



CR1500 Application Firmware Read Me

Version 1.9.19

August 2023

Associated firmware file versions CR1500DPM		Associated firmware file versions CR1500	
Firmware	1.9.19	Firmware	1.9.19
Decoder	22.2.6	Decoder	22.2.6

******* PLEASE NOTE: *******

- This readme file contains information about the latest version of the firmware for the CR1500 hardware.
- Support for all Code products is available from Code website at: www.codecorp.com or by contacting Code Technical Support at www.codecorp.com/code-support/.
- More information is available for applications developed by Code at www.codecorp.com

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1. NEW FEATURES IN THIS RELEASE

Version 1.9.19

- Integration of decoder 22.2.6
 - Enhanced PDF417 to decode poorly printed Start and Stop patterns.
 - Added new aim identifiers (7011, 7230~9, 7240, 4309) for GS1 Validation.
- Added ability to transfer raw JPEG images in CDC mode.

2. ENHANCEMENTS/IMPROVEMENTS/FIXES

Please reference the CCD for specifics on the new features added below, including default values and different commands for enabling, disabling, and setting associated parameters

Version 1.9.19

- In the 1.7.1 version of the firmware, the “CDDT_TL” command served to set the decode locate time and decode time limit, using a formula where the decimal input value 9830720 equated to 0x00960140 (0x0096 = 150ms; 0x0140 = 320ms). However, a bug prevented the decode locate time value from taking effect. In the subsequent update, version 1.9.11, the command structure was enhanced by splitting it into two commands, “CDDT_TL” for decode time limit and “CDDT_LT” for decode locate time, and transitioned the input format from decimal to hexadecimal values. In order to further simplify and maintain backward compatibility with firmware version 1.7.1 and earlier, the input format reverted to decimal in version 1.9.19.
- Fixed an issue where platform settings couldn’t be removed using a “^” or settings that were longer than 10 characters.
- Fixed an issue where sending RDCMXEV7 ~600 times caused the reader to become unresponsive.
- Fixed a manufacturing issue where the Quality bits could get corrupted.
- Fixed an issue where RDCMXEV1,P10 would not stop a continuous scan event with timeout (RDCMXEV1,P11,P20,P3500).
- Fixed an issue where RDCMXEV9 would trigger a continuous event if RDCMXEV7 has been issued since boot.
- Fixed an issue where the decode performance took ~20ms longer.
- Updated cleanliness test to allow preferred field selection on dual field lenses instead of running the test on the entire captured image.

Version 1.9.15

- Added support for CT8200 chip revision 2.2
- Allow upgrades to a future firmware version that supports a 3.x CT8200 chip revision

Version 1.9.11

- Added the ability to adjust desired brightness target for decoding and picture capture
- Added Night Mode feature
- Added control of the LED color indicators to JavaScript
- Added support for transitional images (normal to cellphone mode)
- Added settings to control the blinking of the Good Read LED
- Added support for future chip revisions

- Removed the requirement of a 5014 license for driver's license parsing
- Updated decoder to 21.2.4
- Moved motion detection to DecodePlus architecture in order to improve performance
- Fixed an issue with the SwissGerman_Win keyboard mode, where some keypresses were incorrect
- Fixed an issue where the reader would get into a bad illumination state when removed from the stand
- Fixed an issue where the returned value from onDecodes() was not being handled correctly
- Fixed an issue where the reader object could not nest calls in JavaScript
- Improved illumination handling
- Recovery mode can now erase platform settings
- Fixed an issue with incorrect Decode Timeout in image header information
- Fixed an issue where the reader would get stuck and illumination would stay on, when in-stand motion detection mode and alternate cellphone mode was enabled
- Fixed an issue where the reader would freeze when alternate cellphone mode was enabled, and the reader is taken in and out of the stand multiple times
- Fixed an issue when handling invalid configurations in CDC mode
- Fixed an issue where AIM ID wouldn't load properly after reboot or power cycle
- Fixed an issue with raw commands in RS232 mode
- Fixed an issue with erroneous update log messages when loading non firmware files
- Improved image header information for JPEG and PGM images

