



https://verifone.cloud/docs/sca-functional-specification/protocol_spec/barcode/set_symbology

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Set Symbology

This command is used to configure supported barcode symbologies, including enabling or disabling a symbology and setting symbology parameters (for example, to set length, value, and supplements of a symbology).

Request Packet

Field	Rule	Type	Minimum	Maximum	Value(s)	Description
FUNCTION_TYPE	Required	Static value	N/A	N/A	BARCODE	Type of function
COMMAND	Required	Static value	N/A	N/A	BCSETSYMBOLGY	Command name
BC_SYMBPARAM	Required	Numeric				Symbology parameter. Refer to the below Symbology Table. Example: 48
BC_SYMBVALUE	Required	Character		16		Symbology value (in hex). 0000 is for Disable. Example: 0000
BC_SYMBLEN	Required	Numeric	1	1		Symbology length (determined by size of symbology value). Example: 2
POS_RECON	Optional	Character	1	30		POS reconciliation. POS Reconciliation field to be echoed back in response to POS. Example: RetailPOS1

Field	Rule	Type	Minimum	Maximum	Value(s)	Description
COUNTER	Required	Numeric	1	10		COUNTER is used for a given MAC label. Each COUNTER should be higher than the last one. This is used to authenticate the POS. Example: 5
MAC	Required	Base64 Encoded Data	N/A	N/A		Message Authentication Code. This is used to authenticate the POS. Associated label that tells the device which MAC_KEY to use to decrypt the value of MAC. This is used to authenticate the POS. Example: P_JTY065
MAC_LABEL	Required	Character	1	50		

Example

Following is an example of request packet

```
<TRANSACTION>
<FUNCTION_TYPE>BARCODE</FUNCTION_TYPE>
<COMMAND>BCSETSYMBOLGY</COMMAND>
<BC_SYMBPARAM>48</BC_SYMBPARAM>
<BC_SYMBVALUE>0000</BC_SYMBVALUE>
<BC_SYMBLEN>2</BC_SYMBLEN>
<MAC>...</MAC>
<COUNTER>5</COUNTER>
<MAC_LABEL>P_JTY065</MAC_LABEL>
</TRANSACTION>
```

Response Packet

Field	Type	Value	Description
RESPONSE_TEXT	Character		Processor response text. Example: Command response 0
RESULT	Character		This indicates the Result details. Example: SUCCESS
RESULT_CODE	Numeric	Expected result code: -1, 59001, 59006, 59040	This indicates the result code. Refer to Result/Error Codes for details.

Field	Type	Value	Description
TERMINATION_STATUS	Character	SUCCESS or FAILURE	This indicates the transaction termination status. This is the overall status of the transaction irrespective of approved or declined. Like, if the output is generated then the status is SUCCESS and if no output is generated then the status will be FAILURE.
POS_RECON	Character		POS reconciliation field echoed back if sent in request. Example: RetailPOS1
COUNTER	Numeric		Echoes counter sent in the request. Example: 5

Transaction Performance Metric

Note

These fields are returned, if SCAPERFMETRIC parameter ([Application Parameters](#)) is enabled.

Field	Type	Value	Description
UI_TIME	Time		This indicates the time duration, for which the device screen is displayed (like error message, prompt screen, remove card screen) till any user action is performed in the command execution flow. This field is not applicable to capture the time for the Processing, Authorizing and transaction status screen. The format of the returned value would be S.sss, where S is seconds (this can be 0 to any positive integer) and sss is milliseconds. In case of any insignificant time or 0.000 value, will not be returned in the response. Example: <UI_TIME>44.028</UI_TIME>
HOST_TIME	Time		This indicates the time taken for the Connection to the host, sending request and receives data from the host. This field also take the cumulative time for multiple requests which may sent to the host during the transaction including two legged transactions, timeout requests, Auto Last Tran requests, DCC, Credit app proxy. The format of the returned value would be S.sss, where S is seconds (this can be 0 to any positive integer) and sss is milliseconds. In case of any insignificant time or 0.000 value, will not be returned in the response. Example: <HOST_TIME>1.389</HOST_TIME>
CMD_TIME	Time		This field indicates the total amount of time for a command, which is executed by the application from request received to the response sent. The format of the returned value would be S.sss, where S is seconds (this can be 0 to any positive integer) and sss is milliseconds. In case of any insignificant time or 0.000 value, will not be returned in the response. Example: <CMD_TIME>70.765</CMD_TIME>

