

**PURPOSE**

This procedure will help the customer understand the features of, and navigate through, the FDX Console V8.1 application and QA functions. For additional guidance on new features in V8.1, refer to the “Quick Guide on New Features in FDX Console V8.1” document.

**NOTE:** Read the manuals that come with the system for more detailed information.

**PROCEDURE**

**1.0 FDX Console Workflow Features and Functions**

**1.1 Register Patient Information**

1.1.1 In the “List” screen mode, select the “RIS” icon to view all of the scheduled studies.



1.1.2 Select the “Registration” icon to access the Registration screen to manually enter patient information if needed.



1.1.3 Select the “Return to the list screen” icon if on the Registration Screen to return to the “List” mode.



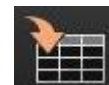
1.1.4 Select the “Next” icon to go to the “Anatomical Region” page to select the specific views for the exam.



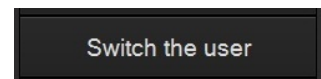
1.1.5 Select the “Start Study” icon to start the study or



Select the “Reserve a study” icon to suspend it to the “Local WL” tab to start later.



1.1.6 Select the Application “Menu” icon, and then select the “Switch the user” icon to place the tech initials in the study (if configured). **NOTE:** Starting with FDX V8.1, a barcode reader can be used to “Switch the user” if a barcode exists on the technologist’s ID badge.



**1.2 Available Exposure Menu functions in the Study Folder**

1.2.1 Select the “Add menus” icon to pick menus not already on the list.



1.2.2 Select the “Change menus” icon to change the highlighted menu to a different menu choice. **NOTE:** When an image is changed, all previous QA functions are reset except **Shadow Masking (Shuttering) and Trimming.**



1.2.3 Select the “Add exposures” icon to create a duplicate of the highlighted menu.



1.2.4 Select the “Setting for improperly exposed images” icon to “Fail” the image. This prevents the image from being sent to the PACS or Print destination.



**1.3 Obtain the Clinical Images**

- 1.3.1 Select proper exposure techniques on the X-Ray Generator.
- 1.3.2 Select the desired Exam menu on the FDX console.
- 1.3.3 For **FDR**, ensure the “Ready” light is Green, and then take the X-Ray exposure.

**NOTE:** Sound for “Ready” notification can be configured starting in FDX V8.0



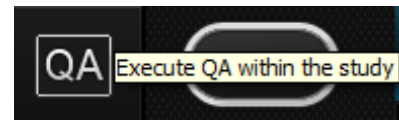
- 1.3.4 For **Cassette-based CR** – Scan the barcode window of the cassette (may not be required for all CR systems). Insert the cassette into the Reader Unit.
- 1.3.5 Evaluate the image on the FDX Console. Modify only if needed.

QA the images as needed using the QA shortcut toolbar below the image.

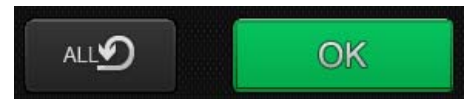
\* See “QA Shortcut Icon descriptions” for additional details. (**NOTE:** QA Shortcuts are configurable and may not reflect the icons displayed below.)



- 1.3.6 You can also select the “Execute QA within the study” icon to go to the detailed QA mode.



- 1.3.7 After entering the QA Mode, the “All Reset” button just to the left of the “OK” button can be used to reset some QA functions. The following functions can **NOT** be reset with this button: Changing exposure menus, Shadow Masking (Shuttering), Trimming, Stitching and ES (Energy Subtraction) parameter adjustment (ES is an option available only on the AcSelerate system).



- 1.3.8 Once you are in the QA mode, you can repeat a function on more than one image by selecting the “Next image” icon

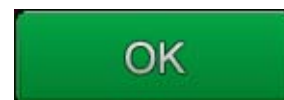


or




















“Previous image” icon to scroll through the images in the exam. **NOTE:** If any changes are made to an image, if you go to another image using this function, the “All Reset” function will not work on the prior image.



- 1.3.9 When finished with **all** QA functions on **all** images, select the “QA Completed” icon to return to the acquisition screen.