Version 1.7.1

- Updated decoder to 20.3.10
- Added support for CT8200 2.2 chip
- Added ability to remove the error log
- Added ability for USB VCOM to use serial number for USB identification
- Added ability to list files in alphabetical order
- Added ability to force the RS232 output driver on
- Increased configurability of trigger debounce times
- Improved reading decimated and convoluted images
- Improved image cropping
- Fixed issues with USB Compliance Tests
- Fixed issue where readers would reboot when JavaScript was disabled
- Fixed issue where readers were not able to switch between IBM (sure)POS and HID Vendor mode
- Fixed Issue where readers were not able to connect to host in VCOM or CDC VCOM modes
- Fixed issue with Interleaved 2 Of 5 minimum length value to include checksum
- Fixed issue not able to set Straight 2 Of 5 minimum length settings by adding new subcategory A2O5
- Fixed issue where large codes in IBM (sure)POS may output corrupted data
- Fixed issue where the reader would reboot after thousands of scans
- SHIFT-JIS Language Support
- Preferred Field of interest (FOI) for taking pictures, HD and Wide
- Added image storage options

Version 1.6.5

- Updated decoder to 19.1.13
- Added an alternate cell phone mode for better performance for high cell phone reading environments

- Fixed issue where a reader would stop scanning when exposed to large changes in ambient lighting until a reboot
- Added ability to correctly report new versions of the CT8200 processor

Version 1.6.2

- Updated to Cortex Decoder 18.3.8
- Added the ability to scan configuration codes when QR Code symbology is disabled
- Fixed issue where reader would reboot after several thousand scans when JavaScript was enabled
- Fixed issue where barcode data could be sent twice to the host when cell phone mode was enabled
- SurePOS
- Support for DotCode

Version 1.4.1

- Updated to Cortex Decoder 18.3.4
- Added ability to set the position of the AIMid
- Improved ability to scan barcodes with a large amount of data
- Improved ability to scan composite barcodes
- Updated SwissGerman_Win.xml keyboard
- Fixed issue where the reader would freeze when scanning a CFG configuration barcode (M20113) in USB Keyboard
- Deprecated Scene Manager commands SCSCP_IL SCSP_EX SCSP_GN

Version 1.2.4

- Updated to Cortex Decoder 18.2.1
 - Added an option in Data Formatting configuration string to allow the output data to be shorter than the specified length. This is achieved by setting bit 1 of the upper byte of ControlBits
 - Added support for decoding QR Code based CR8200 Configuration Code without enabling QR Code
 - Added conditional logic in Match String features of Data Manipulation
 - Added result status item in Data Formatting features of Data Manipulation
- Improved AGC stability
- Added ability to return file listings when reader is locked
- Added ability to return symbology name in Data Formatting
- Fixed issue where continuous scan stopped when cell phone mode was enabled
- Fixed issue where reader in-stand and in continuous scan mode would go into ISP mode after a power cycle
- Fixed issue with case formatting
- Fixed issue where reader would double scan when decode attempt timeout (sticky time) was set
- Fixed issue where CFR[^LC] would clear more than licenses
- Fixed issue where CFR[^PL] would clear more than platform settings

Version 1.1.2.8 DPM

- Initial release for CR1500DPM
- Default DPM settings

- Contrast Window to 128 - AGCRPCX128
- Low Contrast enabled - CDOPSLC1
- DPM Basic Handheld enabled - CDDPSBH1
- Set preferred field to Wide Field - CDOPSPF1
- Enabled Data Matrix Mirror Decoding - SYDATMSMR1
- Enabled Data Matrix Standard and Invers Decoding - SYDATMSPO2
- Enabled QR Normal and Inverse Decoding - SYQRCOSPO2
- Enabled QR Micro Decoding - SYQRCOSMI1
- Enabled QR Mirror Decoding - SYQRCOSMR1
- Enabled QR Model 1 Decoding - SYQRCOSM11

Version 1.1.2.4

- Fixed issue when Cellphone Mode was enabled the reader would be disabled

Version 1.1.2.3

- Fixed issue when reader was in Keyboard mode a packet header returned with file listings
- Fixed issue where Wide Field Focus and Wide Field Prescription values were reversed
- Fixed issue where configuration codes could not be scanned while in Focus Test Mode