Example

Following is an example of response packet

```

<RESPONSE>
<RESPONSE_TEXT>Command response 0</RESPONSE_TEXT>
<RESULT>SUCCESS</RESULT>
<RESULT_CODE>-1</RESULT_CODE>
<TERMINATION_STATUS>SUCCESS</TERMINATION_STATUS>
</RESPONSE>

```

The tables below includes the most common barcode types used in the Retail industry.

- [Symbology Table \(e280s\)](#)
- [Symbology Table \(M424/M440\)](#)

Symbology Table (e280s)

Symbology Parameter	Description	Symbology Value(s)
00	Code 128, enables or disables.	• 0 - Disable • 1 - Enable (Default)
01	Code 128, sets one discrete length, one byte input value.	Any Length - 4 (Default)
02	Code 128, sets two discrete lengths, two byte input value.	Any Length - 4 (Default)
03	Code 128, sets a specific length range, two byte input value.	Any Length - 4 (Default)
04	Code 128, sets any length, no input value expected for this parameter.	Any Length - 4 (Default)
05	GS1-128 (formerly UCC/EAN-128), enables or disables.	• 0 - Disable • 1 - Enable (Default)
06	ISBT 128, enables or disables.	• 0 - Disable • 1 - Enable (Default)
07	ISBT concatenation, enables or disables.	• 0 - Disable (Default) • 1 - Enable
08	Check ISBT table, enables or disables.	• 0 - Disable • 1 - Enable (Default)
09	ISBT concatenation redundancy, enables or disables.	Value range is 2 to 20. Default is 10.

Symbology Parameter	Description	Symbology Value(s)
10	UPC-A, enables or disables.	• 0 - Disable • 1 - Enable (Default)
11	UPC-E, enables or disables.	• 0 - Disable • 1 - Enable (Default)
12	UPC-E1, enables or disables.	• 0 - Disable (Default) • 1 - Enable
13	EAN-8/JAN-8, enables or disables.	• 0 - Disable • 1 - Enable (Default)
14	EAN-13/JAN-13, enables or disables.	• 0 - Disable • 1 - Enable (Default)
15	Bookland EAN, enables or disables.	• 0 - Disable • 1 - Enable (Default)
16	If Bookland EAN is enabled, set Bookland ISBN Format.	• 0 - ISBN-10 (Default) • 1 - ISBN-13

Symbology Parameter	Description	Symbology Value(s)
17	Decode UPC/EAN/JAN Supplemental.	• 0 - Ignore supplemental characters (Default) • 1 - Decode UPC/EAN/JAN symbols with supplemental characters only • 2 - Decode UPC/EAN/JAN symbols with supplemental characters immediately • 3 - Enable 378/379 supplemental mode • 4 - Enable 978/979 supplemental mode • 5 - Enable 977 supplemental mode • 6 - Enable 414/419/434/439 supplemental mode • 7 - Enable 491 supplemental mode • 8 - Enable smart supplemental mode • 9 - User programmable supplement type 1 • 10 - User programmable supplement type 1 and 2 • 11 - Smart supplements and user programmable supplement type 1 • 12 - Smart supplements and user programmable supplement type 1 and 2
18	If a Supplemental User-Programmable option from Decode UPC/EAN/JAN Supplemental is selected, set the 3-digit prefix. 3 digit value input expected.	Numeric, 3
19	If a Supplemental User-Programmable option from Decode UPC/EAN/JAN Supplemental is selected, set a second 3-digit prefix. 3 digit value input expected.	Numeric, 3
20	If auto discriminate supplemental is selected, this option adjusts the number of times to decode a symbol without supplemental before transmission, range is 2 to 30.	Numeric [2-30]
21	Transmit UPC-A check digit to verify the integrity of the data, enables or disables.	• 0 - Disable • 1 - Enable (Default)
22	Transmit UPC-E check digit to verify the integrity of the data, enables or disables.	• 0 - Disable • 1 - Enable (Default)
23	Transmit UPC-E1 check digit to verify the integrity of the data,	• 0 - Disable • 1 - Enable (Default)

