Configuration Control Document

V1300 Firmware Version 1.0.4

Contents

1 Keyword Table

Keyword	Description
#2Of5	All 2 of 5 symbologies
#AGC	Automatic Gain Control
#AIMId	AIM Identifier (ISO/IEC standard 15424)
#Aztec	Aztec symbology
#BC412	BC412 symbology
#Codabar	Codabar symbology
#Codablock	Codablock symbology
#Code11	Code 11 symbology
#Code128	Code 128 symbology
#Code39	Code 39 symbology
#Code32	Code 32 symbology
#Code49	Code 49 symbology
#Code93	Code 93 symbology
#Communications	Used in changing the communication mode of the reader
#CompositeBarcodes	Settings that affect reading of barcodes with more than one part
#DataEncoding	Settings that affect incoming/outgoing data
#DataFormatting	Data Formatting settings
#DataMatrix	Data Matrix symbology
#DotCode	DotCode symbology
#DuplicateBlock	Settings related to blocking duplicate barcodes
#EAN/JAN	EAN/JAN symbology
#GoCode	GoCode® symbology
#GridMatrix	Grid Matrix symbology
#GS1DataBar	The GS1 DataBar family of symbologies
#HanXin	Han Xin symbology
#Image	Image cropping, ROI
#InterCharacterDelay	Settings controlling the USB keyboard inter-character delay
#Interleaved2Of5	Interleaved 2 of 5 symbology
#MaxiCode	MaxiCode symbology
#Message	Messages and logs
#MSIPlessey	MSI Plessey symbology
#PDF417	PDF417 symbology
#Pharmacode	Pharmacode symbology
#Postal	Postal symbologies
#QR	QR Code symbology
#Raw	Settings related to the reader accepting raw commands
#ReaderState	Settings that affect the transition from one state to another (i.e. Active to Idle)
#SerialComm	Settings related to serial communications mode
#Telepen	Telepen symbology
#TextCommands	Settings relating to the reader accepting text commands
#Trioptic	Trioptic symbology
#UKPlessey	UK Plessey symbology
#UPC	UPC symbology
#CleanlinessTest	Cleanliness Test for 8200 products

2   Scope

This Configuration Control Document (CCD) specifies the Reader configuration commands.

3   Notations

The interface protocol is described as a set of grammars, indicated by different type styles and symbols. These indications are listed in the table below.

Example	Indication	Grammar
Text-Command	Italic type	Syntactic categories (non-terminals)
space	Bold type	Terminal symbols
%xx	Byte data	In Hex
0xFF	0x prefix indicating hexadecimal	Literal byte values
'X'	Single quotes	Literal ASCII characters
SOH	All caps	Non-printable ASCII characters
esc | tab	Vertical bar	Alternatives (this or that)
data$_{opt}$	$_{opt}$ (opt subscript)	Optional terminals and non-terminals
crc16$_{nr}$	$_{nr}$ (nr subscript)	Applies to packets sent in non-raw mode, i.e. in packet mode

4   Reader Command Overview

This section is intended to introduce users to the format of configuration commands a reader will accept to change and save configuration settings.

4.1   Configuration Command Architecture

Commands are defined as alphanumeric ASCII strings. For example, to enable Australian Post Symbology on the reader, the host will send the ASCII string SYAUPOSEN1. After the host sends a complete command, the reader will respond with a success or error message. If a command is not recognized or is not supported by a device, the reader will respond with a "NOTSUPP" error message. If an invalid parameter or parameter value is given, CDOPSQQ or CDOPSMD25 for example, the reader will respond with an "INVAL" error message.

4.2   Command Format

Primary Category	Sub-Category	Action Code	Parameter	Parameter Value (when action is S or P)
Example: SY, CM, etc.	Example: AZTC, SE, etc.	S - Change and save L - Save as a platform setting P - Change but do not save R - Reset to default value G - Get value in effect X - Execute C - Reset to saved or default value	Example: AL, BA, [, etc.	String of decimal, number, or text.

4.3   Supported Commands

The CR8200 family of readers use a new command set as compared to the CR8000 family of readers. The default output style of the CR8200 readers is via XML.

