • 1600 ASCII ISO 8859/3 (Latin 3) • 1610 ASCII ISO 8859/9 (Turkish) • 1700 ASCII ISO 8859/7 (Greek) • 1802 ASCII ISO 8859/8 (Hebrew) • 1900 ASCII ISO 8859/4 (Lithuanian)	4	NUMC

Description	Length	Type
• 4001 OCR-A (ASCII) • 4004 OCR-B (ASCII), MICR_C, MICR_E • 4102 ISO ISO/IEC DIS 10646-1.2 Unicode UTF-16BE • 8000 Japanese ISO Shift-JIS • 8300 Chinese (traditional) ISO Big5 • 8400 Chinese (simplified), ISO GB2312 • 8500 Korean ISO KSC 5601 • 8600 Thai ISO TIS620-2529 •		
Output code page This parameter specifies which character set the printer driver is to use for output. The parameter currently always has the value **0000**.	4	NUMC
Language key The language key specifies the valid language key for the texts to be processed. The description of the OTF command FC (Font Call) contains a list of the language keys used in SAP systems.	1	CHAR

2.2.12 CH SAP Character

This command results in the output of a single character. The SAP character code is based on the definition of SAP characters in TCP01. Additionally, the width of the character is given in TWIP. The OTF driver converts the character into the printer character set.

Parameters

Description	Length	Type
Character width	5	TWIP
SAP character number	5	NUMC

2.2.13 MK Mark

The MK command is used to mark or identify a specific location in the OTF data stream. The beginning of the section is specified using the parameter **selection on** (parameter value **X**). The end of the section is specified using **selection off** (value **Space**).

You can assign a selection key after marking the beginning of a block. The device driver that interprets the OTF data stream can, as a result, start a different type of processing at that point. This command is not interpreted by printer drivers.

The character format, that is, the name of the selection string used in the ITF text, is the first parameter in the MK command.

Parameters:

Description	Length	Type
Selection format	2	NAME
Selection on/off	1	BOOL
Selection key	variable	CHAR

(Example from the SAP Online Help System):

```
MK GLXDocument key
ST 0100807Client
MK GL
```

Effect

The client character string is selected. The character string format is GL in the corresponding text style.

After you have selected a term (for example, cursor selection), you can display the system help text for the term "client" by choosing *Document key*.

Other Remarks

The OTF printer drivers ignore this command.

2.2.14 RD Raw Data

This command is used to pass printer-specific data or graphic data in OTF format.

Parameters

Description	Length	Type
DATATYPE Data type of the data being transmitted. The value of this parameter controls whether the driver passes the data to the printer and whether the data is converted to the printer character set. Possible values: • **A** – Data contains ASCII text. Only the OTF driver STN2 passes the data to the printer. Character set conversion takes place. Variant A is currently not used. • **B** – Data in binary code. The data is not passed to the printer by any OTF driver. **No** character set conversion takes place. Variant B is currently not used. • **C** – Data contains PostScript commands. Only the POST driver passes the data to the printer. **No** character set conversion takes place. • **D** – Data contains PRESCRIBE commands. Only the PRES driver sends the data on to the printer. **No** character set conversion takes place. • **E** – Data contains PCL4 or PCL5 commands. Only the HPL2 driver passes the data to the printer. **No** character set conversion takes place.	1	CHAR

<table>
<tr><th>Description</th><th>Length</th><th>Type</th></tr>
<tr><td>

F – Data contains line printer commands. Only the STN2 driver passes the data to the printer. No character set conversion takes place. Variant F is not currently used.
G – The data contains a color bitmap graphic including a color table. The HPL2, POST, and SWIN drivers interpret these and pass them to the printer.
H – The data contains a monochrome bitmap graphic. The HPL2, POST, PRES, and SWIN drivers interpret the data and pass it to the printer.
I – The data contains a monochrome bitmap graphic including a color table. The HPL2, POST, PRES, and SWIN drivers interpret these and pass them to the printer.
J – The data contains a monochrome bitmap graphic. The HPL2, POST, PRES, and SWIN drivers interpret the graphic and pass it to the printer.
T – The data contains a TrueType font definition and consists of a 16 bytes-long header with internal SAP versions and length information and the actual TrueType TTF file. The header is structured as follows:
<table>
<tr><th>Length (bytes)</th><th>Description/Content</th></tr>
<tr><td>8</td><td>Eight “magic bytes”: “OTFsoftf” (in ASCII)</td></tr>
<tr><td>1</td><td>Softfont_type: 54 = TrueType ("T")</td></tr>
<tr><td>5</td><td>Softfont ID in ASCII coding 00001 -> 3030303031</td></tr>
<tr><td>1</td><td>Font header version 41 = version 1</td></tr>
<tr><td>2</td><td>Font header length 0042 = 66 for version 1</td></tr>
<tr><td>4</td><td>Font file length</td></tr>
</table>

</td><td></td><td></td></tr>
<tr><td>LINEFEEDFLAG
If this parameter is set to TRUE, the data from the printer driver will be concluded with an EOL command. Otherwise, this does not happen.
Possible values:
X - End line
Space - Do not end line</td><td>1</td><td>BOOL</td></tr>
<tr><td>NUMBYTES
Number of bytes of data in the RAWDATA parameter.
Possible values: 00 to 66.</td><td>2</td><td>NUMC</td></tr>
<tr><td>RAWDATA
Data to be passed to the printer.</td><td>0-66</td><td>CHAR</td></tr>
</table>

Other Remarks

The RD command always appears in its full length in the OTF data stream, regardless of the length of the RAWDATA parameter (that is, the ID and parameter area always fill 72 bytes).