Version 1.1.2

- Added ability to execute encrypted JavaScripts
- Added support for Italian Keyboard for Windows
- Added support for Portuguese Keyboard for Windows
- Added support for Chinese Barcode decoding in Keyboard mode regardless of Chinese keyboard in use
- Added new firmware commands to support updated Cortex Decoder
- Fixed issue where no response was returned when CFG was sent as a raw command
- Fixed issue where a locked reader would error beep when reading a barcode
- Fixed issue where CFR[^AL] erased all persistent configuration attributes
- Fixed issue where prescription bits were not restored correctly after a reboot
- Fixed issue with motion detection mode having dim illumination
- Fixed issue where sending command FWTSSID1 to enable decimated images would cause the reader to reboot.
- Updated to Cortex Decoder 17.2.9
 - Added properties to individually enable/disable optional checksum for Matrix 2 of 5, Standard 2 of 5, Hong Kong 2 of 5, NEC 2 of 5, IATA 2 of 5:
 - Improved Data Manipulation
 - Improved decoding of UPC/EAN printed on uneven surface
 - Improved decoding of poorly printed Code 128
 - Enhanced Colombia DL/ID applications
 - Fixed Grid Matrix enabling issue that also requires enabling at least one of these: 1D, PDF417, DataBar, DM, or QR Code.
 - Fixed Code 49 enabling issues
 - Fixed IATA 2 of 5 string length checking

Version 1.0.5.1

- Fixed issue where reader crashed due to memory leak

Version 1.0.5

- Ability to suppress good read indication and good read beep
- Added error indication and error message to reader log for executing a bad JavaScript
- Added user definable parameters via .settings.js
- Added error beep and logging if executing a bad JS
- Improved motion detection performance
- Improved file listings by removing DATETIME attribute
- Fixed issue where platform commands including commas didn't save properly
- Fixed issue where taking a picture in stand caused reader reboot
- Fixed issue with uploading files when the reader is in Raw Mode
- Fixed decode structure to be handled properly when JS is loaded
- Fixed issue when reader was in stand, there was no response if a file was uploaded
- Fixed issue where motion detection would stop if reader was in stand and command to reset reader defaults (CFR) was sent
- Updated to Cortex Decoder 17.1.28
 - Added new pre-processing feature with P property as P_FILTER_TYPE
 - 0: No preprocessing
 - 1: Low pass filter 1
 - 2: Low pass filter 2
 - 3 and higher: Reserved

Version 0.2.2

- Preliminary Java Script implementation
- Configuration lock
- New command to get saved and/or platform settings
- Red LED blink indication for imager failures
- Added support for UPCA Strip leading 0, GILBARCO, NCR, NCR2, WINCNIX
- Added support on the reader to read file type (*.crvfw) and store the appropriate sections
- Added a distinct beep sequence when entering bootloader mode
- Improved motion detection algorithm
- Improved process to enter the bootloader mode
- Fixed issue with setting data format option and prefix/suffix setting
- Fixed issue with serial hardware flow control
- Fixed GS1 validation to look for GS1 parse string
- Fixed issue with FuseID byte ordering from the image sensor
- Updated to Cortex Decoder 17.1.22
 - Added ability to strip UPC-A number system char only when it is 0
 - Added decoder based POS terminal emulation
 - Improved decoding of low contrast 1D barcode laser etched on yellow gas pipe
 - Enhanced Match String feature to perform match/replace up to 50 locations

- Added individual configuration strings for DL and GS1 parsing, Data Formatting, and Match string decoder post-processing
- Added Data Formatting to be performed on parsed output
- Match String output can be the decoded data without the matched portion of data
- Fixed issue that prevented calling formatOutput() when the old configuration string length variable is 0
- Extended Maxicode time limit
- Fixed Ohio DL parser issue
- Fixed issue rejecting incorrect rows and column for Han Xin code
- Fixed issue in orientation checking

Version 0.1.4

- Improved Illumination
- Vibration on good read
- Added support for JPEG image
- Support Optics for Manufacturing
- Added interim support for decoding a single field
- Added final qual support for manufacturing
- Ability to decode Only HD or Only Wide Field Images
- Ability to parse CR8x Final Qual Focus test P-Codes
- Modified firmware upgrade mode
- Added ability to reset to Factory Defaults from Bootmode
- Added system defragmentation
- Improved filesystem performance
- Added ability to save decode data to filesystem
- Improved reader upgrade reliability

Version 0.0.1

- Supports motion detection
- Supports the ability to restore factory settings
- Supports R232, USB Vendor, USB Keyboard, and USB VCOM
- Supports image download
- Supports data formatting and manipulation
- Supports Text matching, GS1, ISO 15434, ISO 15434 & ISO15218, and UDI validations
- Supports extended features through licenses
- Supports vibration, beep and Green LED on a Good read
- Supports user configuration management system to control indication settings
- Supports user accessible FAT16 filesystem
- Supports Automatic RS232/USB detection