The Configuration Manager is a series of commands that apply to all primary category settings. For a full output of CR8200 settings, requested by issuing the Configuration Manager command CFG, the XML contains the following elements:

```
< CFG >

        < CM > . . .  </CM > Communications
        < PM > . . .  </PM > Power Management
        < FC > . . .  </FC > Focus Testing
        < AG > . . .  </AG > Automatic Gain Control
        < CD > . . .  </CD > Decoder Control
        < SC > . . .  </SC > Scene Manager
        < SY > . . .  </SY > Symbologies
        < PK > . . .  </PK > Packet Protocol
        < IM > . . .  </IM > Image Sensor
        < JS > . . .  </JS > JavaScript
        < FW > . . .  </FW > Firmware
        < RD > . . .  </RD > Reader
        < FB > . . .  </FB > Feedback
        < LA > . . .  </LA > Language
        < MD > . . .  </MD > Motion Detection
        < EN > . . .  </EN > Encoder Image Parameters
        < ST > . . .  </ST > Storage
        < BT > . . .  </BT > Bluetooth Radio Parameters
        < Saved > . . .  </Saved >Saved Settings
        < Platform > . . .  </Platform >Platform Settings

</CFG >
```

Each of the above elements is a "Primary Category" in the command format and has its own configuration commands that start with the two-letter element name, which the following sections describe

5 BT - Bluetooth Charger Parameters

Description	Cat	Sub	Action	Param	Notes/Example
Get All Subcategory Parameters	BT	CM	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Base Communication Mode	BT	CM	S/L/P/G R/C	CM	SE — RS-232 Serial UK — USB HID Keyboard UP — USB HID POS IP — IBM POS (surePOS) UV — USB VCOM mode UC — USB CDC mode, This only works with a terminal program such as realTerm, and not CortexTools with version 2.1.20.1 or lower. Higher versions may or may not work.. This does not work for firmware upgrade. This can load large barcodes. **Note:** X action is deprecated on V1300. The V1300 will still accept it, but please use P/S instead. **Example:** BTCMSCMUK
Base LED Brightness (%)	BT	CM	S/L/P/G R/C	LB	Adjust Base LED brightness. This is percentage of full brightness. **Example:** BTCMSLB100 **Default Value:** 100
Base Platform Settings	BT	CM	X	PL	[(^Cmd)] Save configuration command to Platform Settings. Enclose the configuration command in brackets, with the command appearing exactly as used when setting and saving a parameter. **Note:** Adding the same setting more than once will result in multiple entries for the same parameter. Adding different values for the same parameter will result in the reader using the last-added parameter value. [(Cmd)] Delete configuration command from Platform Settings. Enclose the command in square brackets and add a caret between the opening square bracket and command to delete the command from the platform configuration. **Note:** If there are multiple entries for a parameter, issuing this command will remove only the first entry. Each time the reader reboots it re-applies commands saved as Platform Settings. **Example:** BTCMXPL

Description	Cat	Sub	Action	Param	Notes/Example	
Message Response Verbosity	BT	CM	S/L/P/G R/C	VB	0	Set verbosity level to 0, no output responses returned to host.
					1	Set verbosity level to 1, all output responses returned except response for Base Connection Reset Timeout (BTCMXRS) command.
					2	Set verbosity level to 2, all output responses returned to host.
RS-232 Baud Rate	BT	CM	S/L/P/G R/C	BD	1200	1200 Bits per second
					2400	2400 Bits per second
					4800	4800 Bits per second
					9600	9600 Bits per second
					19200	19200 Bits per second
					38400	38400 Bits per second
					57600	57600 Bits per second
					115200	115200 Bits per second
					Note: Device must be rebooted for setting change to take effect. **Example:** BTCMSBD115200 **Default Value:** 115200	
RS-232 Flow Control	BT	CM	S/L/P/G R/C	FC	0	Flow control disabled
					1	Hardware flow control enabled
					Note: Device must be rebooted for setting change to take effect. **Example:** BTCMSFC0 **Default Value:** 0	
Get All Subcategory Parameters	BT	BR	G		Outputs all parameters, that support the G command, which are contained within this subcategory.	
Base Device Name	BT	BR	S/L/P/G R/C	AN	Bluetooth base device name. **Example:** BTBRSAN"Name"	
Base Device Deployment Date	BT	BR	S/L/P/G	DD	Device Deployment Date. **Note:** Customer can use whatever format best fits their needs.	
Base Bootloader Version	BT	BR	G	BO	Returns base bootloader version. **Example:** BTBRGBO	