Symbology Parameter	Description	Symbology Value(s)
24	UPC-A preamble characters	• 0 - No preamble character is transmitted • 1 - System character is transmitted only (Default) • 2 - Country Code and System character are transmitted
25	UPC-E preamble characters	• 0 - No preamble character is transmitted • 1 - System character is transmitted only (Default) • 2 - Country Code and System character are transmitted
26	UPC-E1 preamble characters	• 0 - No preamble character is transmitted • 1 - System character is transmitted only (Default) • 2 - Country Code and System character are transmitted
27	Convert UPC-E decoded data to UPC-A format, enables or disables.	• 0 - Disable (Default) • 1 - Enable
28	Convert UPC-E1 decoded data to UPC-A format, enables or disables.	• 0 - Disable (Default) • 1 - Enable
29	Add five leading zeros to decoded EAN-8 symbols, enables or disables.	• 0 - Disable (Default) • 1 - Enable
30	UCC coupon extended code, enables or disables.	• 0 - Disable (Default) • 1 - Enable

Symbology Parameter	Description	Symbology Value(s)
31	Coupon report	• 0 - Scanning an old coupon symbol reports both UPC and Code 128, scanning an interim coupon symbol reports UPC, scanning a new coupon symbol report nothing. • 1 - Scanning an old coupon symbol reports either UPC or Code 128, scanning an interim coupon symbol or a new coupon symbol reports Databar Expanded (Default). • 2 - Scanning an old coupon symbol reports both UPC and Code 128, scanning an interim coupon symbol or a new coupon symbol reports Databar Expanded.
32	ISSN EAN, enables or disables.	• 0 - Disable • 1 - Enable
33	Code 39, enables or disables.	• 0 - Disable • 1 - Enable (Default)
34	Trioptic Code 39, enables or disables.	• 0 - Disable (Default) • 1 - Enable
35	Convert Code 39 to Code 32, enables or disables.	• 0 - Disable (Default) • 1 - Enable
36	Code 32 Prefix, enables or disables.	• 0 - Disable (Default) • 1 - Enable
37	Code 39, sets one discrete length, one byte input value.	Length range (2 - 55) (Default)
38	Code 39, sets two discrete lengths, two byte input value.	Length range (2 - 55) (Default)
39	Code 39, sets a specific length range, two byte input value.	Length range (2 - 55) (Default)
40	Code 39, sets any length, no input value expected for this parameter.	Length range (2 - 55) (Default)
41	Code 39 Check Digit Verification, enables or disables.	• 0 - Disable (Default) • 1 - Enable

Symbology Parameter	Description	Symbology Value(s)
42	Transmit Code 39 Check Digit, enables or disables.	• 0 - Disable (Default) • 1 - Enable
43	Code 39 Full ASCII Conversion, enables or disables.	• 0 - Disable (Default) • 1 - Enable
44	Buffer Code 39, enable or disable. NOTE: This is not supported in e280s.	• 0 - Disable (Default) • 1 - Enable
45	Interleaved 2 of 5, enables or disables.	• 0 - Disable (Default) • 1 - Enable
46	Interleaved 2 of 5, sets one discrete length, one byte input value.	One discrete length (14) (Default).
47	Interleaved 2 of 5, sets two discrete lengths, two byte input value.	One discrete length (14) (Default).
48	Interleaved 2 of 5, sets a specific length range, two byte input value.	One discrete length (14) (Default).
49	Interleaved 2 of 5, sets any length, no input value expected for this parameter.	One discrete length (14) (Default).
50	I 2 of 5 Check Digit Verification, enables or disables.	• 0 - Disable (Default) • 1 - Enable USS check digit verification • 2 - Enable OPCC check digit verification
51	Transmit I 2 of 5 Check Digit, enables or disables.	• 0 - Disable (Default) • 1 - Enable
52	Convert I 2 of 5 to EAN 13, enables or disables.	• 0 - Disable (Default) • 1 - Enable
53	QR Code, enables or disables.	• 0 - Disable • 1 – Enable (Default)

