

FireCR Dental TWAIN

User Manual

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The logo for DIGIRAY, featuring the word "DIGIRAY" in a bold, sans-serif font. The letter "Y" is stylized with a red horizontal line above it that extends to the right and then curves downwards.

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Warnings and used symbols

To ensure the safety of patients, staff and other persons, any changes to software and hardware delivered by **Digiray Corp.** may only be made with prior written permission from **Digiray Corp.**

Please read the respective manuals of the connected devices, such as of the X-ray generator, sensor, or reader, before starting to use the software.

The following symbols will be used throughout this manual:



DANGER

The functionality of the software can be destroyed in the case of incorrect use.

If unauthorized changes have been made to delivered software and hardware components, the warranty by **Digiray Corp.** becomes void. **Digiray Corp.** will not accept any responsibility or liability for the proper functioning of the product in such a case.



DANGER

General mandatory action manual.

The functionality of the system can be destroyed in the case of incorrect use.

If unauthorized changes have been made to delivered system and accessories, the warranty by **Digiray Corp.** becomes void.

Digiray Corp. will not accept any responsibility or liability for the improper functioning of the product in such a case.



WARNING

The functionality of the system can be limited in the case of incorrect use. Hints that require special attention.



NOTE

Notes represent information that is important to know but which do not affect the functionality of the system.

1. Introduction

TWAIN is an applications programming interface (API) and communications protocol that regulates communication between software and digital imaging devices, such as image and digital camera. TWAIN is not a hardware-level protocol; it requires a driver called *Data Source* for each device.

FireCR Dental TWAIN is a TWAIN data source for **FireCR Dental**. You can transfer either 8bit or 16bit image from **FireCR Dental** to your application using **FireCR Dental TWAIN**. **FireCR Dental TWAIN Pro** also provides post-processing which makes ready to use image.

Requirements

- Microsoft Windows compatible PC (Windows 7 32/64bit, Windows 8 32/64bit)
- 32bit Windows application which provides TWAIN interface.
- **FireCR Dental TWAIN Pro** requires license dongle

2. Installation

2.1. FireCR Installation

1. Log on to the PC using an administrator account.
2. If your application files are located at Windows **Program files** folder and Windows **UAC**(user account control) is turned on, please turn of the UAC or install your application at other place.
3. Download and install latest FireCR Dental SDK
 - Execute **FireCRDentalSDK-1.0.1.xx-setup.exe**

2.2. TWAIN Installation

1. Log on to the PC using an administrator account.
2. Install TWAIN driver
 - Execute **FireCRDentalTWAIN-1.x-setup**

3. Acquiring Image

1. Launch your application
2. Select TWAIN source in your application
 - Find and select **FireCR Dental 1.x (32-32)**
3. Launch **FireCR Dental TWAIN**
 - Find and select **Acquire** in your application
 - **FireCR Dental TWAIN** dialog box will come up as Figure 1.
 - Calibration files will be transferred from scanner to your application folder automatically.