Description	Cat	Sub	Action	Param	Notes/Example
Base Soft-Device version	BT	BR	G	SD	Returns the base's soft-device version. **Example:** BTBRGSD
Base Connection Preemptive Mode	BT	BR	S/L/P/G R/C	CP	0 Disable Connection Preemptive mode 1 Enable Connection Preemptive mode Preemptive Mode allows a reader to connect to a base even if another reader is connected to that base. The preempted reader will be disconnected from the base. **Example:** BTBRSCP0 **Default Value:** 0
Base Bluetooth Device Transmit Power	BT	BR	S/L/P/G R/C	TP	The dBm transmit power of the radio. **Note:** Transmit power should be set with valid values. The valid transmit power numbers are -40, -20, -16, -12, -8, -4, 0, 2, 3, 4, 5, 6, 7, 8. (all in dBm). **Example:** BTBRSTP-8 **Default Value:** -8
Base Paging Touch Duration (ms)	BT	BR	S/L/P/G R/C	PD	The base touch-and hold Duration to activate paging in milliseconds. Default is set to 1000 milliseconds. **Example:** BTBRSPD1000 **Default Value:** 1000
Base Paging Blink Rate (ms)	BT	BR	S/L/P/G R/C	PR	The base wireless LED blink rate (on/off frequency) while paging in milliseconds. **Example:** BTBRSPR1000 **Default Value:** 1000
Base Link Lock	BT	BR	X	LE	0 Disables the Bluetooth link lock and clears the stored reader link ID. 1 Enables the Bluetooth link lock and stores the reader link ID received from reader.
Base Link Lock ID	BT	BR	G	LL	Returns the reader link ID received over Bluetooth from the reader if Link Lock is enabled. **Example:** BTBRGLL
Terminate Bluetooth Connection	BT	BR	X	DC	0 Disconnects base from all remote devices. 1 Disconnects base from all remote devices & clears connection history information (bonding data).
Base Reboot	BT	BR	X	RB	Reboots the base. **Example:** BTBRXRB
Qi Firmware Version	BT	BR	G	QV	Returns the firmware version of the Qi chip. **Example:** BTBRGQV

Description	Cat	Sub	Action	Param	Notes/Example
Get All Subcategory Parameters	BT	MI	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Base Chip Serial Number	BT	MI	G	SN	Returns Base Chip serial number. **Example:** BTMIGSN
Base Firmware Version Major	BT	MI	G	MJ	Returns Firmware Major Version parameter. **Example:** BTMIGMJ
Base Firmware Version Minor	BT	MI	G	MN	Returns Firmware Minor Version parameter. **Example:** BTMIGMN
Base Firmware Build Version	BT	MI	G	BV	Returns Firmware Build Version parameter. **Example:** BTMIGBV
Base Firmware Option Build Version	BT	MI	G	OP	Returns Firmware Build Option parameter. **Example:** BTMIGOP
Base Firmware Version Major,Minor,Build	BT	MI	G	VS	Returns Firmware Major and Minor Version information. **Example:** BTMIGVS
Base Information String	BT	MI	S/L/P/G R/C	IS	Returns Base Information String parameter. **Example:** BTMISIS"-1" **Default Value:** "-1"
Base Firmware Type	BT	MI	G	FT	Returns Base Firmware type. **Note:** Firmware type refers to the C-number (Cxxxxxx). **Example:** BTMIGFT
Base Model	BT	MI	G	MD	Returns Base Model **Example:** BTMIGMD

