

AIM Code Identifiers

Each AIM Code Identifier contains the three-character string **jcm** where:

- j =Flag Character (ASCII 93)
- c =Code Character (see [Table E-2](#))
- m=Modifier Character (see [Table E-3](#))

Table E-2 *Aim Code Characters*

Code Character	Code Type
A	Code 39, Code 39 Full ASCII, Code 32
C	Code 128, ISBT 128, ISBT 128 Concatenated, GS1-128, Coupon (Code 128 portion)
d	Data Matrix, GS1 Data Matrix
E	UPC/EAN, Coupon (UPC portion)
e	GS1 DataBar Family
F	Codabar
G	Code 93
H	Code 11
h	Han Xin
I	Interleaved 2 of 5
L	PDF417, Macro PDF417, Micro PDF417
L2	TLC 39
M	MSI
Q	QR Code, MicroQR, GS1 QR
S	Discrete 2 of 5, IATA 2 of 5
U	Maxicode
z	Aztec, Aztec Rune
X	Bookland EAN, ISSN EAN, Trioptic Code 39, Chinese 2 of 5, Matrix 2 of 5, Korean 3 of 5, US Postnet, US Planet, UK Postal, Japan Postal, Australia Post, Netherlands KIX Code, USPS 4CB/One Code/ Intelligent Mail, UPU FICS Postal, Mailmark, Signature Capture
lg	Grid Matrix, Grid Matrix Inverse, Grid Matrix Mirror

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The modifier character is the sum of the applicable option values based on [Table E-3](#).

Table E-3 Modifier Characters

Code Type	Option Value	Option
Code 39	0	No check character or Full ASCII processing.
	1	Reader has checked one check character.
	3	Reader has checked and stripped check character.
	4	Reader has performed Full ASCII character conversion.
	5	Reader has performed Full ASCII character conversion and checked one check character.
	7	Reader has performed Full ASCII character conversion and checked and stripped check character.
	Example: A Full ASCII bar code with check character W, A+I+MI+DW , is transmitted as J A7 AIMID where 7 = (3+4).	
Trioptic Code 39	0	No option specified at this time. Always transmit 0.
	Example: A Trioptic bar code 412356 is transmitted as J X0 412356	
Code 128	0	Standard data packet, no Function code 1 in first symbol position.
	1	Function code 1 in first symbol character position.
	2	Function code 1 in second symbol character position.
	Example: A Code (EAN) 128 bar code with Function 1 character FNC1 in the first position, AIMID is transmitted as J C1 AIMID	
I 2 of 5	0	No check digit processing.
	1	Reader has validated check digit.
	3	Reader has validated and stripped check digit.
	Example: An I 2 of 5 bar code without check digit, 4123, is transmitted as J I0 4123	
Codabar	0	No check digit processing.
	1	Reader has checked check digit.
	3	Reader has stripped check digit before transmission.
	Example: A Codabar bar code without check digit, 4123, is transmitted as J F0 4123	
Code 93	0	No options specified at this time. Always transmit 0.
	Example: A Code 93 bar code 012345678905 is transmitted as J G00 12345678905	
MSI	0	Check digits are sent.
	1	No check digit is sent.
	Example: An MSI bar code 4123, with a single check digit checked, is transmitted as J M1 4123	

Table E-3 *Modifier Characters (Continued)*

Code Type	Option Value	Option
D 2 of 5	0	No options specified at this time. Always transmit 0.
	Example: A D 2 of 5 bar code 4123, is transmitted as JS04123	
UPC/EAN	0	Standard data packet in full EAN format, i.e., 13 digits for UPC-A, UPC-E, and EAN-13 (not including supplemental data).
	1	Two digit supplemental data only.
	2	Five digit supplemental data only.
	3	Combined data packet comprising 13 digits from EAN-13, UPC-A or UPC-E symbol and 2 or 5 digits from supplemental symbol.
	4	
		EAN-8 data packet.
Example: A UPC-A bar code 012345678905 is transmitted as JE00012345678905		
Bookland EAN	0	No options specified at this time. Always transmit 0.
	Example: A Bookland EAN bar code 123456789X is transmitted as JX0123456789X	
ISSN EAN	0	No options specified at this time. Always transmit 0.
	Example: An ISSN EAN bar code 123456789X is transmitted as JX0123456789X	
Code 11	0	Single check digit
	1	Two check digits
	3	Check characters validated but not transmitted.
GS1 DataBar Family		No option specified at this time. Always transmit 0. GS1 DataBar Omnidirectional and GS1 DataBar Limited transmit with an Application Identifier "01". Note: In GS1-128 emulation mode, GS1 DataBar is transmitted using Code 128 rules (i.e., JC1).
	Example: A GS1 DataBar Omnidirectional bar code 0110012345678902 is transmitted as Je00110012345678902 .	

Table E-3 *Modifier Characters (Continued)*

Code Type	Option Value	Option
EAN.UCC Composites (GS1 DataBar, GS1-128, 2D portion of UPC composite)		Native mode transmission. Note: UPC portion of composite is transmitted using UPC rules. Standard data packet. Data packet containing the data following an encoded symbol separator character.
	0	Data packet containing the data following an escape mechanism character. The data packet does not support the ECI protocol.
	2	Data packet containing the data following an escape mechanism character. The data packet supports the ECI protocol.
	3	GS1-128 emulation
		Note: UPC portion of composite is transmitted using UPC rules. Data packet is a GS1-128 symbol (i.e., data is preceded with JJC1).
	1	Reader set to conform to protocol defined in 1994 PDF417 symbology specifications. Note: When this option is transmitted, the receiver cannot reliably determine whether ECIs have been invoked or whether data byte 92DEC has been doubled in transmission.
PDF417, Micro PDF417	0	Reader set to follow the ECI protocol (Extended Channel Interpretation). All data characters 92DEC are doubled. Reader set for Basic Channel operation (no escape character transmission protocol). Data characters 92DEC are not doubled.
	1	Note: When decoders are set to this mode, unbuffered Macro symbols and symbols requiring the decoder to convey ECI escape sequences cannot be transmitted.
	2	The bar code contains a GS1-128 symbol, and the first codeword is 903-907, 912, 914, 915. The bar code contains a GS1-128 symbol, and the first codeword is in the range 908-909.
	3	The bar code contains a GS1-128 symbol, and the first codeword is in the range 910-911.
	4	
	5	
		Example: A PDF417 bar code ABCD, with no transmission protocol enabled, is transmitted as J L2ABCD.