**\* QA Shortcut Icon descriptions (NOTE: These are configurable, so they may be different)**

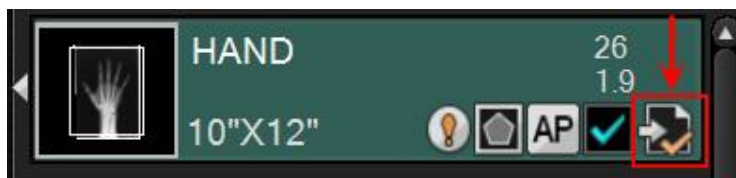
Rotate 90 degrees to the left		Modify S value / L value to change Density or Contrast	
Rotate 90 degrees to the right		Image Magnification	
Rotate 180 degrees		Full Screen Display	
Horizontal Flipping (Left to Right)		Fit in Window Display	
Marker and Free Text Annotation		Smart-QA (Configurable)	
Shutter or Blackening Processing		1-Up or 6-Up Display Toggle	
Imaging Trimming		Image Overlay Toggle (Display or Hide)	 
Copy Image function		Highlight Parameter Display	  

**1.4 Individual Image Distribution (available starting in FDX V7.3)**

1.4.1 After image acquisition, to send an image prior to completing the study, highlight the menu (it will turn green), select the “Distribution by each image” icon and the image will be distributed to PACS and/or Print Destinations.



1.4.2 The menu will display the “Delivered” icon to show which images have been distributed prior to study completion.



**1.5 Study Completion and Distribution**

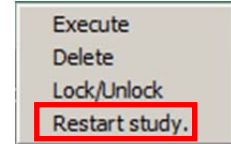
1.5.1 Upon exam completion, select the “Study Completed” icon and the study will be distributed to PACS and/or Print Destinations.



1.5.2 To restart an already completed study from any tab, highlight the study to be reopened and select the green “Restart study” icon at the top of the screen.

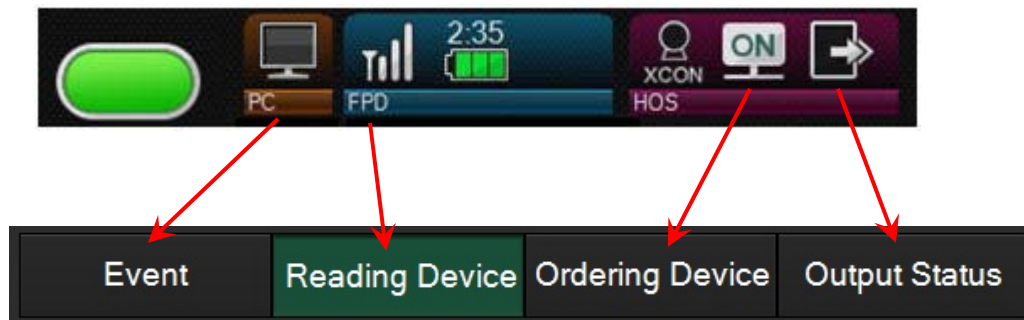


1.5.3 You can also restart a completed study from any tab by right-clicking on the study and select “Restart study” from the pop-up menu.



1.5.4 The information for Events, Reading Device, Ordering Device and the Output Status are accessed by selecting any of the following icons

**NOTE:** These icons are configurable starting in V7.3, so they may look different or be in a different order in the application at your site.



**2.0 Detailed descriptions for all QA Functions**

**2.1 Shadow Masking Processing (Shuttering)**

2.1.1 Select the “Shadow-Masking Processing” icon to shutter around the image to prevent excess white areas in the image.



2.1.2 Select the “Input Rectangular Region” icon for square or rectangular shuttering. Left click the top left of the image and bottom right of the image to complete the rectangle.



2.1.3 Select the “Input Polygonal Region” icon to manually draw the shutter around the desired area. Click all points of the desired shape making sure to finish where you started.



2.1.4 Select the “Deleting one of the input points” icon if needed.



2.1.5 Select the “Deleting all input points” icon to erase all points and start over.



2.1.6 Select the “Preview” icon to see the shutter area selected above.



2.1.7 Select the “Clear preview” icon if the Auto Shuttering masked any anatomy of interest. **NOTE:** By selecting “Clear preview,” you can preview the image so that the blackened area has been cleared. By selecting “Apply” during preview display, the clearing of the blackened area is confirmed. By selecting “Clear preview” again without selecting “Apply,” the preview display is cancelled.