Description	Cat	Sub	Action	Param	Notes/Example
Base Model Type	BT	MI	G	MT	Returns Base Model Type i.e. "V1300" etc. **Example:** BTMIGMT
Base Hardware Revision	BT	MI	G	HW	Returns Base hardware revision. **Example:** BTMIGHW
Get All Subcategory Parameters	BT	UB	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
HID Keyboard - Inter-Character Delay (ms)	BT	UB	S/L/P/G R/C	IC	The time, in milliseconds, between sending full key press-and-releases to the host. **Valid Range:** 0 - 10000 **Note:** See Appendix A **Keyword:** #Communications **Keyword:** #InterCharacterDelay **Example:** BTUBSIC0 **Default Value:** 0
HID Keyboard - Inter-Scan Delay (ms)	BT	UB	S/L/P/G R/C	IS	The time, in milliseconds, between sending key presses to the host. **Valid Range:** 0 - 10000 **Note:** See Appendix A **Keyword:** #Communications **Keyword:** #InterCharacterDelay **Example:** BTUBSIS0 **Default Value:** 0
HID Keyboard - Release Delay (ms)	BT	UB	S/L/P/G R/C	RL	The time, in milliseconds, after completing a key press before starting the subsequent key release. **Valid Range:** 0 - 10000 **Note:** See Appendix A **Keyword:** #Communications **Keyword:** #InterCharacterDelay **Example:** BTUBSRL0 **Default Value:** 0
USB Vcom Product ID	BT	UB	S/L/P/G R/C	VP	The product ID of the reader reported when in USB VCOM mode. **Example:** BTUBSVP0x8210 **Default Value:** 0x8210
Get All Subcategory Parameters	BT	ST	G		Outputs all parameters, that support the G command, which are contained within this subcategory.

Description	Cat	Sub	Action	Param	Notes/Example
Base Usage Statistics - Reset All Data Parameters	BT	ST	X	SR	Reset the charger statistics data parameters. **Example:** BTSTXSR
Base Usage Statistics - Bluetooth Peer Count	BT	ST	G	PC	Retrieve the charger Bluetooth peer (connected devices in history) count. **Example:** BTSTGPC

6   Device Recovery for the V1300

A device may get into a state in which it is difficult to determine its configuration state on very rare occasions. When this occurs, two methods that allow the user to set devices back to their default settings for those occasions are provided. The first method is to issue a configuration reset (CFR) command. This method sets all settings modified by users back to the default values set at the factory. If the device does not respond to either scanned (readers), or manually entered configuration codes (readers and charging station), powering down the unit and then powering it up again should clear this condition to allow configuration reset codes to be sent to the reader. Users may recover the device to default settings in the unlikely event where it does not communicate even after the aforementioned procedure. Unlike a configuration reset, recovery removes all conventional saved settings. Whereas a configuration reset only removes saved settings if they support the 'R' action. The following are the recovery steps for the V1300:

1. Power down the charging station by removing the USB cable from power source. Power up the device by re-attaching the USB cable.

2. Touch and hold the button within 1 second after the power is restored. The LED will turn solid as you hold the button. Hold the button for 5 seconds until the LED turns off.

3. Remove finger momentarily, then touch again and hold the button within 3 seconds while the LED blinks rapidly. The LED will turn solid as you hold the button. Hold the button for 5 seconds until the LED turns off.

   Note: If finger is removed from the button after the LED turns solid, the LED will remain solid, and the V1300 will need to be rebooted before any more action can be taken.

4. Remove finger to exit the recovery process and enter the normal application process. The LED will blink rapidly momentarily, and the settings will clear when the application is being initialized. The LED will turn off, and then starts to blink normally with all saved settings cleared.

A   HID scancode delay description

Keyword: #Communications

All HID keyboard devices communicate via HID reports. These reports contain the keyboard scancodes for all possible keypresses including press, release, and modifier scancodes. In this way, each HID report represents a keyboard "key" action.

- **Inter-character delay** is the time between sending full key press-and-releases to the host. More specifically, this delay applies to key press scan codes, so long as they have a release scan code in between them (e.g. a full key press-and-release). It does not apply to key press scan codes that are not separated by releases (e.g. pressing two keys at the same time).

- **Inter-scancode delay** is the time between sending key presses to the host. More specifically, this delay applies only to key press scan codes that do not have a release in between them (e.g. pressing two keys at the same time). It does not apply to key presses separated by a release (e.g. a full key press-and-release).

- **Release delay** is the time after completing a key press before starting the subsequent key release. More specifically, the release delay is the reverse of the inter-character delay. While the inter-character delay applies after the key release, the release delay applies before the key release. This may have the effect of multiple characters outputted by the system, as this is equivalent to holding the key pressed for an extended amount of time.