Table E-3 *Modifier Characters (Continued)*

Code Type	Option Value	Option
Data Matrix	0	ECC 000-140, not supported. ECC 200.
	1	ECC 200, FNC1 in first or fifth position.
	2	ECC 200, FNC1 in second or sixth position.
	3	ECC 200, ECI protocol implemented.
	4	ECC 200, FNC1 in first or fifth position, ECI protocol implemented.
	5	ECC 200, FNC1 in second or sixth position, ECI protocol implemented.
	6	ECC 200, FNC1 in first or fifth position.
GS1 Data Matrix	2	Symbol in Mode 4 or 5.
MaxiCode	0	Symbol in Mode 2 or 3.
	1	Symbol in Mode 4 or 5, ECI protocol implemented.
	2	Symbol in Mode 2 or 3, ECI protocol implemented in secondary message.
	3	Model 1 symbol.
	0	Model 2 / MicroQR symbol, ECI protocol not implemented.
QR Code	1	Model 2 symbol, ECI protocol implemented.
	2	Model 2 symbol, ECI protocol not implemented, FNC1 implied in first position.
	3	Model 2 symbol, ECI protocol implemented, FNC1 implied in first position.
	4	Model 2 symbol, ECI protocol not implemented, FNC1 implied in second position.
	5	Model 2 symbol, ECI protocol implemented, FNC1 implied in second position.
	6	Model 2 symbol, ECI protocol not implemented, FNC1 implied in first position.
	3	Model 2 symbol, ECI protocol not implemented, FNC1 implied in first position.
	0	Aztec symbol.
GS1 QR	C	Aztec Rune symbol.
Aztec		

Table E-3 *Modifier Characters (Continued)*

Code Type	Option Value	Option
Han Xin	0	Generic data, no special features are set. The transmitted data does not follow the AIM ECI protocol.
	1	ECI protocol enabled. There is at least one ECI mode encoded.
	0	Transmitted data must follow the AIM ECI protocol.
Grid Matrix, Grid Matrix Inverse, Grid Matrix Mirror		No options specified at this time. Always transmit 0.
Mailmark	0	No option specified at this time. Always transmit 0.

APPENDIX F COMMUNICATION PROTOCOL FUNCTIONALITY

Functionality Supported via Communication (Cable) Interface

Table F-1 lists supported scanner functionality by communication protocol.

Table F-1 Communication Interface Functionality

Communication Interfaces	Functionality		
	Data Transmission	Remote Management	Image and Video Transmission
USB			
HID Keyboard Emulation	Supported	Not Available	Not Available
CDC COM Port Emulation	Supported	Not Available	Not Available
SSI over CDC COM Port Emulation	Supported	Supported	Supported
IBM Table-top USB	Supported	Supported	Not Available
IBM Hand-held USB	Supported	Supported	Not Available
USB OPOS Hand-held	Supported	Supported	Not Available
Symbol Native API (SNAPI) without Imaging Interface	Supported	Supported	Not Available
Symbol Native API (SNAPI) with Imaging Interface	Supported	Supported	Supported
RS-232			
Standard RS-232	Supported	Not Available	Not Available
ICL RS-232	Supported	Not Available	Not Available
Fujitsu RS-232	Supported	Not Available	Not Available
Wincor-Nixdorf RS-232 Mode A	Supported	Not Available	Not Available
Wincor-Nixdorf RS-232 Mode B	Supported	Not Available	Not Available

Table F-1 Communication Interface Functionality (Continued)

Communication Interfaces	Functionality		
	Data Transmission	Remote Management	Image and Video Transmission
Olivetti ORS4500	Supported	Not Available	Not Available
Omron	Supported	Not Available	Not Available
CUTE	Supported	Not Available	Not Available
OPOS/JPOS	Supported	Not Available	Not Available
SSI	Supported	Supported	Supported
IBM 4690			
Hand-held Scanner Emulation (Port 9B)	Supported	Not Available	Not Available
Table-top Scanner Emulation (Port 17)	Supported	Supported	Not Available
Non-IBM Scanner Emulation (Port 5B)	Supported	Supported	Not Available
Keyboard Wedge			
IBM PC/AT & IBM PC Compatibles	Supported	Not Available	Not Available
IBM AT Notebook	Supported	Not Available	Not Available

APPENDIX G COUNTRY CODES

Introduction

This chapter provides instructions for programming the keyboard to interface with a USB or keyboard wedge host. The host powers the scanner. For host setup information, see [Chapter 5, USB Interface](#) and [Chapter 9, Keyboard Wedge Interface](#).

To select a code page for the country keyboard type, see [Appendix H, Country Code Pages](#).

Throughout the programming bar code menus, default values are indicated with asterisks (*).



*Indicates Default — ***US English (North American)** Feature/Option

USB and Keyboard Wedge Country Keyboard Types (Country Codes)

Scan the bar code corresponding to the keyboard type. For a USB host, this setting applies only to the USB Keyboard (HID) device. If the keyboard type is not listed, see [Keypad Emulation on page 5-13](#) for the USB HID host. For a keyboard wedge host, see [Alternate Numeric Keypad Emulation on page 9-6](#).



NOTE When changing USB country keyboard types the scanner automatically resets and issues the standard startup beep sequences.



NOTE For best results when using international keyboards, enable [Quick Keypad Emulation on page 5-13](#).



IMPORTANT 1. Some country keyboard bar code types are specific to certain Windows operating systems (i.e., XP and Windows 7 or higher). Bar codes requiring a specific Windows OS are noted in the bar code captions.

2. Use the **French International** bar code for Belgian French keyboards.



***US English (North American)**



US English (Mac)



Albanian



Arabic (101)

Country Codes (Continued)



Arabic (102)



Arabic (102) AZERTY



Azeri (Latin)



Azeri (Cyrillic)



Belarusian



Bosnian (Latin)



Bosnian (Cyrillic)

Country Codes (Continued)



Bulgarian (Latin)



Bulgarian Cyrillic (Typewriter)
(Bulgarian -Windows XP
Typewriter - Windows 7 or higher)



Canadian French Win7



Canadian French (Legacy)



Canadian Multilingual Standard



Chinese (ASCII)

Country Codes (Continued)**Chinese (Simplified)*****Chinese (Traditional)***

*For CJK keyboard types, see [Appendix I, CJK Decode Control](#).

**Croatian****Czech****Czech (Programmer)****Czech (QWERTY)****Danish**

Country Codes (Continued)



Dutch (Netherlands)



Estonian



Faeroese



Finnish



French (France)



**French International
(Belgian French)**



French (Canada) 95/98

Country Codes (Continued)



French (Canada) 2000/XP*

*There is also a country code bar code for [Canadian Multilingual Standard on page G-4](#). Be sure to select the appropriate bar code for your host system.



Galician



German



Greek Latin



Greek (220) Latin



Greek (319) Latin



Greek

Country Codes (Continued)



Greek (220)



Greek (319)



Greek Polytonic



Hebrew Israel



Hungarian



Hungarian_101KEY



Icelandic

Country Codes (Continued)**Irish****Italian****Italian (142)****Japanese (ASCII)****Japanese (SHIFT-JIS)***

*For CJK keyboard types, see [Appendix I, CJK Decode Control](#).