Symbology Parameter	Description	Symbology Value(s)
54	QR Inverse	• 0 - Regular bar codes are decoded only (Default) • 1 - Inverse bar codes are decoded only • 2 - Both regular and inverse bar codes are decoded
55	MicroQR, enables or disables.	• 0 - Disable • 1 - Enable (Default)
56	Data Matrix, enables or disables.	• 0 - Disable • 1 - Enable (Default)
57	Data Matrix Inverse	• 0 - Regular bar codes are decoded only (Default) • 1 - Inverse bar codes are decoded only • 2 - Both regular and inverse bar codes are decoded
58	Data Matrix Mirror Images	• 0 - Data Matrix bar codes that are mirror images are not decoded • 1 - Data Matrix bar codes that are mirror images are decoded only • 2 - Both mirrored and un-mirrored Data Matrix bar codes are decoded (Default)
59	Code 93, enables or disables.	• 0 - Disable (Default) • 1 - Enable
60	Code 93, sets one discrete length, one byte input value.	Length ranges from 4 to 55 (Default)
61	Code 93, sets two discrete lengths, two byte input value.	Length ranges from 4 to 55 (Default)
62	Code 93, sets a specific length range, range is set by two byte input value.	Length ranges from 4 to 55 (Default)
63	Code 93, sets any length, no input value expected for this parameter.	Length ranges from 4 to 55 (Default)
64	Code 11, enables or disables.	• 0 - Disable (Default) • 1 - Enable

Symbology Parameter	Description	Symbology Value(s)
65	Code 11, sets one discrete length, one byte input value.	Length ranges from 4 to 55 (Default)
66	Code 11, sets two discrete lengths, two byte input value.	Length ranges from 4 to 55 (Default)
67	Code 11, sets a specific length range, range is set by two byte input value.	Length ranges from 4 to 55 (Default)
68	Code 11, sets any length, no input value expected for this parameter.	Length ranges from 4 to 55 (Default)
69	Code 11, checks digit verification.	• 0 - Disable (Default) • 1 - One check digit • 2 - Two check digits
70	Transmit Code 11 Check Digit(s), enables or disables.	• 0 - Disable (Default) • 1 - Enable
71	Discrete 2 of 5, enables or disables.	• 0 - Disable (Default) • 1 - Enable
72	Discrete 2 of 5, sets one discrete length, one byte input values.	One discrete length (12) (Default)
73	Discrete 2 of 5, sets two discrete lengths, two byte input values.	One discrete length (12) (Default)
74	Discrete 2 of 5, sets a specific length range, range is set by two byte input value.	One discrete length (12) (Default)
75	Discrete 2 of 5, sets any length, no input value expected for this parameter.	One discrete length (12) (Default)
76	Codabar, enables or disables.	• 0 - Disable • 1 - Enable
77	Codabar, sets one discrete length, one byte input value.	Length ranges from 5 to 55 (Default)
78	Codabar, sets two discrete lengths, two byte input value.	Length ranges from 5 to 55 (Default)
79	Codabar, sets a specific length range, range is set by two byte input value.	Length ranges from 5 to 55 (Default)
80	Codabar, sets any length, no input value expected for this parameter.	Length ranges from 5 to 55 (Default)
81	Codabar, CLSI editing, enables or disables.	• 0 - Disable (Default) • 1 - Enable