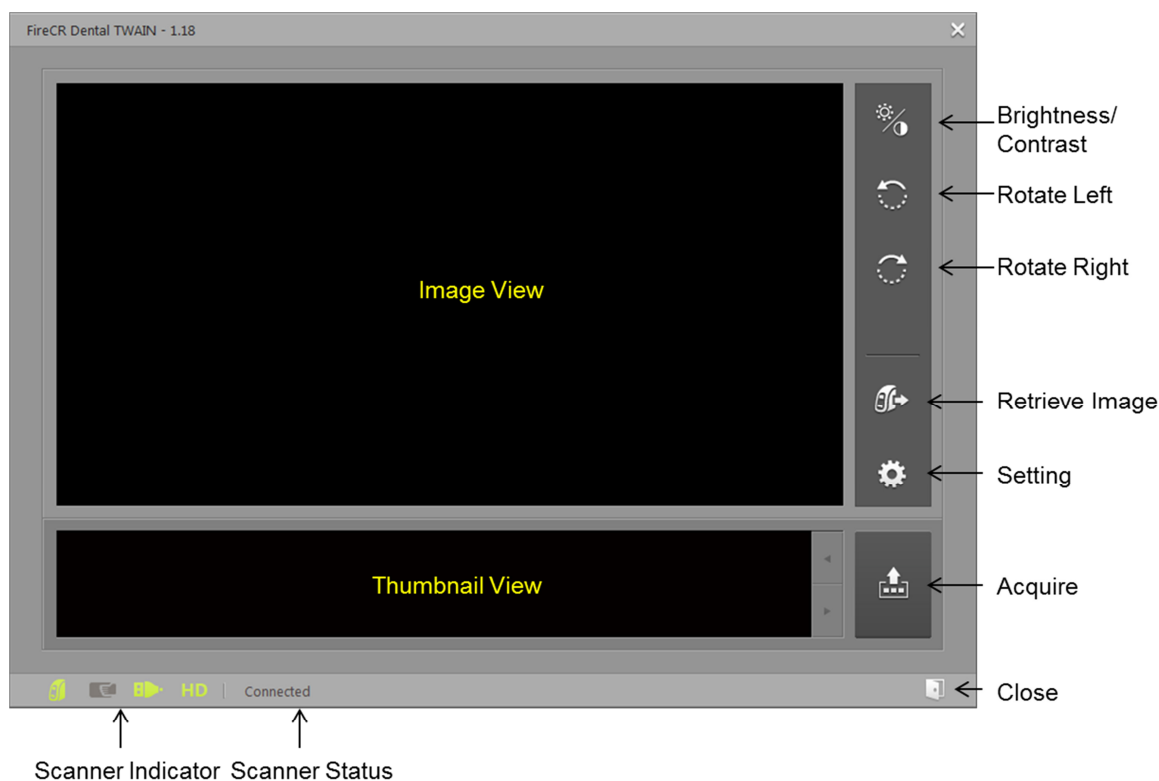





Figure 1 FireCR Dental TWAIN

- ✓ **Image View:** Shows image received from scanner. Thumbnail selected image is also displayed.
- ✓ **Thumbnail View:** Shows images received from scanner.
- ✓ **Brightness/Contrast:** Adjust the brightness and contrast.
- ✓ Rotate Left: Rotate image left
- ✓ Rotate Right: Rotate image right
- ✓ Retrieve Image: Retrieve image from scanner.
- ✓ Setting: Show setting window.
- ✓ Acquire Images: Acquire all received images to parent application.

- ✓ Close: Close the TWAIN window
- ✓ Scanner Status: Shows scanner state as text.
- ✓ Scanner Indicator: Shows scanner state as indicator icon.

-  Scanner connection
-  Fire ID connection
-  Network connection
- **HD SD** Scanner Resolution

4. Scan

- Place IP on scanner tray and push the tray.
- Scanned image is displayed at preview window as Figure 2.

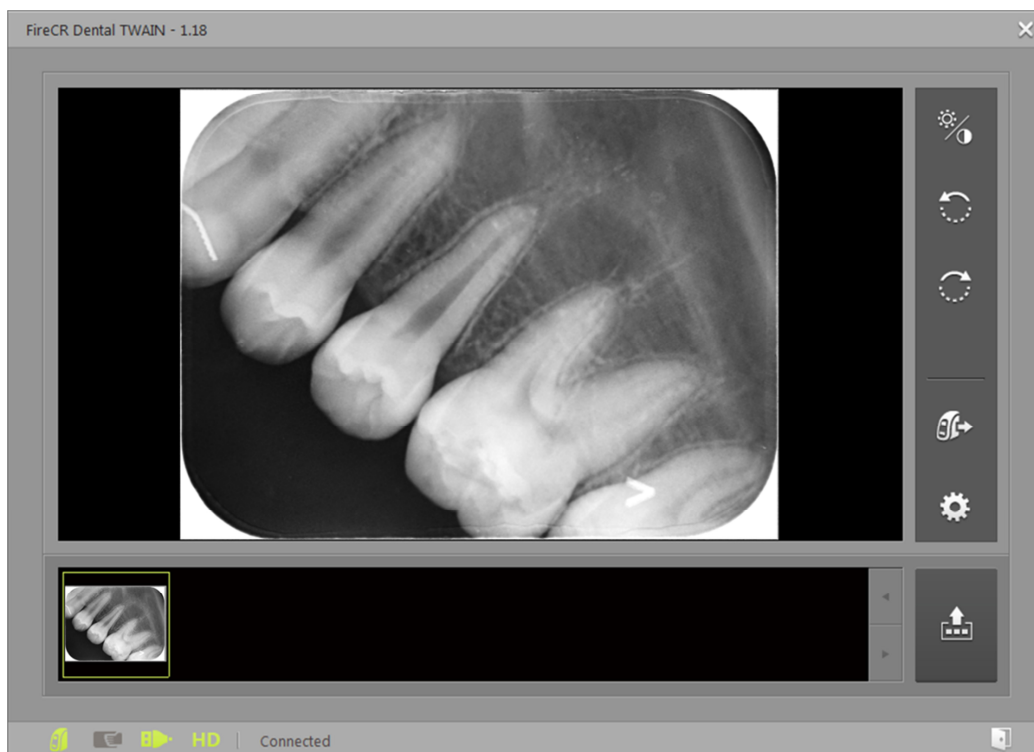
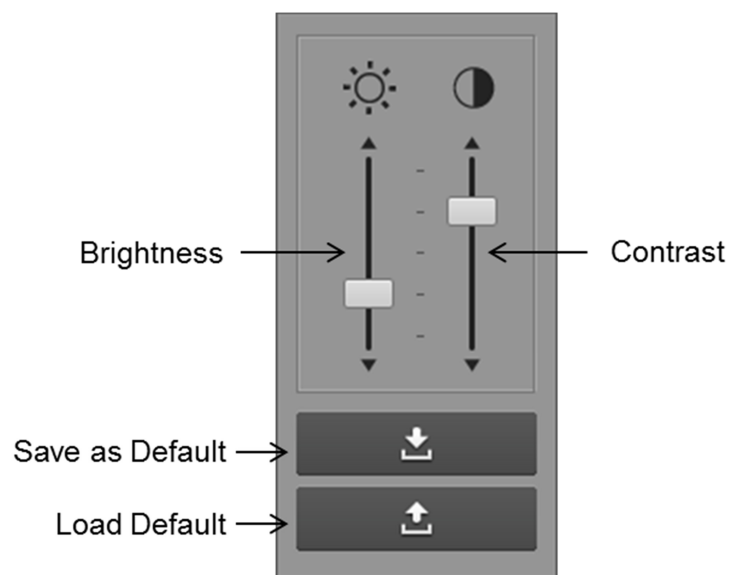