2.1.8 Select the “Invert the region (outside)” icon in order to change it to “Invert the region (inside)” if needed to input a black mask over an inadvertent lead marker in the image.



2.1.9 Select the “QA Home” icon to **save** the changes and continue performing other QA functions.



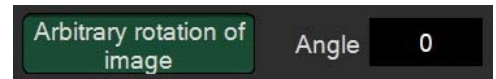
**2.2 Image Trimming Function**

2.2.1 Select the “Trimming” icon to manually trim the image size as needed to ensure the correct size image is sent to PACS. This function can change the Auto-Trimming size.



2.2.2 Auto-Trimming is set to automatically see X-ray collimation and adjust the size of the image sent to PACS based on that data. This allows for a larger size image to be viewed on the PACS monitors.

2.2.3 The “Trimming” section has the “Arbitrary rotation of image” button at the bottom & since it will end up in this area even if you choose the function from the “Rotation” pop-up menu, it is quicker to just pick the function from the “Trimming” section. When you first select the icon, it will show a “dash” as the “Angle” then, once you start to rotate the image (either from the two-point selection or the real-time rotation with the mouse), the “0” will change to a number to show the new angle compared to the original angle. After the rotation function has been completed, if you need to undo the rotation, choose the “All Reset” button just to the left of the “OK” button.



**NOTE:** If an image is rotated by an arbitrary angle (except 0°, 90°, 180° or 270°), the image may look different after the rotation than it did before the rotation since the pixels are interpolated. For an image rotated arbitrarily, if it is then rotated 90° to left or right, 180°, or reversed vertically or horizontally, the adjusted angle will be reset and then rotated based on the original angle.

**2.3 Image Rotation and Flipping (Reversal)**

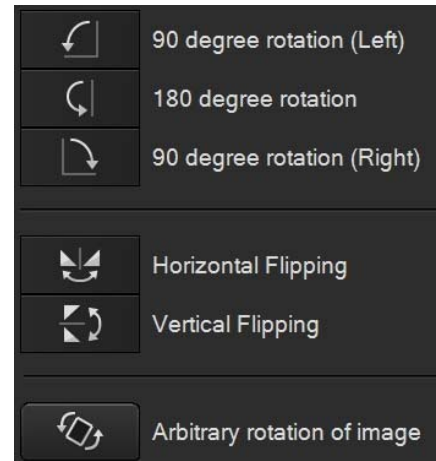
2.3.1 Select the “Image Rotation/Reversal” icon to perform any Rotation or Flipping action on the image.



2.3.2 Select the individual rotation or flipping icon to perform the appropriate action.

**NOTE:** The “Arbitrary rotation of image” (Free Rotation) icon can be chosen from the choice of buttons available on this pop-up, but after selecting this choice, it will take you to the “Trimming” screen since the image may need to be trimmed or centered differently after rotation.

**NOTE:** See the “Trimming” section for more information on the “Arbitrary rotation of image” (Free Rotation) function.



**2.4 Markers and Free Text Annotation**

2.4.1 Select the “Markers” icon to add electronic markers or type in custom free text annotations.



2.4.2 Left click on the desired marker, move the mouse pointer into the image where you want to put the marker and left click.

2.4.3 Select the “TEXT” icon to access the Free Text area. Select the desired font size and left click the black box (turns white when selected). Left click on the anatomical area where the text is desired. Left click on the text box and move as needed.



2.4.4 To remove a marker or annotation, left click on the marker or text box and select “Trash can” icon to remove the marker or annotation from the image.



2.4.5 Select the “QA Completed” icon when all QA functions have been completed.



**NOTE:** Multiple QA functions can be completed (such as Markers & Shuttering) without leaving the QA process.

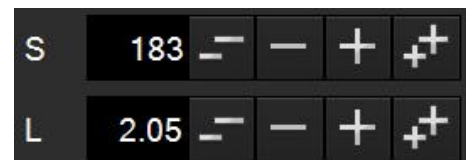
**2.5 Changing the “S” Value and / or “L” Value of an Image**

2.5.1 Select the “S value/L value” icon to modify the Density (S value) or Contrast (L value) of an image.



2.5.2 **PRECAUTION** – Only change these settings if the image displays significantly high or low density in the image.