In the SAPGOF format the data bytes (RAWDATA) contained in the RD command are output in hexadecimal format, and not in binary format as in the original OTF.

The format of the data stored in the RAWDATA fields for monochrome and color bitmaps is described below.

Data format for DATATYPE=H (monochrome bitmap):

Byte offset	Length	Content/Explanation
0	8	Eight "magic Bytes" with content: "OTFbitma" (in ASCII code)
8	4	Width of bitmap in TWIP
12	4	Height of bitmap in TWIP
16	4	Width of bitmap in pixels
20	4	Height of bitmap in pixels
24	2	Dots per inch (DPI)
26	2	Bits per pixel (= 1)
28	2	Size of color table (= 0)
30	4	Number of data bytes for bitmap
34	variable	Data bytes for bitmap. Each line of the picture is filled to its 4 byte limit with empty bytes. Each byte contains 8 pixels 1=Black, 0=White

Data format for DATATYPE=G (color table bitmap):

Byte offset	Length	Content/Explanation
0	8	Eight "magic Bytes" with content: "OTFbitma" (in ASCII code)
8	4	Width of bitmap in TWIP
12	4	Height of bitmap in TWIP
16	4	Width of bitmap in pixels
20	4	Height of bitmap in pixels
24	2	DPI
26	2	Bits per pixel (= 1, 4 or 8)
28	2	Size of color table (= 2, 16 or 256)
30	4	Number of data bytes for bitmap
34	6 * size of color table	Color table with 2 bytes RED 2 bytes GREEN, 2 bytes BLUE color information per entry
variable	variable	Data bytes for bitmap. Each line of picture filled to its 4 byte limit with empty bytes.

Data format for DATATYPE=J (named monochrome bitmap):

Byte offset	Length	Content/Explanation
0	8	Eight "magic Bytes" with content: "OTFbitma" (in ASCII code)

8	4	Four bytes with value 0xFF
12	1	1 byte format Id
13	1	1 byte subformat Id
14	1	1 byte parameter 1
15	1	1 byte parameter 2
16	4	Width of bitmap in TWIP
20	4	Height of bitmap in TWIP
24	4	Width of bitmap in pixels
28	4	Height of bitmap in pixels
32	2	DPI (dots per inch)
34	2	Bits per pixel (=1)
36	2	Size of color table (=0)
38	4	Number of data bytes for bitmap
42	90	Image identifier
132	variable	Data bytes for bitmap. Each line of picture filled to its 4 byte limit with empty bytes. Each byte contains 8 pixels. 1=black, 0=white

Data format for DATATYPE=I (named colortable bitmap):

Byte offset	Length	Content/Explanation
0	8	Eight "magic Bytes" with content: "OTFbitma" (in ASCII code)
8	4	Four bytes with value 0xFF
12	1	1 byte format Id
13	1	1 byte subformat Id
14	1	1 byte parameter 1
15	1	1 byte parameter 2
16	4	Width of bitmap in TWIP
20	4	Height of bitmap in TWIP
24	4	Width of bitmap in pixels
28	4	Height of bitmap in pixels
30	2	DPI (dots per inch)
34	2	Bits per pixel (=1, 4 or 8)
36	2	Size of color table (=2, 16 or 256)
38	4	Number of data bytes for bitmap.
42	90	Image identifier
132	6 * size of color table	Color table with 2 bytes RED 2 bytes GREEN, 2 bytes BLUE color information per

Byte offset	Length	Content/Explanation
		entry.
variable	variable	Data bytes for bitmap. Each line of picture filled to its 4 byte limit with empty bytes.

Possible values and meaning of *Format ID*, *Subformat ID*, *Parameter 1*, and *Parameter 2* fields for data type = I or J:

FORMAT ID	Description
0x01	BMON monochrome Bitmap
0x02	BCOL 256 color colortable bitmap
SUBFORMAT ID	**Description**
0x00	Bitmap Source: RSTXLDMC
0x01	Bitmap Source: BDS server
PARAMETER 1	**Description**
0xX0	Non-Resident Bitmap
0xX1	Resident Bitmap
0x0X	Uncompressed image data
0x1X	Run-length compressed image data
PARAMETER 2	**Description**
Not currently used	

For a description of *resident bitmap*, see the description of the OTF command BM (bitmap).

The "**image identifier**" field for DATATYPE=I or J contains the name of the bitmap; two different formats exist for the name. If the bitmap comes from program RSTXLDMC (see SUBFORMAT ID field), the *image identifier* field is filled with the full bitmap name. If the bitmap is from the Business Document Service (BDS) server, the *image identifier* field is only filled up to 42 bytes (84 bytes for UNICODE systems) with valid file names. In this case, the *image identifier* field contains the DOC_ID specified in the OTF command BM (bitmap).