**Kazakh****Korean (ASCII)**

Country Codes (Continued)



Korean (Hangul)*

*For CJK keyboard types, see [Appendix I, CJK Decode Control](#).



Kyrgyz



Latin American



Latvian



Latvian (QWERTY)



Lithuanian



Lithuanian (IBM)

Country Codes (Continued)



Macedonian (FYROM)



Maltese_47KEY



Mongolian



Norwegian



Polish (214)



Polish (Programmer)



**Portuguese (Brazil)
(Windows XP)**

Country Codes (Continued)



Portuguese (Brazilian ABNT)



Portuguese (Brazilian ABNT2)



Portuguese (Portugal)



**Romanian
(Windows XP)**



**Romanian (Legacy)
(Windows 7 or higher)**



**Romanian (Standard)
(Windows 7 or higher)**

Country Codes (Continued)



**Romanian (Programmer)
(Windows 7 or higher)**



Russian



Russian (Typewriter)



Serbian (Latin)



Serbian (Cyrillic)



Slovak

Country Codes (Continued)



Slovak (QWERTY)



Slovenian



Spanish



Spanish (Variation)



Swedish



Swiss French



Swiss German

Country Codes (Continued)



Tatar



Thai (Kedmanee)



Turkish F



Turkish Q



UK English



Ukrainian



US Dvorak

Country Codes (Continued)



US Dvorak Left



US Dvorak Right



US International



Uzbek



Vietnamese

APPENDIX H COUNTRY CODE PAGES

Introduction

This chapter provides bar codes for selecting code pages for the country keyboard type selected in [Appendix G, Country Codes](#). If the default code page in [Table H-1](#) is appropriate for your selected country keyboard type, you do not need to scan a country code page bar code.



NOTE ADF rules can also specify a code page based on the symbology and other ADF criteria. Refer to the *Advanced Data Formatting Programmer Guide*.

Country Code Page Defaults

[Table H-1](#) lists the code page default for each country keyboard.

Table H-1 Country Code Page Defaults

Country Keyboard	Code Page Default
US English (North American)	Windows 1252
US English (Mac)	Mac CP10000
Albanian	Windows 1250
Arabic 101	Windows 1256
Arabic 102	Windows 1256
Arabic 102 AZERTY	Windows 1256
Azeri Latin	Windows 1254
Azeri Cyrillic	Windows 1251
Belarusian	Windows 1251
Bosnian Latin	Windows 1250

Table H-1 Country Code Page Defaults (Continued)

Country Keyboard	Code Page Default
Bosnian Cyrillic	Windows 1251
Bulgarian Latin	Windows 1250
Bulgarian Cyrillic	Windows 1251
Canadian French Win7	Windows 1252
Canadian French (Legacy)	Windows 1252
Canadian Multilingual	Windows 1252
Croatian	Windows 1250
Chinese ASCII	Windows 1252
Chinese (Simplified)	Windows 936, GBK
Chinese (Traditional)	Windows 950, Big5
Czech	Windows 1250
Czech Programmers	Windows 1250
Czech QWERTY	Windows 1250
Danish	Windows 1252
Dutch Netherland	Windows 1252
Estonian	Windows 1257
Faeroese	Windows 1252
Finnish	Windows 1252
French (France)	Windows 1252
French (Canada) 95/98	Windows 1252
French (Canada) 2000/XP	Windows 1252
French International (Belgian French)	Windows 1252
Galician	Windows 1252
German	Windows 1252
Greek Latin	Windows 1252
Greek220 Latin	Windows 1253
Greek319 Latin	Windows 1252
Greek	Windows 1253
Greek220	Windows 1253
Greek319	Windows 1253

Table H-1 Country Code Page Defaults (Continued)

Country Keyboard	Code Page Default
Greek Polytonic	Windows 1253
Hebrew Israel	Windows 1255
Hungarian	Windows 1250
Hungarian_101KEY	Windows 1250
Icelandic	Windows 1252
Irish	Windows 1252
Italian	Windows 1252
Italian_142	Windows 1252
Japanese ASCII	Windows 1252
Japanese (Shift-JIS)	Windows 932, Shift-
Kazakh	JIS
Korean ASCII	Windows 1251
Korean (Hangul)	Windows 1252
Kyrgyz Cyrillic	Windows 949, Hangul
Latin America	Windows 1251
Latvian	Windows 1252
Latvian QWERTY	Windows 1257
Lithuanian	Windows 1257
Lithuanian_IBM	Windows 1257
Macedonian -FYROM	Windows 1257
Maltese_47KEY	Windows 1251
Mongolian-Cyrillic	Windows 1252
Norwegian	Windows 1251
Polish_214	Windows 1252
Polish Programmer	Windows 1250
Portuguese Brazil	Windows 1250
Portuguese Brazilian ABNT	Windows 1252
Portuguese Brazilian ABNT2	Windows 1252
Portuguese Portugal	Windows 1252
Romanian	Windows 1252
	Windows 1250

Table H-1 Country Code Page Defaults (Continued)

Country Keyboard	Code Page Default
Romanian Legacy	Windows
Romanian Standard	1250
Romanian Programmer	Windows
Russian	1250
Russian Typewriter	Windows
Serbian Latin Serbian	1250
Cyrillic Slovak	Windows
Slovak QWERTY	1251
Slovenian	Windows
Spanish	1251
Spanish Variation	Windows
Swedish Swiss French	1250
Swiss German	Windows
Tatar	1251
Thai-Kedmanee	Windows
Turkish F Turkish Q	1250
Ukrainian United	Windows
Kingdom United States	1250
US Dvorak US Dvorak	Windows
Left Hand US Dvorak	1250
Right Hand US	Windows
International Uzbek	1252
Cyrillic Vietnamese	Windows
	1252
	Windows
	1252
	Windows
	1252
	Windows
	1252
	Windows
	1251
	Windows 874

Country Code Page Bar Codes

Scan the bar code corresponding to the country keyboard code page.