3. CHANGES TO DEFAULT SETTINGS

Version 1.9.19

- None

Version 1.9.15

- None

Version 1.9.11

- CDDT_TL Upper byte access problem fixed old default was 320 new default is 0x00000140
- SCSP_MO changed from NO (Normal AGC mode) to DF (Default AGC Behavior)
- FWHW_RD changed from 25 to 50, button release delay improvement
- FWHW_PD changed from 0 to 25, button release delay

Version 1.7.1

- CDTP_AB Extra image capture for AGC analysis and stabilization, is now 4
- SYI2O5_LN Interleaved 2 of 5 – Length, is now 2

Version 1.6.5

- CDOP_CE Cell Phone Mode, is now enabled by default

Version 1.6.2

- SYUPCO_AM UPC/EAN/JAN – Send AIM Modifier, is now enabled by default

Version 1.4.1

- None

Version 1.2.4

- None

Version 1.1.2.8DPM

- None

Version 1.1.2.4

- None

Version 1.1.2.3

- None

Version 1.1.2

- None

Version 1.0.5.1

- None

Version 1.0.5

- None

- None

4. OUTSTANDING ISSUES

Note: Firmware ENHANCEMENTS and OUTSTANDING ISSUES are categorized as critical and noncritical. Critical updates require the user to upgrade firmware and all reader programming guides and manuals.

***** **CRITICAL** *****

*******NON CRITICAL*******

- Holding down the shift key and scanning causes shifted data.
- Match string validation configuration string CDOP_SM and full data format string CDOPSFD can only handle up to 512 bytes of data in the command.
- When the reader is in packet mode ISO validation isn't error beeping.
- Sticky trigger isn't taking effect when the reader is in Motion detection or in stand.
- When MDPM_ET is set to 1 it can cause a flicker in the targeting bar.
- Issue where targeting bar is on during image capture.

5. CONFIGURATION CODES

NEW CONFIGURATION CODES: NONE

Code	Ver	Description

EXISTING CONFIGURATION CODES THAT HAVE BEEN MODIFIED: NONE

Code	Ver	Description

EXISTING CONFIGURATION CODES THAT HAVE BEEN REMOVED: NONE

Code	Ver	Description

6. FIRMWARE FILE NAMING CONVENTION

The CR1500 firmware CRVFW file names describe the corresponding platform associated with the file. See the table below for a breakdown of the filename:

Cxxxxxx_<Version>_<Product>_<Components>_<Imager_type>.crvfw

File name part	Description	Notes
Cxxxxxx	Unique Code internal tracking number	This number is unique for all Code firmware/hardware but has no other significance
<Version>		Major – A change to this number equates to significant changes such as breaking backwards compatibility

	The version number of this firmware in three integers as Major.Minor.Build	Minor – A change to this number equates to a change or addition to functionality	
		Build – A change in this number equates to an issue fix or some minor change. It is updated for every build of the firmware.	
<Product>	The product on which this firmware will run	Currently CR1500 only (other values reserved for future use)	
<Components>	Four alphanumeric characters describing product characteristics and sub-assemblies	1 st character	1 = CT8200 Chip Revision 1.01 2 = CT8200 Chip Revision 2.xx
		2 nd character	A = CR8200 Optical Head M = CR8000 Optical
		3 rd character	K = CR1500 Development Board for Development D = CR1500 Decode Board in production units
		4 th character	0 = Normal firmware (other integers reserved for future use)
<Imager_type>	Designates the optics used	L00	Single-field optics
		L01	Single-field IR-Cut optics
		L02	Dual-field optics

7. SOFTWARE/READER TOOL COMPATIBILITY

Recently upgraded Code software is available for download from Code website at: www.codecorp.com or contact Code Technical Support.

Software	Version
CortexTools™2	1.6.7 or higher
CortexTools™3	2.1.20.1 or higher



8. TECHNICAL SUPPORT INFORMATION

You may contact Code at:

Code Corporation
434 West Ascension Way
Suite 300
Salt Lake City, UT 84123

Voice: 801-495-2200

Fax: 801-495-0280

support@codecorp.com

You can track new product releases, software updates and technical bulletins by visiting the Code web page at <http://codecorp.com>.

If you have technical questions visit our website at <https://www.codecorp.com/contact-us/> for phone numbers and email addresses.



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