Compressed Bitmaps:

As of SAP R/3 4.6D, RD commands with DATATYPE=I or J can now also contain compressed bitmap data, using the additional 4 bits of the *PARAMETER 1* field (if the value is 0000, the data is uncompressed, if the value is 0001, the image data is compressed). Currently, only compression type **run-length compression** is supported. This is used in, for example, PostScript or PDF format as a *run-length compression filter* and is described in detail in the Adobe documentation (such as in the PostScript reference manual).

The following are special features of compressed bitmap data: The color table is not compressed in color bitmaps, only the bitmap data directly following the table. The four-byte *Number of data bytes in bitmap* counter contains the size of the compressed bitmap data (that is, the actual number of bitmap bytes contained in the RD commands). The lines of compressed bitmap data are **not** extended to fill the four-byte limit.

2.2.15 MC Microfiche Cold Identification

The MC command identifies the beginning of a succession of pages (application form or outgoing document). You can use this information to find an object marked this way within an OTF data stream (for example, in an archive).

An MC identification may appear alone or as a succession of MC lines in an OTF data stream. In this case, the end of the MC identification is explicitly given (value **`X`** for the parameter **`End Microfiche Data`**)

Other MC command parameters are the length of the MC data (01-99) followed by the microfiche data itself. You must always keep to the length specified in this parameter, using spaces at the end of the data if necessary.

Parameters

Description	Length	Type
End microfiche data	1	BOOL
Length of microfiche data	2	NUMC
Microfiche data	variable	CHAR

As of SAP R/3 3.1G, SAP*script* documents are no longer archived through the SAP spool; this makes the MC command obsolete.

2.2.16 PC Print Control

This command allows you to send a print control to the printer. The name of the print control is specified in the PC command.

Parameters

Description	Length	Type
PRINTCONTROL Name of the print control	5	CHAR

2.2.17 BX Draw Box

You use the BX command to draw a box of a specified size, starting at the given output position. The box may be shaded, and may also have a border. You can define the thickness of the border and the degree of shading with which the box is to be filled.

Parameters

Description	Length	Type
UP_LEFT_CORNER_X X coordinate of the top left hand corner of the box	5	TWIP
UP_LEFT_CORNER_Y Y coordinate of the top left hand corner of the box	5	TWIP
WIDTH Width of the box	5	TWIP
HEIGHT Height of the box	5	TWIP
THICKNESS Thickness of the box border	5	TWIP
FILL_DARKNESS Degree of shading for the area of the box, shown as a percentage between **0** and **100**. The value **0** means no shading, **100** means black shading	3	NUMC

Other Remarks

The border is independent of the size of the box. Essentially a box with width or height zero appears as a vertical or horizontal line as long as a border width greater than zero is specified. The thickness of the line is then set by the thickness of the border. The border is centered on the edge of the box.

2.2.18 IN Form Information

The OTF info command consists of an information structure ID that provides the OTF output driver with information about the underlying output form. In the following, the IN commands are shown in combination with the various info IDs.

The IN command with info ID **01** comes immediately before each OTF OP command, and contains information about the form language, form name, and the name of the form page.

Parameters

Description	Length	Type
Info structure ID	2	01
Form language	1	CHAR
Form name	16	CHAR
Form page	8	CHAR

The IN command with info ID **02** comes immediately before the OTF output data for a form window. The command contains information about the form window.

Parameters

Description	Length	Type
Info structure ID	2	02
Form window	8	CHAR

The IN command with the info ID **03** is for internal Smart Forms use.

Parameters:

Description	Length	Type
Info structure ID	2	03
Internal information	8	CHAR

As of SAP R/3 4.6A, there are three additional info IDs, **04**, **05**, and **06**. They replace the info IDs **01** and **02** for spool requests created using the form processor "*SAP Smart Forms*".

Parameters:

Description	Length	Type
Info structure ID	2	04
Form language	1	CHAR
Form name	38	CHAR
Form unchecked	1	CHAR

Description	Length	Type
Info structure ID	2	05
Form page	38	CHAR

Description	Length	Type
Info structure ID	2	06
Form window	38	CHAR
FROM_COPYNO	3	06
TO_COPYNO	3	CHAR

Note: As of SAP Web Application Server 6.10, variant **06** of the IN commands, which specifies a form window in a Smart Form form, has been extended to include the parameters FROM_COPYNO and TO_COPYNO.

The parameters FROM_COPYNO and TO_COPYNO are intended to support the output of multiple different copies of Smart Form documents. In the Smart Form FormBuilder, you can define a document so that a form window is output only on the original (that is on the first copy, COPYNO = **001**) or on a certain copy (such as on the second copy, COPYNO = **002**).

The parameter FROM_COPYNO specifies the number of the first copy on which the succeeding content of the form window is to be output. The parameter TO_COPYNO specifies the number of the last copy on which the succeeding content of the form window is to be output. For these parameters, **001** means the first copy (the original), **002** second copy, and so on. If the window is to be output on all copies, the value of both parameters is a space.