**DO NOT** use this function to make minor tweaks to the image as the Physician can do this at the PACS workstation.



**2.6 Make a copy of an existing image using the “Image Copy” function**

2.6.1 Acquired images can be copied into another menu during study acquisition. For example, this allows “standard” Chest images to be copied into pre-existing PICC Line or Inverted Image menus.

2.6.2 To copy an image, choose the image to be copied (thumbnail image with a white triangle to the left of it, pointing to the left side of the screen).



2.6.3 Next, select the destination menu where you want the copied image to appear.



2.6.4 Next, select the “Image Copy” button.

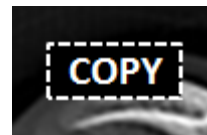


2.6.5 The copied image will take on the processing parameters of the menu that it is copied to, however, Exposure Results cannot be copied from a source image.

**NOTE:** Images cannot be copied to menus with existing images or IP registered CR exposure menus.

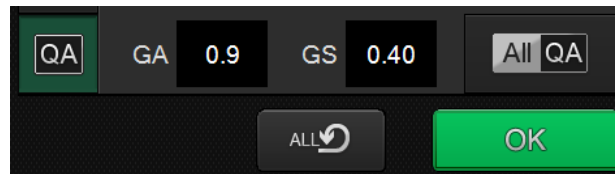
**NOTE:** In six-image display mode, the “Image Copy” button cannot be selected.

2.6.6 A “Copy” marker will automatically be placed in the image. The “Copy” marker can be edited or moved, but not deleted.



**2.7 Using GA (Contrast) and GS (Density) to change Image Contrast and Density**

2.7.1 If enabled in Service utility, the console can also manipulate image contrast and density (GA and GS) via mouse movements.



2.7.2 After the GA & GS adjustment function has been completed, if you need to undo the GA & GS adjustment, choose the “All Reset” button just to the left of the “OK” button to go back to the original processing parameters.

**NOTE:** Depending on what QA functions were previously performed, use of the “All Reset” button may reset other functions in addition to the GA & GS.

## 2.8 Smart-QA Functions (“S” Value & EI/DI)

2.8.1 If an exposure menu has any of the Smart-QA factors that are out of range, such as the “S” Value or the EI/DI Value, then there will be an exclamation point on the menu.



2.8.2 Select the Smart-QA icon to see what factors are out of range.



2.8.3 This example shows the “S” Value (895) is out of range for this image.

Analysis results overview

Item	Result	
S value/L value	895/2.23	!
EI value/DI value	704/-0.9	OK

Description

S/L-value warning function

It judges whether the S value and the L value are within the range that includes the min./max. value set to exposure menu. Please correct the S value and L value if they are outside of the range, as necessary.

Analysis result details

Analytical items	S value/L value
Judge	Confirmation required
Overview	S:895 L:2.23 (S:100~600 L:1.00~3.00)

Result details

There is a possibility that EDR may not perform correctly or the exposure dose may be inappropriate.

Coping method

Please confirm the image, and adjust the S value or the L value as necessary.

## 2.9 Other QA Functions

2.9.1 Select the “Exposure List” icon to display all images in the exam. This will make it easy to quickly do QA on all of the images in a study.



2.9.2 Select the “Order information” icon to display the Exposure Menu name.



By selecting the “three dots” icon next to the Exposure Menu name, it is possible to “Change Exposure Menu.” This is useful if the view had been processed under an incorrect exposure menu. **NOTE:** When an image is changed, all previous QA functions are reset except **Shadow Masking (Shuttering) and Trimming.**





2.9.3 Select the “Redeliver Study” icon to redeliver a completed study to the default destination.



2.9.4 Select the “Print” icon to reprint individual images in a completed study.



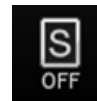
2.9.5 Select the “All QA” icon to enable all QA functions to be displayed.



2.9.6 Select the “QA Completed” icon to leave the QA function.

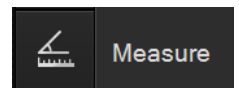


2.9.7 Select the “Highlight Parameter Display” function by clicking on the “Image processing type (Single)” icon to change to the “Image processing type (Left)” processing parameters, then click on the “Image processing type (Left)” icon to change to the “Image processing type (Right)” processing parameters. Each click of the icon will cycle through the three processing parameter choices (Single, Left & Right).