Windows 1250
Latin 2, Central European



Windows 1251
Cyrillic, Slavic



Windows 1252
Latin 1, Western European



Windows 1253
Greek



Windows 1254
Latin 5, Turkish

Country Code Pages (Continued)



Windows 1255
Hebrew



Windows 1256
Arabic



Windows 1257
Baltic



Windows 1258
Vietnamese



Windows 874
Thai

Country Code Pages (Continued)



**Windows 20866
Cyrillic KOI8-R**



**Windows 932
Japanese Shift-JIS**



**Windows 936
Simplified Chinese GBK**



**Windows 54936
Simplified Chinese GB18030**



**Windows 949
Korean Hangul**



**Windows 950
Traditional Chinese Big5**

Country Code Pages (Continued)



MS-DOS 437
Latin US



MS-DOS 737
Greek



MS-DOS 775
Baltic



MS-DOS 850
Latin 1



MS-DOS 852
Latin 2

Country Code Pages (Continued)



MS-DOS 855
Cyrillic



MS-DOS 857
Turkish



MS-DOS 860
Portuguese



MS-DOS 861
Icelandic



MS-DOS 862
Hebrew

Country Code Pages (Continued)



MS-DOS 863
French Canada



MS-DOS 865
Nordic



MS-DOS 866
Cyrillic



MS-DOS 869
Greek 2

Country Code Pages (Continued)



ISO 8859-1
Latin 1, Western European



ISO 8859-2
Latin 2, Central European



ISO 8859-3
Latin 3, South European



ISO 8859-4
Latin 4, North European



ISO 8859-5
Cyrillic

Country Code Pages (Continued)



ISO 8859-6
Arabic



ISO 8859-7
Greek



ISO 8859-8
Hebrew



ISO 8859-9
Latin 5, Turkish



ISO 8859-10
Latin 6, Nordic

Country Code Pages (Continued)



ISO 8859-11
Thai



ISO 8859-13
Latin 7, Baltic



ISO 8859-14
Latin 8, Celtic



ISO 8859-15
Latin 9



ISO 8859-16
Latin 10, South-Eastern European

Country Code Pages (Continued)



UTF-8



UTF-16LE
UTF-16 Little Endian



UTF-16BE
UTF-16 Big Endian



Mac CP10000
Roman

APPENDIX I CJK DECODE CONTROL

Introduction

This appendix describes control parameters for CJK (Chinese, Japanese, Korean) bar code decode through USB HID Keyboard Emulation mode.



NOTE Because ADF does not support CJK character processing, there is no format manipulation for CJK output.

CJK Control Parameters

Unicode Output Control

Parameter # 973

For a Unicode encoded CJK bar code, select one of the following options for unicode output:

- **Universal Output to Unicode and MBCS Application** - This default method applies to Unicode and MBCS expected applications, such as MS Word and Notepad on a Windows host.

✓ **NOTE** To support Unicode universal output, set up the registry table for the Windows host. See [Unicode/CJK Decode Setup with Windows Host on page I-7](#).

- **Output to Unicode Application Only** - This method applies only to Unicode expected applications, such as MS Word and WordPad, but not Notepad.



***Universal Output
(0)**



**Unicode Application Only
(1)**

CJK Output Method to Windows Host

Parameter # 972

For a national standard encoded CJK bar code, select one of the following options for CJK output to a Windows host:

- **Universal CJK Output** - This is the default universal CJK output method for US English IME or Chinese/Japanese/Korean ASCII IME on a Windows host. This method converts CJK characters to Unicode and emulates the characters when transmitting to the host. Use the [Unicode Output Control](#) parameter to control Unicode output.
- ✓ **NOTE** To support universal CJK output, set up the registry table for the Windows host. See [Unicode/CJK Decode Setup with Windows Host on page I-7](#).
- **Other options for CJK output** - With the following methods, the scanner sends the CJK character hexadecimal internal code (Nei Ma) value to the host, or converts the CJK character to Unicode and sends the hexadecimal Unicode value to the host. When using these methods, the Windows host must select the corresponding IME to accept the CJK character. See [Unicode/CJK Decode Setup with Windows Host on page I-7](#).
 - **Japanese Unicode Output**
 - **Simplified Chinese GBK Code Output**
 - **Simplified Chinese Unicode Output**
 - **Korean Unicode Code Output**
 - **Traditional Chinese Big5 Code Output** (Windows XP)
 - **Traditional Chinese Big5 Code Output** (Windows 7)
 - **Traditional Chinese Unicode Code Output** (Windows XP)
 - **Traditional Chinese Unicode Code Output** (Windows 7)

- ✓ **NOTE** The Unicode emulate output method depends on the host system (Windows XP or Windows 7).



***Universal CJK Output
(0)**



**Japanese Unicode Output
(34)**

(For Japanese Unicode Output, select Simplified Chinese Unicode IME on the Windows host)

CJK Output Method to Windows Host (continued)



**Chinese (Simplified) GBK Output
(1)**



**Chinese (Simplified) Unicode Output
(2)**



**Korean Unicode Output
(50)**

(for Korean Unicode Output, select Simplified Chinese Unicode IME on the Windows host)



**Chinese (Traditional) Big5 Output (Windows XP)
(17)**



**Chinese (Traditional) Big5 Output (Windows 7)
(19)**



**Chinese (Traditional) Unicode Output (Windows XP)
(18)**



**Chinese (Traditional) Unicode Output (Windows 7)
(20)**

Non-CJK UTF Bar Code Output

Parameter # 960

Some country keyboard type layouts contain characters that do not exist in the default code page (see [Country Keyboard Type Missing Characters on page I-6](#)). Although the default code page can not encode these characters in a bar code, they can be encoded in the UTF-8 bar code. Scan the following bar code to output the Unicode values by emulation mode.

✓ **NOTE** Use this special country keyboard type to decode the non-CJK UTF-8 bar code. After decoding, re-configure the scanner to use the original country keyboard type.

Use US English IME on Windows. See [Unicode Output Control on page I-2](#).



Non-CJK UTF-8 Emulation Output

Country Keyboard Type Missing CharactersCountry keyboard type: **Tatar, Uzbek, Mongolian, Kyrgyz, Kazakh and Azeri**

Default code page: CP1251

Missing characters:

ƒ	F
χ	Χ
κ	Κ
h	h
ø	Θ
ə	Θ
γ	Υ
Һ	Ң
Ж	Ж
Ғ	
Ң	Ң
Ү	Ү
Қ	Қ
Ұ	Ұ
К	К

Country keyboard type: **Romanian (Standard)**

Default code page: CP1250

Missing characters:

ș	Ș
ț	Ț

Country keyboard type: **Portuguese-Brazilian (ABNT), Portuguese-Brazilian (ABNT2)**

Default code page: CP1252

Missing character: **Ç**

Country keyboard type: **Azeri-Latin**

Default code page: CP1254

Missing characters: ə, Ə

Unicode/CJK Decode Setup with Windows Host

This section describes how to set up CJK decode with a Windows host.

Setting Up the Windows Registry Table for Unicode Universal Output

To support the Unicode universal output method, set up the Windows host registry table as follows:

1. Select **Start > Run > regedt32** to start the registry editor.
2. Under **HKEY_Current_User\Control Panel\Input Method**, set **EnableHexNumpad** to **1** as follows:
 [HKEY_CURRENT_USER\Control Panel\Input Method]
 "EnableHexNumpad"="1"
 If this key does not exist, add it as type **REG_SZ** (string value).
3. Reboot the computer to implement the registry change.