The form window COPYINFO is only to be output on the second copy. The IN command for this would be as follows:

```
IN06COPYINFO                    002002
```

2.2.19 BM - Bitmap Information

The OTF bitmap command is used, for example, with the RD command to output bitmap graphics in the OTF data stream; the bitmap is defined once and can be referenced (printed out) in the print job as many times as needed. These bitmaps are called *resident* bitmaps and are stored in the volatile memory of the output device (printer) while the print job is running. The parameter RESIDENT specifies whether a bitmap is to be stored in the printer.

The BM command contains a document ID that describes the name (unique ID) of the bitmap. This name is used to reference the bitmap later.

When a bitmap is defined, the actual bitmap data is contained in the succeeding RD command (raw data). This RD data also contains the document ID. When referencing a bitmap, the RD commands do not need to be specified as the bitmap has already been defined.

As of SAP R/3 4.6C, the new parameter BACKGROUNDBITMAP is available. It is only relevant for SAPGOF documents that were created with SAP Smart Forms. For SAPscript documents, the value of this parameter is always 0. If the parameter has the value 1 or 2, the BM command describes a "background bitmap" that must first be output onto the page, before other elements such as text, boxes, barcodes, or other bitmaps are output. This bitmap therefore represents the "background" of the form page.

Parameters:

Description	Length	Type
WIDTH_TW Width of the bitmap in TWIP	5	NUMC
HEIGHT_TW Height of the bitmap in TWIP	5	NUMC
RESIDENT Specifies whether bitmaps should be temporarily stored in the printer	1	BOOL
FUNCTION Specifies whether the bitmap is defined (FUNCTION= **D**) or referenced (FUNCTION= **R**). To be compatible with the earlier bitmaps defined using only RD, the value "I" (information) can also be specified. In this case, the BM command is only used to provide information about the bitmap contained in the succeeding RD command. DOC_ID is not filled.	1	CHAR
AUX Reserved for future extensions	4	CHAR

DOC_ID Document ID of the bitmap	42	CHAR
BACKGROUNDBITMAP Indicates background graphics that may not be printed Possible values: **0** - Normal graphic **1** - Background graphic, printed **2** - Background graphic, printed	1	NUMC

2.2.20 CB - Color Box

The OTF CB command sets the color of boxes output using BX commands.

The CB command is available as of SAP R/3 4.6C.

Parameters:

Description	Length	Type
COLOR_RED Red component of the RGB color value in hexadecimal Value range **00** to **FF**	2	CHAR
COLOR_GREEN Green component of the RGB color value in hexadecimal Value range **00** to **FF**	2	CHAR
COLOR_BLUE Blue component of the RGB color value in hexadecimal Value range **00** to **FF**	2	CHAR
COLOR_AUX Reserved for future extensions	2	CHAR

2.2.21 CT - Color Text

The OTF CT command sets the color of text output using ST or CH commands.

The CT command is available as of SAP R/3 4.6C.

Parameters:

Description	Length	Type
COLOR_RED Red component of the RGB color value in hexadecimal Value range **00** to **FF**	2	CHAR

COLOR_GREEN Green component of the RGB color value in hexadecimal Value range **00** to **FF**	2	CHAR
COLOR_BLUE Blue component of the RGB color value in hexadecimal Value range **00** to **FF**	2	CHAR
COLOR_AUX Reserved for future extensions	2	CHAR

2.2.22 LI - Line

The OTF LI command draws a horizontal or vertical line. The color used is the color set by the last CB command.

The LI command is available as of SAP R/3 4.6C.

Parameters:

Description	Length	Type
XPOS_TW X coordinate of the start of line in TWIP (twentieth point)	5	NUMC
YPOS-TW Y coordinate of the start of line in TWIP (twentieth point)	5	NUMC
DIRECTION Direction: Horizontal or vertical Possible values: **H** or **V**	1	CHAR
LENGTH_TW Length of the line in TWIP	5	NUMC
THICKNESS_TW Diameter of line in TWIP	5	NUMC

For horizontal lines, XPOS_TW/YPOS_TW describes the "left" end point of the line; for vertical lines, it describes the "upper" end point of the line.

2.2.23 LB - Link Begin

The LB command starts a text passage that contains a describing text as well as a URL link (LINK) consisting of one or more LK commands. The text passage is closed by the LE command.

Parameters: None

The LB command is available as of SAP R/3 4.6C.

2.2.24 LE - Link End

The LE command closes a text passage started by the LB command.

Parameters: None

The LE command is available as of SAP R/3 4.6C.

2.2.25 LK - Link

The OTF LK command contains a URL link that is part of a text passage enclosed by LB and LE.

Parameters:

Description	Length	Type
LINKDATA_LEN Length of the character string LINKDATA in bytes	2	NUMC
AUX1 Reserved for future use	1	CHAR
AUX2 Reserved for future use	1	CHAR
LINKDATA Character string (URL link)	Variable	NUMC

If the length of the URL character string exceeds the maximum length of 66 bytes, several LK commands are sent successively in order to submit the string. The parameter LINKDATA_LEN only contains the number of data bytes submitted by the current LK command.

Example of how to use the Link commands:

```
LB
MT…
ST…http://tralala.com
ST…/index.htm
LK18_http://tralala.com
LK10_/index.htm
LE
```

Other Remarks: The OTF drivers ignore the data submitted by the LK command.

The LK command is available as of SAP R/3 4.6C.