**NOTE:** This function can be useful for identifying PICC lines or foreign objects on Chest, Abdomen & Pelvis exams.

2.9.8 Select the “Measurement & Angle” function by clicking on the “Measure” icon to perform either the Measurement or the Angle function. For detailed information, refer to the “Quick Guide on New Features in FDX Console V8.1” document.



2.9.9 Select the “Move Image” icon to move images from one folder to another. For additional information, refer to the Quick Guide on the “Move Image” function.



2.9.10 Virtual Grid is an “Optional” function that can be used with FDX V8.0 or higher and a D-EVO or D-EVO II detector.

**NOTE:** This function can **NOT** be used with CR devices.



### 3.0 Memory Exposure Mode

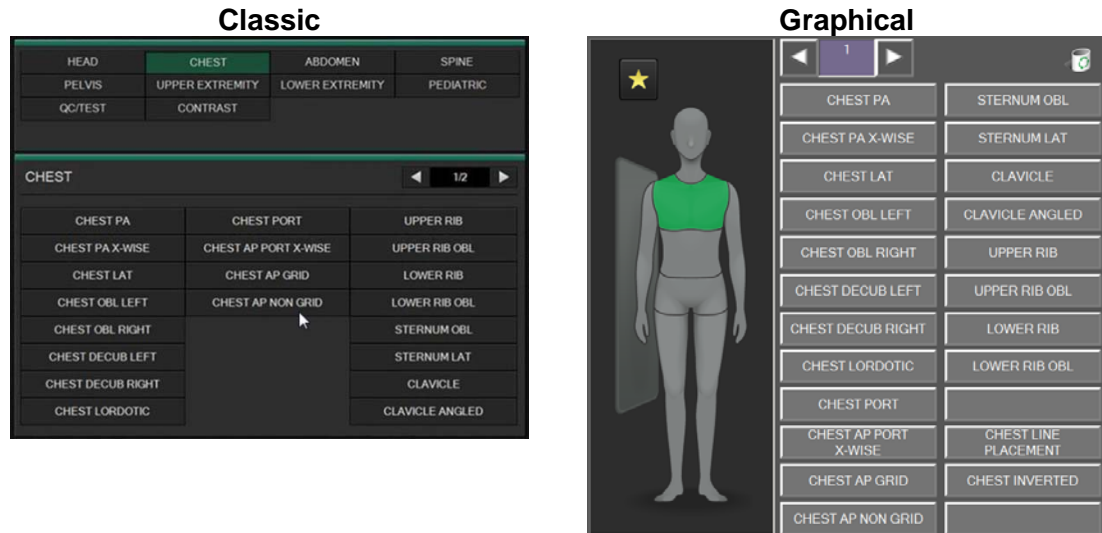
3.1 Only FDR D-EVO II detectors can use the “Memory Exposure Mode” in conjunction with FDX V8.0 or higher, and certain software features must be enabled.

3.2 For more information, refer to the FDX V8.1 Reference Guide, #897N102771D, section 4.3, for details.

**4.0 Graphical Menu Display**

4.1 Starting with FDX Console V8.1, the Anatomical menu selection area can be set up as either the Classic (buttons) display, or the new Graphical display.

4.2



**5.0 Image Stitching Function (Optional)**

5.1 Select the “Stitching” icon to perform automatic stitching or the “Undo Stitching” icon to separate a stitched image in order to redo the automating stitching process.



5.2 Select the “Manual Stitching” icon, which can be performed on stitched Scoliosis or Long Leg images from a CR Reader using a Long View Cassette or stitched images from an AcSelerate or FDR D-EVO system.



5.3 For more information, refer to FDX V8.1 Options Reference Guide, #897N102772E, and see the appropriate section for FCR, FDR D-EVO or FDR AcSelerate for details.

**6.0 General RIS Browser Software (Optional)**

6.1 Accessing a web-based RIS can be performed starting on FDX Console V8.0.

6.2 For more information, refer to FDX V8.1 Options Reference Guide, #897N102772E, for details.