Adding CJK IME on Windows

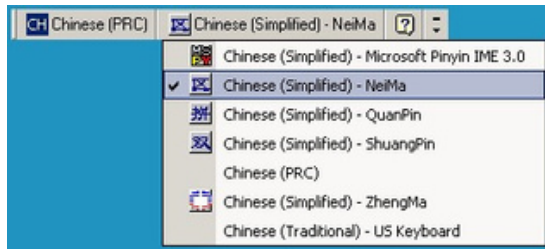
To add the desired CJK input language:

1. Click **Start > Control Panel**. If the Control Panel opens in category view, select **Switch to Classic View** in the
2. top left corner. Select **Regional and Language Options**. Click the **Language** tab. Under **Supplemental**
3. **Language Support**, select the **Install Files for East Asian Languages** check box if not
4. already selected, and click **Apply**. This may require a Windows installation CD to install the required files. This step ensures that the East Asian Languages (CJK) are available.
5. Under **Text Services and Input Language**, click **Details**.
 Under **Installed Services**, click **Add**.
6. In the **Add Input Language** dialog box, choose the CJK input language and keyboard layout or Input Method Editor (IME) to add.
7. Click **OK** twice. The language indicator appears in the system tray (at bottom right corner of the desktop by
8. default). To switch between input languages (keyboard languages) select the language indicator in the system
9. tray.
10. Select the language indicator in the system tray to select the desired country keyboard type.
11. Verify that the characters displayed on each country's keyboard appear.

Selecting the Simplified Chinese Input Method on the Host

To select the Simplified Chinese input method:

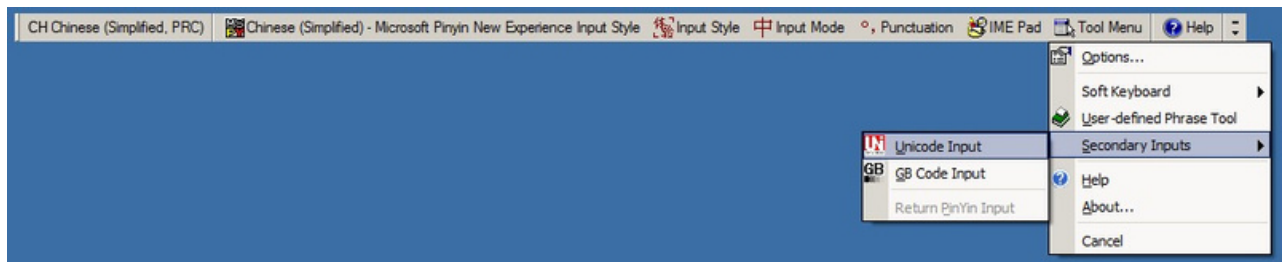
- Select Unicode/GBK input on Windows XP: **Chinese (Simplified) - NeiMa**, then click the input bar to select **Unicode** or **GBK NeiMa** input.



Or



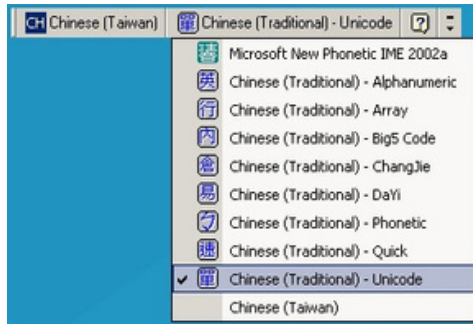
- Select Unicode/GBK input on Windows 7: **Chinese (Simplified) - Microsoft Pinyin New Experience Input Style**, then select **Tool Menu > Secondary Inputs > Unicode Input** or **GB Code Input**.



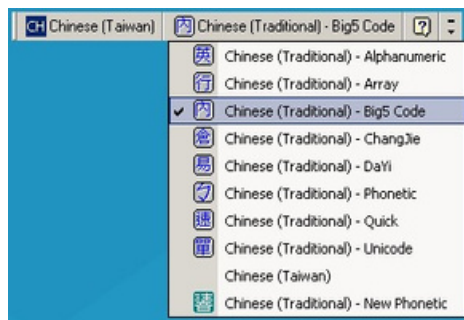
Selecting the Traditional Chinese Input Method on the Host

To select the Traditional Chinese input method:

- Select Unicode input on Windows XP: **Chinese (Traditional) - Unicode**



- Select Big5 input on Windows XP: **Chinese (Traditional) - Big5 Code**



- Select Unicode/Big5 input on Windows 7: **Chinese (Traditional) - New Quick**. This option support both Unicode and Big5 input.



APPENDIX J SIGNATURE CAPTURE CODE

Introduction

CapCode, a signature capture code, is a special pattern that encloses a signature area on a document and allows a scanner to capture a signature.

There are several accepted patterns that allow automatic identification of different signatures on the same form.

For example, on the federal tax return 1040 form there are three signature areas, one each for two joint filers, and one for a professional preparer. By using different patterns, a program can correctly identify all three, so they can be captured in any sequence and still be identified correctly.

Code Structure

Signature Capture Area

A CapCode is printed as two identical patterns on either side of a signature capture box, as shown in [Figure J-1](#). Each pattern extends the full height of the signature capture box.

The box is optional, so you can omit it, replace it with a single baseline, or print a baseline with an "X" on top of it towards the left, as is customarily done in the US to indicate a request for signature. However, if an "X" or other markings are added in the signature box area, these are captured with the signature.



Figure J-1 *CapCode*

CapCode Pattern Structure

A CapCode pattern structure consists of a start pattern followed by a separator space, a signature capture box, a second separator space, and then a stop pattern. Assuming that X is the dimension of the thinnest element, the start and stop patterns each contains $9X$ total width in 4 bars and 3 spaces. A $7X$ quiet zone is required to the left and to the right of the CapCode pattern.

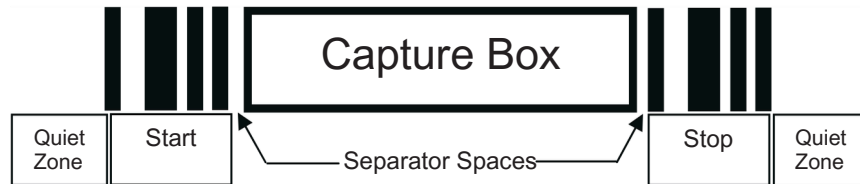


Figure J-2 CapCode Structure

The separator spaces on either side of the signature capture box can be between $1X$ and $3X$ wide.

Start / Stop Patterns

Table J-1 lists the accepted start / stop patterns. The bar and space widths are expressed as multiples of X . You must use the same pattern on either side of a signature capture box. The type value is reported with the captured signature to indicate the purpose of the signature captured.

Table J-1 Start / Stop Pattern Definitions

Bar/Space Patterns							Type
B	S	B	S	B	S	B	
1	1	2	2	1	1	1	2
1	2	2	1	1	1	1	5
2	1	1	2	1	1	1	7
2	2	1	1	1	1	1	8
3	1	1	1	1	1	1	9

Table J-2 lists selectable parameters used to generate the image of the captured signature.