Symbology Parameter	Description	Symbology Value(s)
82	Codabar, NOTIS editing, enables or disables.	• 0 - Disable (Default) • 1 - Enable
83	Codabar, Upper or Lower Case Start/Stop Characters Detection.	• 0 - Detect upper case Codabar start/stop characters (Default) • 1 - Detect lower case Codabar start/stop characters
84	MSI, enables or disables.	• 0 - Disable (Default) • 1 - Enable
85	MSI, set one discrete length, one byte input value.	Length ranges from 5 to 55 (Default)
86	MSI, set two discrete lengths, two byte input value.	Length ranges from 5 to 55 (Default)
87	MSI, set a specific length range, range is set by two byte input value.	Length ranges from 5 to 55 (Default)
88	MSI, set any length, no input value expected for this parameter.	Length ranges from 5 to 55 (Default)
89	MSI, verification of the second check digit.	• 0 - One MSI check digit (Default) • 1 - Two MSI check digits
90	Transmit MSI check digit(s), enables or disables.	• 0 - Disable (Default) • 1 - Enable
91	MSI, check digit algorithm for the verification of the second MSI check digit.	• 0 - MSI check digit algorithm MOD 10/MOD 11 • 1 - MSI check digit algorithm MOD 10/MOD 10 (Default)
92	Chinese 2 of 5, enables or disables.	• 0 - Disable (Default) • 1 - Enable
93	Matrix 2 of 5, enables or disables.	• 0 - Disable (Default) • 1 - Enable
94	Matrix 2 of 5, set one discrete length, one byte input value.	One discrete length (14) (Default)

Symbology Parameter	Description	Symbology Value(s)
95	Matrix 2 of 5, set two discrete lengths, two byte input value.	One discrete length (14) (Default)
96	Matrix 2 of 5, set a specific length range, range is set by two byte input value.	One discrete length (14) (Default)
97	Matrix 2 of 5, set any length, no input value expected for this parameter.	One discrete length (14) (Default)
98	Matrix 2 of 5 Check Digit, enables or disables.	• 0 - Disable (Default) • 1 - Enable
99	Transmit Matrix 2 of 5 Check Digit, enables or disables.	• 0 - Disable (Default) • 1 - Enable
101	Inverse 1D	• 0 - Regular (Default) • 1 - Inverse • 2 - Inverse auto detect
102	US Postnet, enables or disables.	• 0 - Disable (Default) • 1 - Enable
103	US Planet, enables or disables.	• 0 - Disable (Default) • 1 - Enable
104	Transmit US Postal Check Digit, enables or disables.	• 0 - Disable (Default) • 1 - Enable
105	UK Postal, enables or disables.	• 0 - Disable (Default) • 1 - Enable
106	Transmit UK Postal Check Digit, enables or disables.	• 0 - Disable (Default) • 1 - Enable
107	Japan Postal, enables or disables.	• 0 - Disable (Default) • 1 - Enable
108	Australia Post, enables or disables.	• 0 - Disable (Default) • 1 - Enable

Symbology Parameter	Description	Symbology Value(s)
109	Australia Post Format	• 0 - Auto discriminate (Default) • 1 - Raw format • 2 - Alphanumeric encoding • 3 - Numeric Encoding
110	Netherlands KIX Code, enables or disables.	• 0 - Disable (Default) • 1 - Enable
111	USPS 4CB/One Code/Intelligent Mail, enables or disables.	• 0 - Disable (Default) • 1 - Enable
112	UPU FICS Postal, enables or disables.	• 0 - Disable (Default) • 1 - Enable
113	GS1 DataBar, enables or disables.	• 0 - Disable • 1 - Enable (Default)
114	GS1 DataBar Limited, enables or disables.	• 0 - Disable (Default) • 1 - Enable
115	GS1 DataBar Limited Security Level	• 0 - No clear margin required • 1 - Automatic risk detection • 2 - Security level reflects newly proposed GS1 standard that requires a 5X trailing clear margin • 3 - Security level extends beyond the standard required by GS1
116	GS1 DataBar Expanded, enables or disables.	• 0 - Disable • 1 - Enable (Default)
117	Convert GS1 DataBar to UPC/EAN, enables or disables.	• 0 - Disable (Default) • 1 - Enable
118	Composite CC-C, enables or disables.	• 0 - Disable (Default) • 1 - Enable