2.2.26 RT - Raw Text

The OTF RT command contains the “raw text” to be output by the printer driver, that is, the text is added to the output stream directly, without printer commands, as with a line printer. The transferred text data is in the current input code page, which was specified by the last CP command.

The RT OTF command is created and provided with data by entering the command **/: RAWTEXT** in the SAPscript Editor or the form editor.

Among other things, the RT command allows you to transfer longer barcode data for two-dimensional barcodes, such as PDF-417. It can also be used to set particular print commands (PostScript, PRESCRIBE, label printers) without having to define print controls.

You can use the RT commando as of SAP Web Application Server 6.10.

Parameters:

Description	Length	Type
RAWTEXT_LEN Length of the text data RAWTEXT in bytes	2	NUMC
RAWTEXT	Variable	CHAR

If the length of the RAWTEXT data to be transferred is more than the maximum length of 99 bytes, several RT commands are sent successively to transfer the data.

Example of how to use the RT command:

```
CP41030000D
ST0086412normal
RT201234567890
RT18ABCDEFGHI
RT06BIN
MT0141702377
```

Other Remarks

The OTF printer drivers TELE and PDF1 ignore the RT command. As with the RD command, the OTF printer driver RDIF (SAPGOF format) outputs the RAWTEXT data in hexadecimal format.