Table J-2 User Defined CapCode Parameters

Parameter	Defined
Width	Number of pixels
Height	Number of pixels
Format	JPEG, BMP, TIFF
JPEG quality	1 (most compression) to 100 (best quality)
Bits Per Pixel (not applicable to JPEG format)	1 (2 levels)
	4 (16 levels)
	8 (256 levels)

BMP format does not use compression, JPEG and TIFF formats do.

Dimensions

The size of the signature capture box is determined by the height and separation of the start and stop patterns. The line width of the signature capture box is insignificant.

The thinnest element width, referred to here as X, is nominally 10 mils (1 mil = 0.0254 mm). Select this as an exact multiple of the pixel pitch of the printer used. For example, when using a 203 DPI (dots-per-inch) printer and printing 2 dots per module, the resulting X dimension is 9.85 mils.

Data Format

The decoder output is formatted according to **Table J-3**. Zebra decoders allow different user options to output or inhibit bar code type. Selecting "Symbol ID" as the bar code type for output identifies the CapCode with letter "i".

Table J-3 Data Format

File Format (1 byte)	Type (1 byte) See Table J-1 , last column	Image Size (4 bytes, BIG Endian)	Image Data
JPEG - 1 BMP - 3 TIFF - 4			(Same bytes as in a data file)

Additional Capabilities

Regardless of how the signature is captured, the output signature image is de-skewed and right-side up.

A scanner that captures signatures automatically determines whether it is scanning a signature or a bar code. You can disable the signature capturing capability in a decoder.

Signature Boxes

Figure J-3 illustrates the five acceptable signature boxes:

Type 2:



Type 5:



Type 7:



Type 8:



Type 9:



Figure J-3 *Acceptable Signature Boxes*

APPENDIX K NON-PARAMETER ATTRIBUTES (ATTRIBUTE DATA DICTIONARY)

Introduction

This appendix defines non-parameter attributes.

Attributes

Model Number

Attribute #533

Model number of the scanner. This electronic output matches the printout on the physical device label, for example **DS8108-SR00007ZZWW**.

Type	S
Size (Bytes)	18
User Mode Access	R
Values	Variable

Serial Number

Attribute #534

Unique serial number assigned in the manufacturing facility. This electronic output matches the printout on the physical device label, for example **M1J26F45V**.

Type	S
Size (Bytes)	16
User Mode Access	R
Values	Variable

Date of Manufacture

Attribute #535

Date of device manufacture assigned in the manufacturing facility. This electronic output matches the printout on the physical device label, for example **31MAR17** (which reads the 31st of March 2017).

Type	S
Size (Bytes)	7
User Mode Access	R
Values	Variable

Date of First Programming

Attribute #614

Date of first electronic programming represents the first time settings were electronically loaded to the scanner either by 123Scan or via SMS, for example **18MAY17** (which reads the 18th of May 2017).

Type	S
Size (Bytes)	7
User Mode Access	R
Values	Variable

Configuration Filename

Attribute #616

The name assigned to the configuration settings loaded electronically to the device either by 123Scan or via SMS.



NOTE Scanning the **Set Defaults** bar code automatically changes the configuration filename to **factory defaults**.

To indicate the configuration settings loaded to the device were changed, the configuration filename changes to **Modified** upon scanning any parameter bar code.

Type	S
Size (Bytes)	17
User Mode Access	RW
Values	Variable

Beeper/LED**Attribute #6000**

Activates the beeper and/or LED.

Type X
Size (Bytes) N/A
User Mode Access W

Values:

Beep / LED Action	Value
1 high short beep	0
2 high short beeps	1
3 high short beeps	2
4 high short beeps	3
5 high short beeps	4
1 low short beep	5
2 low short beeps	6
3 low short beeps	7
4 low short beeps	8
5 low short beeps	9
1 high long beep	10
2 high long beeps	11
3 high long beeps	12
4 high long beeps	13
5 high long beeps	14
1 low long beep	15
2 low long beeps	16
3 low long beeps	17
4 low long beeps	18
5 low long beeps	19
Fast warble beep	20
Slow warble beep	21
High-low beep	22
Low-high beep	23
High-low-high beep	24
Low-high-low beep	25
High-high-low-low beep	26
Green LED off	42
Green LED on	43
Red LED on	47
Red LED off	48

Parameter Defaults

Attribute #6001

This attribute restores all parameters to their factory defaults.

Type	X
Size (Bytes)	N/A
User Mode Access	W
Values	0 = Restore Defaults 1 = Restore Factory Defaults 2 = Write Custom Defaults

Beep on Next Bootup

Attribute #6003

This attribute configures (enables or disables) beep on next boot up of scanner.

Type	X
Size (Bytes)	N/A
User Mode Access	W
Values	0 = Disable beep on next bootup 1 = Enable beep on next bootup

Reboot

Attribute #6004

This attribute initiates a device reboot.

Type	X
Size (Bytes)	N/A
User Mode Access	W
Values	N/A

Host Trigger Session

Attribute #6005

This attribute triggers a decode session similar to manually depressing the scanner trigger button.

Type	X
Size (Bytes)	N/A
User Mode Access	W
Values	1 = Start Host Trigger Session 0 = Stop Host Trigger Session

Firmware Version

Attribute #20004

The scanner's operating system version. For example, **NBRFMAAC** or **PAAAABS00-007-R03D0**.

Type	S
Size (Bytes)	Variable
User Mode Access	R
Values	Variable

Scankit Version

Attribute #20008

Identifies the 1D decode algorithms resident on the device, for example **SKIT4.33T02**.

Type	S
Size (Bytes)	Variable
User Mode Access	R
Values	Variable

ScanSpeed Analytics

Identifies problematic bar codes to speed up scanning processes.

Zebra ScanSpeed Analytics software allows you to visually identify bar codes that slow down processing and impact efficiency. Over time, the software collects data that you can use to eliminate poor performing bar codes from inventory. For more information go to zebra.com/scanspeedanalytics.

APPENDIX L SAMPLE BAR CODES

UPC/EAN

UPC-A, 100%



UPC-A with 2-digit Add-on



UPC-A with 5-digit Add-on



UPC-E



UPC-E with 2-digit Add-on



UPC/EAN (continued)

UPC-E with 5-digit Add-on



EAN-8



EAN-13, 100%



EAN-13 with 2-digit Add-on



EAN-13 with 5-digit Add-on



Code 128



GS1-128



Code 39



Code 93



Code 11 with 2 Check Digits



Interleaved 2 of 5



MSI with 2 Check Digits



NOTE MSI must be enabled to read the following bar code (see [MSI on page 12-65](#)).





NOTE Chinese 2 of 5 must be enabled to read the following bar code (see [Chinese 2 of 5 on page 12-70](#)).



NOTE Matrix 2 of 5 must be enabled to read the following bar code (see [Matrix 2 of 5 on page 12-71](#)).