Symbology Parameter	Description	Symbology Value(s)
119	Composite CC-A/B, enables or disables.	• 0 - Disable (Default) • 1 - Enable
120	Composite TLC-39, enables or disables.	• 0 - Disable (Default) • 1 - Enable
121	Composite UPC Mode, enables or disables.	• 0 - Transmit UPC bar codes regardless of whether a 2D symbol is detected. • 1 - Transmit UPC bar codes and the 2D portion. If 2D is not present, the UPC bar code does not transmit (Default). • 2 - Determine if there is a 2D portion, then transmits the UPC, as well as the 2D portion if present.
122	GS1-128 Emulation Mode for UCC/EAN Composite Codes, enables or disables.	• 0 - Disable (Default) • 1 - Enable
123	PDF417, enables or disables.	• 0 - Disable • 1 - Enable (Default)
124	MicroPDF417, enables or disables.	• 0 - Disable (Default) • 1 - Enable
125	Maxicode, enables or disables.	• 0 - Disable (Default) • 1 - Enable
126	Aztec, enables or disables.	• 0 - Disable • 1 - Enable (Default)
127	Aztec Inverse	• 0 - Regular • 1 - Inverse • 2 - Inverse auto detect (Default)
128	Han Xin, enables or disables.	• 0 - Disable (Default) • 1 - Enable

Symbology Parameter	Description	Symbology Value(s)
129	Han Xin Inverse	• 0 - Regular (Default) • 1 - Inverse • 2 - Inverse auto detect

Symbology Table (M424/M440)

Symbology Parameter	Description	Symbology Value(s)
00	Enables or disables Code 128.	• 0 - Disable • 1 - Enable (Default)
33	Enables or disables Code 39.	• 0 - Disable • 1 - Enable (Default)
34	Enables or disables Trioptic Code 39.	• 0 - Disable • 1 - Enable (Default)
41	Enables or disables Code 39 Check Digit Verification.	• 0 - Disable (Default) • 1 - Enable
42	Enables or disables Transmit Code 39 Check Digit.	• 0 - Disable (Default) • 1 - Enable
43	Code 39 Full ASCII Conversion, enable/disable.	• 0 - Disable (Default) • 1 - Enable
45	Enables or disables Interleaved 2 of 5.	• 0 - Disable • 1 - Enable (Default)
53	Enables or disables QR Code.	• 0 - Disable • 1 - Enable (Default)
56	Enables or disables Data Matrix.	• 0 - Disable • 1 - Enable (Default)
59	Enables or disables Code 93.	• 0 - Disable • 1 - Enable (Default)

Symbology Parameter	Description	Symbology Value(s)
64	Enables or disables Code 11.	• 0 - Disable (Default) • 1 - Enable
69	Code 11, check digit verification,	• 0 - Disable (Default) • 1 - One check digit • 2 - Two check digits
70	Enables or disables Transmit Code 11 Check Digit(s).	• 0 - Disable (Default) • 1 - Enable
76	Enables or disables Codabar.	• 0 - Disable • 1 - Enable (Default)
84	Enables or disables MSI.	• 0 - Disable • 1 - Enable (Default)
93	Enables or disables Matrix 2 of 5.	• 0 - Disable • 1 - Enable (Default)
102	Enables or disables US Postnet.	• 0 - Disable (Default) • 1 - Enable
103	Enables or disables US Planet.	• 0 - Disable (Default) • 1 - Enable
105	Enables or disables UK Postal.	• 0 - Disable (Default) • 1 - Enable
107	Enables or disables Japan Postal.	• 0 - Disable (Default) • 1 - Enable
108	Enables or disables Australia Post.	• 0 - Disable (Default) • 1 - Enable
110	Enables or disables Netherlands KIX Code.	• 0 - Disable (Default) • 1 - Enable

Symbology Parameter	Description	Symbology Value(s)
111	Enables or disables USPS 4CB/One Code/Intelligent Mail.	• 0 - Disable (Default) • 1 - Enable
112	Enables or disables UPU FICS Postal.	• 0 - Disable (Default) • 1 - Enable
120	Enables or disables Composite TLC-39.	• 0 - Disable • 1 - Enable (Default)
123	Enables or disables PDF417.	• 0 - Disable • 1 - Enable (Default)
124	Enables or disables MicroPDF417.	• 0 - Disable • 1 - Enable (Default)
125	Enables or disables Maxicode.	• 0 - Disable • 1 - Enable (Default)
126	Enables or disables Aztec.	• 0 - Disable • 1 - Enable (Default)
129	Han Xin Inverse	• 0 - Regular (Default) • 1 - Inverse • 2 - Inverse auto detect