B   ASCII-Hexadecimal table

This table is for finding hexadecimal values for use in Prefixes, Suffixes and the Format String

Decimal Value	Hexadecimal Value	ASCII Character	Notes / Alternate Definition
0	00	NUL	(null)
1	01	SOH	(start of header)
2	02	STX	(start of text)
3	03	ETX	(end of text)
4	04	EOT	(end of transmission)
5	05	ENQ	(enquiry)
6	06	ACK	(acknowledge)
7	07	BEL	(bell)
8	08	BS	(backspace)
9	09	TAB; HT	(horizontal tab);
10	0A	LF	(line feed, new line);
11	0B	VT	(vertical tab)
12	0C	FF	(form feed, new page)
13	0D	CR	(carriage return);
14	0E	SO	(shift out)
15	0F	SI	(shift in)
16	10	DLE	(data link escape)
17	11	DC1	(device control 1)
18	12	DC2	(device control 2)
19	13	DC3	(device control 3)
20	14	DC4	(device control 4)
21	15	NAK	(negative acknowledgement)
22	16	SYN	(synchronous Idle)
23	17	ETB	(end of transmission block)
24	18	CAN	(cancel)
25	19	EM	(end of medium)
26	1A	SUB	(substitute)
27	1B	ESC	(escape)
28	1C	FS	(file separator);
29	1D	GS	(group separator)
30	1E	RS	(record separator);
31	1F	US	(unit separator)
32	20	Space	
33	21	!	
34	22	"	
35	23	#	
36	24	$	
37	25	%	
38	26	&	
39	27	'	
40	28	(	
41	29	)	
42	2A	*	
43	2B	+	
44	2C	,	
45	2D	-	

Decimal Value	Hexadecimal Value	ASCII Character	Notes / Alternate Definition
46	2E	.	
47	2F	/	
48	30	0	
49	31	1	
50	32	2	
51	33	3	
52	34	4	
53	35	5	
54	36	6	
55	37	7	
56	38	8	
57	39	9	
58	3A	:	
59	3B	;	
60	3C	<	
61	3D	=	
62	3E	>	
63	3F	?	
64	40	@	
65	41	A	
66	42	B	
67	43	C	
68	44	D	
69	45	E	
70	46	F	
71	47	G	
72	48	H	
73	49	I	
74	4A	J	
75	4B	K	
76	4C	L	
77	4D	M	
78	4E	N	
79	4F	O	
80	50	P	
81	51	Q	
82	52	R	
83	53	S	
84	54	T	
85	55	U	
86	56	V	
87	57	W	
88	58	X	
89	59	W	
90	5A	Z	
91	5B	[	
92	5C	\	
93	5D	]	
94	5E	^	

Decimal Value	Hexadecimal Value	ASCII Character	Notes / Alternate Definition
95	5F	_	
96	60	'	
97	61	a	
98	62	b	
99	63	c	
100	64	d	
101	65	e	
102	66	f	
103	67	g	
104	68	h	
105	69	i	
106	6A	j	
107	6B	k	
108	6C	l	
109	6D	m	
110	6E	n	
111	6F	o	
112	70	p	
113	71	q	
114	72	r	
115	73	s	
116	74	t	
117	75	u	
118	76	v	
119	77	w	
120	78	x	
121	79	y	
122	7A	z	
123	7B	{	
124	7C			
125	7D	}	
126	7E	~	
127	7F	DEL	DEL

C   USB VID - PID Listing

The Vendor ID for Brady's reader products, assigned by the USB Implementer's Forum, is 0x11FA		
PID	**Product**	**Description**
0x8200	CT8200	In-System-Programming
0x8201	Reader	USB Keyboard Mode
0x8202	Reader	HID Vendor
0x8210	Reader	VCOM Mode
0x8211	Reader	USB CDC
0x8241	V1300	USB Keyboard mode
0x8242	V1300	USB Vendor Mode (For base communication with Cortex tools)
0x8243	V1300	USB Vendor Mode (For reader communication with Cortex tools)
0x8244	V1300	USB HID POS Mode
0x8245	V1300	USB IBM POS Mode
0x8246	V1300	USB CDC ACM Mode
0x8247	V1300	USB VCOM Mode
0x8248	A275	USB Vendor Mode (For Industrial base communication with Cortex tools)