2.3 Example

The following is an example of an OTF data stream:

```
//XHPLJ4000    0620 00000+00000+
IN01ES_TEST_P        PAGE
OPINCH12  P 144  240 172802016000001000010000
IN02MAIN
MT0113403315
CP11000000E
FCHELVE   160X 00181XSF100SF101110000160E X
UL +0000000000000
SW00160
ST00309021.
MT0170103315
ST0470125Text: SAPSCRIPT-OTFSAMPLE
MT0680403315
ST0187910System B20
```

```
MT0907203315
ST0096105DATE:
MT0170103555
ST018301017.07.2001
MT0170103795
ST0194612Driver: HPL2
MT0113404275
FCCOURIER 120  00144 SF100SF001110000144E X
ST0892862When a text is processed for a certain output device, the font
MT0113404515
ST0892862definitions used in the text will be translated into the fonts
MT0113404755
ST0907263available for the device type. If a device type does not have a
MT0113404995
ST0820857required font, an internal algorithm will select a "best
ST0129609matching"
MT0113405235
ST0547238font from the list of available fonts.
MT0113405955
FCHELVE   160X 00181XSF100SF101110000160E X
SW00160
ST00618041.1.
MT0198405955
ST0253916Courier 10 point
MT0113406435
FCCOURIER 100  00120 SF100SF001110000120E X
ST0684057This paragraph demonstrates the different font attribute
ST0252021changes within a font
MT0113406675
ST0084007family.
MT0113406915
FCCOURIER 100X 00120 SF100SF001110000120E X
ST0372031This phrase is printed in bold.
FCCOURIER 100  00120 SF100SF001110000120E X
ST0012001
FCCOURIER 100 X00120 SF100SF001110000120E X
ST0396033This phrase is printed in italic.
FCCOURIER 100  00120 SF100SF001110000120E X
ST0012001
FCCOURIER 100XX00120 SF100SF001110000120E X
ST0168014This phrase is
MT0113407155
ST0324027printed in bold and italic.
FCCOURIER 100  00120 SF100SF001110000120E X
ST0588049 Underlining may be combined with the attributes:
MT0113407395
ULX+0000600011000
ST0072006normal
UL +0000000000000
ST0024002,
FCCOURIER 100X 00120 SF100SF001110000120E X
ULX+0000600011000
ST0048004bold
FCCOURIER 100  00120 SF100SF001110000120E X
UL +0000000000000
ST0024002,
FCCOURIER 100 X00120 SF100SF001110000120E X
ULX+0000600011000
ST0072006italic
```

```
FCCOURIER 100  00120 SF100SF001110000120E X
UL +0000000000000
ST0060005 and
FCCOURIER 100XX00120 SF100SF001110000120E X
ULX+0000600011000
ST0120010bolditalic
FCCOURIER 100  00120 SF100SF001110000120E X
UL +0000000000000
ST0012001.
MT0113407635
ST0336028A text may be printed using
SUX-00100
ST0144012subscripting
SU -00100
ST0048004 or
SUX+00100
ST0168014superscripting
SU +00100
ST0012001.
MT0113408355
FCHELVE   160X 00181XSF100SF101110000160E X
SW00160
ST00618041.2.
MT0198408355
ST0263817Helvetica 6 point
MT0113408835
FCHELVE   060  00068XSF100SF101110000060E X
SW00060
ST0330057This paragraph demonstrates the different font attribute
ST0171029changes within a font family.
MT0113409075
FCHELVE   060X 00068XSF100SF101110000060E X
SW00060
ST0175131This phrase is printed in bold.
FCHELVE   060  00068XSF100SF101110000060E X
SW00060
ST0006001
FCHELVE   060 X00068XSF100SF101110000060E X
SW00060
ST0177433This phrase is printed in italic.
FCHELVE   060  00068XSF100SF101110000060E X
SW00060
ST0006001
FCHELVE   060XX00068XSF100SF101110000060E X
SW00060
ST0233242This phrase is printed in bold and italic.
FCHELVE   060  00068XSF100SF101110000060E X
SW00060
ST0300250 Underlining may be combined with the attributes:
ULX+0000600011000
ST0037706normal
UL +0000000000000
ST0004001,
MT0113409315
FCHELVE   060X 00068XSF100SF101110000060E X
ULX+0000600011000
SW00060
ST0023604bold
FCHELVE   060  00068XSF100SF101110000060E X
```

```
UL +0000000000000
SW00060
ST0010002,
FCHELVE   060 X00068XSF100SF101110000060E X
ULX+0000600011000
SW00060
ST0025906italic
FCHELVE   060  00068XSF100SF101110000060E X
UL +0000000000000
SW00060
ST0032205 and
FCHELVE   060XX00068XSF100SF101110000060E X
ULX+0000600011000
SW00060
ST0049510bolditalic
FCHELVE   060  00068XSF100SF101110000060E X
UL +0000000000000
SW00060
ST0004001.
MT0113409555
ST0171828A text may be printed using
SUX-00060
ST0067312subscripting
SU -00060
ST0023104 or
SUX+00060
ST0077914superscripting
SU +00060
ST0004001.
MT0113410275
FCHELVE   160X 00181XSF100SF101110000160E X
SW00160
ST00618041.3.
MT0198410275
ST0263817Helvetica 8 point
MT0113410755
FCHELVE   080  00091XSF100SF101110000080E X
SW00080
ST0441257This paragraph demonstrates the different font attribute
ST0228629changes within a font family.
MT0113410995
FCHELVE   080X 00091XSF100SF101110000080E X
SW00080
ST0233831This phrase is printed in bold.
FCHELVE   080  00091XSF100SF101110000080E X
SW00080
ST0008001
FCHELVE   080 X00091XSF100SF101110000080E X
SW00080
ST0237133This phrase is printed in italic.
FCHELVE   080  00091XSF100SF101110000080E X
SW00080
ST0008001
FCHELVE   080XX00091XSF100SF101110000080E X
SW00080
ST0311642This phrase is printed in bold and italic.
FCHELVE   080  00091XSF100SF101110000080E X
SW00080
ST0156719 Underlining may be
```

```
MT0113411235
ST0236530combined with the attributes:
ULX+0000600011000
ST0050406normal
UL +0000000000000
ST0013302,
FCHELVE   080X 00091XSF100SF101110000080E X
ULX+0000600011000
SW00080
ST0031504bold
FCHELVE   080  00091XSF100SF101110000080E X
UL +0000000000000
SW00080
ST0013302,
FCHELVE   080 X00091XSF100SF101110000080E X
ULX+0000600011000
SW00080
ST0034806italic
FCHELVE   080  00091XSF100SF101110000080E X
UL +0000000000000
SW00080
ST0043005 and
FCHELVE   080XX00091XSF100SF101110000080E X
ULX+0000600011000
SW00080
ST0066310bolditalic
FCHELVE   080  00091XSF100SF101110000080E X
UL +0000000000000
SW00080
ST0005301.
MT0113411475
ST0229528A text may be printed using
SUX-00080
ST0089912subscripting
SU -00080
ST0030804 or
SUX+00080
ST0104114superscripting
SU +00080
ST0005301.
MT0113412195
FCHELVE   160X 00181XSF100SF101110000160E X
SW00160
ST00618041.4.
MT0198412195
ST0284018Helvetica 16 point
MT0113412675
FCHELVE   160  00181XSF100SF101110000160E X
SW00160
ST0866656This paragraph demonstrates the different font attribute
MT0113412915
ST0456929changes within a font family.
MT0113413155
FCHELVE   160X 00181XSF100SF101110000160E X
SW00160
ST0467431This phrase is printed in bold.
FCHELVE   160  00181XSF100SF101110000160E X
SW00160
ST0016001
```

```
FCHELVE   160 X00181XSF100SF101110000160E X
SW00160
ST0473833This phrase is printed in italic.
MT0113413395
FCHELVE   160XX00181XSF100SF101110000160E X
SW00160
ST0622742This phrase is printed in bold and italic.
FCHELVE   160  00181XSF100SF101110000160E X
SW00160
ST0313119 Underlining may be
MT0113413635
ST0472930combined with the attributes:
ULX+0000600011000
ST0100806normal
UL +0000000000000
ST0026702,
FCHELVE   160X 00181XSF100SF101110000160E X
ULX+0000600011000
SW00160
ST0062904bold
FCHELVE   160  00181XSF100SF101110000160E X
UL +0000000000000
SW00160
ST0026702,
FCHELVE   160 X00181XSF100SF101110000160E X
ULX+0000600011000
SW00160
ST0069306italic
FCHELVE   160  00181XSF100SF101110000160E X
UL +0000000000000
SW00160
ST0070004 and
MT0113413875
FCHELVE   160XX00181XSF100SF101110000160E X
ULX+0000600011000
SW00160
ST0132210bolditalic