Figure 2 Acquire Image

5. Brightness / Contrast

- Adjust the brightness and contrast if required
- Click “Save as Default” button to preserve current brightness/contrast as default value
- Click “Load Default” button to load default brightness/contrast



6. Move image to application
 - Click "Acquire" button to move the image to your application.

4. Option

Options can be selected at setting window like Figure 3. All changes will be preserved at next launching.

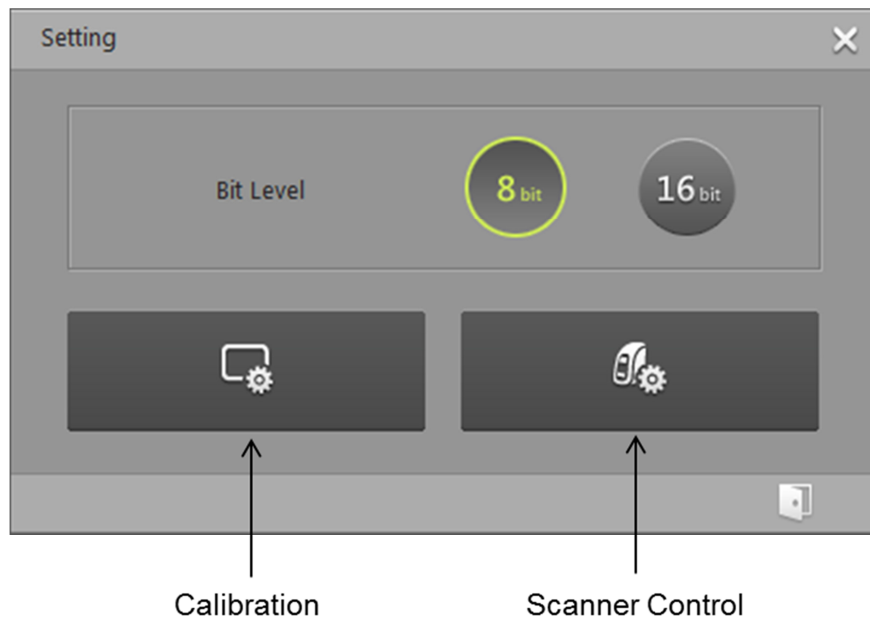


Figure 3 Setting Window

- ✓ **Bit Level:** Bits allocated for one pixel.
 - ◆ 8bit: 256 level grayscale image
 - ◆ 16bit: 65536 level grayscale image.
- ✓ **Calibration:** Shows calibration dialog box
- ✓ **Scanner Control:** Shows scanner control dialog box

5. Retrieve Image

FireCR Dental has internal memory and which saves latest 100 images. You can retrieve these images at Retrieve Image window.

1. Click Retrieve Image button
2. Retrieve Image Window shows up and display latest 100 image list
3. Click list item then preview image will be displayed
4. Click Retrieve button to retrieve image to main window.
5. Click Close button
6. Refresh button will refresh the list.
7. Delete all button will erase all images at scanner's internal memory.