NOTE



Korean 2 of 5 must be enabled to read the following bar code (see [Korean 3 of 5 on page 12-74](#)).



GS1 DataBar

GS1 DataBar Omnidirectional (formerly GS1 DataBar-14)



7612341562341

GS1 DataBar Truncated



GS1 DataBar Stacked



GS1 DataBar Stacked Omnidirectional



GS1 DataBar Limited



GS1 DataBar Expanded



GS1 DataBar (continued)

GS1 DataBar Expanded Stacked



2D Symbolologies

PDF417



2D Symbolologies (continued)

Data Matrix



GS1 Data Matrix



NOTE GS1 Data Matrix must be enabled to read the following bar code (see [GS1 Data Matrix on page 12-92](#)).



Maxicode



NOTE Maxicode must be enabled to read the following bar code (see [Maxicode on page 12-95](#)).



2D Symbolologies (continued)

QR Code



GS1 QR



NOTE GS1 QR must be enabled to read the following bar code (see [GS1 QR on page 12-96](#)).



MicroQR



2D Symbolologies (continued)

Aztec



0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789012345
6789ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789

Han Xin



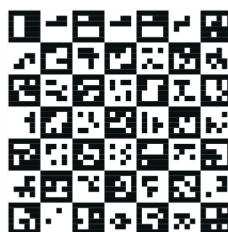
NOTE Han Xin must be enabled to read the following bar code (see [Han Xin on page 12-101](#)).



Grid Matrix



NOTE Grid Matrix must be enabled to read the following bar code (see [Grid Matrix on page 12-103](#)).



Postal Codes

US Postnet

✓ **NOTE** US Postnet must be enabled to read the following bar code (see [US Postnet on page 12-110](#)).



UK Postal

✓ **NOTE** UK Postal must be enabled to read the following bar code (see [UK Postal on page 12-111](#)).



Japan Postal

✓ **NOTE** Japan Postal must be enabled to read the following bar code (see [Japan Postal on page 12-112](#)).



Postal Codes (continued)

Australian Post



NOTE Australia must be enabled to read the following bar code (see [Australia Post on page 12-113](#)).



OCR



NOTE OCR must be enabled to read the following bar codes (see [OCR Programming Parameters on page 13-3](#)).

OCR-A

WFSGH67890

OCR-B

12345ABMKP

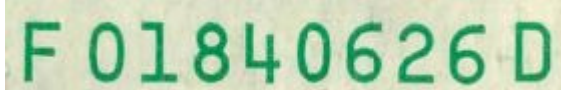
OCR (continued)

MICR E13B



A row of MICR E13B characters, which are a series of vertical bars of varying heights and widths used for document identification. The characters shown are: a start character, followed by digits 0 through 9, and an end character.

US Currency



A sample of a US currency serial number, "F 01840626 D", printed in green ink on a light-colored background.

APPENDIX M SCAN SPEED ANALYTICS

Introduction

This appendix describes the Zebra ScanSpeed Analytics software that allows the identification of bar codes that slow down processes. Over time, the collected data can be used to eliminate poor performing bar codes from inventory. When scanners capture and read data faster, processes run faster.

For more information go to zebra.com/scanspeedanalytics.

Histogram Decode Information

Within the scanner, each bar code symbology has a series of RSM attributes ([Table M-1](#)) to access its statistic information: Decode Count; Minimum Decode Time; Slowest Decode Time; Average Decode Time; Slowest Decode Data; and, ScanSpeed Histogram.

ScanSpeed Histogram is an array of eight items of double WORD (4 bytes). Each bin holds the count of decoded bar codes per range of decode time. For example, the range of Bin1 decode times is from 0 ms to 75 ms. All the Bin time ranges are show below:

Bin1 <= 75ms

Bin2 <= 110ms

Bin3 <= 170ms

Bin4 <= 300ms

Bin5 <= 600ms

Bin6 <= 1000ms

Bin7 <= 1500ms

Bin8 > 1500ms

123Scan displays this histogram data in its Statistics tab shown in [Figure M-1 on page M-2](#).