FCHELVE   160  00181XSF100SF101110000160E X
UL +0000000000000
SW00160
ST0010701.
MT0113414115
ST0458828A text may be printed using
SUX-00160
ST0179712subscripting
SU -00160
ST0061704 or
SUX+00160
ST0208214superscripting
SU +00160
ST0010701.
IN02FOOTER-R
MT0113415547
FCHELVE   160X 00181XSF100SF101110000160E X
SW00160
ST0126806SAP AG
MT0475415547
ST018301017.07.2001
MT1057015547
```

```
ST00202011
IN02HEADER-R
MT0903001374
FCHELVE   160X 00181XSF100SF101110000160E X
SW00160
ST0174210system R/3
EP
IN01ES_TEST_P        NEXT
OPINCH12  P 144  240 17280201600000200002000000
IN02MAIN
MT0113403315
CP11000000E
FCHELVE   160X 00181XSF100SF101110000160E X
UL +0000000000000
SW00160
ST00618041.5.
MT0198403315
ST0236014Times 16 point
MT0113403795
FCTIMES   160  00160XSF100SF601110000160E X
SW00160
ST0779557This paragraph demonstrates the different font attribute
ST0103007changes
MT0113404035
ST0289921within a font family.
MT0113404275
FCTIMES   160X 00160XSF100SF601110000160E X
SW00160
ST0453431This phrase is printed in bold.
FCTIMES   160  00160XSF100SF601110000160E X
SW00160
ST0016001
FCTIMES   160 X00160XSF100SF601110000160E X
SW00160
ST0437233This phrase is printed in italic.
MT0113404515
FCTIMES   160XX00160XSF100SF601110000160E X
SW00160
ST0584942This phrase is printed in bold and italic.
FCTIMES   160  00160XSF100SF601110000160E X
SW00160
ST0289719 Underlining may be
MT0113404755
ST0417130combined with the attributes:
ULX+0000600011000
ST0091806normal
UL +0000000000000
ST0026702,
FCTIMES   160X 00160XSF100SF601110000160E X
ULX+0000600011000
SW00160
ST0060504bold
FCTIMES   160  00160XSF100SF601110000160E X
UL +0000000000000
SW00160
ST0026702,
FCTIMES   160 X00160XSF100SF601110000160E X
ULX+0000600011000
SW00160
```

```
ST0065806italic
FCTIMES   160  00160XSF100SF601110000160E X
UL +0000000000000
SW00160
ST0078205 and
FCTIMES   160XX00160XSF100SF601110000160E X
ULX+0000600011000
SW00160
ST0122710bolditalic
FCTIMES   160  00160XSF100SF601110000160E X
UL +0000000000000
SW00160
ST0010701.
MT0113404995
ST0413528A text may be printed using
SUX-00160
ST0157512subscripting
SU -00160
ST0059804 or
SUX+00160
ST0183514superscripting
SU +00160
ST0010701.
IN02FOOTER-R
MT0113415547
FCHELVE   160X 00181XSF100SF101110000160E X
SW00160
ST0126806SAP AG
MT0475415547
ST018301017.07.2001
MT1057015547
ST00202012
IN02HEADER-R
MT0903001374
FCHELVE   160X 00181XSF100SF101110000160E X
SW00160
ST0174210system R/3
EP
IN01ES_TEST_P        NEXT
OPINCH12  P 144  240 172802016000003000030000
IN02MAIN
MT0113403315
CP11000000E
FCHELVE   160X 00181XSF100SF101110000160E X
UL +0000000000000
SW00160
ST00309022.
MT0170103315
ST0309019Paragraph alignment
MT0113404035
ST00618042.1.
MT0198404035
ST0400326Proportionally spaced font
MT0113404515
FCTIMES   120  00120XSF100SF601110000120E X
SW00120
ST0635863This paragraph is left-aligned. This paragraph is left-aligned.
ST0323932 This paragraph is left-aligned.
MT0113404755
```

```
ST0635863This paragraph is left-aligned. This paragraph is left-aligned.
ST0323932 This paragraph is left-aligned.
MT0113404995
ST0635863This paragraph is left-aligned. This paragraph is left-aligned.
ST0323932 This paragraph is left-aligned.
MT0113405235
ST0635863This paragraph is left-aligned. This paragraph is left-aligned.
MT0220005715
FCTIMES   120  00120XSF100SF601110000120E X
SW00120
ST0531151This paragraph is right-aligned. This paragraph is
ST0326132right-aligned. This paragraph is
MT0212805955
ST0648263right-aligned. This paragraph is right-aligned. This paragraph
ST0216222is right-aligned. This
MT0130006195
ST0621161paragraph is right-aligned. This paragraph is right-aligned.
ST0326132This paragraph is right-aligned.
MT0220006435
ST0531151This paragraph is right-aligned. This paragraph is
ST0326132right-aligned. This paragraph is
MT0944106675
ST0133114right-aligned.
MT0130707155
FCTIMES   120  00120XSF100SF601110000120E X
SW00120
ST0645961This paragraph is centered. This paragraph is centered. This
ST0283427paragraph is centered. This
MT0158207395
ST0590856paragraph is centered. This paragraph is centered. This
ST0283427paragraph is centered. This
MT0158207635
ST0590856paragraph is centered. This paragraph is centered. This
ST0283427paragraph is centered. This
MT0481207875
ST0228322paragraph is centered.
MT0113408355
FCTIMES   120  00120XSF100SF601110000120E X
SW00178
ST0674959This paragraph is aligned. This paragraph is aligned. This
SW00178
ST0289226paragraph is aligned. This
MT0113408595
SW00132
ST0675163paragraph is aligned. This paragraph is aligned. This paragraph
SW00132
ST0288627 is aligned. This paragraph
MT0113408835
SW00124
ST0599257is aligned. This paragraph is aligned. This paragraph is
SW00124
ST0364235aligned. This paragraph is aligned.
MT0113409075
SW00120
ST0271826This paragraph is aligned.
IN02FOOTER-R
MT0113415547
FCHELVE   160X 00181XSF100SF101110000160E X
SW00160
```

```
ST0126806SAP AG
MT0475415547
ST018301017.07.2001
MT1057015547
ST00202013
IN02HEADER-R
MT0903001374
FCHELVE   160X 00181XSF100SF101110000160E X
SW00160
ST0174210system R/3
EP
IN01ES_TEST_P        NEXT
OPINCH12  P 144  240 172802016000004000040000 4
IN02MAIN
MT0113403315
CP11000000E
FCHELVE   160X 00181XSF100SF101110000160E X
UL +0000000000000
SW00160
ST00309023.
MT0170103315
ST0198513Special fonts
MT0113404035
ST00618043.1.
MT0198404035
ST0101905OCR-A
MT0170104515
CP40010000E
FCOCRA    120  00144 SF400SF400400100144E
CH001447
MT0198404515
CP11000000E
FCCOURIER 120  00144 SF100SF001110000144E X
ST0057604hook
MT0170104755
CP40010000E
FCOCRA    120  00144 SF400SF400400100144E
CH001448
MT0198404755
CP11000000E
FCCOURIER 120  00144 SF100SF001110000144E X
ST0057604fork
MT0170104995
CP40010000E
FCOCRA    120  00144 SF400SF400400100144E
CH001449
MT0198404995
CP11000000E
FCCOURIER 120  00144 SF100SF001110000144E X
ST0072005chair
MT0170105235
CP40010000E
FCOCRA    120  00144 SF400SF400400100144E
ST01440100123456789
MT0170105475
CP40010000E
FCOCRA    120  00144 SF400SF400400100144E
ST0763253ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz
MT0113405955
```

```
CP11000000E
FCHELVE   160X 00181XSF100SF101110000160E X
SW00160
ST00618043.2.
MT0198405955
ST0098405OCR-B
MT0170106435
CP40040000E
FCOCRB    120  00144 SF500SF500400400144E
ST01440100123456789
MT0170106675
CP40040000E
FCOCRB    120  00144 SF500SF500400400144E
ST0763253ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz
MT0113407155
CP11000000E
FCHELVE   160X 00181XSF100SF101110000160E X
SW00160
ST00618043.3.
MT0198407155
ST0135908Bar code
MT0113407635
BCMBBARC  028350113410SBP06SBS06        000 00010
BS0123456789
MT0113408355
FCHELVE   160X 00181XSF100SF101110000160E X
SW00160
ST00618043.4.
MT0198408355
ST0233612Box Command:
BX011340283509638117350002001O
IN02FOOTER-R
MT0113415547
FCHELVE   160X 00181XSF100SF101110000160E X
SW00160
ST0126806SAP AG
MT0475415547
ST018301017.07.2001
MT1057015547
ST00202014
IN02
HEADER-R
MT0903001374
FCHELVE   160X 00181XSF100SF101110000160E X
SW00160
ST0174210system R/3
EP
//
```