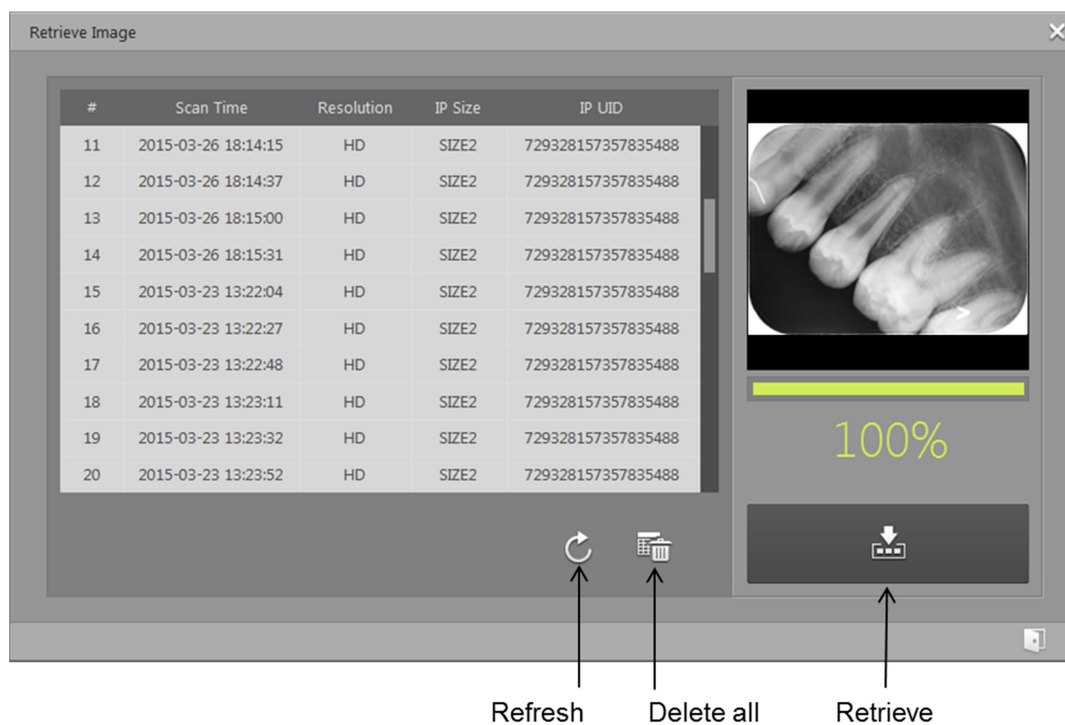


Figure 4 Retrieve Image

6. TWAIN Programming Guide

FireCR Dental TWAIN provide following data transferring mode.

- Native Mode Transfer
- Buffered Memory Mode Transfer

TW_IMAGEINFO Structure is as following

Type	Variable	8Bit	16Bit
TW_FIX32	XResolution	HD: 725.46, SD: 396.57 (pixel/inch)	
TW_FIX32	YResolution	HD: 725.46, SD: 396.57 (pixel/inch)	
TW_FIX32	ImageWidth	Depends on IP size	
TW_FIX32	ImageLength	Depends on IP size	
TW_FIX16	SamplesPerPixel	1	
TW_FIX16	BitsPerSample[8]	8	16
TW_FIX16	BitsPerPixel	8	16
TW_BOOL	Planar	0	
TW_INT16	PixelFormat	1	
TW_UINT16	Compression	0	

Image format and line padding

Transfer Mode	Bit	Image Format	Line Padding
Native	8Bit	Windows DIB	YES
	16Bit	Windows DIB	YES
Buffered Memory	8Bit	RAW	YES
	16Bit	RAW	NO

Image Size

IP Size	HD		SD	
	Width	Height	Width	Height
0	885	628	484	343
1	1143	685	625	375
2	1171	886	640	484
3	1542	771	843	421
4C	1542	1370	843	750

7. Error Messages

Common

Message	Reason & Solution
The CRSwing.dll version does not match. The version number [x.x.x.x] or later is required.	Installed FireCR Dental SDK version is too old. Reinstall latest FireCR Dental SDK.
Cannot load CRSwing.dll. please check dll	FireCR SDK is not installed or CRSwing.dll is not copied to user application folder.
ds: There was an error while prepping the image for scanning	FireCR SDK does not work correctly. Please report to Digiray
Failed to save temporary file to the Documents/FireCrDent	Failed to save image to Document/FireCRDent folder. Please report to Digiray
The temporary file does not exist in the Documents/FireCrDent directory	Failed to read image file at Documents > FireCrDent folder when click the Acquire button. Image is not saved properly. Please report to Digiray
Failed to open temporary file.	Failed to read image file when click the Acquire button. Image is not saved properly. Please report to Digiray

FireCR Dental Pro

Message	Reason
Dongle not found. Please check dongle	Insert correct dongle
Failed to cdxip_dxpp_dental Failed to cdxip_denoise	Please report to Digiray