M - 2DS8108 Digital Scanner Product Reference Guide

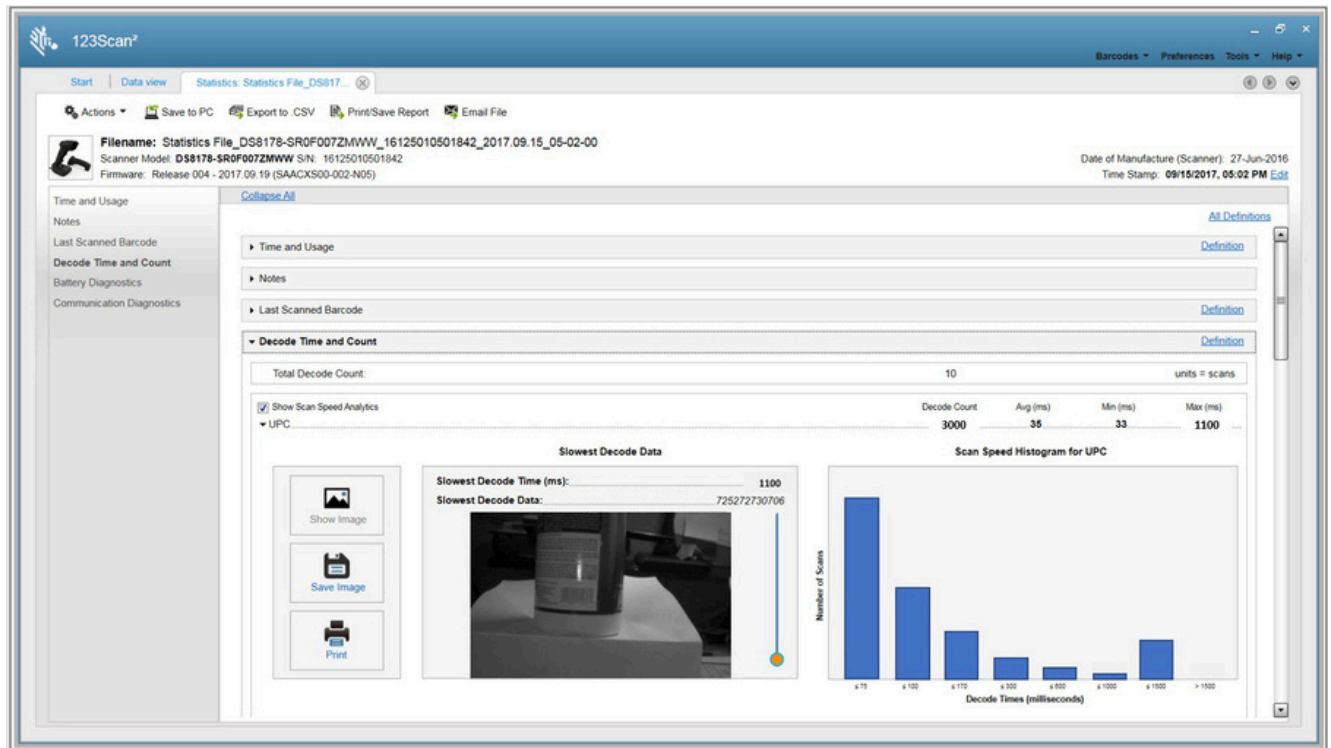


Figure M-1 123Scan Statistics Tab - Histogram Data

Table M-1 Attributes Numbers of Bar Code Symbology Statistic Information

Bar Code Name	Decode Count		Minimum Decode Time	Slowest Decode Time (Max Decode Time)	Average Decode Time	Slowest Decode Data	ScanSpeed Histogram
	Decimal Value	Hex Value (Shown in Little Endian Format)					
UPC	15421	0x3D, 0x3C	15424	15425	15426	15707	15706
EAN/JAN	15428	0x44, 0x3C	15431	15432	15433	15709	15708
2 of 5	15449	0x59, 0x3C	15452	15453	15454	15715	15714
Codabar	15456	0x60, 0x3C	15459	15460	15461	15717	15716
Code 11	15477	0x75, 0x3C	15480	15481	15482	15723	15722
Code 128	15442	0x52, 0x3C	15445	15446	15447	15713	15712
Code 39	15435	0x4B, 0x3C	15438	15439	15440	15711	15710
Code 93	15463	0x67, 0x3C	15466	15467	15468	15719	15718
Composite	15519	0x9F, 0x3C	15522	15523	15524	15735	15734
GS1 DataBar	15512	0x98, 0x3C	15515	15516	15517	15733	15732
MSI	15470	0x6E, 0x3C	15473	15474	15475	15721	15720
Data Matrix	15491	0x83, 0x3C	15494	15495	15496	15727	15726

Table M-1 Attributes Numbers of Bar Code Symbology Statistic Information (Continued)

Bar Code Name	Decode Count		Minimum Decode Time	Slowest Decode Time (Max Decode Time)	Average Decode Time	Slowest Decode Data	ScanSpeed Histogram
	Decimal Value	Hex Value (Shown in Little Endian Format)					
PDF Postal Codes	15484	0x7C, 0x3C	15487	15488	15489	15725	15724
QR Aztec OCR	15505	0x91, 0x3C	15508	15509	15510	15731	15730
Maxicode GS1-	15498	0x8A, 0x3C	15501	15502	15503	15729	15728
Data Matrix GS1-	15533	0xAD, 0x3C	15536	15537	15538	15739	15738
QR Code Coupon	15526	0xA6, 0x3C	15529	15530	15531	15737	15736
Other 1D Other 2D	15659	0x2B, 0x3D	15662	15663	15664	15755	15754
Other Unused	15673	0x39, 0x3D	15676	15677	15678	15747	15746
Statistic ID	15680	0x40, 0x3D	15683	15684	15685	15749	15748
	15666	0x32, 0x3D	15669	15670	15671	15757	15756
	15540	0xB4, 0x3C	15543	15544	15545	15741	15740
	15547	0xBB, 0x3C	15550	15551	15552	15743	15742
	15554	0xC2, 0x3C	15557	15558	15559	15745	15744
	19999	0x1F, 0x4E	19999	19999	19999	19999	19999

Example

The UPC data below is taken from the first row of [Table M-1](#) above.

UPC DECODE COUNT

Attribute #: 15421

Type: DWORD (4 bytes)

Description: Returns the UPC bar code decode count, including all variants (UPC-A, UPC-E, UPC-E1, etc.).

UPC MINIMUM DECODE TIME

Attribute #: 15424

Type: DWORD (4 bytes)

Description: Returns the Minimum Decode Time in milliseconds of all UPC bar code decodes.

UPC SLOWEST DECODE TIME

Attribute #: 15425

Type: DWORD (4 bytes)

Description: Returns the Slowest Decode Time in milliseconds of all UPC bar code decodes.

UPC AVERAGE DECODE TIME

Attribute #: 15426

Type: DWORD (4 bytes)

Description: Returns the Average Decode Time in milliseconds of all UPC bar code decodes.

UPC SLOWEST DECODE DATA

Attribute #: 15707

Type: Array of BYTE (25 bytes)

Description: Returns the UPC bar code data with the Slowest Decode Time.

UPC SCAN SPEED HISTOGRAM

Attribute #: 15706

Type: Array of DWORD (32 bytes)

Description: Returns the UPC bar code ScanSpeed Histogram.

Image of Slowest Decoded Bar Code

The user can configure the scanner to store the image(s) of the slowest decoded bar code.

Table M-2 RSM Attributes to Store/Retrieve Image of Slowest Decoded Bar Code

Attribute #	Type	Property	Default Value	Description
1755	Array of WORD	RW	Default format = {0x1F, 0x4E} 0x1F, 0x4E No image retained Bar code name = Unused Statistic ID Decimal value = 19999 see last row in Table M-1 on page M-2 0x3D, 0x3C Image retained for UPC Decimal value = 15421 Sample image retained for UPC only = {0x3D, 0x3C} 0	Attribute 1755 is named List of Stored Images. This attribute defines which image, by symbology, of the slowest decoded bar code will be stored in the scanner. One symbology image can be stored in the scanner. Note: {0x1F, 0x4E} = a 1 WORD value which is in little-endian format.
1756	WORD	RW		Attribute 1756 is named Threshold To Store Slowest Decode Bar Code Image. This attribute defines the threshold above which the scanner stores the image of the slowest decoded bar code. Specify a Histogram Bin value (0, 1, 2, 3, 4, 5, 6 or 7). The purpose of setting up this threshold is to reduce the bar code image storage frequency. 0 - No threshold check (default value) 1 - Specifies the decode time threshold as Histogram Bin 1 value of 75 ms Similarly, the other Histogram Bins specify the corresponding threshold time as follows: Bin 1 <= 75ms Bin 2 <= 110ms Bin 3 <= 170ms Bin 4 <= 300ms Bin 5 <= 600ms Bin 6 <= 1000ms Bin 7 <= 1500ms

Table M-2 RSM Attributes to Store/Retrieve Image of Slowest Decoded Bar Code (Continued)

Attribute #	Type	Property	Default Value	Description
6036	WORD	WO	N/A	Attribute 6036 is named Retrieve Slowest Decoded Bar Code Image. The image must be retrieved using the SNAPi communication protocol. This attribute allows you to retrieve from the scanner a single image, by symbology, of the slowest decoded data. For example, to retrieve the slowest decoded bar code image for a UPC symbology, enter its hex value, 0x3D, 0x3C (decimal value 15421), using a SET command. See Table M-1 on page M-2 for symbology hex and decimal values.

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