Index

Access method *16*

ASCII *7*, *11*, *17*, *42*, *44*, *46*, *47*

Bar codes *41*

Character set *8*, *11*, *12*, *13*, *24*, *41*, *42*

Character set number *8*

Code page *13*, *41*, *43*

Color Control *10*

Data line *7*, *9*

Device type *8*, *15*, *28*

EBCDIC *7*, *11*, *17*, *42*

End of line *9*

End of page *9*

File header *7*

Font *24*, *26*, *27*, *28*, *40*, *43*

Font family *24*, *26*

Frame characters *13*

Frames *13*, *49*

Info line *7*

Inputcodepage *41*, *42*

ITF *43*

Language key *26*, *27*, *43*

LIST *8*, *9*, *10*, *13*, *14*

Multibyte *11*, *12*, *13*

OTF *7*, *8*, *9*, *10*, *15*, *17*, *18*, *19*, *20*, *21*, *23*, *24*, *27*, *41*, *43*, *44*, *45*, *49*, *50*, *56*

OTF command *17*

Output device *8*, *15*, *21*

Output request *7*, *8*, *17*

Outputcodepage *42*

Print control *9*, *23*, *26*, *49*

Print mode *21*, *22*

Printer driver *21*, *23*, *27*, *42*, *43*, *44*, *45*

SAP character *14*, *43*

SAP number *11*, *12*, *13*, *14*

SAPicons *14*, *15*

SAP*script* *7*, *15*, *17*, *23*, *26*, *28*, *41*

Special characters *11*, *12*, *13*, *14*

Spool administration *14*, *15*, *41*

Spool exit *7*

Spool request *7*, *8*, *21*

Syntactical characters *11*

UNIX *7*

User data *7*, *8*, *9*, *10*, *13*, *14*, *15*

Windows NT *7*